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Digital Financial Innovation Adoption and SME Financial Performance: The Mediating Role of Financial Inclusion in Developing Economies

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ABSTRACT

Purpose: This paper develops a theory-driven conceptual framework that explains this relationship by positioning financial inclusion as a mediating mechanism.

Methodology: The study employs a structured review of relevant literature and integrates insights from the Resource-Based View (RBV), the Unified Theory of Acceptance and Use of Technology (UTAUT), and Financial Intermediation Theory. DFI adoption is conceptualized as a multidimensional construct comprising the decision to adopt, integration into business operations, and diversity of digital financial innovations utilized.

Findings: The review suggests that DFI adoption improves operational efficiency, liquidity management, and business growth. These benefits are largely achieved through enhanced financial inclusion, which strengthens SMEs' access to, usage of, affordability of, and quality engagement with formal financial services, thereby improving financial performance.

Unique Contribution to Theory, Policy and Practice: The study contributes to theory by integrating RBV, UTAUT, and Financial Intermediation Theory in to a unified conceptual framework explaining how DFI adoption influences SME financial performance through financial inclusion. It further advances knowledge by proposing a multidimensional conceptualization of DFI adoption and identifying financial inclusion as the key transmission mechanism. The framework offers practical guidance for policymakers, financial institutions, and SME managers seeking to promote financial inclusion and sustainable SME growth through digital financial innovations.

Keywords: *Digital Financial Innovation Adoption, Financial Inclusion, SME Financial Performance, Small and Medium Enterprises, Developing Economies.*

JEL Codes: *G21, G23, O33, L26*

1. INTRODUCTION

Small and Medium Enterprises (SMEs) constitute the backbone of most economies worldwide and are widely recognized as critical drivers of employment creation, innovation, poverty reduction, and economic growth (OECD, 2023; World Bank, 2023). In developing economies, SMEs account for more than 90% of businesses and contribute substantially to gross domestic product and employment generation (International Finance Corporation (IFC), 2026). Despite their economic significance, SMEs continue to face persistent challenges, particularly in accessing affordable and appropriate financial services required to support business growth and sustainability (Beck & Cull, 2014; Demirgüç-Kunt et al., 2022).

The rapid advancement of digital technologies has transformed the global financial services landscape, leading to the emergence of Digital Financial Innovations (DFIs) such as mobile money services, digital payment platforms, internet banking, digital lending, agency banking, blockchain-enabled financial services, and other fintech solutions (Gomber et al., 2017; Ozili, 2023). These innovations are increasingly viewed as important mechanisms for addressing financial market inefficiencies by reducing transaction costs, expanding access to financial services, enhancing convenience, and improving the efficiency of financial intermediation (Demirgüç-Kunt et al., 2022; Suri & Jack, 2016).

The adoption of digital financial innovations has attracted significant attention among policymakers, financial institutions, development partners, and scholars because of its potential to improve enterprise performance and promote inclusive economic development (UNCTAD, 2024; World Bank, 2023). Existing studies suggest that SMEs utilizing digital financial technologies benefit from enhanced operational efficiency, improved cash flow management, greater financial transparency, reduced transaction costs, and expanded market opportunities (Costa et al., 2023; Manasseh et al., 2023; Massa et al., 2023). Consequently, digital financial innovations are increasingly recognized as strategic resources capable of enhancing firm competitiveness and financial sustainability.

Despite growing scholarly interest, empirical findings regarding the relationship between digital financial innovation adoption and SME financial performance remain inconclusive. While several studies report positive effects on profitability, sales growth, and operational efficiency (Massa et al., 2023; Ugwuanyi et al., 2022), others suggest that performance outcomes depend on contextual factors such as digital literacy, organizational capabilities, institutional support, and infrastructure quality (Lu et al., 2023; Raut et al., 2021). These inconsistencies indicate that the relationship between DFI adoption and SME performance may be more complex than direct-effect models commonly reported in the literature.

One explanation for these divergent findings lies in the conceptualization of adoption itself. Much of the existing literature treats adoption as a binary event, focusing primarily on whether a firm adopts a particular technology rather than examining how extensively it is integrated into business operations or the variety of digital financial services utilized (Ozili, 2023; Venkatesh et al., 2003). Such approaches may inadequately capture the organizational capabilities and strategic value derived from digital financial innovations. Recent studies therefore call for multidimensional perspectives that recognize adoption as a process involving technology acceptance, operational integration, and utilization intensity (Eton et al., 2021; Lu et al., 2023).

In addition, growing evidence suggests that financial inclusion may represent an important mechanism through which digital financial innovations influence SME financial performance. Financial inclusion refers to the availability, accessibility, affordability, and effective use of formal financial services by individuals and businesses (Demirgüç-Kunt et al., 2018; Ozili, 2021). Through digital financial platforms, SMEs are increasingly able to access payment systems, savings products, credit facilities, insurance services, and other financial solutions that were previously difficult to obtain (Demirgüç-Kunt et al., 2022; Suri & Jack, 2016). Enhanced financial inclusion has been associated with improved investment capacity, stronger liquidity positions, better risk management practices, and superior business performance outcomes (Kobugabe & Rwakihembo, 2022).

Nevertheless, the mediating role of financial inclusion in the relationship between digital financial innovation adoption and SME financial performance remains insufficiently explored. Existing studies have predominantly focused on direct relationships while paying limited attention to the processes through which digital financial innovations generate financial outcomes (Bakashaba et al., 2024; Manasseh et al., 2023). Furthermore, theoretical explanations remain fragmented, with most studies relying on isolated theoretical perspectives that fail to simultaneously capture technological, organizational, and financial intermediation dimensions of digital finance adoption.

To address these gaps, this paper develops a theory-driven conceptual framework explaining how the adoption of digital financial innovations influences SME financial performance through financial inclusion. The framework integrates Resource-Based View Theory (Barney, 1991), the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), and Financial Intermediation Theory (Diamond, 1984) to provide a comprehensive explanation of the relationships among digital financial innovation adoption, financial inclusion, and SME financial performance. Specifically, the study conceptualizes digital financial innovation adoption as a multidimensional construct comprising the decision to adopt, integration into business operations, and diversity of digital financial innovations utilized by SMEs.

This paper contributes to the literature in four important ways. First, it synthesizes fragmented literature on digital financial innovations, financial inclusion, and SME financial performance into an integrated conceptual framework. Second, it advances a multidimensional conceptualization of digital financial innovation adoption that extends beyond conventional binary adoption measures. Third, it positions financial inclusion as a critical mediating mechanism through which digital financial innovations influence SME financial performance. Finally, it integrates complementary theoretical perspectives to provide a more comprehensive explanation of digital finance adoption and enterprise performance, particularly within developing economy contexts where financial exclusion remains a significant constraint to business growth.

2. LITERATURE REVIEW, THEORETICAL FOUNDATIONS, AND PROPOSITION DEVELOPMENT

2.1 Digital Financial Innovation Adoption and SME Financial Performance

Digital Financial Innovations (DFIs) refer to technology-enabled financial products, services, and processes that facilitate the creation, delivery, and utilization of financial services through digital platforms (Ozili, 2023). These innovations include mobile money services, digital payment systems, internet banking, digital lending platforms, agency banking, crowdfunding platforms, and other fintech-enabled financial solutions. The rapid diffusion of these innovations has transformed traditional financial intermediation by reducing transaction costs, increasing convenience, improving information flows, and expanding access to financial services for businesses and individuals (Demirgüç-Kunt et al., 2022; Gomber et al., 2017).

The growing prominence of DFIs has generated considerable scholarly interest regarding their influence on SME performance. Existing literature suggests that digital financial innovations enhance enterprise performance through several mechanisms. First, digital payment systems improve transaction efficiency by reducing processing time, administrative costs, and reliance on cash-based transactions (Ozili, 2023). Second, digital lending platforms improve access to credit by leveraging alternative data sources and automated credit assessment mechanisms, thereby reducing financing constraints commonly experienced by SMEs (World Bank, 2023). Third, digital financial tools facilitate real-time financial monitoring and record keeping, enabling improved financial planning and decision-making (Costa et al., 2023).

Despite these potential benefits, empirical findings remain mixed. While numerous studies report positive associations between DFI adoption and SME financial performance (Massa et al., 2023; Ugwuanyi et al., 2022), others suggest that adoption alone does not necessarily translate into improved financial outcomes (Lu et al., 2023; Raut et al., 2021). In many cases, performance gains appear contingent upon organizational capabilities, digital literacy, managerial competence, and the extent to which digital financial innovations are embedded within business operations. These inconsistencies suggest that DFI adoption should not be viewed merely as a technological event but rather as an organizational process through which firms develop and deploy strategic capabilities.

The Resource-Based View (RBV) offers a useful theoretical explanation for this relationship. According to RBV, firms achieve superior performance through the acquisition and effective deployment of valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). Within this perspective, DFIs may constitute strategic organizational resources capable of enhancing efficiency, responsiveness, and competitive positioning. However, RBV further suggests that competitive advantage arises not from resource possession alone but from the firm's ability to integrate and utilize those resources effectively. Consequently, SMEs that successfully deploy digital financial innovations as organizational capabilities are more likely to achieve superior financial outcomes than those that merely adopt digital technologies without meaningful integration.

A critical limitation in the existing literature concerns the conceptualization of DFI adoption itself. Most studies operationalize adoption as a binary variable that classifies firms as adopters or non-adopters (Costa et al., 2023; Ozili, 2021). While such measures provide useful insights into technology diffusion, they inadequately capture the depth, intensity, and strategic significance of digital finance utilization. For example, two SMEs may both adopt mobile money services, yet differ substantially in the extent to which those services are integrated into daily operations or complemented by other digital financial solutions. Treating these firms as equivalent adopters obscures important variations in organizational capability development and performance outcomes.

To address this limitation, the present study conceptualizes DFI adoption as a multidimensional construct comprising three interrelated dimensions: the decision to adopt digital financial innovations, the integration of DFIs into business operations, and the diversity of digital financial innovations utilized. The decision to adopt reflects managerial willingness and commitment to embracing digital financial technologies. Integration refers to the extent to which DFIs are embedded within routine business activities such as payments, cash flow management, financial planning, and record keeping. Diversity captures the range of digital financial services employed by SMEs, including mobile money, digital payments, internet banking, digital lending, and digital savings products. This multidimensional conceptualization aligns with RBV's emphasis on capability deployment and provides a more comprehensive understanding of how digital financial innovations contribute to organizational performance.

Drawing upon the foregoing discussion, it is argued that effective adoption of digital financial innovations enhances operational efficiency, financial management, resource mobilization, and business competitiveness, thereby improving SME financial performance.

Proposition 1 (P1): Digital Financial Innovation adoption positively influences SME financial performance.

2.2 Digital Financial Innovation Adoption and Financial Inclusion

Financial inclusion has emerged as a central objective of economic development policy and financial sector reform worldwide. It generally refers to the availability, accessibility, affordability, and effective usage of formal financial services by individuals and businesses (Demirgüç-Kunt et al., 2018; Ozili, 2021). For SMEs, financial inclusion encompasses access to transaction accounts, savings products, credit facilities, insurance services, and other financial products necessary for enterprise growth and sustainability.

Historically, SMEs have experienced substantial barriers to financial inclusion due to information asymmetries, high transaction costs, geographic constraints, collateral requirements, and limited financial infrastructure (Beck & Cull, 2014). These barriers often result in financial exclusion, restricting firms' ability to mobilize resources, invest in productive activities, and expand operations. The emergence of digital financial innovations has been widely recognized as a transformative force capable of addressing many of these constraints.

Digital financial innovations facilitate financial inclusion by reducing the costs and complexities associated with accessing financial services. Mobile money platforms enable firms to conduct transactions without physical proximity to financial institutions. Digital payment systems enhance transaction efficiency and transparency, while fintech lending platforms expand access to credit through alternative credit assessment mechanisms (Ozili, 2023; Suri & Jack, 2016). These innovations not only improve access to financial services but also encourage more frequent and meaningful engagement with formal financial systems.

Financial Intermediation Theory provides a strong theoretical foundation for understanding this relationship. The theory posits that financial intermediaries play a critical role in reducing information asymmetries and transaction costs between surplus and deficit economic units (Diamond, 1984). Digital financial platforms increasingly perform these intermediary functions by leveraging technology to facilitate financial transactions, generate transaction histories, improve information availability, and connect SMEs with financial service providers more efficiently than traditional mechanisms.

Empirical evidence supports the proposition that SMEs adopting digital financial innovations experience higher levels of financial inclusion. Studies conducted across developing and emerging economies demonstrate that firms utilizing mobile money services, digital payments, and fintech platforms are more likely to access formal credit, maintain financial records, utilize savings products, and engage with diverse financial services (Demirgüç-Kunt et al., 2022; Kobugabe & Rwakihembo, 2022). Nevertheless, variations in digital literacy, trust, regulatory environments, and technological infrastructure continue to influence the extent to which DFI adoption translates into financial inclusion.

Collectively, the literature suggests that digital financial innovations function as important enablers of financial inclusion by reducing barriers to participation in formal financial systems and facilitating broader utilization of financial services.

Proposition 2 (P2): Digital Financial Innovation adoption positively influences financial inclusion among SMEs.

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2.3 Financial Inclusion and SME Financial Performance

Financial inclusion has increasingly been recognized as a critical determinant of enterprise performance and economic development. Theoretical and empirical evidence suggests that firms benefiting from access to affordable and appropriate financial services are better positioned to achieve growth, profitability, innovation, and long-term sustainability (World Bank, 2023).

Several mechanisms explain the relationship between financial inclusion and SME financial performance. First, access to formal credit enables SMEs to invest in productive assets, technological improvements, and business expansion opportunities. Second, savings products improve liquidity management and strengthen firms' ability to withstand economic shocks. Third, access to payment systems facilitates efficient transactions and enhances market participation. Fourth, insurance products help firms mitigate risks associated with operational uncertainties and adverse business conditions (Demirgüç-Kunt et l., 2022).

Beyond access, recent literature emphasizes the multidimensional nature of financial inclusion. Merely possessing a bank account does not necessarily imply meaningful participation in the financial system. Effective usage, affordability, accessibility, and quality of financial services are equally important dimensions influencing enterprise outcomes (Ozili, 2021). SMEs that actively utilize formal financial services are more likely to maintain accurate financial records, strengthen financial discipline, improve cash flow management, and make informed investment decisions.

Empirical studies consistently demonstrate positive relationships between financial inclusion and SME performance indicators such as profitability, revenue growth, operational efficiency, and business sustainability (Kobugabe & Rwakihembo, 2022). Financially included enterprises generally possess greater capacity to mobilize resources, exploit business opportunities, and respond effectively to market challenges than financially excluded firms.

Accordingly, financial inclusion is expected to serve as an important driver of SME financial performance.

Proposition 3 (P3): Financial inclusion positively influences SME financial performance.

2.4 Research Gap and Conceptual Advancement

Despite substantial growth in digital finance research, important gaps remain within the literature. First, most studies conceptualize DFI adoption as a binary phenomenon, thereby overlooking differences in adoption intensity, integration, and utilization diversity. Second, although studies separately examine relationships between DFI adoption and SME performance, and between financial inclusion and SME performance, relatively limited research explicitly investigates financial inclusion as a mediating mechanism linking DFI adoption to enterprise performance outcomes. Third, existing studies frequently rely on single theoretical perspectives, resulting in fragmented explanations of digital finance adoption and its consequences.

The present study addresses these limitations by advancing a multidimensional conceptualization of DFI adoption and integrating Resource-Based View Theory, Unified Theory of Acceptance and Use of Technology, and Financial Intermediation Theory into a unified explanatory framework. Furthermore, the study positions financial inclusion as a central transmission mechanism through which digital financial innovations generate financial performance outcomes among SMEs.

2.5 Theoretical Synthesis and Mediating Role of Financial Inclusion

The integration of RBV, UTAUT, and Financial Intermediation Theory provides a comprehensive explanation of the relationships among DFI adoption, financial inclusion, and SME financial performance. UTAUT explains the behavioral and technological factors influencing SME adoption of digital financial innovations, emphasizing performance expectancy, effort expectancy, social influence, and facilitating conditions as determinants of technology acceptance and utilization (Venkatesh et al., 2003).

RBV extends this explanation by illustrating how adopted digital financial innovations can be transformed into strategic organizational capabilities that generate competitive advantage and superior performance outcomes (Barney, 1991). Financial Intermediation Theory complements these perspectives by explaining how digital financial innovations reduce information asymmetries and transaction costs, thereby enhancing financial inclusion and facilitating access to formal financial services (Diamond, 1984).

Collectively, these theoretical perspectives suggest that digital financial innovations create value not merely because they are adopted but because they facilitate deeper integration of SMEs into formal financial systems. Through improved financial inclusion, SMEs gain access to resources, financial products, information, and opportunities that support business growth and performance enhancement. Consequently, financial inclusion is conceptualized as a critical transmission mechanism through which DFI adoption influences SME financial performance.

Proposition 4 (P4): Financial inclusion mediates the relationship between Digital Financial Innovation adoption and SME financial performance.

3. PROPOSED CONCEPTUAL FRAMEWORK

Based on the reviewed literature and integrated theoretical foundations, this study proposes a conceptual framework in which Digital Financial Innovation Adoption serves as the independent construct, Financial Inclusion functions as the mediating construct, and SME Financial Performance represents the dependent construct.

Digital Financial Innovation Adoption is conceptualized as a multidimensional construct comprising: (i) decision to adopt digital financial innovations, (ii) integration of DFIs into business operations, and (iii) diversity of digital financial innovations utilized. Financial Inclusion encompasses access, usage, affordability, and quality of financial services. SME Financial

Performance is reflected through profitability, liquidity, revenue growth, operational efficiency, and financial sustainability.

The framework proposes both direct and indirect pathways through which DFI adoption influences SME financial performance. The direct pathway reflects the strategic value generated through digital finance utilization, while the indirect pathway operates through enhanced financial inclusion. This mediation pathway constitutes the central theoretical contribution of the present study and provides a more comprehensive explanation of how digital financial innovations contribute to SME performance within developing and emerging economies.

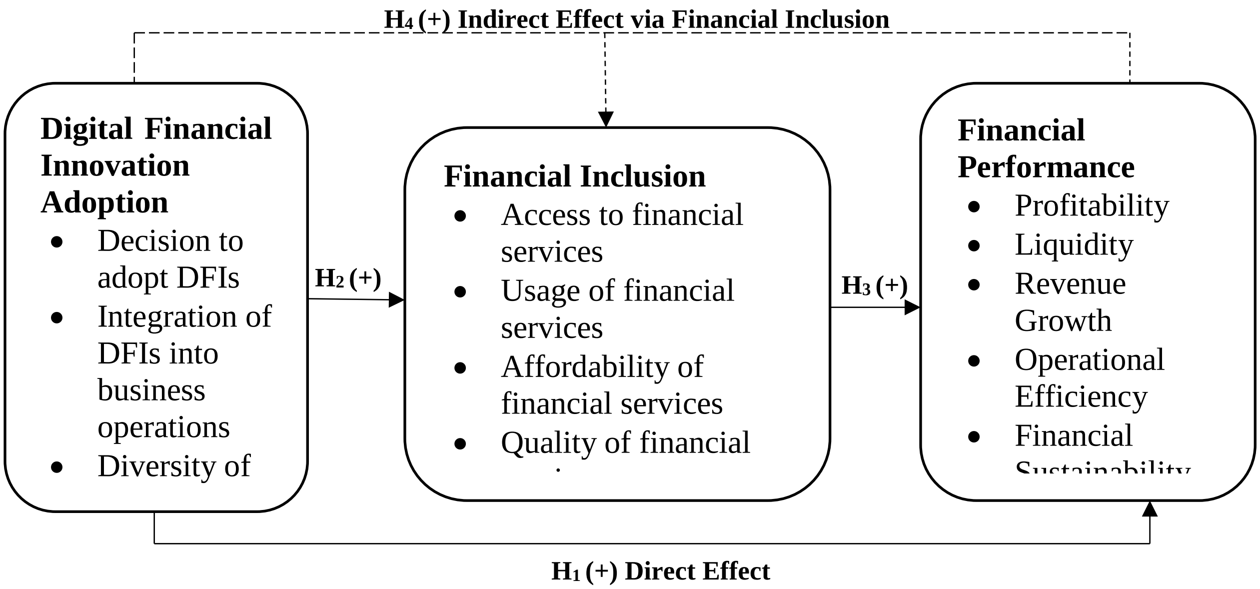

Figure 1: *Conceptual Framework of Digital Financial Innovation Adoption, Financial Inclusion, and SME Financial Performance in Developing Economies*

Notes: H_1 = Direct effect of Digital Financial Innovation Adoption on SME financial performance; H_2 = Effect of Digital Financial Innovation Adoption on Financial Inclusion; H_3 = Effect of Financial Inclusion of SME financial performance; H_4 = Indirect effect of Digital Financial Innovation Adoption on SME financial performance through Financial Inclusion and (+) denotes a positive relationship.

Source: Author's Conceptualization (2026)

4. THEORETICAL CONTRIBUTIONS AND PRACTICAL IMPLICATIONS

4.1 Theoretical Contributions

This study contributes to the growing body of literature on digital finance, financial inclusion, and SME performance in several significant ways.

First, the study advances existing knowledge by reconceptualizing Digital Financial Innovation (DFI) adoption as a multidimensional construct. Existing studies frequently operationalize DFI adoption using binary indicators that classify firms as adopters or non-adopters (Costa et al., 2023; Ozili, 2021). While such measures provide useful insights into technology diffusion, they inadequately capture the depth, intensity, and strategic significance of digital finance utilization within SMEs. Consequently, this study extends prior conceptualizations by proposing that DFI adoption comprises three interrelated dimensions: the decision to adopt digital financial innovations, the integration of DFIs into business operations, and the diversity of digital financial innovations utilized. This perspective aligns with the Resource-Based View (RBV), which emphasizes that competitive advantage emerges not merely from resource possession but from effective resource deployment and capability development (Barney, 1991).

Second, the study contributes to the literature by positioning financial inclusion as a critical mediating mechanism linking DFI adoption and SME financial performance. Previous studies have largely focused on direct relationships between digital financial innovation adoption and organizational outcomes (Manasseh et al., 2023; Ugwuanyi et al., 2022). Consequently, limited attention has been devoted to understanding the mechanisms through which digital financial innovations generate financial value. By conceptualizing financial inclusion as a mediating construct, this study offers a more nuanced explanation of how digital financial innovations translate into improved financial performance. This argument is consistent with emerging evidence suggesting that digital financial technologies create value by enhancing firms' access to, usage of, and participation in formal financial systems (Demirgüç-Kunt et al., 2022; Ozili, 2023).

Third, the study contributes theoretically through the integration of Resource-Based View Theory (RBV), Unified Theory of Acceptance and Use of Technology (UTAUT), and Financial Intermediation Theory. Existing studies often rely on a single theoretical perspective to explain digital finance adoption and performance outcomes (Lu et al., 2023; Raut et al., 2021). While these perspectives provide valuable insights, they frequently offer partial explanations of complex organizational phenomena. The present study addresses this limitation by integrating complementary theoretical lenses to explain the technological, organizational, and financial dimensions of digital finance adoption.

Specifically, UTAUT explains the determinants of technology adoption and utilization, including performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). RBV explains how digital financial innovations can be transformed into strategic organizational capabilities capable of generating superior performance outcomes (Barney, 1991). Financial Intermediation Theory explains how digital financial innovations reduce information asymmetries and transaction costs, thereby facilitating access to financial services and enhancing financial inclusion (Diamond, 1984). The integration of these theories provides a holistic understanding of the pathways through which digital financial innovations influence SME financial performance.

Fourth, the study contributes to the emerging digital finance literature by extending theoretical understanding within developing economy contexts. Although digital finance research has expanded significantly over the past decade, much of the literature remains concentrated in developed economies characterized by relatively mature financial systems and advanced technological infrastructure (OECD, 2023; World Bank, 2023). SMEs operating in developing economies frequently encounter financial exclusion, infrastructural limitations, and institutional challenges that influence both technology adoption and business performance (Beck & Cull, 2014). By emphasizing financial inclusion as a key explanatory mechanism, the present study enhances understanding of how digital financial innovations may contribute to inclusive economic development and enterprise growth in such contexts.

Finally, the proposed framework provides a foundation for future empirical research. The conceptual model and propositions developed in this study offer researchers a theoretically grounded basis for testing the direct and indirect effects of DFI adoption on SME financial performance across diverse industries, geographical settings, and organizational contexts (Ozili, 2021; Venkatesh et al., 2003).

4.2 Practical Implications

Beyond its theoretical contributions, this study offers important practical implications for policymakers, financial institutions, SME managers, and development agencies seeking to promote enterprise growth through digital finance.

4.2.1 Implications for Policymakers

The findings suggest that policymakers should view digital financial innovations as strategic instruments for promoting both financial inclusion and SME development. Governments can facilitate digital finance adoption by investing in digital infrastructure, broadband connectivity, mobile network expansion, and digital literacy initiatives (OECD, 2023; World Bank, 2023). Such investments can reduce barriers to digital technology adoption and strengthen SMEs' capacity to engage effectively with formal financial systems.

Furthermore, regulatory frameworks should support innovation while ensuring consumer protection, cybersecurity, data privacy, and financial system stability. Evidence suggests that supportive regulatory environments play a critical role in fostering digital financial ecosystems capable of enhancing financial inclusion and enterprise growth (Demirgüç-Kunt et al., 2022; Ozili, 2023).

4.2.2 Implications for Financial Institutions

The findings underscore the need for banks, microfinance institutions, and fintech firms to develop digital financial products tailored to the unique needs of SMEs. Such products may include digital lending solutions, mobile-based savings products, cash-flow management applications, digital insurance services, and integrated payment platforms (Demirgüç-Kunt et al., 2022; Gomber et al., 2017).

Financial institutions should also invest in customer education and digital literacy programs. Previous studies indicate that technology adoption alone does not necessarily guarantee improved performance outcomes; rather, benefits are more likely to emerge when users possess adequate knowledge and skills to utilize digital financial services effectively (Lu et al., 2023; Raut et al., 2021).

4.2.3 Implications for SME Managers

For SME owners and managers, the findings highlight the strategic value of digital financial innovations as organizational resources capable of enhancing competitiveness and performance. Consistent with RBV, managers should move beyond viewing digital financial technologies as simple transactional tools and instead integrate them into broader business processes, including budgeting, cash-flow management, financial planning, inventory control, and customer relationship management (Barney, 1991; Ozili, 2021).

The study further suggests that SMEs may benefit from adopting a diverse portfolio of digital financial innovations. Firms utilizing multiple complementary digital financial services are likely to achieve higher levels of financial inclusion and stronger financial performance outcomes than firms relying on a single digital financial solution (Manasseh et al., 2023; Ozili, 2023).

4.2.4 Implications for Development Agencies and SME Support Organizations

Development agencies, entrepreneurship support organizations, and business development service providers can play a critical role in promoting digital financial inclusion among SMEs. Capacity-building programs, entrepreneurship training initiatives, and digital skills development interventions may strengthen SMEs' ability to adopt and effectively utilize digital financial innovations (OECD, 2023; World Bank, 2023).

Collaborative partnerships involving governments, financial institutions, technology providers, universities, and development organizations may further accelerate the diffusion of digital financial innovations and promote inclusive enterprise growth. Such multi-stakeholder approaches have been identified as important mechanisms for strengthening digital ecosystems and expanding access to financial services among underserved business populations (Demirgüç-Kunt et al., 2022; Gomber et al., 2017).

Overall, the practical implications suggest that the benefits of digital financial innovations are maximized when adoption is accompanied by effective integration into business operations and meaningful participation in formal financial systems. Financial inclusion therefore represents not only a developmental objective but also a strategic pathway through which SMEs can improve financial performance, resilience, and long-term sustainability.

5. FUTURE RESEARCH AGENDA

5.1 Introduction

The proposed conceptual framework provides a foundation for advancing research on digital financial innovation adoption, financial inclusion, and SME financial performance. While existing studies have contributed significantly to understanding digital finance and enterprise outcomes, important theoretical, methodological, and contextual gaps remain. Addressing these gaps presents opportunities for future research to refine, extend, and empirically validate the relationships proposed in this study.

The future research agenda outlined herein seeks to stimulate scholarly inquiry into the mechanisms, boundary conditions, and contextual factors that shape the relationship between digital financial innovation adoption and SME financial performance. Particular emphasis is placed on the multidimensional nature of DFI adoption and the mediating role of financial inclusion.

5.2 Empirical Validation of the Proposed Framework

The first priority for future research is the empirical validation of the conceptual framework proposed in this study. While the present paper develops theoretically grounded propositions, empirical investigations are required to test the direct and indirect relationships among DFI adoption, financial inclusion, and SME financial performance (Barney, 1991; Venkatesh et al., 2003).

Future studies may employ structural equation modeling (SEM), partial least squares structural equation modeling (PLS-SEM), or longitudinal analytical approaches to examine the proposed relationships. Such investigations would provide evidence regarding the strength, direction, and significance of the relationships specified in Propositions P1-P4. Empirical validation would further establish the robustness and generalizability of the framework across different organizational and geographical contexts.

In particular, future studies should examine whether financial inclusion fully mediates or partially mediates the relationship between DFI adoption and SME financial performance. Such findings would provide important insights into the mechanisms through which digital financial innovations create organizational value.

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5.3 Refinement of the Multidimensional DFI Adoption Construct

A major contribution of this study is the conceptualization of DFI adoption as a multidimensional construct comprising the decision to adopt, integration into business operations, and diversity of digital financial innovations utilized. Future research should focus on developing and validating measurement scales for these dimensions.

Most existing studies continue to rely on binary measures of adoption that fail to capture the depth and intensity of digital financial innovation utilization (Costa et al., 2023; Ozili, 2021). Future research may therefore develop multidimensional instruments capable of assessing the extent to which SMEs integrate digital financial innovations into operational, financial, and strategic activities.

Furthermore, researchers may examine whether individual dimensions of DFI adoption exert differential effects on financial inclusion and performance outcomes. For example, diversity of digital financial innovations may generate stronger performance effects than mere adoption decisions, while integration may exert the most substantial influence on organizational outcomes.

5.4 Examination of Additional Mediating Mechanisms

Although this study proposes financial inclusion as the primary mediating mechanism linking DFI adoption and SME financial performance, future research should explore additional mediators that may explain this relationship. Potential mediating variables include but are not limited to; Financial capability, Financial literacy, Innovation capability, Organizational learning, Operational efficiency, Business resilience, Entrepreneurial orientation and Strategic agility.

Recent literature suggests that digital technologies often influence organizational outcomes through multiple interrelated mechanisms rather than a single pathway (Lu et al., 2023; Raut et al., 2021). Future studies may therefore develop more complex mediation models to improve understanding of how digital financial innovations generate enterprise value.

5.5 Investigation of Moderating Variables

The effects of digital financial innovation adoption are unlikely to be uniform across all SMEs. Future research should therefore examine variables that may strengthen or weaken the proposed relationships. Potential moderators include but are not limited to; Firm size, Firm age, Industry sector, Digital literacy, Managerial competence, Entrepreneurial experience, Regulatory environment, Technological infrastructure, Market dynamism and Competitive intensity.

For example, SMEs operating within technologically advanced environments may derive greater benefits from DFI adoption than firms operating in areas characterized by weak digital infrastructure. Similarly, enterprises managed by digitally competent entrepreneurs may experience stronger performance gains from digital financial innovation utilization.

The investigation of moderating variables would contribute to a more nuanced understanding of the conditions under which DFI adoption influences financial inclusion and performance outcomes.

5.6 Comparative and Cross-Country Studies

Future research should extend the framework across different national and regional contexts. Existing digital finance literature remains disproportionately concentrated in developed economies despite the growing importance of digital financial innovations in emerging and developing markets (OECD, 2023; World Bank, 2023).

Comparative studies examining differences across countries, regions, and institutional environments would provide valuable insights into contextual influences on DFI adoption and financial inclusion. Such studies may reveal how variations in regulatory frameworks, financial infrastructure, technological readiness, and institutional quality influence the effectiveness of digital financial innovations.

Cross-country analyses would also contribute to the development of more context-sensitive theories of digital finance adoption and SME performance.

5.7 Longitudinal and Dynamic Perspectives

Most existing studies employ cross-sectional research designs that provide limited insights into the dynamic nature of digital financial innovation adoption. Future research should adopt longitudinal approaches capable of capturing changes in adoption behavior, financial inclusion, and performance outcomes over time (Venkatesh et al., 2003).

Longitudinal studies would be particularly useful for examining the Adoption trajectories, Capability development processes, Evolution of financial inclusion outcomes, Sustainability of performance effects and Long-term impacts of digital financial innovations

Such approaches would provide deeper understanding of how SMEs accumulate and leverage digital financial capabilities throughout different stages of organizational development.

5.8 Sector-Specific Investigations

The impact of digital financial innovations may vary across industries due to differences in operational requirements, customer interactions, regulatory conditions, and technology intensity. Future research should therefore examine the applicability of the proposed framework within specific sectors.

Potential sectors include but are not limited to; Manufacturing, Agriculture, Tourism and hospitality, Retail trade, Health services, Education services and Logistics and transportation

Sector- specific studies may reveal unique patterns of digital financial innovation adoption and provide practical insights for industry stakeholders.

5.9 Emerging Digital Financial Technologies

The digital finance landscape continues to evolve rapidly through advancements in financial technology. Future studies should investigate how emerging innovations influence financial inclusion and SME performance.

Areas requiring further investigation include; Artificial intelligence-enabled financial services, Blockchain-based financial systems, Open banking platforms, Embedded finance solutions, Digital currencies, Decentralized finance (DeFi) and Machine learning-based credit assessment systems. These emerging technologies may fundamentally alter traditional financial intermediation processes and create new opportunities and challenges for SMEs.

5.10 Concluding incites on Future Research

The future research directions proposed in this section highlight numerous opportunities for extending and refining the current understanding of digital financial innovation adoption, financial inclusion, and SME financial performance. Collectively, these research avenues offer pathways for advancing theory, improving measurement, strengthening empirical evidence, and informing policy and practice.

By empirically validating and extending the proposed framework, future studies can contribute to a more comprehensive understanding of how digital financial innovations promote financial inclusion and enhance enterprise performance, particularly within developing economy contexts where SMEs continue to face substantial financial constraints.

6. CONCLUSION

The rapid advancement of digital technologies has transformed the financial services landscape and created unprecedented opportunities for improving access to financial services among Small and Medium Enterprises (SMEs). As digital financial innovations continue to reshape financial intermediation processes, understanding their implications for enterprise performance has become an increasingly important area of scholarly inquiry. Despite the growing body of research on digital finance and SME development, important gaps remain regarding the mechanisms through which digital financial innovations influence business outcomes. This study sought to address these gaps by developing a theory-driven conceptual framework linking Digital Financial Innovation (DFI) adoption, financial inclusion, and SME financial performance.

Drawing upon the Resource-Based View (RBV), the Unified Theory of Acceptance and Use of Technology (UTAUT), and Financial Intermediation Theory, the study proposed an integrated framework explaining how digital financial innovation adoption contributes to SME financial performance both directly and indirectly through financial inclusion. Unlike many previous studies that conceptualize adoption as a binary phenomenon, this paper advances a multidimensional perspective of DFI adoption encompassing the decision to adopt, integration into business operations, and diversity of digital financial innovations utilized. This conceptualization recognizes that the value of digital financial innovations extends beyond simple adoption and depends substantially on how deeply such innovations are embedded within organizational processes.

The paper further argues that financial inclusion represents a critical mechanism through which digital financial innovations generate financial performance outcomes. By enhancing access to, usage of, affordability of, and engagement with formal financial services, digital financial innovations enable SMEs to overcome traditional financial constraints, improve resource mobilization, strengthen financial management practices, and enhance business sustainability (Demirgüç-Kunt et al., 2022; Ozili, 2023). Consequently, the proposed framework positions financial inclusion as an essential pathway connecting digital financial innovation adoption and enterprise performance.

The study contributes to the literature in several important ways. First, it extends existing conceptualizations of DFI adoption by proposing a multidimensional framework capable of capturing the depth and strategic significance of digital finance utilization. Second, it advances understanding of the relationship between digital financial innovation adoption and SME performance by introducing financial inclusion as a mediating mechanism. Third, it integrates RBV, UTAUT, and Financial Intermediation Theory into a unified explanatory framework, thereby addressing the fragmented theoretical approaches commonly observed within the literature. Finally, the study contributes to emerging discussions on digital transformation and inclusive development by highlighting the role of digital financial innovations in promoting financial inclusion and enterprise growth, particularly within developing economy contexts.

The practical implications of the study are equally significant. For policymakers, the findings underscore the importance of strengthening digital infrastructure, promoting digital literacy, and fostering supportive regulatory environments capable of accelerating digital financial inclusion. For financial institutions and fintech providers, the study highlights opportunities to develop innovative financial products tailored to the needs of SMEs. For SME managers, the framework emphasizes the strategic importance of integrating digital financial innovations into core business processes rather than treating them merely as transactional tools. Collectively, these efforts may contribute to improved financial inclusion, enhanced enterprise performance, and broader economic development outcomes.

While the present study provides a comprehensive conceptual explanation of the relationships among DFI adoption, financial inclusion, and SME financial performance, it remains a conceptual contribution. Consequently, future empirical research is necessary to validate the proposed framework and propositions across different industries, organizational contexts, and geographical settings. Future studies may also examine additional mediating and moderating variables capable of influencing the proposed relationships and explore the implications of emerging digital financial technologies such as artificial intelligence, Blockchain, embedded finance, and decentralized financial systems.

In conclusion, digital financial innovations are increasingly becoming strategic resources capable of transforming how SMEs access and utilize financial services. However, the benefits of these innovations are unlikely to arise from technology adoption alone. Rather, their value is realized through enhanced participation in formal financial systems and the development of organizational capabilities that support improved financial performance. By positioning financial inclusion as the central mechanism linking digital financial innovation adoption and SME financial performance, this study offers a comprehensive framework for understanding how digital finance can contribute to sustainable enterprise growth and inclusive economic development in the digital era.

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