

Financial Technology and Financial Literacy: The Key to Post-COVID Success for E7 Agro-SMEs.

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ABSTRACT

Purpose- This study analyzes how financial literacy mediates the impact of fintech adoption on the performance of SMEs especially in operational and financial aspects among seven emerging economies during the COVID-19 pandemic recovery.

Study Design/Methodology/Approach - This study employed a quantitative research design, utilizing a cross-sectional survey methodology. The study analyzed the data gathered from 407 SEMs in seven emerging economies and examined their performance in two aspects. PLS-SEM was used to analyze data, and to evaluate reliability, two measures were employed: construct reliability (ρ_A) and composite reliability (CR) whereas validity was examined through discriminant validity and construct validity.

Findings- The findings reveal a significant and positive relationship between financial technology (fintech) and financial literacy. Furthermore, fintech was found to have a positive and significant effect on SMEs' performance. Financial literacy also significantly mediates the relationship between fintech services and SME performance.

Practical Implications- To fully leverage the potential of fintech, policymakers and business support organizations in E7 countries should prioritize financial literacy programs for SMEs. By equipping SMEs with the knowledge to effectively utilize fintech tools, these programs can help enhance business performance. Additionally, fintech platforms should incorporate educational resources to guide SMEs in making informed financial decisions.

Originality/Novelty - This study's novelty is its exploration of financial literacy as a mediator between fintech adoption and SME performance in the COVID-19 recovery phase across E7 economies. The study aims to uncover gaps in existing research by highlighting emerging trends and ultimately contribute to a deeper comprehension of how these elements intersect and influence each other.

Keywords: Financial Literacy, Financial technology, SME performance, Covid 19, E7

1 | INTRODUCTION

Financial technology (Fintech) represents a revolutionary transformation in both the financial and business domains. Within the literature, Fintech is characterized as a vibrant concept continually evolving due

to the influx of technology entrepreneurs who adapt and reshape it to align with societal demands ([Lontchi et al., 2023](#)). Fintech can be succinctly described as a spectrum of financial services that leverage cutting-edge technologies to meet upcoming essential requirements ([Cassetta et al., 2020](#)). Scholars suggest that Fintech offers significant advantages to small and medium-sized enterprises (SMEs), encompassing improved efficiency, cost reduction, enhanced business processes, speed, flexibility, and innovation ([Akhtar et al., 2024](#); [Frizzo-Barker et al., 2020](#); [Fu et al., 2020](#)). At present, we are in the midst of a transitional period as Fintech evolves from its 3.0 phase to 4.0. Fintech 3.0 brought about financial technology products such as SWIFT and ATMs. Throughout this stage, a distinct interplay between the Internet and the Internet of Things was evident ([Imerman & Fabozzi, 2020](#)). Fintech utilizes modern technologies to revolutionize the financial services sector. At its core, this transformation is driven by innovative business models that cater to customers through emerging technologies ([Gomber et al., 2018](#)). The COVID-19 Crisis affected the returns of the markets but Fintech played a vital role in providing platforms to individuals to fight the increasing rate of poverty ([Naz et al., 2024](#)). These technological disruptions have implications for both the micro and macroeconomic aspects, especially in the context of the COVID-19 recovery, further contributing to the disruptions experienced by the global economy due to the pandemic ([Bisong et al., 2020](#)).

The performance of SMEs holds immense significance for both the economy and society at large ([Mehry et al., 2021](#)). Fintech transformation is particularly pertinent in the context of E7 countries, where small and medium-sized enterprises (SMEs) play a pivotal role in economic growth and social development [Agyapong and Attram \(2019\)](#). Small and medium-sized enterprises (SMEs) are the backbone of E7 economies, contributing significantly to employment, income generation, and poverty alleviation. They operate across diverse sectors, from agriculture and manufacturing to services, and are essential in fostering economic resilience [Myovella et al. \(2020\)](#). However, the region's SMEs have faced numerous challenges, including limited access to financial services, inadequate financial literacy, and vulnerabilities exacerbated by the COVID-19 pandemic ([Chirisa et al., 2020](#)).

On the other hand, Fintech solutions, characterized by innovative digital platforms, mobile payments, blockchain technology, and data analytics, have rapidly penetrated E7 economies' financial ecosystem. These technological innovations hold the promise of addressing many of the longstanding issues confronting SMEs, from access to financing and financial inclusion to efficient business operations ([Frimpong et al., 2022](#)) ([Frimpong et al., 2022](#)). Understanding the dynamic interplay between Fintech adoption, SMEs' performance, and financial literacy is not only timely but also crucial for the region's post-COVID-19 recovery efforts.

Furthermore, financial literacy, encompassing the knowledge, skills, and attitudes required to make informed financial decisions, emerges as a linchpin in this context. It has been observed that significant knowledge of financial literacy within a population serves as a catalyst for expanding the fintech market which depicts how these two concepts intervene each other ([AlSuwaidi & Mertzanis, 2024](#)). The ability of SME owners and entrepreneurs to navigate the evolving landscape of Fintech innovations hinges on their level of financial literacy ([Akhtar & Liu, 2018](#); [Frimpong et al., 2022](#); [Lusardi & Mitchell, 2014](#)). As such, observing the intersection of Fintech, SMEs' performance, and financial literacy is essential for crafting effective policies, empowering SMEs, and fostering sustainable economic growth in E7 economies. Therefore, the objective of current study is shedding light on the complex interrelationships between Fintech, the performance of SMEs, and levels of

FL within the E7 countries context. This examination particularly focuses on the period following the COVID-19 pandemic. Through a detailed analysis of the current literature, the aim is to uncover gaps in research, highlight emerging trends, and ultimately contribute to a deeper comprehension of how these elements intersect and influence each other. This study highlights the paramount significance of informed policy choices and strategic actions. It emphasizes the capacity of Fintech to serve as a catalyst, fostering improvements in both SMEs' performance and levels of financial literacy as E7 countries embarks on its journey of economic recovery following the COVID-19 pandemic.

2 | LITERATURE REVIEW

2.1 | Relationship between Fintech and the Performance of SMEs

The term "Fintech" is employed to encompass a range of services facilitated by diverse financial technologies. As per research on the correlation between financial technology and SME performance, the most significant impacts reported were the facilitation of payment transactions, meeting customer needs, and providing convenience in the management of finances. SMEs benefit from Fintech as it automatically records sales transactions and provides weekly or monthly sales reports, empowering them to effectively monitor their business performance ([Hau et al., 2021](#); [Okello Candiya Bongomin et al., 2016](#)). In a different research endeavor, [Alimiruchi and KISWARA \(2017\)](#) undertook an examination of the operational and financial performance of a financial technology (Fintech) firm. Their findings suggest that the utilization of Fintech technology significantly affected the operational and financial performance of Samsung Pay. [Museba et al. \(2021\)](#) assessed the significance of adopting Information Technology and Fintech in improving the performance of SMEs during the COVID-19 pandemic. The findings reveal that the adoption of information technology and Fintech has a positive and significant impact on SMEs' performance. In essence, a higher level of information technology adoption and Fintech utilization corresponds to improved SMEs' performance. ([Shen et al., 2018](#)) found that enhancing the financial literacy of individuals and promoting widespread internet usage can stimulate the adoption of digital financial products, ultimately contributing to the objective of advancing financial inclusion. Building upon the prior discussion, the study posits the following hypothesis:

H1: *There exists a positive correlation between Fintech adoption and SMEs' performance.*

2.2 | Correlation between Financial Technology and Financial Literacy

Financial literacy encompasses a range of abilities that empower individuals to form well-informed and operative decisions aimed at enhancing their financial comfort while minimizing both time and monetary harm ([Kefela, 2011](#); [Seraj et al., 2022](#)). The existing literature demonstrates that the use of Fintech has led to an increase in financial literacy (FL) and public financial inclusion ([Mulasiwi & Julialevi, 2020](#)). Furthermore, two theories, namely the concept that technology gains acceptance in society are substantiated by individuals' perceptions of ease of use and perceptions of usefulness, emphasizing the importance of perceived benefits and convenience in its adoption. New insights are gained from changes in the patterns of financial transactions, with an anticipation that individuals will become more knowledgeable and technologically literate ([Martini et al., 2021](#)). In a study by [Morgan and Long \(2019\)](#) on financial tech and FL in the context of Lao, the outcome suggests that a heightened level of financial literacy significantly and positively impacts an individual's

awareness of financial tech products. Similarly, [Morgan and Trinh \(2020\)](#) explored financial literacy and financial technology in the context of Vietnam, revealing that an elevated level of financial literacy has a substantial and positive influence on customer awareness and acceptance of financial tech products. Building upon the preceding discussion, the study puts forth the following hypothesis:

H2: *There exists a positive association between financial technology utilization and financial literacy.*

2.3 | Mediation Role of Financial Literacy between Financial Technology and SMEs Performance

In the context of SMEs, financial literacy encompasses the capacity of business owners and managers to interpret financial statements, manage cash flows, assess investment opportunities, and make informed financial decisions. It is widely acknowledged that financial literacy is a vital determinant of SMEs' success ([Lusardi & Mitchell, 2014](#)). A growing body of research highlights the positive impact of Fintech adoption on SMEs' performance. These benefits include increased access to financing, improved operational efficiency, enhanced customer engagement, and reduced transaction costs (Cumming et al., 2020; Akhtar et al., 2019). However, recent studies have begun to recognize the role of financial literacy as a mediator in this relationship.

[Anand et al. \(2023\)](#) found that coronavirus awareness significantly impacts individuals' financial well-being either directly or indirectly, with financial literacy serving as a comprehensive mediating factor in shaping personal finances during the COVID-19 pandemic. FL can enhance the decision-making capacity of SME owners and managers when integrating Fintech solutions. Adequate financial literacy empowers SMEs to make informed choices regarding which Fintech tools to adopt and how to leverage them effectively ([Fernandes, 2020](#)). Fintech adoption often introduces new risks to SMEs, such as cyber security threats and data privacy concerns. Financially literate SMEs are better equipped to identify, understand, and mitigate these risks, thereby safeguarding their performance and reputation ([Guiso & Sodini, 2013](#)). Performance Evaluation: Financially literate SMEs are more capable of evaluating the impact of Fintech adoption on their performance. They can assess key financial metrics, track the return on investment, and adjust their strategies accordingly, leading to better overall performance ([Klapper & Lusardi, 2020](#)). Therefore, in delving into the mediating role of FL in the relationship between financial technology adoption and SMEs' performance, we theorize that:

H3: *There is a positive mediating role of financial literacy in the association between Fintech adoption and SMEs' performance.*

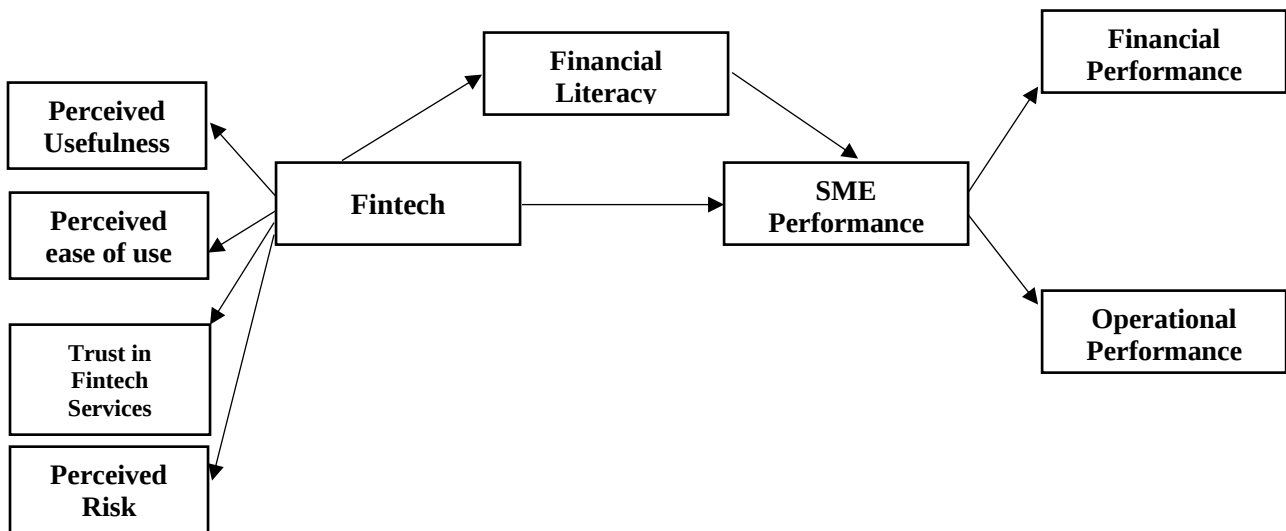
2.4 | Dynamic Capabilities Theory as the Underpinning Theory

This theory suggests that the ability of a firm to adapt to changing environments through internal and external competencies is key to sustained performance. Dynamic Capabilities Theory, which emphasizes a firm's ability to integrate, build, and reconfigure resources to adapt to changing environments, serves as the underpinning theory for this study examining fintech adoption, financial literacy, and SME performance ([Teece, 2016](#)). Fintech adoption enables SMEs to sense opportunities and reconfigure operations by leveraging digital financial tools for efficiency and customer engagement. Financial literacy equips SME owners with the knowledge to make informed financial decisions, adapt strategies, and manage risks effectively ([Fatoki, 2014](#)).

Together, these dynamic capabilities allow SMEs to continuously learn, innovate, and transform in response to market changes, leading to enhanced performance and competitive advantage.

Figure 1

Research Model



3 | METHODOLOGY & DESIGN

3.1 | Research Procedures

The primary objective of this study was to analyze the impact of fintech on SME performance in the context of E7 countries, while considering the mediating effects of financial literacy, as visually represented in Figure 1. To achieve this goal, a survey-based research methodology was employed, designed to align with the specific context of agro-based SMEs. In this study, the target population comprises small and medium-sized enterprises (SMEs) located in emerging seven countries (Brazil, India, China, Indonesia, Russia, Mexico, and Turkey). However, obtaining an exact count of SMEs in the agriculture sector in these areas was challenging due to the absence of comprehensive and up-to-date databases. To address this, the [Krejcie \(1970\)](#) formula was applied to determine a representative sample size. Based on the assumed variability and estimated SME population in these countries, a sample size of 407 SMEs was deemed appropriate. While this number is statistically sound, it should be noted that potential biases may arise due to the non-availability of a precise population frame, limiting the generalizability of the findings.

The data collection process employed a structured, standardized questionnaire, which was developed following a comprehensive review of existing literature on fintech and SME performance. The questions were carefully formulated to capture the constructs of interest and align with the research objectives. The development of the survey was based on established scales used in prior studies, with modifications to fit the context of the agricultural sector within E7 countries. A pilot test was conducted with 30 SME managers to ensure the clarity of questions, and adjustments were made based on feedback. Cronbach's Alpha was used to assess internal consistency, ensuring reliability, while content validity was verified by expert reviews. The

questionnaires were distributed to SME managers through two mediums: electronically (using Google Forms) and manually (through printed surveys). To ensure participation from a wide range of SMEs, the selection process used purposive sampling. This technique was chosen due to its ability to focus on SMEs with specific characteristics relevant to the research objectives, such as their involvement in fintech-related activities and their performance in the agricultural sector. Purposive sampling is particularly suitable in situations where the population of interest has unique traits or where the researcher aims to gather insights from specific subgroups (Etikan et al., 2016). This was crucial for understanding fintech adoption in the E7 agricultural sector. The survey was distributed to 450 potential respondents between March 1, 2024, and July 27, 2024, with the data collection process spanning 18 weeks. The high response rate of 93.59% was achieved through consistent follow-up via email and phone calls, and by allowing flexibility in completing the survey, either online or offline. No significant differences were noted between respondents and non-respondents based on preliminary demographic checks, reducing concerns about non-response bias. Field assistants, trained in administering the survey, were employed to assist respondents and ensure accurate data collection. After excluding 43 incomplete responses, a total of 407 valid responses were obtained. The data were carefully screened to identify missing or erroneous entries, and coded for further analysis. To maintain ethical standards, informed consent was obtained from all participants. The anonymity of the firms and respondents was strictly maintained, with no identifying details collected. Data were securely stored on Google Drive, accessible only to the researcher, and were discarded upon study completion to ensure confidentiality. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) and Smart PLS-SEM software. These tools were chosen for their capability to handle complex models, such as the one used in this study, which includes mediation analysis.

Table 1

Measurement Scale

Sr.No	Constructs	Items	Source
1	Fintech	14	Mainardes et al., 2022
2	SME Performance	9	Afshan et al., 2021; Hendijani et al.,2020; Lee, R.2021
3	Financial Literacy	7	Rieger 2020; Vieira et al., 2020

4 | RESULTS AND DISCUSSION

4.1 | Measurement Model

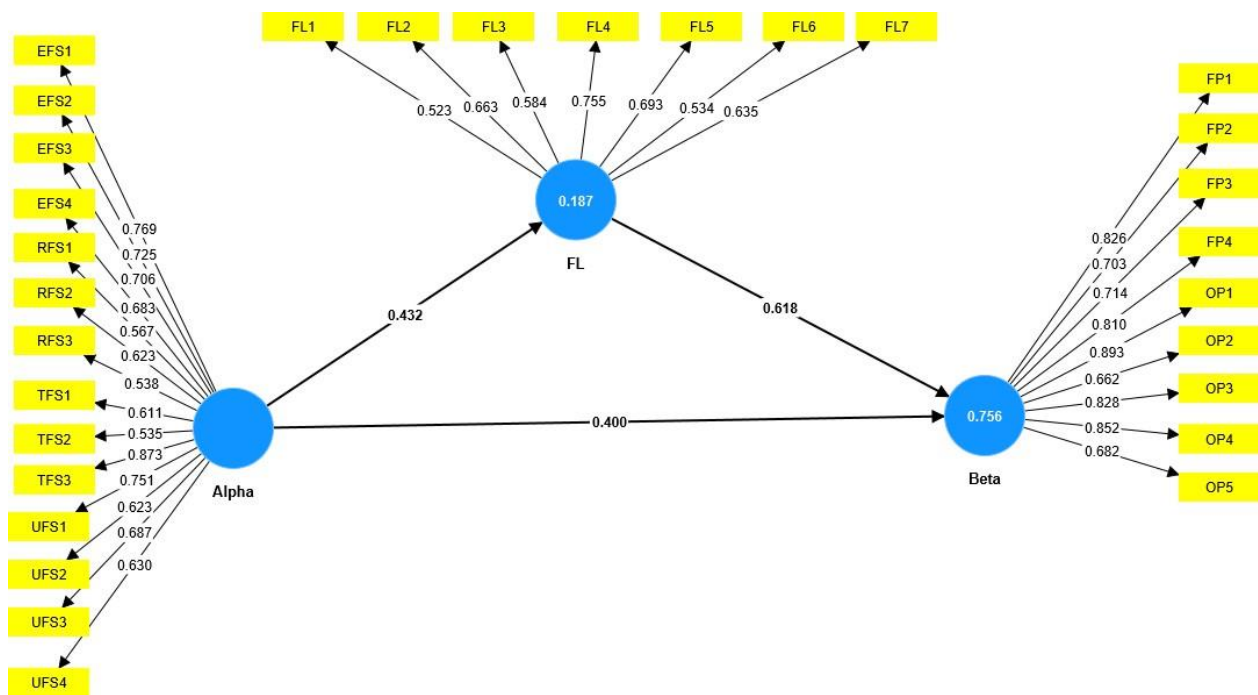
Researchers have emphasized the importance of meeting various quality criteria such as item loadings, reliability, validity, and addressing multicollinearity (Haier et al., 2021). To ensure the model's effectiveness and the meaningfulness of the conclusions drawn from it, these criteria were assessed.

4.2 | Measurement Model Assessment

In this study, the analysis assessed two predictor constructs and one outcome construct. The predictor variables were identified as fintech and financial literacy. The endogenous variable was represented by SME performance. To evaluate the measurement of these constructs in the model, we initially employed the commonly accepted loading criterion of 0.7, as suggested by earlier researchers (Haier et al., 2021). After this evaluation, any item with a loading below 0.7 was methodically excluded. The elimination of these indicators signified that they did not effectively capture the core characteristics of their respective constructs within the context of the agriculture sector in seven emerging economies. The final model is illustrated in Figure 2 below.

Figure 2

PLS Algorithm



4.3 | Assessment of the outer model

The final model underwent a comprehensive evaluation to ensure the reliability and validity of its constructs. Reliability plays a crucial role in ensuring that the constructs within the outer model consistently yield stable results, thereby enhancing the model's interpretability and objectivity. To evaluate reliability, two measures were employed: construct reliability (ρ_A) and composite reliability (CR). The recommended criteria for reliability are ρ_A values exceeding 0.6 and CR values exceeding 0.7 (Haier et al., 2021). As indicated in Table 2, the ρ_A values ranged from 0.742 to 0.881, and the CR values ranged from 0.717 to 0.845, meeting the established acceptable and satisfactory standards. These findings suggest that the model's constructs exhibited strong internal consistency reliability. In addition to reliability, we also conducted an evaluation of validity, which involved assessing both construct validity (CV) and discriminant validity (DV). Construct validity measures how well a construct effectively explains the variations in its associated indicators. To assess construct validity, we used the average variance extracted (AVE), where each construct should

ideally have a value of 0.5 or higher ([Henseler et al., 2016](#)). AVE values equal to or greater than 0.5 indicate that a construct accounts for over 50% of the variances in its indicators, signifying satisfactory construct validity.

As detailed in Table 2, all the constructs displayed AVE values well above 0.5, ranging from 0.620 to 0.743, confirming their strong construct validity. This indicates that these constructs effectively explain the variations in their associated indicators.

Table 2

Construct Reliability and Validity Assessment

	Cronbach's Alpha	rho_A	Composite Reliability	(AVE)
FL	0.791	0.742	0.717	0.601
Fintech	0.902	0.893	0.845	0.796
SME PERF	0.859	0.881	0.858	0.812

The study also evaluated the model's quality to identify potential issues related to collinearity. This was accomplished by examining discriminant validity, following the methodology proposed by ([Henseler et al., 2016](#)). Discriminant validity assesses whether the measures of different constructs are distinct from each other, effectively measuring what they are intended to measure ([Richter et al., 2022](#)). In this analysis, the Heterotrait-Monotrait (HTMT) ratio, as presented in Table 3, was the preferred method ([Fornell, 1981](#)) as it is more robust when dealing with indicators that exhibit only slight differences within a given construct. The guideline suggests that a construct's HTMT ratio should be below 0.9 ([Henseler et al., 2016](#)).

As observed in Table 3, all the constructs' HTMT ratios were below 0.9, ranging from 0.429 to 0.703. This indicates the presence of discriminant validity, suggesting that the constructs are distinct and do not significantly overlap with each other.

Table 3

Heterotrait-Monotrait (HTMT)

	Fintech	Financial literacy	SME PERF
Fintech			
FL	0.703		
SME PERF	0.429	0.581	

4.4 | Assessment of the Structural Model

In this study, proposed hypotheses are assessed using a structural model depicted in Figure 3. We established a significance level of $p < 0.05$ or a standard t-value exceeding 1.96 to validate a hypothesis. Subsequently, employing the bootstrapping technique with 5000 subsamples, we examined three direct

hypotheses. The results indicate a positive and statistically significant relationship between fintech and financial literacy (beta value = 0.432, t-value = 22.309, p-value = 0.000). This finding aligns with earlier research (Morgan & Trinh, 2019). Additionally, the findings demonstrate that both financial literacy and fintech are positively and significantly associated with performance (beta value = 0.618, t-value = 10.779, p-value = 0.000 for financial literacy, and beta value = 0.400, t-value = 17.016, p-value = 0.000 for fintech, respectively). These results are consistent with previous studies as well (Dhiyf et al., 2024). Consequently, all three hypotheses (e.g., H1, H2, and H3) received support, as detailed in Table 4 and illustrated in Figure 3.

Figure 3.

Structural Model

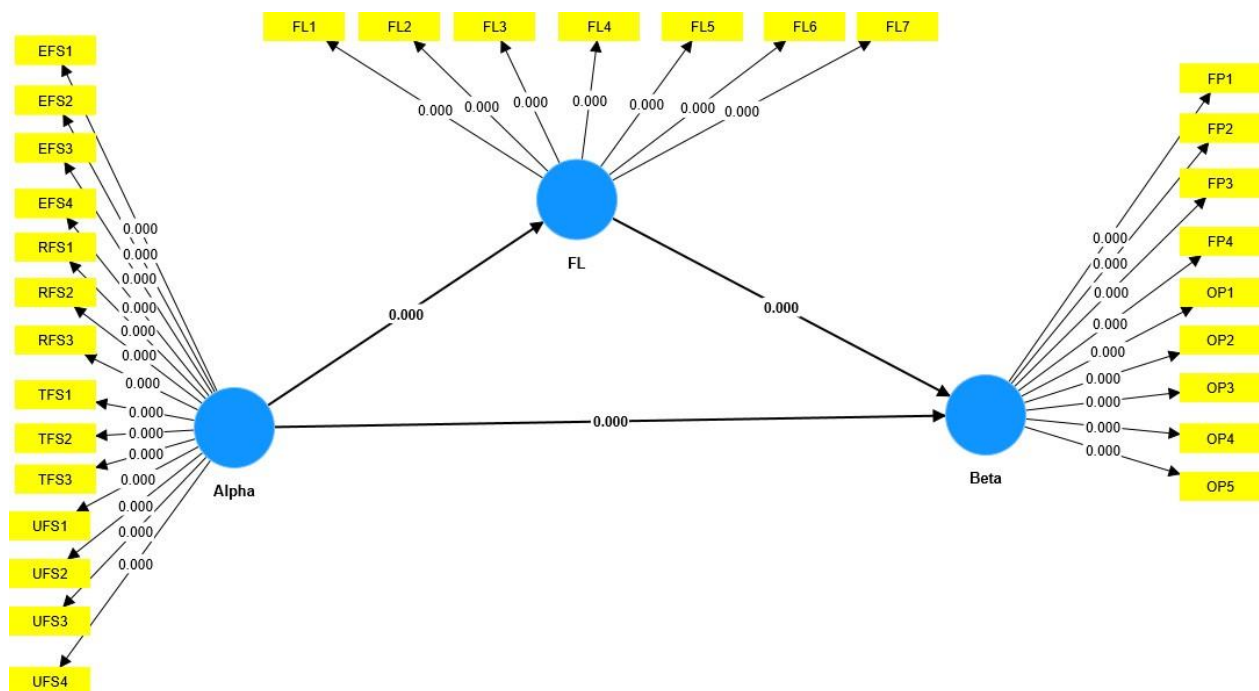


Table 4

Hypothesis Diagnosis

Relationships	Original Sample (O)	T-Stat	P-Values	Decision
FINTECH -> FL	0.432	22.309	0.000	Accepted
FINTECH -> PERF	0.618	10.779	0.000	Accepted
FL -> PERF	0.400	17.016	0.000	Accepted
FINTECH -> FL -> PERF	0.267	9.021	0.000	Accepted

Moreover, the findings indicate that there is a positive and significant mediating role of financial literacy in the connection between financial tech usage and the performance of SMEs in E7 countries. This finding aligns with the research conducted by (Adomako & Danso, 2014; Lontchi et al., 2023), which demonstrated that

having a strong grasp of financial concepts can improve a firm's performance, particularly when financial resources are adaptable, and entrepreneurs can easily secure funding. The mediating effect is noteworthy due to the statistical significance of both the direct and indirect associations. Consequently, Empirical validation was successfully achieved for all alternative hypotheses concerning both the direct and indirect relationships in the study.

4.5 | Predictive Accuracy

Construct	R Square	R-Square Adjusted
SME PERF	0.756	0.754

The R-squared value of 0.756 suggests that approximately 75% of the variation in SMEs performance in E7 countries can be attributed to the study's independent variables.

5 | CONCLUSION

The study's key conclusion is that financial literacy serves as a crucial mechanism by which financial tech services exert an impact on the financial and operational performance of SMEs in the context of E7 economies. It also claims that SMEs in emerging seven countries experience substantial advantages through their familiarity with diverse financial technology solutions, which positively impacts their performance.

Furthermore, the study's findings offer practical implications for SMEs, suggesting that they should embrace financial tech solutions and leverage FL to enhance their performance. To achieve this, it is recommended that SMEs provide training to their employees in financial management skills to attain better performance outcomes. The practical implications of studying the relationship between fintech adoption, financial literacy, and SME performance are far-reaching. For SME owners, enhancing financial literacy equips them with the skills to make informed financial decisions, and improve cash flow management, investment strategies, and resource allocation. The adoption of fintech solutions can further streamline operations, reduce costs, and enhance customer experiences, allowing SMEs to gain a competitive advantage and focus on business growth. Policymakers can use these insights to promote financial literacy programs and create supportive regulatory frameworks for fintech adoption, thereby increasing SMEs' access to digital financial services and boosting their overall resilience. Financial institutions can leverage these findings to tailor fintech solutions specifically for SMEs, providing easier access to credit, digital payments, and financial management tools, while also offering financial literacy support to foster better engagement and trust. Altogether, these practical actions contribute to improved SME performance, sustainability, and economic development.

However, it's worth noting that the study has certain limitations. It focuses exclusively on seven emerging economies, making it challenging to generalize the findings to other countries. Therefore, future research should consider conducting cross-country examinations to extend the applicability of these findings. Another constraint of this study is its reliance on questionnaires, forthcoming researchers may consider utilizing

secondary data in their subsequent investigations. Additionally, this study adopts a cross-sectional approach, and to better understand the impacts of financial technology amenities on SME performance at altered times, a longitudinal approach may be applied.

The study further suggests that future research should explore additional sectors and incorporate diverse mediating or moderating variables, for instance, digital adoption, technological infrastructure, and access to capital.

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