BAD DEBT PREVENTING MODEL BASED ON MAPPING OF PAYMENT PATTERN

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Abstract

Bad loans is inability of debtor to pay the credit to financial institution. This inability is caused by several factors, those are from internal factors and from external factors that can not be controlled by the company.

Bank credit policy is initially more focused on assessment of financial risks of of client that assessed by Five Principle of Credits, those are Character, Capacity Capital, Colateral and Condition. However, the assessment can not prevent effectively the occurrence of bad debts. This happens because there is still unmatch between the operating cash inflow pattern of the client and the offering installment pattern (scheme) from the financial institution.

This research develops a bad loans preventing model based on installment pattern that match with the operating cash inflow pattern of business clients. Central Bureau Statistics of Indonesia has classified ten business sectors. This research used questioners to collect pattern of cashinflow data from 300 small medium entreprises from various business sectors in three districts in Lampung Province to find pattern of each business sectors.

The research finds that there are 16 schemes that combined from loan installment pattern from the bank and operating cash inflow pattern of business. Ten of these schemes will be categorized as secure from non-performing/bad loan problems, that is called as bad loans preventing model.

Keywords: *Bad Debt, Installment Payment Pattern Scheme, Cash Flow, Bussines Operation Cycle.*

INTRODUCTION

1.1 Background Research

Recently, Indonesian government has launched a micro-enterprise development and empowerment in order to reduce poverty, inequality reduction and improvement of work opportunity. On the other hand, the issue of limited capital is still restrict the progress of small businesses in the community, so that the role of microfinance institutions (hereinafter referred to as MFI) is expected to meet the financing requirements for micro and small businesses.

MFIs broadly divided into three, namely formal, semi-formal and non-formal. Formal MFIs regulated by the Banking Law, including commercial banks that have business units *microfinance.* and rural The operational principle and patterns of interaction with customers that are used by these groups tend to be formal with applying the principles of public banking so that the power of penetration is limited to customers bankable.

Semi-formal MFIs are financial institutions regulated by the government through the PP or regulations. Forms and operational systems of these groups is quite varied as Pawnshop, Rural Bank, Financial Cooperative, and other listed MFI. In accordance with the classification, the majority of the operational platform of this institution is semiformal, means adopting the rules set by the government, but in building relationships with customers or members tend to use in ways that are informal.

Informal MFIs have a wide range of institutional, ownership forms and methods used. This is possible because there are no specific regulations that govern it. The uniqueness of informal *microfinance* is providing credit facilities *(cash* or *non-cash)* based on the relationship between the individual, group and business relationship.

Here is the data in lending as cost of capital imposed by the formal MFIs to their customers.

Table 1.1. Data Lending Rate Bank by March 2016

	Prime Lending Rate (%)				
	Loans	Loans	Loans	Consumer Loans	
	Corporate	Retail	Micro	Mortgage	Non-Mortgage
Mean	10.25	12.10	14.52	11.66	12.82
Median	11.25	12.00	14.56	11.68	12.63
Minimum	5.12	6.12	6.12	7.16	8.28
Maximum	15.45	18.10	26.00	16.22	8:28
Total	105	105	105	105	105

Sources: Bank Indonesia, 2016

Table 1.1 shows that the cost of external fund for micro loans amounting to 14.52% per year, even some of which are set to 26% per year. SME entrepreneurs should projected profits above the cost of funds, or else it face credit difficulties in repaying liabilities. If the projected profit is less than the cost of external funding will have an impact on the lack of launch credit installment payments to the bank or often known by the term credit risk (Bekhet and Eletter, 2014).

Indonesian Banking Statistics shows *Non Performing Loan* (NPL) of SME from all sectors of the economy in 2015.

Table 1.2. NPL of Small Medium Entreprise (in Million)

Year	2011	2012	2013	2014	2015
Credit	458,164.00	526,397.00	608,823.00	671,721.00	739,801.00
NPL	15,674.00	17,011.00	19,515.00	25,159.00	29,792.00

Source: Indonesian Banking Statistics Vol 14, No. 1, December 2015

NPL of Indonesian SMEs experiencing increasing trend from 2011 to 2015. The non-current loans indicate the inability of borrowers to repay loans granted by the financial institution or creditor at the time payment is due.

II LITERATURE REVIEW

2.1. DEFINITION OF MICRO CREDIT

Microcredit is a program providing loans to the poor to finance productive activities in order to generate revenue, which allow them to care themselves and their families. Indonesia Central Bank defines microcredit as loans to businesses productive, both individuals and groups with sales revenue of Rp 100 million per year. Micro credit is intended to increase the productivity of people who have small businesses, which in Indonesia definition stipulated in the Law of the Republic of Indonesia number 20 of 2008 concerning MSME (Micro, Small and Medium Enterprises). The classification refer to Article 6 of Law No. 20 of 2008.

Table 2.1. Classification of MSMEs based Asset Value and Annual Sales

Enterprises Scale	Asset Value	Annual Sales Results
Micro Scale	<50 M	<300 million
Small Scale	50-500 million	to 300 million - 2.5 billion
Medium Scale	500-10billion	2.5- 50 billion

Other classification were refer to Ministry of Industry and the Central Statistics Agency that uses number of workers. Micro scale is unit business with number of permanent workers up to 4 people, number of workers of Small scale is between 5-19 workers and number of worker of Medium Enterprises 20 to 99 people. If number of worker is over 99 people will be categorized as Large Enterprises.

2.2. Previous Researchs

Putra, Cipta and Zukhri (2013) found that credit financing by Rural Banks shows that bad loans is caused by the less prudent credit analysis, unethical behaviour of officers, lack of credit monitoring and declining of economic conditions. Baer, Goland, and Schif (2012) in emerging markets there are still many customers not using bank accounts, so the lender has three models: traditional consumer finance, microcredit and full financial inclusion

III.RESEARCH METHODOLOGY

a. Method

Method used is the design of a quantitative, descriptive, verification. Data in the form of secondary and primary form, while the data source is an MFI in Lampung. Data collection tools in the form of handbooks, collecting data and records field and equipped with questionnaire data. Secondary and primary data collection has been started since the first months of research schedule. Moreover, additional secondary data obtained also from the Internet, BPS Regency / City, Bank Indonesia Lampung branch, and the Industry & Cooperatives City and Province, while primary data obtained from respondents at the time of interview and observation.

b. Respondents

Respondents determination of primary data; determined by the method of *stratified random samplin*g, which sought out and interviewed microcredit clients of MFIs kind of formal, informal and non-formal set deliberately, according to their involvement in the development of SMEs.

c. Data analysis

Data is performed by narrating the data that has been collected or processed to describe the current situation of the debtor's perception of product attributes microcredit granted by MFIs to further compared with the image of the product attributes microcredit ideal in concept. *Describing gap* financial literacy debtor with educational materials / socialization activities that should be delivered by the bank before the credit agreement, related to knowledge of the ability of loan repayment, how much guarantee that customers provide, and to know the level of capital in needed her with education / socialization of the banks to customers about the type of credit in accordance with the classification which is owned by the customer.

IV. RESULTS AND DISCUSSION

4.1 DATA

A. Type of Busines Classification

Micro scale enterprises have a wide variety of business depend on the resources and expertise of the owner. Based on survey to 190 respondents, we classified the respondent based on:

1. Type of Business

Type of business are grouped into several sectors, as shown in Table 4.1.

Table 4.1 Distribution of Client Business Type Micro

No.	Business Type	Frequency	Percentage
1	Agriculture, livestock, forestry and fisheries	27	14%
2	Mining and quarrying	1	1%
3	Manufacturing industries	9	5%
4	Electricity, gas and water supply	2	1%
5	Building	6	3%
6	Trade, restaurants and hotels	61	32%
7	Transportation and communications	2	1%
8	Finance, leasing, and business services	3	2%
9	services	26	14%
10	Other	54	28%
	Total	191	100%

Source: Data processed

B. Pattern Of Payment

Installment payment pattern data, which is divided into 4 (four) installments payment scheme : (1) Daily / Weekly payment pattern, (2) Monthly payment pattern, (3) Partial payment pattern and (4) Simultaneously payment pattern. Based on those schemes, herewith pattern of SMEs payment classification.

Table 4.2 Cash Flow Pattern of Business Operation

No.	Cash Flow pattern of Business Operation	Frequency (Respondents)	Percentage
1	Daily	41	21%
2	Monthly	135	71%
3	Gradually / Term	13	7%
4	Simultaneously	2	1%
	Total	191	100%

Source: Data processed

Table 4.2. Shows that the pattern installment payment doing by the micro when getting credit from banks or financial institutions, 71% use patterns monthly payments, while if the terms of the characteristics of the customer's business portion has a pattern of daily cash flow, so there is the potential for the occurrence of a mismatch between the pattern of the installment and the pattern of cash received from the business.

C. **Characteristics Of Customers**

a) Customer Cash Flow Pattern Based on Sector

To memperleh more detailed description about the suitability of SME business sector with SME cash flow pattern, then the cross-tabulations as follows:

Tabel 4.3. Conformity Sector with Pattern Cash Flow Business

Sectors	**Cycle**			
	Daily	Monthly	Yearly	Total
Agriculture, livestock, forestry and fisheries	7	19	1	27
Mining and quarrying	0	0	1	1
Industrial processing	7	2	0	9
Electricity, gas and water supply	0	2	0	2
Buildings	3	1	2	6
Trade, restaurants and hotels	44	15	2	61
Transportation and communications	1	1	0	2
Financial, leasing, and business services	1	2	0	3
services	18	8	0	26
Other	14	40	0	54
Total	95	90	6	191

b. Pattern of Installment Credit Payment based on Operating Cash Flow

Table 4.4 perform a detailed description of the conformity of the cash flow pattern of SMEs business operations with the pattern of payments to financial institutions.

Table 4.4 Conformity Pattern Cash Flow Enterprises with Pattern Installment Payment

Pattern Installment Payment	Pattern Cash Flow Business			Total
	Daily	Monthly	Yearly	
Daily, Weekly	25	16	0	41
Month	67	63		4135
Staged	3	8	2	13
Simultaneously	0	2	0	2
Total	95	90		6191

4.2. FORMULATING MATRIX MODEL BASED BUSINESS SECTOR AND CASH FLOWS PATTERN

In this section, described matrix that contains the mapping models of various business sectors that are classified according to the operating cycle. Operating cycle is the amount of time required since the goods are received from suppliers, saving / processed into finished goods and sold (on credit) to uncollectible accounts receivable (Gittman, 2013). Figure 4.5 shows the operating cycle .

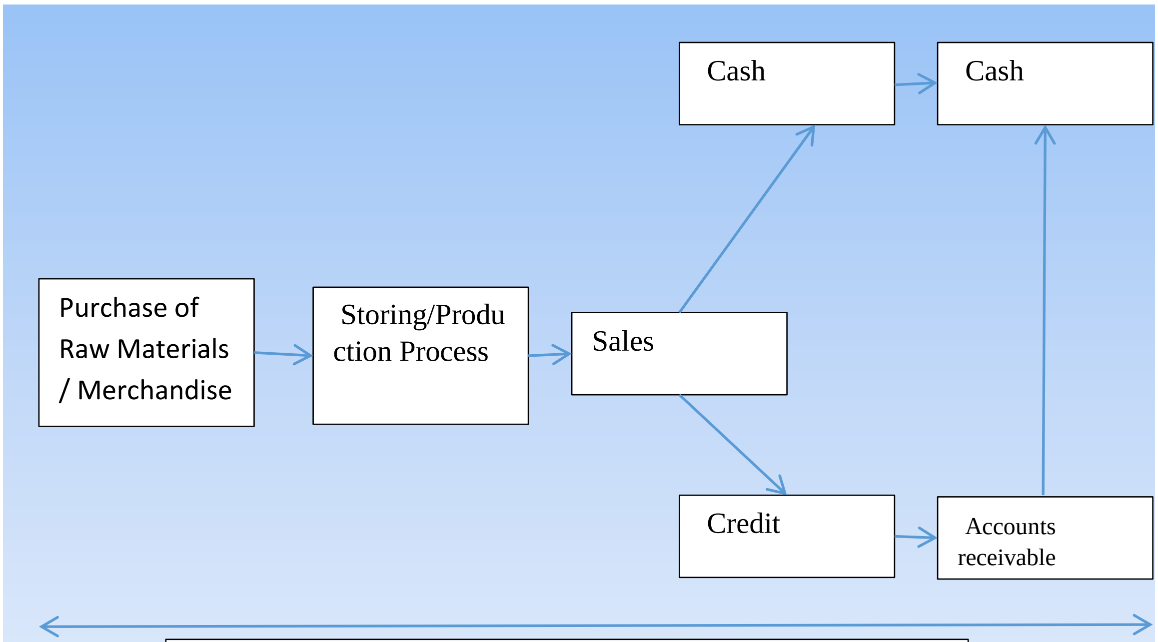

Figure 4.5 Business Operation Cycles

Based on the overview, the cycle of a business can be identified from operating cycle that only takes one day to operating cycle that take more than 1 year, depending on business sectors and types of businesses in each sector.

Days of operating cycle shall be understood by financial institutions as a framework in determining the type of financing, financing period, financing schemes and installment payment patterns that can minimize the risk of bad debts due to a mismatch between the operating cycle with installment payment patterns.

Based on the results of the survey still found the discrepancy, so need to be mapped sectors and types of businesses according to the classification of the business operating cycle, such as the following:

1. Operating cycle for 1-14 days, called Daily Operating Cycle
2. Cycle of operations for 15-30 days, called Monthly Operating Cycle
3. Cycle of operations for 30-360 days, called Partially Operating cycle
4. Operating cycle for $\geq$360 days, called Simultaneously Operating Cycle (at once)

Daily Operating Cycle

Daily operating cycle is operating cycles required since the goods are received from suppliers, processed into finished goods and sold (by credit) to uncollected accounts receivable takes forever 1-14 days. The business sector that has daily cycles generally come from sectors:

- Trading, restaurant and hotel. Examples of its business is the restaurant, food merchants, such as meatballs, dumplings, grocery
- Transportation and Communications. Examples of its business is public transport
- Services, such as laundry services, vehicle repair shops, tire business, rental vehicles, wedding organizer, hair clippers, cars/motors service shops.
- Other

Monthly Operating Cycle

Monthly operating cycle is operating cycles required since the goods are received from suppliers, processed into finished goods and sold (on credit) to uncollected accounts receivable takes 15-30 days for ever. The business sector that has a monthly cycle generally come from sectors:

- Transportation and Communication. Examples is freight services
- Trading, restaurant and hotel. Examples is wholesalers, motorcycle shop, wheels and tires, shops, toys store, fruits shop, drugstore / pharmacy shops.
- Mining and Quarrying
- Manufacturing, such as tapioca fluor mills, nata de coco mills, embroidery business, industry rattan, and manufacturing industries etc.
- The services, such as boarding houses, rental house, school shuttle services, a tailor, event organization, tourism businesses
- Finance, leasing and other services, such as credit unions
- Others

Partially Operating Cycle

Partially operating cycle is operating cycles required since the goods are received from suppliers, processed into finished goods and sold (on credit) to uncollected accounts receivable takes forever 30-360 days. The business sector has partially cycles generally come from sectors:

- Trade, restaurant and hotel. Examples of its business is trading construction materials for projects
- Processing Industry. Examples of his efforts is the tile industry
- Agriculture, Livestock, Forestry and Fisheries ,. Examples : fish hitchery, cattle
- Building / Property
- Mining
- Contractor of Infrastucture Project

Cycle Of Operations At Once

Operating cycle at a once is operating cycles required since the goods are received from suppliers, processed into finished goods and sale (on credit) uncollectible accounts receivable to take more than 360 days. The business sector that has a cycle at a time generally come from sectors:

- Mining and Quarrying, such as the type of mining oil and gas, mineral mining

- Electricity, Gas and Water
- Agriculture, Forestry and Fisheries, such as plantation crops (coffee, rubber , chocolate, etc.)
- Building / Property
- Others, such Contractor Project Multi years

4.3 MODEL OF RISK PATTERNS OF INSTALLMENT PAYMENT OF CREDIT AND PATTERNS OF OPERATING CASH FLOW

Based on the analysis of the matrix obtained, it can be in the form of a risk modeling patterns of installment loan payments and the pattern of operating cash flow is categorized as following:

Creditor / Debtor		PATTERN INSTALLMENT PAYMENT CREDIT			
		DAILY	MONTHLY	GRADUAL	ONCE
PATTERN OF OPERATING CASH FLOW	DAILY	Balance	Over Draft	Opportunity Low	High Cost
	MONTHLY	High Risk	Balance	Over Draft	Opportunity Low
	GRADUAL	Weak performance of	High Risk	Balance	Over Draft
	ONCE	Poor Capacity	Weak performance of	High Risk	Balance

Figure 4.6. Pattern of Payment Installment Loan and Operating Cash Flow

a. Category ***Balance***
Balance is a category that balance between operating cash flow and credit payment installment

b. Categories ***High Risk***
High risk is a category with very high risk, where the pattern of days of operating cash flow is longer than the due of credit payment. In this situation. Based on surveys and interviews, this category is still prevalent in financial institutions.

c. Category ***Weak Performance***
Weak Performance category is very weak, where the pattern of days of operating cash flow is longer than the due of very short term credit payment (1-14 days). In this situation. Based on surveys and interviews, this category is still prevalent in financial institutions.

d. Category ***Poor Capacity***
Poor category that is very vulnerable for the debtors that do not fit the pattern of the operating cash flows, where the cash flow pattern only allows creditors to choose the type of loan by the installment pattern all at once according to the final results of its revenue.

e. Category ***Overdraft***
Overdraft category has a repayment term longer than the operating cash flow patterns obtained. It allows debtors to pay off the maturing faster than the installment. This condition also allows the debtors to make the deposit in advance in order to generate earnings before interest income is used to pay the installments.

f. Category ***Low Opportunity***
Low Opportunity category occurs when operating cash inflow paid directly to pay loans. This lead to dismiss opportunity to get return from the fund.

g. Category ***High Cost***
High cost category is a condition where the debtors has cash infow ability to pay the installments before loan installment due. This situation will also lead to dismiss opportunity to get return from the fund.

Based on the overall category is generated, then by its nature can be classified into two types of credit schemes namely:

1. Type of credit schemes are safe from problem loans
   That type of credit scheme credit risk berkatogori safe, including among other categories:
   - *Balance category*
   - *Overdraft category*
   - *Opportunity low category*
   - *high costcategory*

2. Type of credit schemes that categorized as unsecured loans, include:
   - *high risk category,*
   - *weak category,*
   - *poor capacity category.*

V. Conclusions and Recommendations

5.1 Conclusions
Based on the results and discussion conducted in the study can be taken several conclusions, among others:

1. There is still a discrepancy between the pattern of credit installment given by the financial institution to the pattern of operating cash flows generated by customers or credit borrowers.
2. There are 16 types of loan scheme which is a combination of patterns installment payments and cash flow pattern of operation conducted by the creditor and the debtor in the process of lending (credit) and grouped into seven categories based on the degree of risk of credit schemes faced.
3. Only four types of categories of credit schemes are included in the type of loan scheme that is safe from non-performing loans and the three types of categories that are not secure.

5.1 Advice
From the observation and analysis of the data, the research team proposes several suggestions, among others:

1. For Customer (Debtor)
   Customers should customize the selection of loans with operating cash flow pattern on the work done so as to prevent hardship payment of installments of loans taken.

2. For Parties Financing Institutions Credit
   The Financing Institution should better socialize the type of credit scheme given to the customer based on the type of loan, the installment payout pattern and the loan attribute and review the filing of payment pattern that is not in accordance with the pattern of operating cash flow generated by the debtor to prevent the occurrence of non-performing loans in the future.

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