

Empowering Microfinance Institutions through Credit Risk Analysis Training: Experience from Pecangaan, Jepara

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Abstract

Non-performing loans represent one of the major credit risks faced by financial institutions. Over the past ten years in Jepara, five microfinance institutions, particularly cooperatives, have failed to manage credit risks effectively, resulting in the loss of public funds. Financial analysis and the use of a "Risk Calculator" serve as preventive measures for institutions to minimize potential credit risks. This community service program aims to provide training on financial analysis and the application of the "Risk Calculator" for cooperative employees in the Pecangaan subdistrict, Jepara. The implementation method includes socialization on the development of the "Risk Calculator," training in financing analysis, simulation and training on the use of the Risk Calculator, as well as monitoring and evaluation. The "Risk Calculator" employs criteria and weightings that can be adjusted to the characteristics of borrowers. Its output is a decision sheet that categorizes prospective clients into three groups: rejected (score < 300), recommended (300–350), and approved (score > 350). The Risk Calculator shows considerable potential for use in other microfinance institutions, although adjustments are required to match each institution's specific characteristics. The outcome of this program demonstrates that the Risk Calculator enables partners to conduct financing analysis more objectively and cautiously.

Keywords: Financial Analysis, Credit Risk, Non-Performing Finance, Risk Calculator

Kredit macet merupakan salah satu risiko kredit yang dihadapi lembaga keuangan. Dalam 10 tahun terakhir, di Jepara, terdapat 5 lembaga keuangan mikro terutama koperasi gagal dalam mengelola risiko kredit yang menyebabkan hilangnya uang masyarakat. Analisa pembiayaan dan "Kalkulator Risiko" merupakan langkah preventif bagi lembaga untuk meminimalkan risiko kredit yang mungkin muncul. Program pengabdian ini bertujuan untuk memberikan pelatihan analisa keuangan dan penggunaan "Kalkulator Risiko" untuk karyawan koperasi di lingkungan Kecamatan Pecangaan, Jepara. Metode pelaksanaan pengabdian terdiri dari sosialisasi penyusunan "Kalkulator Risiko", pelatihan Analisa pembiayaan, simulasi dan pelatihan penggunaan Kalkulator Risiko serta monitoring dan evaluasi. "Kalkulator Risiko" memiliki kriteria dan bobot yang dapat dipilih sesuai dengan karakteristik nasabah. Output dari "Kalkulator Risiko" adalah lembar persetujuan yang memuat skor calon nasabah dalam 3 kategori yaitu ditolak (skor < 300), direkomendasikan (300 – 350), dan diterima (skor > 350). Kalkulator Risiko cukup potensial untuk digunakan pada lembaga keuangan mikro sejenis, namun perlu melakukan penyesuaian dengan karakteristik masing-masing lembaga. Hasil dari program pengabdian ini adalah melalui Kalkulator Risiko maka mitra mampu melakukan analisa pembiayaan dengan objektif dari berhati-hati.

Kata Kunci: Analisa Pembiayaan, Risiko Kredit, Gagal Bayar, Kalkulator Risiko

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Introduction

The growing importance of microfinance institutions (MFIs) in promoting financial inclusion and supporting small enterprises has underscored the need for effective credit selection mechanisms. Serving primarily low-income populations who lack access to traditional banking services, MFIs play a vital role in poverty alleviation and economic development (Dzadzua, 2022). This role is particularly significant as small and medium-sized enterprises (SMEs) often face challenges in obtaining credit from conventional banking institutions (Amari'a & Ulinnuha, 2023). However, the challenge of asymmetric information in credit evaluations poses a significant barrier to operational efficiency and sustainability within these institutions (Garmaise & Natividad, 2010). Microfinance as a financial institution that carries out facilitating credit certainly is prone with credit risk. Credit risk appears when the borrower is unable to pay instalment or principal according to the previous agreement.

The problem of credit selection and risk credit mitigation in MFIs is multifaceted, primarily due to the unique characteristics of their practices. Unlike traditional financial institutions, MFIs often operate without conventional risk mitigation tools such as collateral and guarantees, which significantly complicates the credit risk management process (Rehema & Abdullah, 2022). This absence necessitates a robust framework for assessing borrower creditworthiness, as the potential for default is heightened in the microfinance sector, where clients typically belong to economically vulnerable groups (Knewtson & Qi, 2019). Moreover, the reliance on group lending models, while beneficial in some contexts, can inadvertently increase

credit risk. Research indicates that group dynamics may lead to higher defaults rates, particularly when individual accountability is diluted within the groups (Syari'udin et al., 2023). This highlights the need for MFIs to develop tailored credit risk management strategies that account for specific behaviours and characteristics of their clients. For instance, demographic factor such as gender and education level, significantly influence repayment behaviour, suggesting that MFIs should incorporate these variables into their credit selection criteria (Agbana et al., 2023).

Based on the previous paragraphs, assisting microfinance in credit selection that align with their criteria should be done to promote financial inclusion and poverty alleviation. Therefore, this community service aims to provide credit analysis training for microfinance institution using risk calculator (an excel abased program) in Pecangaan Subdistrict, Jepara Regency. This approach will not only enhance the understanding of customer dynamics but also improve the operational efficiency of MFIs, ultimately contributing to their sustainability and the socioeconomic upliftment of their clients.

The selection of community service partner is based on several problems found in the Pecangaan area. The first problem is high rate of non-performing financing due to inappropriate risk management. Partners assign officers who are not well trained without being equipped with adequate equipment for credit analysis. Partners also experiencing problem in resolving non-performing finance that requires litigation method, because persuasive steps are deadlocked, therefore curative steps are taken. Unfortunately, this can't be successfully carried out due to weak legal documentation obstacles as can

be seen in picture 1. In addition, all the time, the financing analysis process has been fulfilled using subjective criteria, thus increasing the possibility of credit default.

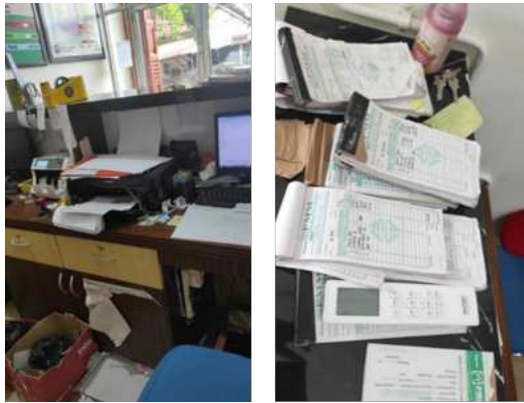


Figure 1 Simple Finance Document

Some MFIs in Jepara have been bankrupt because unable in managing credit risk. The bankruptcy causes losses experienced by thousands of members and loss of billion money in their savings account. The list of bankrupt MFIs can be seen in table below:

Table 1. MFI Loss Cases in Jepara

No	Name of MFI	Number of Members	Total Loss
1	KSP Setya Utama	3,000	6 Billion
2	BMT Al Ikhlas	2.000	5 billion
3	BMT Citra Mandiri Syariah	6.200	15 billion
4	BMT Artha Mintaba	1.550	3 billion

Furthermore, the operational challenges faced by MFIs, including limited access to financial data and inadequate risk assessment tools, exacerbate the difficulties in credit selection (Kalu et al., 2018). Effective credit risk management is crucial not only for the sustainability of MFIs but also for their ability to fulfill their mission of poverty alleviation and financial inclusion. Therefore, it is imperative that MFIs adopt comprehensive risk management frameworks that encompass

proactive credit appraisal, continuous monitoring, and the use of innovative financial products to mitigate risks associated with lending (Asenge et al., 2023; Kalu et al., 2018). By doing so, MFIs can enhance their financial performance while simultaneously supporting their clients in achieving economic stability.

"Risk Calculator" training program highlighted the significance of objective credit analysis in microfinance institutions. By equipping employees with the necessary tools and knowledge, the program aimed to enhance their capacity to assess credit risk effectively, thereby contributing to the sustainability and outreach of microfinance services. The integration of quantitative and qualitative approaches to credit analysis is essential for MFIs to navigate the complexities of lending in a socially responsible manner while maintaining financial performance.

Methods

1. Socialization

This activity began with outreach to partners in Pecangaan District. There are 4 partners of MFIs in this community service program, namely (1) Berkah Abadi Gemilang; (2) Bintang Songo; (3) Bangun Asa; and (4) Perempuan Muda Mandiri. The service team explores information regarding risk management problems faced by partners, especially in the financing analysis process.

2. Preparation of Risk Calculator

At this step, the service team prepares a risk calculator based on the information that has been obtained previously using Excel. This tool was set up in equipping officers to analyze financing distribution and complete the consideration of the financing committee

with a second opinion in the form of scoring which will reduce the subjectivity of officers in the field.

3. Financing Analysis Training

Training is carried out to partners, especially account officer from each MFIs. This activity aims to enable officers to carry out adequate financing analysis. Financing analysis is a process that must be done before approving a customer's credit application. This process is carried out as a preventive measure to avoid bad financing for the credit distribution (Hazmi et al., 2023). Partners are also invited to prepare financing Standard Operating Procedures to establish standard rules and the authority to decide on financing decisions according to the existing hierarchy.

4. Simulation and Assistance in Using "Risk Calculator"

The "Risk Calculator" prepared on an Excel basis by the team is then distributed to partners. The risk calculator is a tool that can be used as a second opinion by MFIs in determining financing decisions. The output of the "Risk Calculator" consists of 3 categories, namely: rejected, considered and accepted.

5. Monitoring and Evaluation

This activity is aimed at finding out developments in the use of "Risk Calculator" in the institutions as well as the corrective steps need to be taken to improve the application. The effectiveness of this program can be assessed through partner's non-performing finance ratio.

Results

This service activity was attended by MFIs employees in Pecangaan District, Jepara. Participants who attended were personnel

who handle and are responsible for funding applications at their institutions. The activity consists of several stages, namely:

1. Training of 5C Credit Analysis

At the initial session, brainstorming was carried out to find out existing finance analysis practices each institution. The team also strengthened understanding of 5C credit analysis and the implementation that can be carried out in institutions. 5C credit analysis consist of:

- a. Character: related with customer's habit in paying the debts. MFIs enable to check with Financial Information Service System (SLIK) or another platform such as BMT checking. This step allowed MFIs to find out whether customer has another debt in other institution and determine the credit approval decision.
- b. Capacity: the total credit provided by MFI must be adjusted to the customer's needs regarding the amount of working capital demand to run the business. This criterion can be obtained through calculating the Debt Burden Ratio (DBR), Debt Service Ratio (DSR) and Installment Disposable Income Ratio (IDIR).
- c. Capital: the amount of fund or own capital that a prospective customer has. The higher customer's own capital, the higher possibilities customer's intentness in running the business.
- d. Collateral: are intended to protect MFIs from probability risk of default. The aspects analyzed include juridical and economic aspects. In juridical aspects, MFIs should pay attention to the reliability of legal guarantee documents. Meanwhile, in economic aspect, the accuracy in assess the value of collateral become an essential process.

- e. Condition of economy: referring to macro economy condition and other factor for instance performance and rate of non-performing finance of MFIs.



Figure 2 5C Credit Analysis

2. Simulation and Assistance in Using “Risk Calculator”

The next activity was to invite participants to perform a simulation of “Risk Calculator” which previously had been prepared by the team. The first form that must be filled in by users is customer data which consists of 6 parts, namely: identity, customer personal data, assets owned, employment, income and collateral.

- Identity section contains customer’s name, account number, name of the officer who filled it in and date of application for financing.
- Customer personal data consist of several criteria including registration method, age, marital status, number of children, education and length of stay. Each criterion has a weight and percentage that will determine the score for each criterion as can be seen below:

PERSONAL DATA			
1	REGISTER METHOD	0.5	Referral
2	AGE	0.3	41 - 50 th
3	MARITAL STATUS	0.3	Married
4	NUMBER OF CHILDREN	0.3	1 - 2
5	EDUCATION	0.5	Akademi / Sarmud
6	LENGTH OF STAY	0.4	3 - 4 th

Figure 3 Risk Calculator - Personal Data

At this phase, the participants were asked to perform a simulation if the customer

was in the productive age, then the score that emerged would be higher, conversely if the customer was in school age or more than 60 years, then the score on the age criteria would be lower. Each criterion has answer options that can be selected according to customer’s condition.

- The number of assets owned consists of house ownership status (own, guaranteed house, family house, official house and rental); car ownership consists of 3 options, namely 0, 1-2 and more than 2; and the final criterion is account ownership which contains the choice of an account at an institution, an account at another institution and not having an account.
- Work. The work aspect has 3 sub-sections that must be filled in, there are place of work (employee or self-employed), position and work experience. In this section, the higher the position and work experience of a prospective customer, the higher the score he or she will get, thus increasing the possibility of being recommended for the financing application.
- Income. This criterion is used to determine the amount of income earned by prospective customers either from their work as employees or their business as entrepreneurs.
- From the picture above, there are 3 questions that must be filled in. The first question about source of income. If the customer works as an employee, then the answer chosen is fixed income. If the customer is self-employed, then the user can choose non-fixed income, and if the customer and partner's income is combined, then the answer "Combined"

is selected. After the source of income, there is question about the amount of income received in one month. The next section is the ratio of installments to total income. This criterion is used to find out what percentage of disposable income the customer receives after deducting fees and installments at other financial institutions.

INCOME			
13	SOURCE OF INCOME	0.8	Fixed Income
14	TOTAL INCOME PER MONTH	0.9	1 - 2 juta
INSTALLMENT / INCOME RATIO			
15	a. Disposable Income (> 1 jt)	0.8	0
	b. Take Home Pay (<= 1 jt)		20 - 30 %

Figure 4 Risk Calculator - Income

- g. Collateral. Collateral is one aspect that must be included in the financing analysis. The assessment of collateral is based on the type of item guaranteed (house, land, car), the ownership status of the collateral, whether it is your own, your partner's or your parents'. If the object being guaranteed is a house and/or land, the location must be seen, including in a marketable, medium or less marketable area.

Discussion

The answers chosen for each criterion will then be multiplied by the weight of each criterion. The final result is a score consisting of 3 categories:

- Rejected if the score is less than 300. This category indicates that the customer's financial condition does not suit for receiving the credit fund, which can occur due to low disposable income, job position or inadequate asset ownership to make installment payments.
- Considered, if the score is 300 – 350. This category is called the gray zone, meaning that the institution can consider

approving customer financing if the qualitative assessment aspects are in a safe condition.

- Accepted if the score is more than 350. Customers with a score of more than 350 according to the "Risk Calculator" can be accepted, because the quantitative assessment of the customer shows the ability to pay the debt they have.

If based on the results of the "Risk Calculator" the customer is recommended to obtain financing facilities and is approved by the financing committee, then the next stage is to print an approval sheet. This sheet is an inseparable part of the "Risk Calculator". Previous given answers will appear on the consent sheet. The image of the approval sheet that will appear can be seen at Attachment 1.

As previously stated, the "Risk Calculator" can be used as a second opinion. In practice, financing managers can proceed to provide financing for customers who do not meet the score standards. However, this decision must also be made based on a qualitative assessment, for instance with 5C credit analysis. The community service program we conducted, which focused on financing analysis training for employees of microfinance institutions (MFIs), is rooted in the understanding that financial literacy is a critical component for enhancing the operational effectiveness of these institutions. The training aimed to equip participants with the necessary skills to analyze credit risk effectively, thereby improving their decision-making processes and ultimately contributing to the sustainability of their organizations.

In order to assess the impact of this program, monitoring and evaluation are performed. Some MFIs stated that "Risk Calculator" is a useful tool in helping them

analyze the credit submission and make the decision in a fair way. Before using "Risk Calculator", the customer assessment identically used a subjective judgement. This tool allows them to minimize credit risks that may arise from a financing analysis process that is less selective and objective. Partners are look forward to employing "Risk Calculator".



Figure 5 Monitoring and Evaluation

In the context of microfinance, where traditional risk mitigation mechanisms such as collateral are often absent, the importance of robust credit analysis is significant (Chaka & Ibrahim, 2023). Effective credit analysis not only aids in the identification of potential borrowers' creditworthiness but also enhances the overall financial performance of MFIs by reducing default rates and improving loan recovery processes (Enoch et al., 2021). Research indicates that a systematic approach to credit risk management is essential for the sustainability of microfinance institutions. For instance, Li and Sheng highlight the necessity for MFIs to implement quantitative credit scoring models to improve their competitiveness and manage credit risk effectively (Li & Sheng, 2018). This aligns with findings from Enoch et al., who assert that strengthening credit risk control measures is vital for increasing the profitability of microfinance banks (Enoch et al., 2021). By adopting such measures, MFIs

can better navigate the challenges posed by high transaction costs and risks associated with lending to low-income clients (Elliot et al., 2018)

Conclusion

The community service program accomplished to provide training for MFIs human resources in the Pecangaan District area, Jepara regarding financing analysis and the use of Excel-based risk calculators that have been prepared by the community service team. The service method consists of 4 stages, namely program socialization, preparation of a risk calculator, training in financing analysis and simulation and assistance in using the risk calculator. The results of the community service program on the socialization, implementation, and simulation of the use of the "risk calculator" in microfinance cooperatives show that the human resources in these institutions are capable of operating the tool for credit analysis. This activity can serve as a solution to address non-performing loans or defaults that may harm the institution. It is expected that this activity will enable partners to take preventive measures in addressing credit risks, thereby helping each institution control the level of problematic financing.

The "Risk Calculator" has a big potential to be used by other institutions, but still needs to be improved to suit the characteristics of the institution. Active partner participation in adjusting the criteria and weights of the "Risk Calculator" to the field facts faced by the institution. In conclusion, the financing analysis training program we conducted serves as a vital intervention aimed at enhancing the financial literacy of employees

in microfinance institutions. By equipping them with practical tools and knowledge, the program not only aims to improve their individual competencies but also seeks to contribute to the broader goals of financial inclusion and economic development.

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