




# The influence of financial literacy, the use of peer to peer lending, and payment gateways on the financial performance of MSMEs in Lamongan Regency

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Article Info	ABSTRACT
<p><b>Article history:</b></p> <p>Received May 29, 2025 Revised Jun 1, 2025 Accepted Jun 13, 2025</p> <hr/> <p><b>Keywords:</b></p> <p>Financial Literacy; Financial Performance of MSMEs; Payment Gateway; Use of Peer to Peer Lending.</p>	<p>This study aims to test the effect of financial literacy, the use of <i>peer to peer lending</i> , and <i>payment gateways</i> on the financial performance of MSMEs. This study uses a quantitative method with an associative approach. The population in this study were all MSMEs in the food and beverage sector in Lamongan Regency. Samples were taken using a purposive sampling method with the criteria of MSME actors in the food and beverage sector in Lamongan Regency who were registered with the Lamongan Regency Cooperatives &amp; Micro Enterprises Service, and MSME business actors who had utilized the fintech platform, namely <i>payment gateways</i> as online payments and <i>peer to peer lending loan options</i> so that a sample of 100 MSMEs was obtained. Data were obtained by distributing 100 questionnaires to MSME actors in Lamongan Regency directly via google form. Data analysis using SmartPLS version 3. The results of the study showed that financial literacy, the use of <i>peer to peer lending</i> , and <i>payment gateways</i> had a significant effect on the financial performance of MSMEs in Lamongan Regency.</p> <p style="text-align: right;"><i>This is an open access article under the CC BY-NC license.</i></p> 

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## 1. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) in Indonesia have a major contribution in supporting economic growth, expanding employment opportunities, and encouraging income equality. Based on Law No. 20 of 2008 concerning MSMEs, this sector has become the backbone of the national economy (Hidayatullah & Sartika, 2024), (Umniyah & Mulyadi, 2023). The Indonesian government even formed a special Ministry to handle MSMEs, showing a great commitment in strengthening this sector as a driver of the people's economy.

In Lamongan Regency, the development of MSMEs continues to show a positive trend. According to data from the Single Data Information System (SIDT), the number of MSMEs increased significantly from 15,931 units in 2016 to 72,923 units in 2024. The dominant sector is food and beverages with 15,081 units. This sector was chosen as the focus of the research because of its labor-intensive characteristics, high-demand consumerism, and strong local value chain. Therefore, this sector is considered the most representative in reflecting the impact of digitalization on the financial performance of MSMEs as a whole.

However, the high number of MSMEs does not always reflect strong business sustainability. Many MSMEs in Lamongan face serious challenges such as lack of financial literacy, limited access to funding, weak managerial skills, and less than optimal use of digital technology in their business processes (Fatimah et al., 2023). Especially in the current era of digital transformation, lagging behind in technology adoption is a major obstacle for MSMEs to compete.

Digitalization of the local economy has become an important lever in increasing the competitiveness of MSMEs. In Lamongan, the local government has been actively encouraging digital transformation through business digitalization training programs, facilitating the use of QRIS, and collaborating with fintech. Lamongan's uniqueness lies in the combination of an informal sector-based economic structure with the gradual adoption of financial technology. Compared to other areas such as Surabaya or Jakarta which are more established in terms of digital infrastructure, Lamongan represents a semi-urban area with its own characteristics of challenges and opportunities in utilizing financial technology (fintech). This condition makes Lamongan a relevant case study to see how digitalization of the local economy can strengthen the use of fintech contextually.

Fintech offers concrete solutions to various traditional limitations of MSMEs, especially in terms of capital and transaction efficiency. One of them is peer to peer lending, which provides access to capital without physical collateral requirements which have been the main obstacle for small MSMEs (Aditya & Rita, 2024). Even so, the use of P2P lending in Lamongan has not been optimal. The lack of digital literacy and concerns about the risks of online loans make some business actors reluctant to use it (Dinas Koperasi dan UMKM Kabupaten Lamongan, 2024). In fact, according to (Putri, Armiani, and Setiawati, 2024) lending has been proven to increase access to financing and accelerate business capital turnover.

In addition, payment gateways have become an important feature in the digitalization of payment systems. With the convenience of electronic payments such as QRIS, ShopeePay, and bank transfers, MSMEs can reach digital consumers more widely (Putri et al., 2024) and (Purnamasari, 2020). In Lamongan, this trend is starting to grow, especially among food and beverage businesses, because daily consumer product transactions are more frequent and easier to do through digital platforms. The use of payment gateways also makes it easier to record finances, which ultimately supports the efficiency of financial management.

Financial literacy is an important foundation for the success of MSMEs in accessing and utilizing fintech. MSMEs who have a good understanding of finance are able to make strategic decisions related to the use of financial technology, prepare mature business plans, and manage risks better (Maharani & Yuliati, 2024a), (Akbar et al., 2023). Unfortunately, most MSMEs in Lamongan are still limited to simple bookkeeping practices or even have no records at all. Therefore, financial literacy not only supports the use of fintech, but is also an important prerequisite for improving the financial performance of MSMEs (Putri, Armiani, and Setiawati, 2024).

Previous studies have been mostly conducted in large urban areas, so not many have highlighted the context of developing areas such as Lamongan, with the character of MSMEs that are still in digital transition. This is the research gap that needs to be filled. Therefore, this study aims to test the effect of financial literacy, the use of peer to peer lending, and payment gateways on the financial performance of MSMEs in the food and beverage sector in Lamongan Regency. The results of this study are expected to contribute to digital-based MSME development policies in growing areas such as Lamongan.

## 2. RESEARCH METHOD

This study uses a quantitative approach with an associative method. The quantitative approach was chosen because it aims to test the relationship between variables objectively through numerical data processing and statistical analysis (Sugiyono, 2017). The associative method is used to determine and explain the extent of the relationship between independent variables, namely financial literacy ( $X_1$ ), the use of peer to peer lending ( $X_2$ ), and payment gateway ( $X_3$ ) to the dependent variable, namely the financial performance of MSMEs ( $Y$ ). The justification for using this method is based on the

characteristics of the study which wants to identify the direct influence between variables that have been formulated in the conceptual framework.

The selection of associative quantitative methods is also relevant to the inferential research objectives, namely drawing general conclusions from data collected through structured instruments in the form of questionnaires. In addition, this approach allows researchers to measure the strength and direction of relationships statistically that can be generalized to certain populations, especially MSMEs in the food and beverage sector in Lamongan Regency.

The population in this study were all UMKM actors in the food and beverage sector registered with the Cooperatives and Micro Business Service of Lamongan Regency, with a total of 15,081 units. The sampling technique used purposive sampling, namely with the following criteria: a) MSME players in the food and beverage sector; b) Have utilized fintech in the form of payment gateways and/or peer to peer lending.

The number of samples was determined using the Slovin formula with a margin of error of 10%, so that a total sample of 100 respondents was obtained. The data collection instrument used a closed questionnaire with a 5-point Likert scale. Data was collected through the distribution of Google Forms to MSME actors who met the criteria, and assisted by field enumerators to ensure the validity of the responses.

**Data engineering analysis**

The data analysis technique uses the Partial Least Square – Structural Equation Modeling (PLS-SEM) method with the help of SmartPLS software version 3. PLS-SEM was chosen because it is suitable for predictive models with a relatively small number of samples and complex structural models. The analysis procedure consists of testing the outer model (validity and reliability), inner model (R-square, F-square tests), and hypothesis testing (path coefficient) (Abdillah & Hartono, 2015).

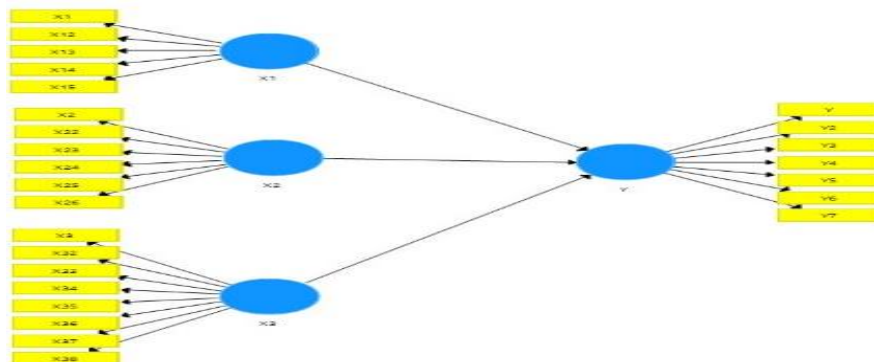


Figure 1. Conceptual framework

**Consideration of Other External Factors and Limitations of Interpretation**

This study acknowledges the existence of **other external factors** outside the model that potentially also influence the financial performance of MSMEs, such as: a) Digital training and education support from the government or financial institution; b) Quality of service and ease of use of fintech platforms, including security and customer service; c) Availability of digital infrastructure and supporting ecosystems, such as internet networks, logistics partnerships, and digital-based MSME communities.

Although not directly included in this research model, these factors are recognized as having the potential to influence MSME performance and are limitations in the interpretation of the results. Therefore, the results of this study should be understood as an initial description that focuses on behavioral variables and the use of fintech individually, not as a model that explains the entire complexity of the determinants of MSME financial performance holistically. For further research, it is

recommended that the model be expanded by including these external environmental indicators more systematically in order to obtain a more comprehensive understanding of the dynamics of MSME performance in the digital era.

### 3. RESULTS AND DISCUSSIONS

The distribution of questionnaires in the study was through Google Form. The questionnaires distributed amounted to 100 questionnaires with 100 questionnaires returned via Google Form. Respondents in this study were MSME actors in the food and beverage sector in Lamongan Regency. The data collected were obtained from the characteristics of respondents based on gender, age, education, length of business, and monthly income. The gender of respondents can be used as a reference to determine gender involvement in work. From the results of the tabulation of respondent data, it can be seen that there were 64 female respondents or 64% and 36 male respondents or 36%. This data shows that the percentage of female gender is greater than male. From the results of the tabulation of respondent data based on age, there were 5 respondents aged <20 years or 5%, 55 respondents aged 20-29 years or 55%, and 40 respondents aged > 30 years or 40%. From the tabulation of respondent data based on Education, it can be seen that respondents with Elementary School/Equivalent education level are 2 people or 2%, respondents with Junior High School/Equivalent education level are 7 people or 7%, respondents with Senior High School/Vocational High School education level are 56 people or 56%, and respondents with Bachelor's degree level are 35 people or 35%, in addition for respondents with Diploma, Masters, and Doctoral education level are 0 with a percentage of 0%. This data shows that most business owners only have an education up to Senior High School/Vocational High School. The tabulation data of respondents who have opened a business <2 years are 39 people or 39%, the length of the respondent's business is 2-4 years is 27 people or 27%, and the length of the respondent's business is >4 years is 34 people or 34%. From the tabulation data of respondent data, the monthly income obtained by respondents is Rp. 0-Rp. 1,000,000 is 15 people or 15%, the monthly income obtained by respondents is Rp. 1,000,000-Rp.3,000,000 as many as 59 people or 59%, monthly income obtained by respondents Rp.3,000,000-Rp.5,000,000 as many as 13 people or 13%. and monthly income obtained by respondents >Rp.5,000,000 as many as 13 people or 13%.

#### Validity Test

- Convergent validity results, *convergent validity* test, the measurement of a reflective study, the indicator is assessed based on the correlation between the item score and *the construct score*. If the correlation between the reflective measure and the construct to be tested gives a value of more than 0.70, the reflective measure is considered to be of very good quality. If the study still wants to be developed, then the loading value in the range of 0.50 to 0.60 is still considered good (Hair & Alamer, 2022).

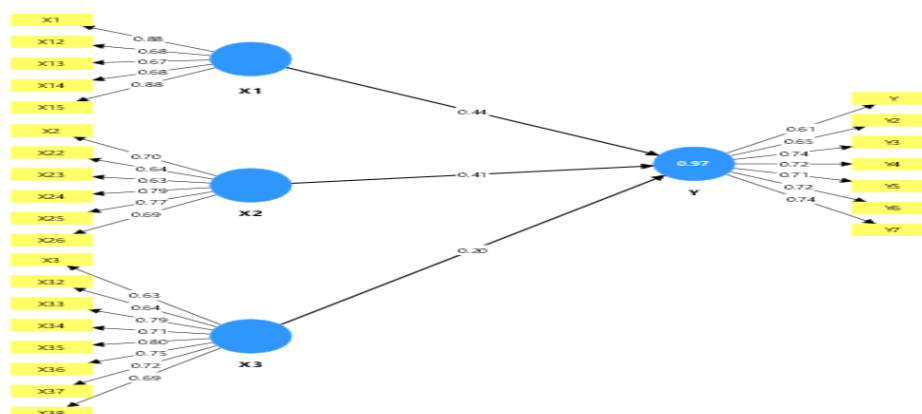


Figure 2. Hail outer model

Based on the image above, it can be seen that the *outer model value* of all indicators of variables X and Y is greater than 0.6 so it can be said to be valid (Hair & Alamer, 2022). To make it easier to understand the image, the following can be seen in the table below:

Variabel	Indikator	Outer Loading (00,50)	Keterangan
Literasi Keuangan (X1) (Mulyanti & Nurhayati, 2022)	X1.1	0,883	Valid
	X1.2	0,676	Valid
	X1.3	0,667	Valid
	X1.4	0,685	Valid
	X1.5	0,875	Valid
Peer To Peer Lending (X2) Putri, Armini, & Setiawati (2024)	X2.1	0,700	Valid
	X2.2	0,643	Valid
	X2.3	0,634	Valid
	X2.4	0,795	Valid
	X2.5	0,769	Valid
	X2.6	0,688	Valid
Payment Gateway (X3) Putri, Armini, & Setiawati (2024)	X3.1	0,626	Valid
	X3.2	0,645	Valid
	X3.3	0,794	Valid
	X3.4	0,709	Valid
	X3.5	0,800	Valid
	X3.6	0,748	Valid
	X3.7	0,717	Valid
	X3.8	0,685	Valid
Kinerja Keuangan UMKM (Y) (Mulyanti & Nurhayati, 2022)	Y.1	0,609	Valid
	Y.2	0,650	Valid
	Y.3	0,738	Valid
	Y.4	0,721	Valid
	Y.5	0,780	Valid
	Y.6	0,746	Valid
	Y.7	0,740	Valid

Figure 3. Outer loading

- b. Discriminant validity results, to determine whether a construct has good *discriminant* or not, a discriminant validity test is carried out using the *cross loading value*, if the *cross loading value* of the indicator meets the discriminant validity.

	X1	X2	X3	Y
X1	0.883	0.555	0.685	0.730
X12	0.676	0.479	0.559	0.638
X13	0.667	0.612	0.617	0.650
X14	0.685	0.610	0.635	0.738
X15	0.875	0.540	0.671	0.721
X2	0.554	0.700	0.573	0.710
X22	0.680	0.643	0.643	0.670
X23	0.385	0.634	0.478	0.468
X24	0.515	0.735	0.714	0.716
X25	0.546	0.763	0.800	0.740
X26	0.382	0.688	0.466	0.434
X3	0.564	0.515	0.626	0.612
X32	0.683	0.642	0.645	0.672
X33	0.551	0.711	0.734	0.632
X34	0.511	0.783	0.709	0.716
X35	0.546	0.763	0.800	0.740
X36	0.573	0.504	0.748	0.539
X37	0.559	0.548	0.717	0.618
X38	0.883	0.555	0.685	0.730
Y	0.645	0.448	0.525	0.603
Y2	0.667	0.612	0.617	0.650
Y3	0.685	0.610	0.635	0.738
Y4	0.875	0.540	0.671	0.721
Y5	0.554	0.700	0.573	0.710
Y6	0.511	0.783	0.709	0.716
Y7	0.546	0.763	0.800	0.740

Figure 5. Cross loading

Source: Smart PLS Version 3

From the *cross loading results* in figure 5 above, it shows that each indicator in the research variable has a greater *cross loading value* compared to the *cross loading value* in other variables and has a *Cross Loading value* <0.9. From the results obtained, it can be stated that the indicators used in this study have good *discriminatory validity* (valid).

### Reliability Results

In the reliability test of a construct if the total *composite reliability value* owned from the data is more than 0.7 then it can be considered reliable. In addition to *composite reliability*, this can

also be confirmed from the *Crombach Alpha* value which is more than 0.6. The results of the Reliability test can be seen in the table below:

Table 1. Composite reliability and cronbach alpha

Variables	Composite Reliability ( $\geq 0,7$ )	Crombach Alpha ( $\geq 0,6$ )	Information
Financial Literacy	0.873	0.814	Reliable
Peer To Peer Lending	0.856	0.800	Reliable
Payment Gateway	0.894	0.864	Reliable
Financial Performance of MSMEs	0.870	0.825	Reliable

Source: Smart PLS Version 3

Based on table 1, the results of the *composite reliability* value of each variable are more than 0.7 and the *Crombach alpha* is more than 0.6, so it can be said to be reliable.

### R-Square Results

In the *Partial Least Square model* research, the first thing that is seen is the *R-Square* on each dependent latent variable. The interpretation in the determinant coefficient is the same as the interpretation in the regression analysis:

Table 2. R-square table

Variables	R-Square	R-Square Adjusted
Financial Performance of MSMEs	0.974	0.973

Source: Smart PLS Version 3

It can be seen in the *R-Square table* which shows the value of *R-Square* on the UMKM Financial Performance variable of 0.974. So it can be stated that the variables of financial literacy, *peer to peer lending*, and *payment gateways* can jointly explain the UMKM financial performance variable of 97.4% while the remaining 2.6% is explained by other variables outside the variables studied in this study.

### F-Square Results

*F-Square* can be said to be useful for knowing the influence of exogenous variables on endogenous variables. The results of *F-Square* can be seen in the table below:

Table 3. F-square table

	Financial Performance of MSMEs	Information
Financial Literacy	2,031	Very strong
Peer To Peer Lending	1,390	Very strong
Payment Gateway	0.191	Moderate

Source: Smart PLS Version 3

It can be seen in the *F-Square table*, it can be concluded that financial literacy in explaining the financial performance of MSMEs has a value of 2.031 which can be said to be very strong. *peer to peer lending* in explaining the financial performance of MSMEs has a value of 1.390 which can be said to be very strong. While the *payment gateway* in explaining the financial performance of MSMEs has a value of 0.191 which is said to be moderate.

### Hypothesis Testing

This hypothesis testing applies the output *path coefficient* to examine the structural model through the *bootstrapping process*. The results of the hypothesis will be observed in the t-statistic value which will be compared with the t-table. Where the T-table obtained is 1.96 and is significant at 0.05 or 5%. If the t-statistic is greater than 1.96 then it will be accepted, and the *P-Value* if it is less than 0.05 then it is accepted.

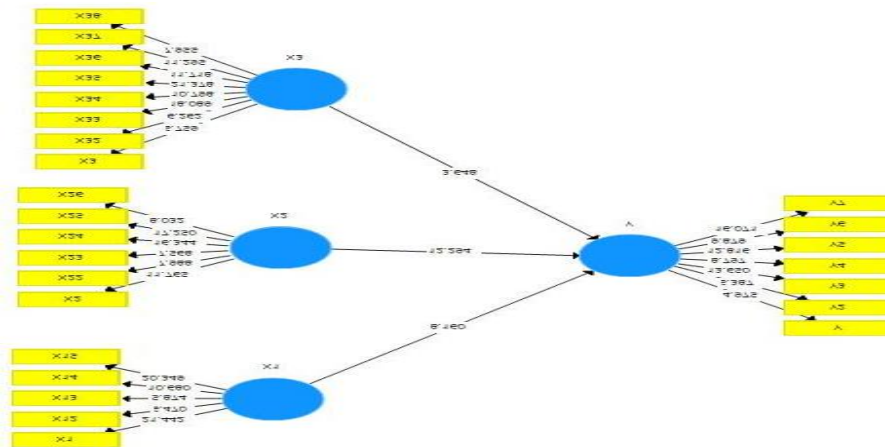


Figure 6. Hypothesis testing results

Table 4. Path coefficient

	Original Sample	Sample Mean	tandard Deviation	T-Statistic ( $\geq 1,660$ )	P-Value ( $\leq 0,05$ )
X1-Y	0.443	0.432	0.054	8,160	0,000
X2-Y	0.414	0.419	0.034	12,294	0,000
X3-Y	0.199	0.203	0.054	3,648	0,000

Source: Smart PLS Version 3

It can be seen in table 4. which explains the results of the *path coefficient test*, then the hypothesis can be concluded as follows. Hypothesis testing H1 It can be seen that *the p-value* is 0.000 and *the t-statistic* is 8.160 , because *the t-statistic* > 1.96 and *the p-value* <0.05, then H1 is accepted. So financial literacy has a significant effect on the financial performance of MSMEs. Hypothesis testing H2 It can be seen that *the p-value* is 0.000 and *the t-statistic* is 12.294 , because *the t-statistic* is >1.96 and *the p-value* <0.05, then H2 is accepted. So *peer to peer lending* has a significant effect on the financial performance of MSMEs. Hypothesis testing H3 It can be seen that *the p-value* is 0.000 and *the t-statistic* is 3,648 , because *the t-statistic* is >1.96 and *the p-value* <0.05, then H2 is accepted. So *the payment gateway* has a significant effect on the financial performance of MSMEs.

**Discussion of Research Results**

**The Influence of Financial Literacy on the Financial Performance of MSMEs in Lamongan Regency**

Based on the results of the study above, the financial literacy variable has a significant effect on the financial performance of MSMEs. This can be proven by the results of the *path coefficient test* with a *P-Value* of 0.000 <0.05 or with a t-statistic of 8.160 > 1.96 so that it can be concluded that H1 is accepted, which means that the financial literacy variable has a significant effect on the financial performance variable of MSMEs. The results of this study are in line with the research conducted by (Mulyanti & Nurhayati, 2022), (Sukanti et al., 2024), (Maharani & Yuliati, 2024), (Kaseng et al., 2024), and Ruhmi & Tanjung (2023) which stated that financial literacy has a significant effect on the financial performance of MSMEs. However, this study is not in line with the research conducted by (Lubis & Nurhayati, 2024) which stated that financial literacy does not affect the financial performance of MSMEs, because the literacy of MSME actors in Tanah Enam Ratus Village, Medan City is still less literate and low which can be caused by factors such as the level of education achieved and financial behavior that is not yet optimal. Meanwhile, this study found that the respondents of MSME actors in the food and beverage sector in Lamongan Regency were mostly educated in high school/vocational school and S1 who had good financial literacy, which they could make records of incoming and outgoing cash and record stock of goods.

### **The Influence of Peer To Peer Lending on the Financial Performance of MSMEs in Lamongan Regency**

Based on the results of the study above, the *peer to peer lending variable* has a significant effect on the financial performance of MSMEs. This can be proven by the results of *the path coefficient test* with a *P-Value* of  $0.000 < 0.05$  or with a *t-statistic* of  $12.294 > 1.660$  so that it can be concluded that  $H_2$  is accepted, which means that the *peer to peer lending variable* has a significant effect on the financial performance variable of MSMEs. The results of this study are in line with research conducted by Lubis, Nurbiati, & Harapan (2022), (Talakua & Silaya, 2023), and Sukma et al., (2024) which stated that *peer to peer lending* influential and significant on the financial performance of MSMEs. However, this study is not in line with the research conducted by Putri, Yulianti, & Amrul (2024) and Putri, Armiani, & Setiawan (2024) which stated that *peer to peer lending* does not affect the financial performance of MSMEs, because MSME actors in Mataram City and Lombok Regency are still afraid of the risk of fraud, this is due to the rampant news about online loan fraud which causes MSME actors to prefer not to use *peer to peer lending* and prefer to borrow from banks. While in this study the characteristics of respondents, education level, and age of MSME actors in the food and beverage sector in Lamongan Regency play a fairly large role in increasing and utilizing *fintech peer to peer lending* where the level of education is quite high and the ages are still very productive, so MSME actors can easily follow the development of the times, especially in the field of technology-based financing that can help their capital without requirements.

### **The Influence of Payment Gateway on the Financial Performance of MSMEs in Lamongan Regency**

Based on the research results, the payment gateway variable has been proven to have a positive and significant effect on the financial performance of MSMEs in Lamongan Regency. However, the magnitude of the influence of payment gateways is lower than financial literacy and peer to peer lending. The results of this study are in line with research conducted by (Putri, Armiani, and Setiawati 2024), (Siregar et al., 2023), and (Maharani and Yuliati 2024) which stated that payment gateways have a significant influence on the financial performance of MSMEs. However, this study is not in line with the research conducted by (Sukma et al., 2024) and (Sari, 2023) which stated that payment gateways do not affect the financial performance of MSMEs. This can be explained by the fact that although the use of payment gateways nationally continues to increase, at the local level such as Lamongan, its use is still limited. Many MSMEs only use payment gateways as an alternative payment tool, not as an integrated financial management tool. In addition, there are still many business actors who do not understand advanced features such as automatic recording or sales report integration. Lack of training and local consumer habits that still tend to use cash also contribute to the low effectiveness of payment gateways in improving the financial performance of MSMEs.

## **4. CONCLUSION**

Based on the research results, it can be concluded that financial literacy, the use of peer to peer lending, and payment gateways have a positive and significant effect on the financial performance of MSMEs in Lamongan Regency. Financial literacy has the greatest influence, indicating the importance of understanding MSME actors in managing business finances wisely. The use of peer to peer lending also plays a significant role in expanding access to capital, especially amidst limited access to formal financial institutions. Meanwhile, payment gateways also have a positive impact although relatively lower, indicating that the adoption of digital payment technology still needs to be improved in terms of quality and coverage.

The strategic implication of this finding is the importance of developing a technology-based financing model that is tailored to the characteristics of MSMEs in rural or semi-urban areas such as Lamongan. This includes providing a digital financing platform that is easily accessible, educational, and has simple but effective features for small business actors who are not yet fully digitally literate. Fintech services need to be developed inclusively and supported by local governments so that they not only reach MSMEs in urban areas, but also villages and sub-districts.

In practice, the results of this study can be a reference for institutions such as the Cooperatives and MSMEs Service to design more targeted financial literacy and digitalization programs. The program can be focused on increasing understanding of business financial management, training in the use of fintech applications (such as P2P lending and payment gateways), and the formation of MSME digital communities. Thus, business actors not only understand how to use financial technology, but are also able to integrate it into daily business practices to increase efficiency and competitiveness.

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