

The Role of Payment Gateways, Platform-Based Lending, and Technopreneurship on the Financial Performance of MSMEs in Sidoarjo Regency

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ABSTRACT

Digital transformation has reshaped how Micro, Small, and Medium Enterprises (MSMEs) operate, with financial technology increasingly positioned as a determinant of business performance. This study examines the influence of payment gateway, platform-based lending, and technopreneurship on the financial performance of MSMEs in Sidoarjo Regency. A quantitative explanatory approach was applied using primary data collected from 77 MSME respondents who had adopted financial technology services, selected through simple random sampling. Data were analyzed using multiple linear regression with the assistance of SPSS 25.0. All 26 instrument items were declared valid ($r > 0.224$, Sig. = 0.000) and the four constructs demonstrated high reliability (Cronbach's Alpha 0.944–0.964). Classical assumption tests confirmed that the regression residuals were normally distributed, free from multicollinearity, and free from heteroscedasticity. The regression results show that payment gateway ($B = 0.470$; $t = 7.972$; $p = 0.000$), platform-based lending ($B = 0.152$; $t = 2.658$; $p = 0.010$), and technopreneurship ($B = 0.394$; $t = 6.253$; $p = 0.000$) each have a significant positive effect on MSME financial performance, both partially and simultaneously ($F = 64.336$; $p = 0.000$; $R\text{-squared} = 0.726$). Payment gateway emerged as the strongest predictor, indicating that transactional efficiency is the most immediate lever of financial performance among Sidoarjo's MSMEs. These findings reinforce the relevance of the Technology Acceptance Model in explaining fintech adoption among small businesses and offer practical implications for policymakers and digital finance providers seeking to accelerate MSME digitalization.

INTRODUCTION

Over the past ten years, the digital economy in Indonesia has transformed the way people transact and conduct business. Expanded internet access and advances in financial technology have contributed to this change, but the ability of small businesses to adapt also

determines how far this transformation progresses (Bank Indonesia, 2023). The business ecosystem born of this digital era is more open, agile, and technology-driven. Micro, Small, and Medium Enterprises (MSMEs) are at the center of this change as the backbone of the national economy, contributing more than 60% of Gross Domestic Product (GDP) and absorbing more than 97% of the national workforce (Ministry of Cooperatives and SMEs, 2023).

The problem is that the significant role of MSMEs has not been matched by their readiness to utilize digital technology to boost competitiveness and business efficiency (Financial Services Authority, 2022). The Ministry of Cooperatives and SMEs (2023) noted that of the approximately 66 million active MSMEs, only 30–35% have truly adopted digital technology in their business operations. The COVID-19 pandemic has emphasized this gap. MSMEs that were earlier to adapt to digital systems have survived the crisis, while those that have not yet digitized have experienced declining revenue and operational difficulties (Indonesian Chamber of Commerce and Industry, 2021).

A similar pattern is seen in Sidoarjo Regency. Most MSMEs in this region have begun incorporating financial technology services such as payment gateways, QRIS, and digital financing platforms into their daily business activities (Sari & Widodo, 2022). The Bank Indonesia Representative Office for East Java Province recorded that the adoption rate of QRIS by MSMEs in Sidoarjo has exceeded 70%, indicating that the digitalization of micro-businesses in this region is progressing quite rapidly as part of the local economic recovery strategy (Bank Indonesia, 2023).

The use of financial technology by MSMEs is generally associated with ease of transactions, expanded access to financing, and more streamlined financial management. Pratama and Rahmawati (2022) found that fintech utilization positively impacted transaction ease, cash flow efficiency, and financial accountability for MSMEs. Sukma, Rachmawati, and Wibowo (2019) found similar results: fintech use was positively correlated with business growth through increased access to capital and speed of financial services. Sari and Widodo (2022) added that the adoption of digital financial services such as QRIS and platform-based lending contributed to economic recovery and improved financial performance for MSMEs in Sidoarjo Regency. However, not all MSMEs have successfully maximized the potential of this technology. Kurniawan and Yuniarti (2022) demonstrated that human resource readiness, digital literacy, and the ability to innovate differentiate between adaptive MSMEs and those lagging behind in the digitalization process.

This is where the role of technopreneurs becomes relevant, namely business actors who utilize technology as the foundation for innovation and business strategy. Technopreneurship is not just about technical skills in using technology, but also about managerial skills, creativity, and a long-term vision to seize digital opportunities (Suryana, 2021). Ndou, Mele, and Secundo (2022) describe technopreneurs as individuals with a strong innovation orientation, accustomed to exploring data-driven opportunities, and willing to take

risks to create added value. This capacity, in turn, is a key determinant of the success of economic digitalization in a region.

Transaction efficiency through payment gateways, access to capital through platform-based lending, and innovative capacity through technopreneurship actually complement each other in shaping the overall digital readiness of MSMEs. Payment gateways deal with the daily operational side of a business, platform-based lending touches on capital and liquidity, while technopreneurship determines the extent to which business actors are able to manage and optimize both fintech instruments. All three form an interconnected ecosystem: new transaction and financing technologies have an optimal impact on financial performance when balanced by the ability of business actors to utilize them adaptively and innovatively. Sidoarjo clearly demonstrates the combination of these three elements. The high QRIS adoption rate indicates transactional readiness, the growth of digital financing platforms reflects the ever-increasing need for capital, and the emergence of young technology-based entrepreneurs indicates the growing technopreneurial capacity among local MSMEs. These three conditions prompted this study to place payment gateways, platform-based lending, and technopreneurship in a single empirical study model, rather than analyzing them individually as most previous studies have.

Most previous studies have addressed these factors separately, focusing on digital payment adoption, access to financing, and still others on the digital entrepreneurial capacity of entrepreneurs. Few studies have examined all three simultaneously in a single model, especially for MSMEs in Sidoarjo Regency, which has a high rate of fintech adoption but rarely received empirical research. This study offers four novelties. First, all three predictors—payment gateway, platform-based lending, and technopreneurship—are tested simultaneously, rather than partially or in pairs as in most previous studies. Second, payment gateway and platform-based lending are treated as two separate, independent constructs in a single integrative TAM-based model. Third, technopreneurship is included as a reflection of the digital entrepreneurial capacity of entrepreneurs, a dimension often overlooked in MSME fintech studies to date. Fourth, the sample was drawn from MSMEs that have adopted fintech services in Sidoarjo Regency, the region with the highest QRIS adoption rate in East Java, which has received minimal integrated empirical research. On that basis, this study analyzes the influence of payment gateways, platform-based lending, and technopreneurship on the financial performance of MSMEs in Sidoarjo Regency, both partially and simultaneously, while adding to academic studies regarding digital transformation in the MSME sector in Indonesia.

Davis (1989) developed the Technology Acceptance Model (TAM) as a refinement of the Theory of Reasoned Action (TRA), a framework that explains the factors behind individuals' acceptance and use of technology. TAM rests on two main constructs: perceived usefulness, which is the belief that a technology can improve performance, and perceived ease of use, which is the belief that the technology is easy to use. These two perceptions shape

attitudes toward technology use, which ultimately influence users' intentions and actual behavior (Davis, Bagozzi, & Warshaw, 1992).

TAM is commonly used to explain technology adoption behavior by businesses, including MSMEs, in the context of the digital economy (Venkatesh & Davis, 2000). When businesses perceive a financial technology such as a payment gateway or platform-based lending as useful and easy to use, their likelihood of adopting it to support their business's efficiency and financial performance increases. Technopreneurial capabilities also strengthen this adoption process through digital innovation and adaptations that better suit MSME needs. Therefore, TAM serves as the conceptual foundation for this research to examine the extent to which business actors' perceptions and capabilities regarding financial technology influence MSME financial performance in the digital era.

Payment gateways function as technological intermediaries connecting buyers, sellers, and payment service providers in digital transactions (Laudon & Traver, 2018). For MSMEs, their presence makes transactions more efficient, speeds up the payment process, and helps digital financial records become more accurate (Jansen & Solms, 2019). Payment gateways also expand the choice of payment methods for MSMEs, from QRIS, digital wallets, to virtual accounts, which are increasingly familiar to consumers. This study measures payment gateways using four indicators: ease of use, transaction speed, transaction security, and cost efficiency (Jansen & Solms, 2019).

Platform-based lending connects lenders and borrowers through an online platform, a digital financing model that offers advantages such as ease of access, process efficiency, and transparency. However, it still carries the risk of default if the borrower is weak in financial management (Ziegler et al., 2021). For MSMEs, which are often hampered by collateral requirements and complicated banking procedures, this platform offers a more flexible and faster financing path. Advances in financial technology have also made the funding process more measurable, as MSMEs can be assessed through a data-based risk analysis system (Gambacorta et al., 2023). Four indicators are used to measure this variable: ease of financing access, speed of disbursement, financing flexibility, and information transparency (Ziegler et al., 2021; Gambacorta et al., 2023).

Technopreneurs are entrepreneurs who utilize technology as the foundation of their business strategy to create added value, efficiency, and competitive advantage. In MSMEs, this technopreneurship spirit drives the use of technology across everything from marketing and production to financial record-keeping to data-driven opportunity exploration. This capacity is crucial for business sustainability amidst digital transformation and increasingly fierce competition (Ndou et al., 2022). This study measures technopreneurship through three dimensions: innovation orientation, digital technology utilization, and willingness to take technological risks (Suryana, 2021; Ndou et al., 2022).

Financial performance is typically measured through ratios such as solvency, leverage, and profitability (Fahmi, 2012; Harahap, 2010; Sartono, 2012). However, in MSMEs, these indicators are often simplified to revenue or profit growth and cash flow stability, given that

many MSMEs rely on daily cash flow for business continuity (Sari & Widodo, 2022). This study follows this pattern and measures MSME financial performance through three indicators: revenue growth, cost efficiency, and cash flow stability, as all three directly determine how optimally a business unit operates.

Referring to the Technology Acceptance Model (Davis, 1989), this study positions payment gateways, platform-based lending, and technopreneurship as three independent variables that shape the transactional, financial, and digital entrepreneurial capacity of MSMEs, respectively, in improving their financial performance. Payment gateways play a role through transactional efficiency, in line with the perceived usefulness construct in TAM. Platform-based lending works through the accessibility of capital and business liquidity, in line with perceived ease of use. Technopreneurship reflects innovative capacity and active technology adoption, in line with actual use, ultimately ensuring the sustainable optimization of both fintech instruments.

The Relationship Between Payment Gateways and MSME Financial Performance. Payment gateways operate through the perceived usefulness pathway within the TAM framework, which is the belief that digital payment technology can make their daily transactions more efficient. The stronger this belief, the more frequently payment gateways are used, which in turn speeds up cash flow, simplifies financial record-keeping, and reduces manual payment errors (Jansen & Solms, 2019). Nielsen (2020) found that digital payment adoption is positively correlated with small business performance in developing countries, as transaction efficiency directly improves cash flow and the accuracy of financial reporting. Based on this description, the first research hypothesis is formulated as follows: H1 : Payment gateways have a positive effect on the financial performance of MSMEs.

The Relationship Between Platform-Based Lending and MSME Financial Performance. Platform-based lending operates through perceived ease of use, which means easy access to financing without having to go through lengthy conventional banking procedures. This convenience allows MSMEs to obtain working capital more quickly and flexibly, thus maintaining business liquidity, especially during times of cash flow stress (Ziegler et al., 2021; Gambacorta et al., 2023). Balyuk and Davydenko (2019) demonstrated that reintermediation through online lending platforms opens access to capital for small businesses previously difficult to obtain through formal banking channels, thus contributing to business continuity and growth. Based on this, the second hypothesis of this study is: H2 : Platform-based lending has a positive effect on the financial performance of MSMEs.

The Relationship between Technopreneurship and MSME Financial Performance. Technopreneurship plays a role through the actual use pathway in TAM, namely the extent to which business actors actively and innovatively use technology, rather than simply adopting it blindly. An innovation orientation, the ability to explore data-driven opportunities, and the courage to take technological risks enable MSMEs to optimize payment gateways and platform-based lending more strategically (Ndou et al., 2022). Purwanto and Santoso (2022) demonstrated that technopreneurship capacity accelerates MSMEs' post-pandemic digital

adaptation and contributes to sustainable business performance improvement. Based on this description, the third research hypothesis is formulated as follows: H3 : Technopreneurship has a positive effect on the financial performance of MSMEs.

Davis (1989) argued that perceived usefulness, or the user's belief that a technology can improve their performance, is the strongest determinant of actual usage intentions and behavior. In MSMEs, payment gateways that make daily transactions more efficient have a direct impact on cash flow, making them theoretically the closest predictor of financial performance. Technopreneurs with an innovation orientation and the courage to take technological risks, on the other hand, are better able to optimize the entire fintech service ecosystem to build a competitive advantage. This rationale is what led this study to predict payment gateways as the strongest predictor, followed by technopreneurship, and then platform-based lending.

These three pathways are conceptually complementary and are expected to work together to boost the financial performance of MSMEs. Based on this, the fourth hypothesis of this study is formulated as follows: H4 : Payment gateways, platform-based lending, and technopreneurship simultaneously influence the financial performance of MSMEs in Sidoarjo Regency.

RESEARCH METHODS

Types and Approaches of Research

This research uses a quantitative, explanatory research approach, aiming to explain the causal relationship between the independent variables of payment gateways, platform-based lending, and technopreneurship and the dependent variable of MSME financial performance. This approach was chosen because it tests hypotheses formulated based on previous theory and research, rather than exploring phenomena openly without theoretical direction.

Data Sources and Types

The data used is primary data, collected through a questionnaire distributed to MSMEs in Sidoarjo Regency who have used financial technology services. The questionnaire was structured as a closed-ended statement with a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Population, Sample, and Sampling Techniques

The population of this study included all active MSMEs in Sidoarjo Regency. The sample size was determined following Ferdinand's (2014) guidelines, which included multiplying the number of indicators by five to ten respondents per indicator. This study used 14 indicators, so the minimum sample size required was $14 \times 5 = 70$ respondents. This number was increased by 10% to anticipate invalid or incomplete data, resulting in a total sample size of 77 respondents. The sample was drawn using a simple random sampling technique, as every MSME in Sidoarjo that has used financial technology services has an equal chance of being selected as a respondent.

Operational Definition of Variables

Table 1 summarizes the operational definitions, indicators, and reference sources for each variable. The Payment Gateway instrument was adapted from Jansen and Solms (2019), Platform-Based Lending from Gambacorta et al. (2023), Technopreneurship from Suryana (2021) and Ndou et al. (2022), while MSME Financial Performance refers to Sari and Widodo (2022). Each indicator was then translated into questionnaire statements measured using a Likert scale.

Table 1. Operational Definition of Variables

Variables	Operational Definition	Indicator	Source
Payment Gateway (X1)	Digital payment transaction intermediary technology between buyers, sellers, and payment service providers used by MSMEs in their daily business activities.	Ease of use; transaction speed; transaction security; cost efficiency	Jansen & Solms (2019)
Platform-Based Lending (X2)	A digital financing model that brings together lenders and borrowers through an online platform as an alternative financing for MSMEs.	Ease of access to financing; speed of disbursement of funds; financing flexibility; information transparency	Ziegler et al. (2021); Gambacorta et al. (2023)
Technopreneurship (X3)	The ability of business actors to make technology the foundation of business strategy to create added value and competitive advantage.	Innovation orientation; utilization of digital technology; courage to take technological risks	Suryana (2021); Ndou et al. (2022)
Financial Performance of MSMEs (Y)	Business achievements are reflected in increased revenue, cost efficiency, and cash flow stability after utilizing digital technology.	Increased revenue; business cost efficiency; cash flow stability	Sari & Widodo (2022)

Instrument Test

Instrument validity was tested using Pearson Correlation; an item is declared valid if the calculated *r* value exceeds the table *r*. With 77 respondents (*df* = 75) at a significance level of 5%, the table *r* used was 0.224. Reliability was tested using Cronbach's Alpha, and the instrument is considered reliable if the value is above 0.600.

Data Analysis Techniques

The collected data was processed using multiple linear regression to test for partial and simultaneous effects between variables. Before entering the regression analysis, this study first conducted classical assumption tests, including normality tests using the Kolmogorov-Smirnov test, multicollinearity tests using Tolerance and VIF, and heteroscedasticity tests using the Glejser method. The model's ability to explain variation in the dependent variable was measured using the coefficient of determination (R Square), while hypothesis testing was conducted using the *t*-test for partial effects and the *F*-test for simultaneous effects. The entire process was carried out using SPSS version 25.0.

RESULTS AND DISCUSSION

This section presents the results of the data analysis sequentially, starting with an overview of the respondents and continuing through hypothesis testing. The findings are then discussed, linking them to theory and previous research, to provide a more comprehensive understanding of the phenomenon under study.

Respondent Overview

This study involved 77 respondents from MSMEs in Sidoarjo Regency who had used financial technology services in their business activities, according to the sample size determined during the planning stage. All returned questionnaires were complete and suitable for analysis, so no data needed to be excluded from the processing.

Descriptive Statistics of Variables

Before conducting regression testing, a general overview of the total value of each variable is first presented in Table 2.

Table 2. Descriptive Statistics of Research Variables

Variables	Mean	Standard Deviation	N
MSME Financial Performance (Total_KU)	22.09	6,536	77
Payment Gateway (Total_PG)	26.29	7,781	77
Platform-Based Lending (Total_PBL)	29.36	8,211	77
Technopreneurship (Total_TP)	22.05	6,599	77

Source: Data processed by the author (2026)

All variables have the same amount of data, namely 77 respondents, so there is no difference in the number of cases included in the analysis. The average value of Total_PBL was recorded as the highest among the independent variables (29.36), followed by Total_PG (26.29) and Total_TP (22.05), while the average Total_KU as the dependent variable was at 22.09. This pattern is quite interesting: although platform-based lending has the highest average score, as will be seen in the regression results, its contribution to financial performance is not the most dominant, indicating that the intensity of use of a fintech service is not always directly proportional to the magnitude of the service's influence on business performance.

Validity Test

The validity test was conducted using Pearson Correlation by comparing the correlation value of each statement item to the total score of its variable. With 77 respondents, the *r* value used in the table was 0.224 at a significance level of 5%. Therefore, an item is declared valid if the calculated *r* value is greater than 0.224 and the significance value is less than 0.05. The results of the validity test are presented in Table 3.

Table 3. Pearson Validity Test Results

Variables	Item	r Count	r Table	Sig.	Information
X1	PG1	0.892	0.224	0,000	Valid
X1	PG2	0.898	0.224	0,000	Valid

Variables	Item	r Count	r Table	Sig.	Information
X1	PG3	0.906	0.224	0,000	Valid
X1	PG4	0.917	0.224	0,000	Valid
X1	PG5	0.933	0.224	0,000	Valid
X1	PG6	0.893	0.224	0,000	Valid
X1	PG7	0.905	0.224	0,000	Valid
X2	PBL1	0.502	0.224	0,000	Valid
X2	PBL2	0.894	0.224	0,000	Valid
X2	PBL3	0.925	0.224	0,000	Valid
X2	PBL4	0.901	0.224	0,000	Valid
X2	PBL5	0.883	0.224	0,000	Valid
X2	PBL6	0.903	0.224	0,000	Valid
X2	PBL7	0.877	0.224	0,000	Valid
X2	PBL8	0.909	0.224	0,000	Valid
X3	TP1	0.904	0.224	0,000	Valid
X3	TP2	0.940	0.224	0,000	Valid
X3	TP3	0.919	0.224	0,000	Valid
X3	TP4	0.916	0.224	0,000	Valid
X3	TP5	0.899	0.224	0,000	Valid
X3	TP6	0.905	0.224	0,000	Valid
Y	KU1	0.876	0.224	0,000	Valid
Y	KU2	0.911	0.224	0,000	Valid
Y	KU3	0.896	0.224	0,000	Valid
Y	KU4	0.917	0.224	0,000	Valid
Y	KU5	0.896	0.224	0,000	Valid
Y	KU6	0.924	0.224	0,000	Valid

Source: Data processed by the author (2026)

Based on Table 3, all 26 statement items in variables X1, X2, X3, and Y have a calculated r value above 0.224 with a significance of 0.000, except for item PBL1 which, although its value is relatively lower than other items ($r = 0.502$), is still far above the r table threshold so it is still declared valid. These results indicate that all statement items in the questionnaire are able to measure the intended construct, so it is worth retaining for further analysis.

Reliability Test

Reliability testing is used to assess the internal consistency of respondents' responses to each set of items within a single variable. An instrument is considered reliable if the Cronbach's Alpha value is greater than 0.600. The results of the reliability testing are presented in Table 4.

Table 4. Cronbach's Alpha Reliability Test Results

Variables	Cronbach's Alpha	Minimum Limit	Number of Items	Information
Payment Gateway (X1)	0.964	0.600	7	Reliable
Platform-Based Lending (X2)	0.944	0.600	8	Reliable
Technopreneurship (X3)	0.960	0.600	6	Reliable
Financial	0.954	0.600	6	Reliable

Variables	Cronbach's Alpha	Minimum Limit	Number of Items	Information
Performance of MSMEs (Y)				

Source: Data processed by the author (2026)

The Cronbach's Alpha values for the four variables ranged from 0.944 to 0.964, well above the minimum threshold of 0.600. This value is considered very high according to general instrument reliability criteria, so all research variables can be declared reliable and suitable for use in subsequent regression analysis.

Classical Assumption Test

Before conducting multiple linear regression analysis, a series of classical assumption tests were first carried out to ensure that the regression model met the requirements as a good estimator (Best Linear Unbiased Estimator).

Normality Test. The normality test is performed on the regression residual values, not on each variable separately, because the normality assumption in multiple linear regression requires normally distributed residuals.

Table 5. Results of the Kolmogorov-Smirnov Normality Test

Tested Variables	Test Statistics	Asymp. Sig.	Information
Unstandardized Residual	0.077	0.200	Normal

The Kolmogorov-Smirnov test results show an Asymp. Sig. value of 0.200. Because this value is greater than 0.05, the regression residuals are declared normally distributed, so the normality assumption in the regression model has been met.

Multicollinearity Test. A multicollinearity test is performed to ensure that there is no overly strong correlation between the independent variables. A regression model is declared free of multicollinearity if the Tolerance value is greater than 0.10 and the VIF value is less than 10.

Table 6. Multicollinearity Test Results

Variables	Tolerance	VIF	Information
Payment Gateway (X1)	0.762	1,312	There is no multicollinearity
Platform-Based Lending (X2)	0.728	1,373	There is no multicollinearity
Technopreneurship (X3)	0.928	1,077	There is no multicollinearity

The three independent variables have a Tolerance value above 0.10 and a VIF value below 10, so it can be concluded that the regression model in this study does not experience symptoms of multicollinearity.

Heteroscedasticity Test. The heteroscedasticity test was conducted using the Glejser method, which regresses the absolute value of the residuals against the independent variables. A model is considered free of heteroscedasticity if the significance value of each independent variable is greater than 0.05.

Table 7. Results of the Glejser Heteroscedasticity Test

Variables	B	t	Sig.
Payment Gateway (X1)	-0.037	-0.994	0.323
Platform-Based Lending (X2)	-0.015	-0.424	0.673
Technopreneurship (X3)	0.012	0.295	0.769

The significance value of all independent variables is above 0.05 (0.323; 0.673; and 0.769), so the regression model in this study does not show symptoms of heteroscedasticity and is suitable for further analysis.

Multiple Linear Regression Analysis and Coefficient of Determination

After all classical assumption tests are met, the next stage is testing the multiple linear regression model to determine the strength of the relationship and the magnitude of the influence of the independent variables on the dependent variable.

Table 8. Model Summary

R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson
0.852	0.726	0.714	3,493	1,975

The R value of 0.852 indicates that the relationship between payment gateways, platform-based lending, and technopreneurship together with MSME financial performance is in the strong category. The R Square value of 0.726 means that the three independent variables are able to explain the variation in MSME financial performance by 72.6%, while the remaining 27.4% is explained by other variables outside this research model, such as financial literacy of business actors, support from local government policies, or macroeconomic conditions that are not included in the model.

Table 9. F Test Results (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2355,467	3	785,156	64,336	0,000
Residual	890,897	73	12,204		
Total	3246,364	76			

The F-test was used to determine whether payment gateways, platform-based lending, and technopreneurship simultaneously significantly influence the financial performance of MSMEs. The ANOVA results in Table 9 show a calculated F-value of 64.336 with a significance level of 0.000. Since this significance level is less than 0.05, it can be concluded that the three independent variables simultaneously significantly influence the financial performance of MSMEs.

Table 10. Results of Regression Coefficient Test and t-Test

Variables	B	Std. Error	Beta	t	Sig.	Note:
Constant	-3,425	1,926		-1,779	0.079	
Payment Gateway (X1)	0.470	0.059	0.560	7,972	0,000	Significant
Platform-Based Lending (X2)	0.152	0.057	0.191	2,658	0.010	Significant
Technopreneurship (X3)	0.394	0.063	0.398	6,253	0,000	Significant

Based on the Unstandardized Coefficients (B) values in Table 10, the multiple linear regression equation formed is:

$$Y = -3.425 + 0.470X_1 + 0.152X_2 + 0.394X_3$$

The constant -3.425 mathematically represents the baseline value of MSME financial performance when payment gateways, platform-based lending, and technopreneurship are considered zero. This figure has no substantive meaning on its own, as in practice, it is impossible for these three variables to have a zero value for MSMEs that have adopted fintech. The positive coefficients on X_1 , X_2 , and X_3 confirm the positive direction of the relationship to MSME financial performance, with each one-unit increase in each variable increasing MSME financial performance by the value of its coefficient, assuming other variables remain constant.

Based on the Beta value, payment gateways have the largest relative contribution ($\beta = 0.560$), followed by technopreneurship ($\beta = 0.398$), and platform-based lending ($\beta = 0.191$). This order shows that among the three fintech factors tested, transaction efficiency through payment gateways is most closely related to improving the financial performance of MSMEs in Sidoarjo. While access to financing through platform-based lending, while still significant, its contribution is relatively smaller compared to the other two variables.

Discussion

The Influence of Payment Gateways on MSME Financial Performance. Payment gateways have been shown to have a positive and significant impact on MSME financial performance ($B = 0.470$; $t = 7.972$; $\text{Sig.} = 0.000$) and are the largest contributor in the model ($\beta = 0.560$). These results align with the Technology Acceptance Model (Davis, 1989): the higher the perceived usefulness of a technology, the more intensive its use, and the greater its impact on performance. For MSMEs in Sidoarjo, payment gateways, whether through QRIS, digital wallets, or virtual accounts, are the fintech touchpoints with the most immediate benefits: faster transactions, neater recording, and reduced manual payment errors. These findings align with the results of Hendratmi et al. (2022) and Rahmawati and Pratama (2023) on the positive influence of digital payment systems on MSME performance. This significant contribution from payment gateways makes sense because transaction efficiency concerns daily operational needs, the impact of which on cash flow is immediately felt, unlike situational financing or technopreneurial capacity, the impact of which is only visible in the medium term.

The Influence of Platform-Based Lending on MSME Financial Performance. Platform-based lending also had a positive and significant impact on MSME financial performance ($\beta = 0.152$; $t = 2.658$; $\text{Sig.} = 0.010$), although its contribution was the smallest among the three variables tested ($\beta = 0.191$). These results align with those of Arner et al. (2020) and Yuliana (2022), who showed that access to digital financing contributes to the performance of micro and small businesses. Without having to go through lengthy conventional banking procedures, this platform provides MSMEs with the space to maintain liquidity, especially when they

need additional working capital. Its relatively small contribution is understandable because this service is used more frequently situationally, not as frequently as payment gateways in daily transactions, so its impact on overall financial performance is more moderate. Ziegler et al. (2021) caution that the benefits of digital financing are only optimally felt if business actors are also disciplined in managing their payment obligations.

The Influence of Technopreneurship on MSME Financial Performance. Technopreneurship has a positive and significant effect on MSME financial performance ($\beta = 0.394$; $t = 6.253$; $\text{Sig.} = 0.000$) and is the second largest predictor after payment gateways ($\beta = 0.398$). This finding confirms the view of Ndou, Mele, and Secundo (2022) that innovation orientation, digital technology utilization, and risk-taking willingness determine the extent to which entrepreneurs can optimize digital opportunities. These results also align with Wijaya and Sari (2023), who stated that technopreneurship drives financial performance through sustainable technological innovation. Its greater influence than platform-based lending indicates that simply having technology or access to financing is not enough. Business actors need the capacity to utilize it actively and innovatively to truly impact performance. In other words, technopreneurship is a complementary factor that ensures payment gateways and platform-based lending are truly optimized, not merely used passively.

Simultaneous Effects and Model Explanatory Power. Simultaneously, payment gateways, platform-based lending, and technopreneurship significantly influence MSME financial performance ($F = 64.336$; $\text{Sig.} = 0.000$) and are able to explain 72.6% of the variation ($R^2 = 0.726$). This figure is relatively high for research in the field of behavioral economics and indicates that this research model is quite strong in explaining the determinants of MSME financial performance in Sidoarjo. This finding emphasizes the relevance of TAM (Davis, 1989) as a framework for understanding how the perception of the usefulness of financial technology, coupled with the digital entrepreneurial capacity of entrepreneurs, together shape financial performance. The remaining 27.4% of unexplained variance likely comes from factors other than the model, such as financial literacy of entrepreneurs, support from the local government's digital ecosystem, or business sector characteristics, which could be a direction for future research.

CONCLUSION AND SUGGESTIONS

This study analyzes the influence of payment gateways, platform-based lending, and technopreneurship on the financial performance of MSMEs in Sidoarjo Regency through an explanatory quantitative approach with multiple linear regression on 77 MSME respondents. Payment gateways are proven to have a positive and significant effect on MSME financial performance ($B = 0.470$; $t = 7.972$; $\text{Sig.} = 0.000$; $\beta = 0.560$) and appear as the predictor with the largest contribution in the model. This means that the transaction efficiency offered by payment gateways is the most direct lever for the financial performance of MSMEs in Sidoarjo. Platform-based lending also has a positive and significant effect ($B = 0.152$; $t = 2.658$; $\text{Sig.} = 0.010$; $\beta = 0.191$). Although its contribution is relatively smaller than the other

two variables, easy access to digital financing still helps MSMEs maintain liquidity and strengthen their financial performance. Technopreneurship, on the other hand, has a positive and significant effect ($B = 0.394$; $t = 6.253$; $\text{Sig.} = 0.000$; $\beta = 0.398$) and is the second strongest predictor after payment gateways. This finding indicates that the capacity of business actors to innovate and actively utilize technology also determines the optimization of financial performance, complementing the role of fintech technology used. Simultaneously, these three variables have a significant effect on the financial performance of MSMEs ($F = 64.336$; $\text{Sig.} = 0.000$; $R \text{ Square} = 0.726$), able to explain 72.6% of the variation in financial performance of MSMEs in Sidoarjo, a high figure that confirms the relevance of the Technology Acceptance Model in explaining fintech adoption in the MSME sector.

Theoretically, this study adds to the rich literature on MSME digital transformation by demonstrating that payment gateways, platform-based lending, and technopreneurship can be tested simultaneously within a single TAM-based model, and that all three have been empirically proven relevant to MSMEs in regions with high fintech adoption rates, such as Sidoarjo Regency. Practically, MSMEs are advised not to stop at adopting digital payment and financing technologies alone, but also to actively build technopreneurial capacity so that their use truly impacts business performance. For payment gateway and digital financing platform providers, these findings provide input to continue simplifying interfaces and expanding user education for MSMEs, given that perceived ease and usefulness have been shown to be key drivers of adoption. For local governments and related agencies, these results can serve as a basis for designing MSME digitalization mentoring programs that not only provide technology access but also strengthen the digital entrepreneurial capacity of business actors.

This study has several limitations. Its scope only covered MSMEs in Sidoarjo Regency, so generalizing the results to other regions with different fintech adoption characteristics requires caution. The sample size of 77 respondents, although meeting Ferdinand's (2014) guidelines, is still too small to represent the entire population of MSMEs in Sidoarjo. The R-square of 72.6% also leaves 27.4% of the variance in MSME financial performance unexplained by this model, leaving open the possibility that other variables play a role. Future research is recommended to expand the scope to other regencies or cities for more generalizable results, add other variables that could potentially influence MSME financial performance, such as financial literacy, digital literacy, or government policy support, consider advanced analytical methods such as Structural Equation Modeling (SEM) to test possible mediation or moderation relationships between variables, and use a longitudinal design to examine the development of MSME financial performance over time following fintech adoption.

BIBLIOGRAPHY

Arner, D.W., Buckley, R.P., Zetsche, D.A., & Veidt, R. (2020). Sustainability, FinTech and financial inclusion. *European Business Organization Law Review*, 21(1), 7–35.

- Balyuk, T., & Davydenko, S. A. (2019). Reintermediation in FinTech: Evidence from online lending. *Michael J. Brennan Irish Finance Working Paper Series Research* , 18(17).
- Bank Indonesia. (2023). *East Java Province Economic Report 2023*. Bank Indonesia Representative Office, East Java Province.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly* , 13(3), 319–340.
- Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology* , 22(14), 1111–1132.
- Fahmi, I. (2012). *Financial report analysis* . Alfabeta.
- Ferdinand, A. (2014). *Management research methods: Research guidelines for writing theses, dissertations, and dissertations in management science* (5th Edition). Diponegoro University Publishing Agency.
- Gambacorta, L., Huang, Y., Qiu, H., & Wang, J. (2023). How does machine learning and non-traditional data affect credit scoring? New evidence from a Chinese fintech firm. *Journal of Financial Stability* .
- Harahap, SS (2010). *Critical analysis of financial reports* . Rajawali Pers.
- Hendratmi, A., Ratnasari, RT, & Sukmaningrum, PS (2022). The role of digital payment systems in improving MSME financial performance during economic recovery. *Journal of Theoretical and Applied Islamic Economics* , 9(4), 451–462.
- Jansen, T., & Solms, R. von. (2019). Payment gateway security: A framework for small and medium enterprises. *International Journal of Information Security and Privacy* , 13(2), 1–15.
- Indonesian Chamber of Commerce and Industry. (2021). *Report on the impact of the COVID-19 pandemic on Indonesian MSMEs* . Indonesian Chamber of Commerce and Industry.
- Ministry of Cooperatives and SMEs of the Republic of Indonesia. (2023). *Indonesian MSME Statistics 2023*. Ministry of Cooperatives and SMEs of the Republic of Indonesia.
- Kurniawan, A., & Yuniarti, R. (2022). Readiness of MSMEs in digitalization: The role of digital literacy and innovation. *Journal of Digital Management and Business* , 4(1), 22–35.
- Laudon, K. C., & Traver, C. G. (2018). *E-commerce 2018: Business, technology, society* (14th ed.). Pearson.
- Ndou, V., Mele, G., & Secundo, G. (2022). Exploring the entrepreneurial ecosystem in the context of digital transformation: A systematic literature review. *Journal of Innovation & Knowledge* , 7(3), 100225.
- Nielsen, J. (2020). Digital payment adoption and small business performance: Evidence from emerging markets. *Journal of Small Business Management* , 58(4), 712–731.
- Financial Services Authority. (2022). *Roadmap for the development and strengthening of digital-based MSMEs 2022–2027* . OJK.
- Pratama, RA, & Rahmawati, D. (2022). The effect of financial technology utilization on the financial efficiency of MSMEs. *Journal of Accounting and Finance* , 10(2), 145–158.

- Purwanto, E., & Santoso, B. (2022). The role of technopreneurship in the digital adaptation of MSMEs post-pandemic. *Journal of Entrepreneurship and Business* , 27(1), 60–72.
- Rahmawati, F., & Pratama, A. (2023). The effectiveness of payment gateways in increasing MSME sales in the digital era. *Journal of Business and Management Research* , 16(1), 33–45.
- Sari, NP, & Widodo, T. (2022). Adoption of digital financial services and financial performance of MSMEs in Sidoarjo Regency. *Journal of Digital Economics and Business* , 3(2), 88–101.
- Sartono, RA (2012). *Financial management: Theory and application* (4th ed.). BPFE.
- Sukma, N., Rachmawati, L., & Wibowo, A. (2019). The influence of financial technology use on the growth of micro, small, and medium enterprises. *Journal of Management Science*, 7(3), 601–612.
- Suryana. (2021). *Entrepreneurship: Tips and processes to success* (5th Edition). Salemba Empat.
- Venkatesh, V., & Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science* , 46(2), 186–204.
- Wijaya, K., & Sari, M. (2023). Technopreneurship and financial performance of MSMEs: A study of digital entrepreneurs. *Journal of Innovation and Business Management*, 5(1), 14–27.
- Yuliana, R. (2022). Access to digital financing and the performance of micro and small businesses in Indonesia. *Journal of Economics and Management* , 16(1), 55–70.
- Ziegler, T., Shneor, R., & Zhang, B. Z. (2021). The global status of the alternative finance market: Trends and developments. In *Contemporary Developments in Entrepreneurial Finance* (pp. 43–61). Springer.