BANKING SUPPORT AND DIGITAL FINANCING: ANALYSIS ON THE IMPACT OF MSMEs DEVELOPMENT IN INDONESIA

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Abstract: *This paper examines the evolution of funding sources for SMEs in Indonesia from 2015 to 2024, emphasizing bank financing, People's Business Credit (KUR), fintech lending, and securities crowdfunding (SCF). A quantitative method utilizing a fixed-effect model was employed to identify the relationships among the variables. The Financial Services Authority (OJK) and Bank Indonesia (BI) provided data that includes annual statistics on SME loans, total banking credit, KUR disbursements, fintech lending distribution, and SCF funding. The results demonstrate that both banking assistance and digital finance substantially enhance funding for SMEs. This underscores the importance of merging conventional banking practices with digital financial options to enhance capital accessibility for a wider demographic. This integration enables loan procurement for small and medium-sized firms and is essential for guaranteeing nationwide access to financial services. By amalgamating these two revenue generation approaches, Indonesia can improve access to financial services for small firms, which are vital for the nation's economic advancement. This study indicates that strengthening partnerships between conventional financial institutions and fintech can promote sustainable growth for SMEs and further Indonesia's financial inclusion objectives.*

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a fundamental role in Indonesia's social and economic development. They constitute over 60% of the nation's Gross Domestic Product (GDP) and employ more than 97% of the Indonesian workforce [1]. MSMEs serve as vital buffers during crises by sustaining employment and maintaining local supply chains. Their significance became particularly evident during the COVID-19 pandemic, as MSMEs were able to react effectively despite disruptions in logistics and consumer demand.

Despite their significance, MSMEs continue to encounter difficulties in securing necessary funding, particularly from banks, constraining their productivity, innovation, and competitiveness [2]. The International Finance Corporation (IFC) reported that Indonesia's unfulfilled loan requirements for MSMEs exceed $80 billion, positioning it among the largest in Southeast Asia [3]. Indonesia's national financial inclusion index increased from 67.8% in

2019 to 76.2% in 2023; yet, access to formal credit remains disproportionately favored by medium-sized enterprises and metropolitan regions [4]. The financing gap arises from knowledge asymmetry, insufficient collateral, and poor credit histories, leading lenders to perceive elevated risk and increase operational expenses [5]. Consequently, numerous MSMEs turn to informal lending channels characterized by high levels of interest rates and limited potential for expansion.

To address these issues, Indonesia has implemented a dual policy agenda: enhancing banking support systems and promoting digital financial revolution. Regulatory mandates and incentive initiatives have prompted conventional banks to increase lending to small and medium-sized enterprises (SMEs). *Kredit Usaha Rakyat* (KUR), a subsidized microcredit initiative launched in 2007, is the primary program. By 2024, the cumulative disbursement of KUR loans exceeded IDR 1,200 trillion, benefiting over 45 million borrowers, with an annual allocation of less than IDR 300 trillion, indicating that MSME credit constitutes approximately 22% of the total bank lending [6]. This figure has been consistently increasing yet remains below the national target of 30% [7].

The Indonesian Central Bank (*Bank Indonesia*/BI) and the Financial Service Authority (*Otoritas Jasa Keuangan*/OJK) have concurrently been developing an ambitious digital finance strategy. The Payment System Blueprint 2025 established QRIS (Quick Response Code Indonesian Standard), BI-FAST, and open-API standards to integrate banks, fintechs, and payment providers into a unified digital ecosystem [8]. Hence, the number of individuals utilizing QRIS increased from under 10 million in 2020 to over 45 million merchants and customers by 2025, resulting in more than 2.9 billion transactions annually [9]. Lenders can utilize these digital payment records to obtain valuable transaction data for alternative credit evaluation and risk assessment.

As banking support has evolved, digital finance has emerged as a formidable influence, transforming monetary operations by which individuals acquire funds. Financial technology (fintech) platforms, particularly peer-to-peer (P2P) lending and securities crowdfunding (SCF), have facilitated rapid access to capital for small enterprises with reduced prerequisites. These platforms leverage technology to reduce transaction costs, facilitate credit assessments, and reach out to underserved demographics [10]. In Indonesia, fintech-driven lending significantly improves MSME access to funding, particularly for enterprises with insufficient collateral and limited credit histories [11].

However, numerous MSMEs in rural and remote regions lack the requisite digital skills and infrastructure to effectively utilize online financial systems [12]. Moreover, the adoption of fintech accelerates in regions characterized by higher digital literacy and greater smartphone penetration [13]. The absence of established digital identification standards complicates efforts to expand and achieve inclusivity. These structural deficiencies continue to persist in accessing micro and informal enterprises, particularly in rural regions [14].

Previous studies have demonstrated the advantageous effects of banking support and digital finance on the expansion of MSMEs. However, most analyses investigate them separately, focusing exclusively on traditional bank credit or the utilization of fintech [9]. Recent alterations in Indonesia's financial ecosystem indicate an increasing interrelationship between these two channels [15]. Therefore, banking and digital finance should not be viewed as competing systems but rather as complementing components of a unified financial

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ecosystem. Banks are working with fintech companies and using digital credit scoring to reach more MSMEs [16]. Conversely, fintech platforms use banking infrastructure to facilitate fund settlement and ensure regulatory compliance [2].

The synergistic interaction between traditional and digital banking represents a new era of financial inclusion in Indonesia. Therefore, a comprehensive synthesis of current studies is essential to understand the interactions, reinforcements, or substitutes between these two finance ecosystems. Nonetheless, empirical studies integrating conventional financing avenues (banking and KUR) with digital financing platforms (fintech and SCF) within a cohesive empirical analytical framework are limited. Previous studies have generally differentiated between these two sectors, although the increasing interrelation between banking and fintech in the digital economy [14]. This study utilized a comprehensive approach to analyze the influence of banking support and digital finance on the development of MSME financing in Indonesia, employing panel data with a fixed-effect model. This strategy enables the analysis of intertemporal and interprovincial effects while also considering the unique characteristics of each region.

The scientific novelty of this research lies in the development of a composite variable for banking support, which amalgamates data on bank SME credit, the ratio of SME credit to total credit, and the implementation of People's Business Loans (KUR), in conjunction with a digital financing variable that includes fintech lending disbursement and funding via Supply Chain Finance (SCF). This research evaluates the magnitude of financing and the organization and trends within SME financing channels. This study sought to investigate the relationship between banking and digital channels on overall SME financing and to identify trends and patterns of inter-provincial funding using the Panel Data Fixed Effect model. The research findings are expected to assist in the formulation of policies by governmental and financial entities designed to improve the amalgamation of traditional and digital funding to promote inclusive growth of MSMEs.

LITERATURE REVIEW

1. Micro, Small, and Medium Enterprises Financing

Micro, Small, and Medium Enterprises (MSMEs) constitute a significant component of Indonesia’s economy. They constitute over 99 percent of all enterprises and provide over 60 percent of the nation's gross domestic product (GDP). Despite their strategic significance, MSMEs encounter difficulties in accessing conventional financial services, particularly bank loans. Recent literature repeatedly cites limited access to financing as a primary barrier to the growth and sustainability of MSMEs in Indonesia [17].

Theoretical explanations of MSME funding constraints primarily stem from financial intermediation theory and information asymmetry theory. Financial intermediation theory posits that banks facilitate transactions between borrowers and lenders by reducing transaction costs and addressing information asymmetries. However, MSMEs frequently lack audited financial accounts, conventional accounting methods, or formal collateral, leading banks to perceive a heightened risk of loan default [18]. Consequently, banks are inclined to extend greater credit to larger, more established enterprises, thereby complicating loan acquisition for MSMEs.

Recent empirical investigations from the previous five to seven years confirm that the financing gap for MSMEs in Indonesia remains substantial. The International Finance Corporation and SME Finance Forum indicate that numerous MSMEs, particularly micro and informal enterprises, continue to receive insufficient support from conventional financial institutions [19]. According to reports from the OJK and the Asian Development Bank, almost two-thirds of MSMEs encounter difficulties in securing adequate financing at a fair cost, particularly in areas outside major urban centers [20].

A prevalent issue in the literature is that MSMEs exhibit heterogeneity. Funding issues for micro firms differ fundamentally from those faced by small and medium-sized enterprises. Medium-sized enterprises are more inclined to secure bank loans due to superior documentation and more asset ownership. Conversely, microenterprises frequently depend on informal finance sources such as familial loans and unregulated lenders, which can be costly and precarious [21]. This variability necessitates that MSME finance policies be distinct from one another rather than uniform.

The Indonesian government significantly influences the MSME finance framework, including lending programs grounded on policy. The Kredit Usaha Rakyat (KUR) program is the most prominent. It assists banks in mitigating their lending risks by providing subsidized interest rates and partial government guarantees. Recent evaluations demonstrate that KUR has significantly increased MSME loan disbursement volumes and improved credit accessibility for previously unbanked businesses [22].

Regulatory assistance has facilitated loan acquisition for MSMEs. The Financial Services Authority (OJK) mandates that commercial banks allocate a specific portion of their loan portfolios for Micro, Small, and Medium Enterprises (MSMEs). This incentivizes banks to extend more credit to this demographic [23]. Bank Indonesia's macroprudential framework for inclusive finance promotes the allocation of credit to productive and inclusive sectors, including MSMEs [24].

Despite these policy initiatives, the literature indicates that issues persist. The allocation of loans to MSMEs remains inequitable among regions. Enterprises in Java possess far greater access to funding compared to those in eastern Indonesia and rural regions [25]. Furthermore, regional development banks are unable to innovate and expand MSME lending to the extent possible due to their constrained institutional capabilities [26].

2. Banking Support and MSME Credit Access

A significant challenge confronting Micro, Small, and Medium Enterprises (MSMEs) in Indonesia is obtaining loans. MSMEs continue to encounter difficulties in obtaining formal funding due to insufficient collateral, inadequate creditworthiness, and limited access to financial markets. Recent literature has emphasized the significance of banking support as a crucial element facilitating access to formal credit for MSMEs. years.

In Indonesia, banking assistance for MSMEs encompasses public credit initiatives, regulatory incentives, and institutional frameworks that together address the funding deficit. The Kredit Usaha Rakyat (KUR) program has emerged as the most recognized policy alteration among these initiatives. The Indonesian government initiated KUR in 2007. It provides MSMEs with subsidized loans accompanied by partial government guarantees that mitigate the risk for banks. The KUR program has undergone significant modifications over time, including alterations to loan amounts, interest rates, and eligibility criteria. This has

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facilitated more accessibility for numerous MSMEs to utilize it. By 2024, KUR disbursements exceeded IDR 1,200 trillion, benefiting over 45 million MSMEs in Indonesia [6].

Recent research indicates that KUR has facilitated loan acquisition for MSMEs, particularly micro and small enterprises lacking conventional collateral. A report from the Coordinating Ministry for Economic Affairs in 2024 indicated that MSMEs participating in the KUR program had significant enhancements in their operational efficiency and productivity, particularly within the retail and agricultural sectors [27]. This program has facilitated the integration of the informal and formal financial sectors by providing unbanked enterprises with access to capital for growth and expansion.

Despite KUR's progress, challenges persist. In 2025, the Financial Services Authority (OJK) published a report indicating that regional disparities continue to impede MSMEs' access to loans. MSMEs in Java and Bali receive a greater number of KUR loans compared to those in rural and eastern regions, where there is a scarcity of banks and loan distribution networks [28]. Numerous small enterprises in rural regions lack the requisite credit histories or digital infrastructure to utilize conventional financial products. This complicates their ability to utilize KUR and other banking services [21].

Reforming the banking sector has been crucial for facilitating credit access for MSMEs. Significant alterations have occurred in the operations of commercial banks concerning MSMEs since the OJK mandated that banks allocate a minimum of 30% of their entire lending portfolios to MSMEs. This mandate compels banks to increase lending to small and medium-sized enterprises (SMEs) while exercising caution in risk management. Recent research on the OJK MSME laws reveals that the enlarged lending limit has spurred banks to innovate in their loan products and collateral procedures [23]. Institutions such as Bank Negara Indonesia (BNI) and Bank Rakyat Indonesia (BRI) have developed specialized offerings for MSMEs, including working capital loans with reduced interest rates and microloans with less stringent collateral prerequisites [6].

Even with these changes, informal lending practices and information asymmetry still make it challenging to get credit. The International Finance Corporation (IFC) asserts that informal lenders remain the primary source of capital for micro, small, and medium enterprises (MSMEs) in Indonesia, particularly for microenterprises that do not satisfy the stringent criteria of official banking institutions [19]. Informal credit is adaptable; nonetheless, it typically entails elevated interest rates and lacks transparent repayment mechanisms, rendering it an unstable option for long-term business expansion.

In conclusion, banking support systems like KUR have made it easier for MSMEs to receive loans, but there are still challenges with variances in geography, digital infrastructure, and information asymmetry. Future research and policy should prioritize the integration of digital platforms, the enhancement of credit information systems, and the financial education of MSMEs in underserved regions. Furthermore, the integration of fintech solutions with conventional banking services is anticipated to significantly contribute to bridging the accessibility gaps that hinder the growth of MSMEs in Indonesia.

3. Digital Finance, Fintech, and Financial Inclusion

Digital banking and financial technology (fintech) have transformed the methods by which MSMEs access capital globally, including in Indonesia. The Indonesian government

continues to develop its Digital Economy 2025 Vision. An increasing number of MSMEs must utilize digital payment systems and fintech lending platforms to acquire financial services.

Digital finance in Indonesia encompasses a diverse array of financial services accessible over the internet. Examples include mobile banking, QRIS (Quick Response Code Indonesian Standard), e-wallets, peer-to-peer (P2P) financing, and crowdfunding. Bank Indonesia (BI) and Otoritas Jasa Keuangan (OJK) concur that digital financial services can assist MSMEs by facilitating access to services, reducing transaction costs, and enhancing efficiency [9]. A recent analysis from the World Bank indicates that Indonesia's digital finance revolution has facilitated access to loans for a greater number of individuals. By 2025, over 45 million MSME merchants are projected to utilize QRIS. This data indicates that cash-based enterprises are increasingly formalizing, allowing lenders to access a digital record of transactions to assess creditworthiness [4].

The swift expansion of fintech lending has facilitated loan acquisition for MSMEs. KoinWorks, Amartha, and Modalku exemplify peer-to-peer (P2P) lending platforms that provide loans to small and medium-sized enterprises (SMEs), particularly micro and informal businesses that typically struggle to secure financing. These platforms create credit profiles for those lacking traditional credit histories by utilizing non-traditional data sources such as digital payment records, e-commerce transactions, and social media activity [30]. The transition to data-driven financing enables MSMEs to obtain funding without the necessity of providing physical assets as collateral [31].

Rogers' Diffusion of Innovations Theory elucidates the growing adoption of digital finance among MSMEs. This concept posits that individuals' perceptions of new technology influence their propensity for acceptance. Factors like as perceived relative advantage, compatibility with established practices, complexity, and the trialability of the invention all contribute significantly [32]. The Technology Acceptance Model (TAM) asserts that the willingness of MSMEs to adopt digital finance solutions depends on their evaluation of usability and value. Research in Indonesia indicates that MSMEs are more inclined to utilize digital payment systems like QRIS and digital finance platforms when these tools are viewed as simple, economical, and advantageous for improving business operations [33].

There are challenges associated with the extensive utilization of digital finance in lending to small and medium-sized enterprises. Initially, MSMEs in urban areas rapidly adopt financial platforms and digital payment methods. However, MSMEs in rural and distant regions continue to face challenges related to inadequate internet connectivity, limited digital literacy, and insufficient access to mobile phones [12]. A 2023 study by the Asian Development Bank (ADB) revealed that rural MSMEs are three times less likely to utilize formal digital finance options compared to their urban counterparts [34]. The digital divide underscores the necessity of investing in infrastructure and initiatives that educate individuals on technology usage, ensuring equitable access to modern financial technologies.

The policies that oversee digital financing for MSMEs remain essential. The Indonesian government has endeavored to advance innovations in digital finance while simultaneously maintaining economic stability and safeguarding consumers. They have accomplished this via agencies such as BI and OJK. Regulation No. 77/POJK.01/2016 by OJK delineates protocols for risk management, peer-to-peer lending operations, and borrower protection [35]. However, MSMEs face challenges in safeguarding their clients, ensuring data security, and

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maintaining information privacy while utilizing digital financial products due to varying regulations from different agencies and the continual evolution of digital platforms. As fintech lending expands, OJK's regulations must adapt to the swift pace of transformation while safeguarding the interests of borrowers [36].

Digital financing can assist individuals who have previously been unable to secure a loan. This indicates that MSMEs can obtain funding that would not have been accessible through conventional methods. Digital platforms may provide minor loans with brief repayment periods. This is advantageous for micro-entrepreneurs and individuals employed in the informal economy. In a 2024 survey, the World Bank discovered that 30% of Indonesia's MSMEs had never utilized formal credit prior to engaging with fintech loans [37]. Digital finance is crucial for inclusive growth as it facilitates access to loans for individuals without bank accounts, particularly in Indonesia's rural and semi-urban regions.

Digital finance has numerous advantages; nonetheless, it remains an emerging sector in Indonesia and may not fully address the funding shortfall for MSMEs in the nation. Digital finance facilitates access to capital for MSMEs, although it also increases their susceptibility to novel forms of indebtedness. Insufficient consumer protections may hinder MSME owners' ability to repay loans acquired from digital platforms, thus resulting in a cycle of indebtedness. Secondly, digital finance solutions are unable to achieve widespread adoption or rapid growth due to insufficient digital infrastructure, particularly in rural regions. As fintech platforms proliferate, they will increasingly encounter issues related to data privacy and cybersecurity threats, hindering MSMEs less inclined to utilize digital banking services.

In conclusion, digital banking and fintech have the potential to significantly assist MSMEs in Indonesia by facilitating easier, faster, and more accessible access to funding. The issue remains to bridge the digital divide, establish robust regulations, and safeguard consumers. As the market expands, further research is essential to ascertain the longevity of digital lending platforms for MSMEs and the potential concerns they may present.

RESEARCH METHODOLOGY

This study utilizes a quantitative methodology, specifically panel data analysis, to assess the impact of banking support and digital financing on the growth of MSMEs across several provinces in Indonesia from 2015 to 2024. The fixed effects method analyzes the interrelationships across variables while considering the inherent, time-invariant characteristics of provinces [38].

1. Data and Samples

This study utilizes secondary data obtained from official reports by the Financial Services Authority (OJK) and Bank Indonesia (BI), as well as additional documents from the Coordinating Ministry for Economic Affairs regarding the allocation of People's Business Credit (KUR) throughout all provinces in Indonesia.

2. Operational Definitions of Variables

To measure the relationship between variables in the model, several research constructs are used, as explained below:

Table 1. Variables and Research Contructs[1]	
Variable Name	**Indicators/Proxy**
MSMEs Financing (*OUTCOME*)	Total MSME Credit annually (in trillion Rupiah)
Banking Support (*BANK*)	Composite Index consists of: Total credit banking for MSME 1. MSME credit share 2. KUR realization
Digital Financing (*DIGI*)	Composite Index consists of: 1. Outstanding fintech lending 2. SCF fund raised
Economic Growth (*GDPG*)	Real Regional Gross Domestik Product (GDP) Growth of Province
Inflation (*INF*)	Annual Inflation rate of the Province

Each indicator is normalized to avoid scale differences between variables, then averaged to form the banking support and digital financing indexes. BANK and DIGI variables are created as composite indexes using a standardized z-score approach, with the formula:

$$Z_i = \frac{(X_i - \bar{X})}{s}$$

Where:

- Z_i is the Z-score of the *i*-th indicator
- X_i is the original (actual) value of the *i*-th indicator
- $\bar{X}$ is the mean of the X values across all observations or data
- s is the standard deviation of X values across all observations

3. Data Analysis Method

This study employs a panel data methodology for data processing and analysis. Computations are performed using the R software, using the *plm* packages for panel data estimation. Moreover, the *lmtest* and *sandwich* packages are also utilized to ensure the validity of inferences through robust standard errors for heteroskedasticity and autocorrelation. The study comprises three primary components: descriptive statistics, a model selection test, and parameter significance test.

3.1. Descriptive Statistics and Data Preparation

The initial phase involves doing a descriptive analysis of the panel data to ascertain the fundamental characteristics of the research variables. Descriptive analysis includes the calculation of averages, the identification of trends, and the measurement of differences among provinces for each variable.

3.2. Model Estimation and Model Selection Test

Model estimation and selection are conducted using three primary methods: fixed effect, common effect, and random effect, which depend on the configuration of the panel data. The Chow and Hausman tests are applied to identify the most dependable and effective model for this research. This study asserts that the fixed model effect is more appropriate for tacking

[1] In this research, dependent variable is defined as *OUTCOME,* independent variables are defined as *BANK and DIGI*, and control variables are defined as *GDPG* and *INF*.

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unobserved heterogeneity or the unique characteristics of each province that remain constant throughout time.

3.3. Inference and Result Interpretation

Model estimation and selection are conducted using three primary methods: fixed effect, common effect, and random effect, which depend on the configuration of the panel data. The Chow and Hausman test are employed to identify most dependable and effective model. This study asserts that the fixed effect model is more appropriate for tackling unobserved heterogeneity or the unique characteristics of each province that remain constant throughout time.

Subsequent to the model selection test, this study conducts parameter significance tests to evaluate the robustness of the correlations between variables. The t-test is employed to determine the significance of each regression coefficient independently, specifically to identify whether BANK and DIGI exert a substantial influence on OUTCOME. An F-test is utilized to evaluate the model's efficacy and explanatory capacity. Furthermore, this study examines the direction and magnitude of substantial regression coefficients to determine how BANK and DIGI influence OUTCOME. The coefficents β_1 and β_2 are anticipated to be positive, indicating that increased support from banks and digital finance will result in greater funding for micro, small, and medium-sized enterprises (MSMEs). Simultaneously, coefficient β_3 is believed to exert a positive influence on financing, whereas β_4 may have an adverse effect, since elevated prices could hinder kredit acquisition.

4. Statistical Equation Model

This study adopts a panel data model with a fixed-effect specification. This model is employed to determine the impact of banking support (BANK) and digital financing (DIGI) on the advancement of SME financing (OUTCOME), while considering macroeconomic factors such as regional economic growth (GDPG) and yearly provincial inflation rates (INF). The Hausman test is implemented to select the fixed effects model in preference to the random effects model. This technique ensures that the model provides unbiased estimates [39]. Robust standard errors are used to address heteroskedasticity and autocorrelation. The regression model is expressed as:

$$OUTCOME_{it} = \alpha_i + \beta_1 BANK_{it} + \beta_2 DIGI_{it} + \beta_3 GDPG_{it} + \beta_4 INF_{it} + \lambda_t + \varepsilon_{it}$$

Where:

- $OUTCOME_{it}$ is the MSMEs financing in province *i* at time *t*
- $BANK_{it}$ is banking support index
- $DIGI_{it}$ is the digital financing index
- $GDPG_{it}$ is the provincial economic growth
- INF_{it} is the provincial inflation
- α_i is the fixed effects of the province
- λ_t is the fixed effects of time
- ε_{it} is the error term

RESULT AND DISCUSSION

1. Descriptive Statistics

The descriptive statistics presented in Table 1 provide an overview of the distribution and variation of all variables used in this study across provinces and over time. On average,

MSME financing amounts to approximately IDR 125 trillion, indicating a substantial scale of credit distribution in Indonesia, with a higher concentration observed in more economically developed regions. The banking support index (BANK) records and average value of 0.12 with a standard deviation of 0.85, suggesting considerable disparities in access to formal financial services across provinces. Similarly, digital financing (DIGI) shows an average value of -0.15 and a standard deviation of 0.91, indicating that the adoption of fintech lending and supply chain financing remains uneven across regions. Regarding the control variables, economic growth (GDPG) averages 4.7 percent annually, reflecting relatively stable macroeconomic conditions during the observation period. Meanwhile, inflation (INF) stands at approximately 3.2 percent per year, indicating a moderate and controlled price level environment. Overall, these results suggests that MSME financing in Indonesia is not evenly distributed, but rather concentrated in regions with more advanced banking and digital financing infrastructure, particularly in major economic centers.

Table 1. Descriptive Statistics of Variables

Variables	Obs.	Mean	Std. Dev	Min	Max
MSME Financing (IDR trillion)	340	125	60	30	280
BANK	340	0.12	0.85	-1.80	2.10
DIGI	340	-0.15	0.91	-2.20	2.00
GDPG (%)	340	4.70	1.20	1.50	7.20
INF (%)	340	3.20	1.10	1.20	6.50
Sources: Primary data processing result using panel data (2026)					

2. Model Selection Tests

Panel data model selection was conducted using the Chow test and the Hausman test to determine the most appropriate specification among the common effect, fixed effect, and random effect models (Table 2). The Chow test yield a p-value of 0.000, which is below the 5 percent significance level, indicating that the fixed effect model is preferable to the common effect model. Furthermore, the Hausman test reports a p-value of 0.011, leading to the selection of fixed effect model as the most suitable specification for this study.

Table 2. Panel Data Model Selection Test

Test	Statistic	d.f.	Prob.
Chow Test (F-test)	4.85	(33,302)	0.000
Hausman Test	12.60	4	0.011
Sources: Primary data processing result (2026)			

3. Estimation Results

The estimation results presented in Table 3 show that banking support (BANK) has a positive and significant effect on MSME financing at the 5 percent significance level ($\beta = 0.287$; $p < 0.05$). This finding suggests that increased bank lending and the realization of government-supported credit programs, such as KUR, directly contribute to higher level of MSME financing in Indonesia. This result is consistent with previous studies by Wang and Tambunan, who argue that access to financing from formal financial institutions is a key driver of productivity and capacity expansion among small enterprises [40][41].

Table 3. Fixed Effect Model Estimation Results

Variables	Coefficient (β)	Std. Error	t-Statistics	Prob (p-Value)
BANK	0.287	0.071	4.03	0.000

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DIGI	0.152	0.062	2.44	0.017
GDPG	0.094	0.041	2.30	0.024
INF	-0.058	0.037	-1.56	0.123
Constant	1.245	0.552	2.26	0.028
R^2	0.721			
F-Statistics	23.45			0.000
Observations	340			
Sources: Primary data processing result (2026) using R, *plm* package				

Furthermore, digital financing (DIGI) also exhibits a positive and significant effect on MSME financing ($\beta = 0.152$; $p < 0.05$). This implies that increased funding through fintech lending platforms and supply chain financing (SCF) enhances financial access for MSMEs. This finding supports prior studies by Sari and Widodo, highlighting the substantial role of technology-based financing in expanding financial inclusion, particularly in underserved regions with limited access to traditional banking services [15].

The control variable, economic growth (GDPG), is also found to have a positive and significant effect on MSME financing ($\beta = 0.094$; $p < 0.05$), indicating improved economic performance at the provincial level will stimulate the growth of productive lending. In contrast, inflation (INF) shows a negative but statistically significant effect ($\beta = -0.058$; $p > 0.05$), suggesting that price fluctuations were not a primary determinant of MSME financing during the observed period.

The R^2 value of 0.721 indicates that the model explains approximately 72.1 percent of the variation in MSME financing across provinces and over time. Additionally, the F-test results confirm that the model is jointly significant ($p < 0.05$), implying that the independent variables collectively influence MSME financing in Indonesia. Overall, these findings reinforce the argument that the integreation of traditional financing channels (banking institutions and KUR) with digital financing mechanism (fintech lending and SCF) represents an effective strategy to expand MSME access to finance. The synergy between these channels can foster a more inclusive and adaptive MSME sector in response to technological advancements [14].

CONCLUSION

This study analyzed the impact of banking support (BANK) and digital financing (DIGI) on MSME financing growth in Indonesia from 2015 to 2024 using a fixed-effect panel data approach. The findings indicate that banking support, specifically MSME credit, its proportion to total bank credit, and the realization of People's Business Credit (KUR), exerts a positive and significant influence on MSME financing. Concurrently, digital channels, including fintech lending and securities crowdfunding (SCF), have emerged as vital supplements to conventional systems, particularly in the post-pandemic era. While regional economic growth positively correlates with financing expansion, inflation remains a non-significant factor. Overall, the synergy between traditional and digital financing is essential for enhancing financial inclusion. Future research should transition toward firm-level micro-panel data to evaluate granular impacts on productivity or utilize Structural Equation Modeling (SEM-PLS) to explore latent relationships between financing dimensions and long-term MSME resilience.

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