Financial Literacy and Impact on Credit Accessibility: A Study of Maize Farmers in Madura Island, Indonesia

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ABSTRACT

The level of financial literacy affects the access to credit that is appropriate in overcoming the finances of corn farmers on Madura Island. The purpose of this study is to determine the effect of financial literacy on access to credit for corn farmers on Madura Island. The method used in this research is quantitative with probit regression analysis tool to determine the relationship between the influence of the independent variable of financial literacy on the dependent variable of credit access. The data used in this study is primary data, namely data obtained directly by interviews with 143 corn farmers on Madura Island. The results showed that financial literacy influences corn farmers' credit access, but financial literacy needs to be improved for better and more appropriate credit access. Increasing financial literacy can be done with financial training to improve the welfare of corn farmers in Madura.

Keywords: *Credit Access, Financial Literacy, Madura, Maize Farmers*

BACKGROUND

Financial literacy is a person's knowledge about finances and how to manage them so that financial literacy is closely related to financial well-being (Choung et al., 2023). According to Lone & Bhat (2024) people with proper financial literacy have the potential to make sensible financial decisions that will lead to the achievement of financial well-being. People who have financial knowledge tend to save, invest, and are able to utilize credit services better and more skillfully. In contrast, people with a low level of financial literacy are less able to manage finances. Financial literacy is very important, especially in managing finances by utilizing available credit services to help or improve community finances. The results of the National Survey on Financial Literacy and Inclusion (SNLIK, 2022) show that the financial literacy index of Indonesian is 49.68%, which means that the level of financial literacy is still relatively low.

The level of financial literacy is still quite low, characterized by not good financial management. The low level of financial literacy is explained by Palupi & Rotikan (2022) that knowledge about financial management and taking loans with financial services is still not understood due to a lack of information and knowledge related to this. Farmers do not maximize the use of available financial services to improve finances. In accordance with the research of Silong & Gadanakis (2020) that rural farmers' access to agricultural credit is still low. Research conducted by

Rahmah & Nurhayati (2024) also said that farmers are still unfamiliar with financial services, especially in making financial loans.

Financial records are not made by farmers, which results in farmers' ignorance about farming profits or even losses. This finding is in line with the research of Utami & Kusumahadi (2024) which states that farmers still do not make records related to finance. The lack of knowledge of farmers related to financial management occurs due to many factors such as the low level of education of farmers so that farmers do not understand the importance of good financial management (Moahid & Maharjan, 2020). This proves that poor financial management is caused by low financial literacy. Farmers who have a good level of financial literacy will manage their personal and farm budgets well. Conversely, farmers with low levels of financial literacy are less able to manage their budgets well. In line with this statement, Sekita et al. (2022) stated that a lack of knowledge about financial literacy can reduce financial well-being due to poor decision making in managing finances.

According to BBPP Ketindan (2024) Madura has great potential in fulfilling corn, especially for animal feed with a land area of 318 thousand hectares and production of 1.75 million tons. In line with Suprapti & Jamilah (2021), Madura corn is widely used as animal feed. Despite having great potential, most farmers still do not use modern technology so that they are less productive in their farms. Unlike the farmers from various developed countries who have very productive agricultural conditions (Mubaroq & Risky, 2020). According to Mizik (2023) farmers who have a large land area also have a higher level of adoption of agricultural technology. This is different from farmers in Madura who have quite low technology.

High production requires large costs to fulfill agricultural needs. Farming requires large costs to run agricultural activities, such as buying seeds, fertilizers, pesticides, land rent, and labor, requiring a lot of initial capital. This financing requirement is a major challenge, especially for small farmers, who generally have limited financial resources. Meanwhile, the condition of farmers who experience financial difficulties due to irregular income, unstable harvests, or no savings makes them vulnerable to production cost pressures. In situations like this, access to financing sources, such as credit, becomes very important. Financial problems can be overcome by accessing credit to financial institutions such as making loans as needed. According to research by Twumasi et al. (2022) stated that respondents who have access to credit mean that they already have a loan. Accessing credit to overcome problems in finance is also explained by research by Puspasari et al. (2020) farmers' financial difficulties can be overcome by borrowing capital or taking credit from existing financial institutions. One way to make it easier to access credit is by joining a farmer group membership. Some credit lending institutions use farmer group membership status as a requirement to obtain credit (Jono & Feryanto, 2022). In addition, utilizing credit services can significantly increase farmers' income and welfare (Aza et al., 2023). However, farmers in Madura do not understand the credit provided so that financial literacy is very important to learn so that farmers can utilize credit and access credit appropriately. Based on data from the Indonesian Banking Surveillance recently released by OJK, bank credit distribution to the agriculture, hunting, and forestry sector reached IDR473.71 trillion in June 2023. The portion of the agricultural sector reached 7.12 percent of total bank credit. However, OJK assessed that when compared to the sector's contribution to gross domestic product (GDP), the portion of credit distribution reaching 7.12 percent is still relatively low (OJK, 2023). This is supported by research by Falola et al. (2023) financial literacy can increase farmers' understanding of financial institution information.

Several articles discussing the effect of financial literacy on credit (Twumasi et al., 2022: Onah et al., 2024; Puspasari et al., 2020) in these articles explain that financial literacy is influential in accessing credit. There are still few articles that discuss the effect of financial literacy on farmers' access to credit. There has been no research related to the financial literacy of food farmers in the Madura region and the effect of financial literacy on corn farmers' credit access. Therefore, this study is important to see the level of financial literacy of maize farmers on access to credit for maize farmers on Madura Island. This research has implications for improving the welfare of maize farmers in managing and utilizing financial services. This study is also useful for students as a reference in doing college assignments and related research and studies.

RESEARCH METHODS

The research was conducted in Guluk-Guluk sub-district of Sumenep district and Galis sub-district of Bangkalan district. The research subjects were maize farmers in Guluk-Guluk and Galis sub-districts. The research sample was selected by probability with simple random sampling method. Data was collected by observing research location, interviews with 143 respondents. The type of research is quantitative with primary data sources.

The research was conducted using quantitative methods with probit regression analysis. Quantitative method is a systematic scientific method conducted to determine the cause and effect relationship with measured data analysis (Rustamana et al., 2024). Probit regression is an analysis in which the dependent variable is dummy or has two possible outcomes, such as 0 or 1 (Jain et al., 2020). This analysis was carried out using STATA software with the following analysis variables:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + ... + b_9X_9 + ...(1)$$

Description:

Y	= Credit access: yes=1, no=0
X1	= Age (year)
X2	= *Multiple Job (have another job=1, do not have another job=0)*
X3	= Farm size (ha)
X4	= Yard crops (owns yard crops=1, do not have yard plants=0)
	= Farmer Group Participation (join farmer group=1, do not join farmer group=0)
X6	= Credit Facility (utilizing credit facility=1, not utilizing credit facility=0)
X7	= Financial Knowledge (likert scale)
X8	= Financial Skills (likert scale)
X9	= Financial Behavior (likert scale)
b1,……….b9	= Coefficient

There are 3 financial literacy variables used, namely financial knowledge, financial skills, and financial behavior. Financial knowledge is a person's ability to understand basic financial concepts (Handayani et al., 2022). Financial skills are the practical ability to apply financial knowledge in daily financial management (Jumiyati et al., 2021). Financial behavior is a person's real actions or habits in managing their finances, which are influenced by knowledge and skills. Financial behavior such

as paying bills on time, and decisions on choosing financial products after knowing the information (Hendrarini & Soedarto, 2022). Financial literacy variables are measured using a Likert scale questionnaire. According to research by Kandasamy et al. (2020) The likert scale is the most widely used psychometric scale to obtain feedback. The most basic Likert scaling is a 5-column answer format, with the following options: strongly disagree, disagree, doubt, agree and strongly agree. The value of the Likert scale questionnaire is obtained by adding up the results of each respondent's answers and dividing by the number of respondents.

RESULT AND DISCUSSION

This research was conducted on Madura Island in two locations, namely Paterongan Village, Galis Sub-district, Bangkalan District and Bragung Village, Guluk-Guluk Sub-district, Sumenep District. The crop varieties selected from the two locations on Madura Island are different. Hybrid maize varieties were chosen by Sumenep district farmers because hybrid maize is larger and more expensive than local maize, resulting in higher profits for farmers. In contrast to farmers in Sumenep, farmers in Bangkalan district prefer to plant local maize because the product is not sold but consumed by themselves. In addition to maize, farmers also grow other crops such as rice. Farmers in Sumenep district grow rice for consumption while farmers in Bangkalan district grow rice for sale. Most farmers in Bangkalan district work as blacksmiths in addition to farming. The characteristics of respondents of maize farmers on Madura Island can be seen from the descriptive statistics table in table 1.

Table 1. Descriptive Statistics of Madurese Maize Farmer Respondents

Variable	Operational Definition	Min	Max	Mean	Total	Std. dev
Credit Access	*Dummy*	0	1	0,3986	57	0,4913
Age	Year	23	80	43,0909	43	11,6352
Multiple Job	*Dummy*	0	1	0,1398	20	0,348
Farm size	Hectare	0,01	1	0,3038	0,3	0,2349
Yard Plants	*Dummy*	0	1	0,5244	75	0,5011
Farmer Group Participation	*Dummy*	0	1	0,5034	72	0,5017
Credit Facilities	*Dummy*	0	1	0,0769	11	0,2674
Financial Knowledge	Score	1	4,75	2,465	2	0,8452
Financial Skills	Score	1	5	2,6241	2	1,1654
Financial Behaviour	Score	1	5	1,8876	1	0,8747

Source: Primary Data Processed, 2024

Table 1 above shows a description of the data analyzed using descriptive statistics. Descriptive statistical analysis is used to describe the data used in the study so that it can see the overall picture of the data (Martias, 2021). According to research by Ilham et al. (2022) a low standard deviation value close to 0 indicates low fluctuation or uniformity in the data. Table 1 above shows the descriptive statistics for the dependent variables and independent variables used in the study. The dependent variable of access to credit shows the average respondent result of 0.3986 with a standard deviation of 0.4913. This indicates that 39.86% or 56 maize farmers have access to credit. The first independent variable is age with an average value of 43.0909 with a standard deviation of 11.6352 which means that the average age group of respondents is 43 years with a wide enough distance of

11 years. Multiple Job respondents have an average of 0.1398 with a standard deviation of 0.348 which can be said that farmers who have other jobs are 13.98%. Farmers who have other jobs besides being farmers are 20 people, namely as blacksmiths. Farm size has an average value of 0.3038 and a standard deviation of 0.2349 which means that farmers have small farm size with homogeneous data variation, namely land dominated by the size of 0.3038 ha. Yard crops are known to have an average of 0.5244 with a low standard deviation of 0.5011 which indicates that farmers who have yard crops are 52.44%, namely 74 people.

Furthermore, the farmer group participation variable which shows an average value of 0.5034 with a standard deviation of 0.5017 can be said that overall, farmers who participate in farmer group members are 71 people or about 50.34% of all corn farmers. The credit facility variable has an average value of 0.0769 with a standard deviation of 0.6274 indicating that respondents who utilize credit facilities are 10 people. Farmers who utilize credit facilities are farmers who use financial service products. The credit facility in question is KUR which is used to finance farming. The financial knowledge variable has an average value of 2.465 with a standard deviation of 0.8452 which indicates that the respondents' financial knowledge is quite low. The next variable is financial skills which have an average value of 2.6241 and a standard deviation of 1.1664 which indicates that financial skills are also quite low. Finally, financial behavior with an average value of 1.8876 with a standard deviation of 0.8747 which indicates that the respondents' financial behavior is still low. After knowing the characteristics of the research data, the next indicator table of financial knowledge, financial skills, and financial behavior is shown in table 2.

Table 2. Financial Literacy Indicators

Financial Literacy Variable	Strongly Agree (SA)	Agree (A)	Hesitate (H)	Disagree (D)	Strongly Disagree (SD)
Financial Knowledge					
Understand bank rules when taking out a loan	2	7	10	55	69
Understand the risks of borrowing money from a bank	1	8	14	57	63
Understand the purpose of a personal budget	12	79	12	21	19
Avoiding a consumptive attitude	0	64	35	15	29
Financial Skills					
Utilizing financial services	15	66	20	16	26
Calculating the interest rate	7	42	2	28	64
Borrowing money at the end of the month to fulfill basic needs	6	33	25	31	48
Determine the principal and interest amount of debt	7	42	8	29	57
Financial Behaviour					
Saving money in the bank	3	3	10	48	79
Using an ATM to withdraw money from the bank	2	3	2	66	70
On time credit repayment	17	31	10	13	72

Source: Primary Data Processed, 2024

From table 2, it can be seen the lower the agreement on the financial literacy variable, the lower the literacy level. The fewer farmers who agree from the existing population, it is said that the literacy level of most farmers is low (Khusaini et al., 2022). Financial knowledge variable, namely the indicator of understanding bank rules when going to make a loan, there are 2 farmers who understand the rules of borrowing money at the bank and as many as 69 farmers do not understand the rules of borrowing money. Understanding the risk of borrowing money at the bank is understood by 1 farmer and who do not understand the risk of borrowing money at the bank as many as 63 farmers. A total of 12 farmers really understand the meaning of the personal budget and 19 other farmers do not understand the meaning of the personal budget. The personal budget in question is all income that is personally owned both from agriculture and non-agriculture. There are no farmers who really avoid consumptive attitudes such as refraining from buying something that is not a necessity and as many as 29 farmers do not avoid consumptive attitudes such as indulging in more desires.

Financial skills have 4 indicators, namely utilizing financial services where 15 farmers have utilized financial services such as saving and borrowing money and 26 farmers did not utilize financial services at all. the second indicator is calculating interest rates can be done by 2 farmers and 64 farmers cannot calculate interest rates. [A total of 6 farmers agreed to borrow money at the end of the month if basic needs were not met and 48 farmers did not agree to borrow. The last indicator is determining the principal amount and interest of the debt can be done by 7 farmers and 57 farmers cannot determine the principal amount and interest of the debt.

Financial behavior variables have 3 indicators, the first of which is saving money in the bank is done by 3 farmers and 79 farmers save their money independently. The second indicator is using an ATM to withdraw money at the bank is used by 2 farmers and as many as 70 farmers do not use ATMs. The last indicator, which is on time in paying credit, is agreed by 17 farmers and as many as 72 disagree regarding paying credit on time. Furthermore, a correlation test was conducted to determine the relationship between variables in table 3.

Table 3. Correlation of Financial Literacy Variables

	Knowledge	Skills	Behaviour	Credit Access
Knowledge	1,000			
Skills	0,7176	1,000		
Behaviour	0,7590	0,7802	1,000	
Credit Access	0,5256	0,7278	0,5468	1,000

Source: Primary Data Processed, 2024

The correlation test is used to determine whether the relationship between variables is strong or weak. There are three correlation coefficients, namely -1 which indicates a weak relationship, +1 indicates a strong relationship, and a value close to 0 which shows a moderate relationship (Aditia et al., 2020). From the correlation test conducted, it shows that there is a strong relationship in knowledge with skills worth 0.7176 and financial behavior 0.7590. This shows that with good financial knowledge tends to have better financial skills and behavior. The Theory of Planned Behavior states that financial knowledge shapes attitudes and control over financial decisions, thereby influencing skills and behavior (Mohamad et al., 2025). Financial knowledge has a fairly strong relationship with credit access of 0.5256, which means that financial knowledge is significant to credit access. There is a strong relationship between skills with financial behavior 0.7802 and credit access

0.7278. This suggests financial skills influence how one accesses credit and acts financially. A moderately strong relationship is shown by financial behavior to credit access of 0.5468 which means financial behavior has a significant relationship to credit access. Furthermore, it is necessary to conduct a probit regression analysis to see the effect of the independent variables on the dependent variable with the data that has been obtained from the fieldwork so that the results in table 4 are obtained.

Table 4. Analysis of Factors Affecting Credit Access Using Probit Regression Analysis

Credit Access	Coef.	Std. Err	t	P>|t|
Age	-0,0284	0,01889	-1,50	0,133
Multiple Job	0,8435	0,6191	1,36	0,173
Farm size	1,264	0,8157	1,55	0,121
Yard Plants	0,5826	0,3857	1,51	0,131
Farmer Group Participation	-1,0245*	0,5758	-1,78	0,075
Credit Facilities	3,2719***	0,6839	4,78	0,000
Financial Knowledge	0,5267	0,3865	1,36	0,173
Financial Skills	1,3672***	0,2957	4,62	0,000
Financial Behaviour	-0,0936*	0,3677	-1,80	0,071
constant	-3,6592**	1,2068	-3,03	0,002
Number of obs	143			
LR chi2 (9)	133,20			
Prob > chi2	0,000***			
Pseudo R2	0,6926			

*** Significant at level 0,01
** Significant at level 0,5
* Significant at level 0,1

Source: Primary Data Processed, 2024

Table 4 above shows that the farmer group participation variable has a negative and significant effect on variable Y, namely P>|t| is 0.075 and t is negative -1.78, which means that participation in farmer groups tends to reduce the possibility of accessing credit. Farmers who participate in farmer groups have lower access to credit. This shows that by becoming a member of a farmer group, the need for capital for farming is resolved with subsidies from the government. Farmers can focus on farming so that agricultural yields are optimal and the costs of household needs are well met which causes farmers not to access credit. This is in accordance with the research of Alta et al. (2021) that membership in farmer groups has become a basic requirement for farmers to access subsidies, assistance, and extension services. Supported by research by Michels et al. (2024) which states that farmers view government subsidies as guarantees and support from government agencies, thus increasing trust and acceptance and overcoming farmers' financial problems. In line with research by Zakir et al. (2023) government subsidies can reduce the cost of farm expenses so that capital problems can be resolved.

The credit facility variable has a positive and significant effect with a P>|t| value of 0.000 and a positive t value of 3.2719 indicating that credit facilities affect credit access. The existence of credit facilities allows farmers to access credit appropriately as needed. In line with the research of Puspasari et al. (2020) that credit facility services have a positive and significant effect on farmers' decisions to access credit. This is supported by Silalahi (2024) which states that farmers who utilize

credit facilities well tend to be better prepared to access the necessary credit. Utilizing credit facilities must be tailored to the needs of farmers so that available credit facilities can overcome financial problems. Financial literacy is important for farmers in utilizing credit facilities to access credit. Supported by research by Onah et al. (2024) that farmers need to have financial literacy before utilizing credit facilities so that they can be useful. Financial knowledge does not affect access to credit. This happens because if someone only has financial knowledge without good skills and behavior, then their financial decisions and arrangements are less appropriate. Knowledge alone is not enough. For example, high financial literacy but poor financial skills and financial behavior do not guarantee the right credit decisions (Rahmania & Ningtyas, 2022).

The financial literacy variable, namely financial skills, has a positive and significant impact on credit access $P>|t|$ is 0.000 and t is positive 1.3672, indicating that financial skills affect credit access. Maize farmers on Madura Island have low financial skills, especially in accessing credit due to their ignorance in calculating interest so that access to credit is also low. Farmers avoid borrowing money to fulfill their needs because it will be more burdensome on their finances, especially when making payments. Supported by research byJono & Feryanto (2022) which states that difficulties in understanding the rules, not knowing how to calculate interest, and doubts about their ability to pay credit interest are reasons for farmers not to access credit as a source of financing. Research by Kalamento et al. (2021) stated that low financial skills characterized by a lack of understanding of loan procedures and interest rates make farmers reluctant to take credit access.

Financial behavior variables have a negative and significant impact on credit access $P>|t|$ is 0.071 and t is negative -1.3672 indicates that the higher the financial behavior of farmers tend to be lower in accessing credit. The results of the questionnaire and fieldwork conducted by most farmers manage their finances independently including saving money for savings because they believe in managing their finances personally. Farmers feel the need to be punctual in paying credit and it is quite burdensome for farmers especially by taking credit there is interest to be paid so that access to credit is also low. According to research by Rahmania & Ningtyas (2022) financial behavior is influenced by psychological factors to access credit. Financial behavior has a significant effect on credit decisions. This means that good financial behavior has a low credit effect. In line with the research of Agustin et al. (2023) which states that Financial behavior has a positive and significant influence, which means that good financial behavior makes credit decisions more appropriate. Financial behavior describes a person's behavior in making decisions based on psychology and information he knows. Supported by research by Twumasi et al. (2022) which states that financial behavior affects access to credit. Difficulty of service, terms such as interest rates, and hidden fees are often misunderstood by prospective borrowers. A person refuses to borrow because of the complex nature of accessing financial services and misunderstanding most financial terminology such as interest rates and treasury bills.

CONCLUSION AND SUGGESTION

The findings of this study indicate that financial literacy comprising financial skills and behavior significantly affects access to credit among maize farmers on Madura Island. However, the level of financial literacy among these farmers remains low, particularly in areas such as understanding interest rates, calculating debt obligations, and utilizing formal financial services.

Improving financial literacy is thus essential to enhance access to credit. Financial education efforts should be tailored to the characteristics of Madura farmers, many of whom prefer informal savings methods and avoid borrowing due to fear of mismanaging interest-based loans. Educational programs should focus on basic financial management, understanding credit terms, calculating interest and repayment schedules, separating household and farm budgets, and promoting the safe use of digital financial tools such as ATMs and mobile banking.

Implications are these findings imply the need for targeted financial literacy programs initiated by local governments, agricultural extension agents, or rural banks. Strengthening farmer education not only enhances individual financial well-being but also supports broader rural economic resilience. If literacy improves, farmers may feel more confident in using financial services to invest in productive assets, thereby increasing their income and welfare.

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