

A case study of bank accounting practices on reserves for impairment of credit deduction

Nanang Shonhadji¹

¹ STIE Perbanas Surabaya, Nginden Semolo Street 34-36, Surabaya, 60118, East Java, Indonesia

ARTICLE INFO

Article history:

Received 15 August 2017

Revised 6 December 2017

Accepted 9 January 2018

JEL Classification:

G32

Key words:

Accounting of Banks,
IFRS,
Fair Value,
Credit Risk, and
Reserves of Impairment Losses.

DOI:

10.14414/jebav.v20i3.1169

ABSTRACT

The objectivity of the customers' feasibility is biased with the interest of the targeted credit that they are assigned to achieve. In addition, it remains an obstacle for small and medium class banks to be dependent on the long historical credit data of each customer to determine the credit-value loss (CKPN). This study uses a method of a qualitative case study with structured stages for determining the formation of credit-value loss (CKPN) with CreditRisk + model. The purpose of this study is to reveal the accounting practice of establishing CKPN with CreditRisk + model. The results show that the ATMR method caused BPR banks to provide a very large recovery fund when compared with CreditRisk+ method. Other findings reveal that the approach of ATMR is not maximized in producing accurate measure of credit risk and in accordance with the actual condition. This study contributes to providing an alternative to the determination of CKPN in addition to using ATMR and roll rate analysis model by the banks. For the regulators and professional organizations of the Indonesian Institute of Accountants, they can use it as sources of information to evaluate the application of PSAK 55, especially in determining the CKPN.

ABSTRAK

Objektivitas kelayakan nasabah menjadi bias dengan kepentingan tercapainya target kredit yang ditugaskan. Ketergantungan dengan data historis kredit masing-masing nasabah yang panjang untuk menentukan cadangan kerugian penurunan nilai (CKPN) kredit masih menjadi kendala bagi bank kelas kecil dan menengah. Metode yang digunakan adalah metode kualitatif case study dengan tahapan terstruktur untuk penentuan pembentukan cadangan kerugian penurunan nilai (CKPN) kredit dengan model CreditRisk+. Tujuan penelitian ini adalah untuk mengungkapkan praktik akuntansi pembentukan CKPN dengan model CreditRisk+. Hasil penelitian ini menginformasikan bahwa metode ATMR menyebabkan bank BPR harus menyediakan dana recovery yang sangat besar jika dibandingkan dengan metode CreditRisk+. Temuan lain mengungkapkan bahwa pendekatan aktiva tertimbang menurut risiko (ATMR) dianggap belum maksimal dalam menghasilkan ukuran risiko kredit yang akurat dan sesuai dengan kondisi aktualnya. Kontribusi hasil penelitian ini dapat digunakan sebagai alternatif penentuan CKPN selain menggunakan ATMR dan model roll rate analysis oleh pihak perbankan. Bagi regulator dan organisasi profesi Ikatan Akuntan Indonesia hasil penelitian ini dapat dijadikan sumber informasi untuk mengevaluasi penerapan PSAK 55 (revisi 2011) khususnya dalam penentuan CKPN.

1. INTRODUCTION

The service of banking industry depends heavily on the portion of the customer's funds that can be distributed in the form of loans provision. Some bankers call this loan as the term of credit. The amount of credit that can be given by the banking

industry is an indicator of the bank performance. However, they should pay attention to their large amount of credit in order it can potentially lead to uncollected credit risk. It can also directly affect the bank's capital (Abul et al. 2015; Baradwaj et al. 2014). Nevertheless, there are other causes which

* Corresponding author, email address: ¹ nanang@perbanas.ac.id.

are also the source of credit risk, for example, it is caused by the aspect of the banking practitioners' behavior.

In connection with accounting behavior, Arfan (2012) describes that accounting behavior attempts to inform non-financial information from bank accountants as well as individuals directly involved in the loan accounting process as provided about how their conduct in generating that information. Contextually, the staff or bank officers' behavior when handling the crediting process ignores the prudent principle. Yet, it is a significant factor affecting the occurrence of non-performing loans. The amount of credit distributed by ignoring the proper aspects of collateral and the assessment of weak objective evidence of impairment (PSAK 55) is a practice that often occurs. Not to mention, the risks are also possible when recording on transactions that are on and off balance sheet.

Bank BPR is a non-Foreign Exchange National Private Bank (BUSN), which has assets of Rp 1,104,630 million in the July 2016 report. The credit position is the largest concentration on the assets side of the company with a portion of 68.02% of the Bank's total assets as in July 2016 or equivalent to Rp 751,149 millions. In July 2016, BPR loans were concentrated on working capital and investment loans with the portion of 54.32% of total loans and consumption loans with a portion of 45.68% of total loans. The strategy implemented by Bank BPR to minimize credit risk happened due to default by the customer (default). Bank BPR would allocate reserve capital to loss general provision or loss of credit to cover expected loss (Arthana 2014).

The precise calculation of the amount of capital allocation invested in the general reserve fund is a good strategy to minimize the occurrence of credit risk due to the decline in the value of financial credit (Armantier et al. 2015; Lee et al. 2013, Mindy et al. 2013). From 2008 to the present, Bank BPR has determined the Probability of Default (PD) and Loss Given Default (LGD) using a roll rate analysis. This statement is supported based on an interview with the accounting division of the BPR Bank that stated as follows:

Our bank performs the calculation of roll rates analysis by using internal loan grading system. This system allows us to analyze the level of credit loss in each delinquency stage of the customer. However, we remain in compliance with the provisions of PSAK 55 that the determination is based on historical data of customer arrears for a minimum of 3 years.

It is acknowledged by Ghafar, a senior account

officer of Bank BPR, that up to now, the financial services authorities (OJK) and Bank Indonesia as regulators, have not specified a specific or compulsory method of calculation and Individual CKPN as well as a collective loss (Arthana 2014). The flexibility of choosing this method causes the bank to be able to adjust and choose the right techniques to minimize the occurrence of credit risk. In connection with accounting practices, if the bank finds difficulties determining CKPN individually, the customer will be set aside and calculated with the collective CKPN calculation. This will further affect the calculation of capital provision (economic capital) that must be provided by the Bank to anticipate the credit risk it faces. This phenomenon informs the BPR Bank to immediately disclose the bank's accounting practices on the establishment of credit loss with CreditRisk+ model, as a forming model which is in accordance with the characteristics of BPR Bank. Therefore, this study aims to reveal the bank's accounting practices on the establishment of allowance for impairment losses by using credit risk + model.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

Theory of Financial Intermediation

The theory of financial intermediation was first proposed by Schumpeter in 1939, stating that financial intermediation is based on how to minimize the cost of production from information to solve incentive problems. The costs arise because the bank (intermediary) receives the delegation from the owner of the funds to monitor the funds lent to the debtor. This has an advantage in terms of cost to collect information, because this alternative is the activity done by every bank. Thus, this way is more profitable when compared with the owner of the funds that do direct monitoring. As an intermediary institution, the intermediary function is measured by comparison between the amount of third party funds that can be collected and the amount of credit or financing distributed, known as Loan to Deposit Ratio (Cashmere 2014).

Loanable Funds Theory

Interest rate funds approach loanable funds forecast and analyze changes in interest rates by using supply and demand for funds as a basis (see Figure 1).

The supply curve shows the savings or the desire of the fund owner to lend funds to investors. Interest rate, in this case, shows the price of loanable funds. If the slope of the supply curve is posi-

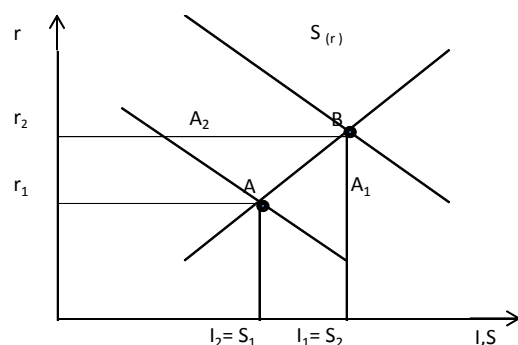


Figure 1
Demand and Supply Curves of Loanable Funds

Source: N Gregory et al. (2014).

Table 1
Components of Credit Risk+

Credit Risk Measurement		Economic Capital	Applications
Exposures	Default Rates	Bad debt or credit default Loss Distribution	Provisioning
Recovery Rates	Default Rate Volatility		Limits
Credit Risk+ Model		Scenario Analysis	Portfolio Management

Source: Bluhm et al.(2008).

tive, then it indicates the higher the interest rate and this will affect the owner of the fund to provide funds with larger volumes (N Gregory et al. 2014). The demand curve shows an investment or demand for borrowing funds either directly to the public or through the bank. Interest rate for the borrowers indicates the cost of borrowing. If the slope of the demand curve is negative, then it indicates that the higher the cost, the lower the funds the borrower wants and vice versa (Brigham et al. 2011).

CreditRisk+

Jorion (2007) informs that the notion of CreditRisk+ can be based on the Boston Credit Suisse, which states that "CreditRisk+ Model is credit risk." 15 CreditRisk+. This statement is considered an appropriate internal model for calculating credit risk in a portfolio because it can be used to calculate credit risk of a large number of loan portfolios, but with the outstanding amount of each small credit. This is also because this method does not require additional macro data so that this method is more efficient in its application. However, the method remains effective. The CreditRisk+ component is informed in Table 1.

1. Data Input of CreditRisk+

Credit Exposures, is an exposure arising from transactions made by the debtor. CreditRisk+ is able to handle all types of instruments that generate

bonds, loans, commitments, financial letters of credit and derivative exposures.

2. Default Rates

It is possible that default events occur on each debtor. The default rates can be obtained by several ways, namely:

- Observing the credit spreads of traded instruments that can be used to provide probabilities of default from market valuations.
- The debtor's credit rating, together with the mapping of default rates to credit ratings, provides the best way to establish the probability of default of the debtor. Rating agencies publish default historical statistics according to the assessment of the debtor population categories they have rated.
- Continuous scale, is a replacement of the default fan rate credit rating.

3. Default Rate Volatilities

The number of variations in the default rates that can be explained by the volatility (standard deviation) of the default rates. The standard deviation of default rates can be significant compared to the actual default rates, reflecting the fluctuations that are observed during the economic cycle.

4. Recovery Rates

If the debtor is defaulted, the company generally bears the loss on the financing. The value of recovery rates is the amount of debtor's debt is less than

Table 2
Credit Exposure per Collectability at Bank BPR (in Rupiah)

No.	Collectability	Year		
		2014	2015	2016
1	Current	31.999.388.668	40.489.249.642	48.168.964.200
2	Special Inspection	38.139.307.032	64.256.358.250	63.894.630.039
3	Less Current	34.405.218.110	50.405.421.211	53.115.002.336
4	Doubted	40.237.551.203	48.302.118.525	50.110.640.400
5	Bad debt or credit default	28.304.350.100	32.700.221.470	35.370.609.882

Source: Bank BPR (Management Report per 31 December 2014 to 30 July 2016, processed).

Table 3
Exposure at Default (EAD) per Band (in Rupiah)

Band	Year		
	2014	2015	2016
100.000.000	768.500.741	814.111.008	889.890.270
1.000.000.000	18.907.322.440	21.767.000.590	25.443.116.772

Source: Bank BPR (Management Report, processed).

Table 4
Average Loss Given Default Period 2014-2016 (in Rupiah)

Band	Year		
	2014	2015	2016
100.000.000	720.010.250	8.232.440.045	8.525.200.729
1.000.000.000	18.500.320.239	21.998.800.890	27.424.230.405

Source: Bank BPR (Management Report, processed).

the amount of recovery where the company recovers due to foreclosure, liquidation, restructuring, or sale of claims. Recovery rates consider receipt of repayment of collateralized financing and collateral.

5. Economic Capital

The uncertainty analysis is at the core of risk management. Therefore, measuring the uncertainty or variability of losses and the likelihood associated with the unexpected loss rate in the exposure portfolio is fundamental to the effective management of credit risk. Economic Capital is required as a reserve to cover losses due to unexpected loss.

3. RESEARCH METHOD

Moleong (2008) stated that case study is a research strategy that aims to deliberate a program, event, activity, process, or group of individuals with very small subjects. In this research, the selected case study method is case study of situation analysis. This type of case study attempts to analyze the situation against a particular event or event related to the situation and conditions. The situation and conditions are seen from the credit or customer loans are problematic. Then, objectively, the condition has been assessed by the decrease of credit

score with CreditRisk+ model in BPR bank

This study uses primary data obtained directly from the field (field research). The data is in the form of interviews with informants who served as account officers and accounting employees who know and practice the determination of provision for credit loss (CKPN). This study uses data analysis case study techniques with the following stages:

- a. First, the clarification and analysis stage determines the existence of objective evidence, the occurrence of impairment (CKPN). This stage is built awareness that the value and objective evidence of CKPN becomes an important factor to know the amount of problem loans.
- b. Second, collect the results of clarification and interviews related to the determination of CKPN, which is currently implemented by BPR Bank, and build an opportunity to build alternative measurement in the formation of CKPN with CreditRisk+ model.
- c. Third, reconstruct CKPN with CreditRisk+ model with the following stages:

1. Collecting the exposures at default in classes and bands.

The first step to getting a loss distribution from the portfolio is to collect exposures into the band. This has the effect of significantly

Table 5
The Average Frequency of Paid Failure Period 2014-2016

Band (Rp)	2014	2015	2016
100.000.000	13.34	14.74	17.22
2	14.30	15.56	16.87
3	28.33	28.06	29.77
4	25.34	22.22	25.84
5	20.76	35.87	23.66
6	21.16	27.76	23.62
7	23.33	30.12	39.98
8	26.17	31.47	23.22
9	12.55	17.56	28.16
10	20.06	15.43	28.13
1.000.000.000	30.19	49.62	72.34
2	54.73	46.02	88.73
3	9.29	11.18	11.44
4	7.76	8.32	9.11
5	7.89	12.32	14.54
6	3.18	3.31	3.22
7	4.21	3.12	3.56
8	3.28	1.50	1.59
9	5.23	5.89	5.65
10	3.19	3.41	3.50

Source: Bank BPR (Management Report, processed).

* Frequency (in Times).

reducing the amount of data that should be included in the calculation.³ In this study, the data used are debtor data that has been defaulted or in doubt and stalled categories (collectability 3 and 4). The data are grouped into two bands, namely 100,000,000 and 1,000,000,000 and 10 classes.

2. Determination of recovery rates

Recovery Rates is the rate of return on loan that has been categorized as default or delete the book. The value of the recovery rate can be calculated from the liquidation of the guarantee or the repayment of the debtor. In this study, the value of recovery rate is assumed to be equal to zero because the BPR Bank prefers the handling of troubled financing by means of revitalization.

3. Measuring severity Loss Given Default (LGD) or severity loss or real loss.

The Loss Given Default (LGD) or severity loss is the amount of loss from the default event after calculating the recovery value. The value of LGD is determined by the formula minus the recovery rate.

4. The calculation of the number of defaults.

The number of defaults is the number of occurrences of default that occurred in one period. The number of default or lambda (λ) is

obtained from the formula: Expected numbers of defaults are obtained from the multiplication of lambda values (λ) with the exposure value of each band. The default probability is calculated by using Poisson distribution, which reflects the frequency of default occurrence and is the frequency distribution, which many occur because of its simple characteristic and in accordance with the frequency of loss occurrence.

5. Expected Loss and Unexpected Loss.

From the result of the above calculation, this study could get the value of expected loss and unexpected loss. Expected loss is a predictable loss. The estimated occurrence is based on the historical data of the event's appearance. While unexpected loss cannot be estimated the occurrence measured by taking the maximum loss value at the chosen confidence level, for example 95%. The value of unexpected loss is also the value of Value at Risk (VaR). From the estimated occurrence of these risks, it can be determined the value of economic capital. Economic capital is the difference of the value of unexpected loss with expected loss is useful to know how much capital needed to cover potential losses due to default events.

Table 6
Probability of Default and Cumulative Probability of Default

Band	2014		2015		2016	
	PD	CPD	PD	CPD	PD	CPD
Rp 100 millions	0.025960	99.00%	0.027730	99.00%	0.028761	99.00%
2	0.026288	99.02%	0.028640	99.03%	0.028989	99.05%
3	0.026645	99.07%	0.029505	99.09%	0.030211	99.10%
4	0.028925	99.05%	0.031220	99.07%	0.032289	99.09%
5	0.029090	99.14%	0.034764	99.16%	0.036109	99.18%
6	0.030537	99.08%	0.034884	99.11%	0.032114	99.16%
7	0.031208	99.12%	0.036341	99.14%	0.030307	99.16%
8	0.052820	99.31%	0.068219	99.40%	0.064901	99.53%
9	0.034918	99.18%	0.038770	99.17%	0.035763	99.19%
10	0.035090	99.14%	0.040201	99.15%	0.037622	99.16%
Rp 1.000 millions	0.042774	99.13%	0.045211	99.14%	0.038228	99.15%
2	0.046608	99.21%	0.045490	99.19%	0.039190	99.20%
3	0.051541	99.05%	0.049210	99.07%	0.040212	99.08%
4	0.058206	99.26%	0.052430	99.21%	0.045775	99.24%
5	0.043676	99.15%	0.054780	99.17%	0.057870	99.18%
6	0.022552	99.07%	0.054971	99.11%	0.058009	99.14%
7	0.023201	99.11%	0.057110	99.13%	0.058980	99.16%
8	0.025228	99.02%	0.059190	99.10%	0.060320	99.15%
9	0.027818	99.13%	0.027818	99.15%	0.061041	99.17%
10	0.040137	99.15%	0.040137	99.17%	0.062773	99.09%

Source: Bank BPR (Management Report, processed).

- a. Fourth, analyzing the result of CKPN determination with CreditRisk+ model.
- b. Fifth, concluding and inference the results.

4. DATA ANALYSIS AND DISCUSSION

The Phenomenon of Credit of Working Capital and Investment at Bank BPR

The distribution of working capital loans and investment loans, for small and medium business actors, aims to grow and develop business scale. The portfolio of Bank BPR divides the credit financing segment according to the credit financing ceiling so that the micro and small and medium business loans have the separate loan portfolios. Based on internal data of the processed Bank BPR and information obtained from Ghafar, it is known that there is an increase in the number of credit exposures from 2014 to 2016 in the credit segment of small and medium enterprises for working capital and investment credit facilities.

The above condition is also seen to be directly proportional to the increase in percentage of Non Performing Loans. Currently, the loan portfolio in working capital and investment credit segments reaches more than 64% of total BPR loans. It also implies the credit risk faced by the Bank BPR, if it is known that there is a possibility of default by the

borrower to the increasing credit portfolio of the Bank BPR. In addition, in the results of observations and discussions with informants, it is known that the percentage of NPLs from 2014 to 2016 has increased along with credit growth.

Therefore, Bank BPR must review the loan policy in identifying credit risk. Bank BPR should also reduce credit risk due to the default credit by forming CKPN. The reserve of funds by a bank greatly affects the bank's capital. Therefore, the bank must have an accurate reserve calculation so that the funds allocated to minimize the risk more efficiently. In addition, the change in the banking accounting standards adopting IFRS brings with it the logical consequence of changes in the credit accounting policy in the recognition of the Loan Loss Provision, thereby increasing the risk of declining earnings in the income statement of the bank (Bushman 2012, Heba 2012). Furthermore, it also causes the banks to make efforts to make credit more cautiously oriented.

The Disclosure of CKPN CreditRisk+ Method

Based on the Decree of the Board of Directors of Bank Indonesia No. 31/148/KEP/DIR dated November 12, 1998, each bank is required to establish or provide the reserves for credit-loss allowance,

Table 7
Expected Loss (in Million Rupiah)

Band	Group	Expected Loss 2014	Expected Loss 2015	Expected Loss 2016
Rp 100 millions	1	764	818	661
	2	778	809	820
	3	630	767	745
	4	650	780	719
	5	757	757	734
	6	759	659	809
	7	821	811	813
	8	849	860	879
	9	701	774	748
	10	787	790	786
Rp 1.000 millions	1	11.656	20.304	25.340
	2	18.711	24.401	24.870
	3	16.540	20.320	36.780
	4	11.320	21.119	26.700
	5	18.879	19.898	28.290
	6	18.230	20.105	26.950
	7	24.129	21.230	27.116
	8	24.515	21.245	27.820
	9	23.620	21.878	27.630
	10	21.970	21.320	28.114

Source: Bank BPR, processed data.

known as PPAP. The formation of such reserves or allowance is assessed on the basis of the collectability of the debtor's credit. Following the revision of the mandate of SFAS 55 (revised 2011), Bank Indonesia also requires the banks to establish or provide allowance for impairment losses based on the decision of each bank. In this study, the researcher calculated and analyzed the amount of fund reserves to minimize credit risk by using CreditRisk+ method (Bushman et al. 2012).

Arrangement of the Bands

The arrangement of the bands is an early stage of the analysis technique performed to classify credit exposure data from BPR banks. Result of interview with informant, Rahadi, employee of accountancy, obtained information that:

"... the default credit exposure data in our bank, on the type of retail credit for working capital and investment credit facilities, ranges in two bands between Rp 100,000,000 – Rp 1,000,000,000.

After obtaining the information, the researcher compiled several bands into two groups, namely bands in the range of Rp 100,000,000 as many as 10 classes and bands with a range of Rp 1000,000,000 as well as 10 classes, which indicate the group of debtors. The division of classes in the band can be

done by calculating the outstanding credit, divided by the band so that 10 classes are obtained. Band making can also be done by grouping the debit tray of each debtor into the exposure unit. This bank arrangement is useful for Bank BPR as a tool to control and analyze default debtor groups that have high exposure value

Exposure at Default (EAD)

The determination of exposure at default data is done by separating the current credit exposure from the non-current credit (default). This is done by grouping credit exposures into the 3, 4, and 5 collectibles with the default credit category. Then, the credit exposure is categorized into collectability 1 and 2 which is considered as the current credit. This can be seen in Table 2.

Based on Table 2, it is known that the amount of credit exposure per collectability, obtained from the management report data of Bank BPR of December 31, 2014, 2015 and July 2016. As can be seen in Table 3, there is an increase of bad debt or credit default (collectability > 3) from 31 December 2014 up to July 2016. The occurrence of this bad debt or credit default has many causes. The main cause of bad debt or credit default or bad debt or credit default occurrence is mainly caused by the decrease of the debtor's business either due to bad debt or cre-

Table 8
Unexpected Loss (in Million Rupiah)

Band	Group	Unexpected Loss 2014	Unexpected Loss 2015	Unexpected Loss 2016
Rp 100 millions	1	934	10.981	661
	2	970	10.760	820
	3	890	976	745
	4	10.390	988	719
	5	11.240	830	734
	6	11.489	875	809
	7	11.650	940	813
	8	11.750	11.021	879
	9	10.441	972	748
	10	953	820	786
Rp 1.000 millions	1	12.629	22.304	27.530
	2	19.421	25.801	27.550
	3	18.230	24.621	28.118
	4	12.570	22.098	29.003
	5	19.760	22.890	30.110
	6	19.995	23.650	30.006
	7	26.290	24.650	29.120
	8	25.887	24.710	25.350
	9	24.620	23.120	28.914
	10	23.540	23.760	31.488

Source: Bank BPR, processed data.

dit defaults or misuse of credit usage. Therefore, bank BPR must monitor strictly both for new loans to be granted as well as ongoing credit.

Loans categorized as bad debt or credit default are the credits that have been in arrears for more than 90 days (collectability > 3). After the separation between non-bad debt or credit default and bad debt or credit defaults, then the data is sorted by a band in the reporting period, from December 2014 to July 2016 and classified into 10 classes.

Table 3 shows that the average value of Exposure at Default (EAD) per band from 2014 to July 2016 increased in bands Rp 100,000,000 and band Rp 1,000,000,000. According to information from Mr. Rahadi, accounting employees, the increase in EAD value is mainly caused by many debtors who are unable to pay off their credit in the installment period, even due because their business cannot operate normally. Later, much of the capital is obtained from loans that are supposed to increase venture capital and investment, but switch functions as consumption equipment. In addition, also recognized by Mr. Ghafar, that it could also be caused by account officer officers Bank BPR is not careful in analyzing the feasibility of customers. They are driven by the pressure of achieving credit targets by management.

Measurement of Severity Loss or Loss Given Default

Bushman et al. (2012) stated that LGD is the ratio of losses on the value of exposure due to the default occurrences by the debtor of an outstanding default. Loss Given Default (LGD) is calculated by comparing the value of loan principal recovery that has been in the write off with the principal amount of credit that has been in the write off. The value of the previous recovery rate should be calculated first by determining the amount of the collateral value, used for each debtor and the average recovery rate in the group.

The value of recovery rate, in this study, was obtained based on the information from the informant, Mr. Rahadi and Ms. Yunita who said that:

Based on our experience in the bank, the average realization of NPL settlement and write off is 27% - 35%. Therefore, management has agreed with the value of recovery rate of 32%. Although, with such the figure, it should be more precisely calculated first. such as what percentage of the value of the loan can be paid after taking into account the costs incurred during the billing process done by us.

According to Mindy et al. (2013), Behr et al. (2012) LGD is also called real loss that is a measure of the amount of losses that actually occur in each

Table 9
The Calculation of Economic Capital (in million rupiah)

Band	Group	Expected Loss			Unexpected Loss			Economic Capital		
		2014	2015	2016	2014	2015	2016	2014	2015	2016
Rp 100 millions	1	764	818	661	934	981	750	170	183	89
	2	778	809	820	970	760	880	192	231	60
	3	630	767	745	890	976	832	160	209	87
	4	650	780	719	890	988	812	166	208	93
	5	757	757	734	740	830	750	160	73	16
	6	759	659	809	789	875	907	163	216	98
	7	821	811	813	650	940	920	829	129	107
	8	849	860	879	750	821	996	601	161	117
	9	701	774	748	741	972	824	740	198	76
	10	787	790	786	953	820	892	166	30	106
Rp 1.000 millions	1	11.656	20.304	25.340	12.629	22.304	27.530	973	2000	2190
	2	18,711	24.401	24.870	19,421	25.801	27.550	0,71	1400	2680
	3	16.540	20.320	36.780	18.230	24.621	37.250	1690	4301	470
	4	11.320	21.119	26.700	12.570	22.098	29.003	1250	979	2303
	5	18.879	19.898	28.290	19.760	22.890	30.110	881	2992	1820
	6	18.230	20.105	26.950	19.995	23.650	30.006	1765	3545	3056
	7	24.129	21.230	27.116	26.290	24.650	29.120	2161	3420	2004
	8	24.515	21.245	27.820	25.887	24.710	28.350	1372	3465	530
	9	23.620	21.878	27.630	24.620	23.120	28.914	1000	1242	1284
	10	21.970	21.320	28.114	23.540	23.760	31.488	1570	2440	3374

Table 10
Standard Deviation of ATMR and Credit Risk + Approach (in Millions of Rupiah)

Average per Year	ATMR Approach	Credit Risk+ Approach
	% Capital Reserves to be Provided	% Capital Reserves to be Provided
2014	21.803	1.320
2015	18.744	826
2016	14.037	641
Average	18.195	929

default event after taking into account the recovery rate. Table 4 shows the average value of LGD at Bank BPR in the period of January 2014 to July 2016 per band group.

Based on Table 4, it is known that the average real loss, experienced by Bank BPR per year, has increased, for both on band Rp 100 million and Rp 1 billion. This may be due to the growing credit portfolio of Bank BPR from 2014 to 2016 so that the credit risk is increasing. The biggest default incident occurred in the band of Rp 1 billion because the majority of the largest debtors, for the retail credit segment at Bank BPR, were on the band of Rp 1 billion. Thus, if the debtor in the band experiences a default, then the losses faced by the Bank BPR are very significant. Therefore, it should become the bank BPRs' concern in credit when monitoring, especially for the band of Rp 1 billion.

Number of the Default

According to Parlor et al. (2013), Number of Default is the number of default occurrence in one period. The value is derived from the total outstanding of each group in each band, divided by the band group value. In the Interview with Agus Imam, it was found that the probability of the largest average failure rate in the 100,000,000 band was in grade 3. In 2014 and 2015, it was 28.33 times and 28.06 times, whereas, in 2016, it was likely to fail the largest payout occurred in the 7th grade of 39.98 times. The average frequency of default during 2014 to 2016 can be seen in Table 5.

Credit risk that needs special attention by Bank BPR from the information in Table 5 is the disclosure of the average value of the highest frequency of failure occurs in group bands of Rp 1,000,000.00 in class 7 of 2016, which is 88.73 times. This indicates that the exposure is likely to be paid failure or the default

event is the greatest. This should be of the Bank BPRs' concern for monitoring both in credit policy and in the management of ongoing credits.

Probability of Default and Cumulative Probability of Default

The probability of default is calculated by using Poisson distribution model. This calculation is done in each band in each period. This calculation is done by entering the default event value so that the probability of default for each event can be known (Gunter et al. 2011). The highest probability of default value occurs at a value of n , this value of n is the expected number of defaults for each band. But, the unexpected number of default for each band is n -value when the cumulative probability of default reaches \geq (greater or equal to) the expected level of confidence. In this research, the significance level is 99%. The probability of default and the cumulative probability of default calculations are presented in Table 6.

Calculation of the Expected Loss

Expected loss calculation is obtained by multiplying the expected number of defaults, by the value of recovery rate and common exposure. Expected number of defaults occur when the default event number has the highest probability of default. The highest probability of default is reached when the default event number is equal to the expected number of default events (Gunter et al. 2011). The expected loss is the amount of loss that can be estimated through the historical calculation of the average loss due to credit risk that generally occurs. The amount of expected loss should be protected by adequate pricing and establishment of the allowance for earning assets losses (PPAP). In Table 7, presented the expected loss calculation for 2014-2016.

Calculation of the Unexpected Loss

The calculation of unexpected loss is obtained by multiplying the number of default events when the cumulative probability default reaches $\geq 99\%$ with the value of recovery rate and common exposure (Gunter et al. 2011). The value of unexpected loss in one period is the sum of unexpected loss values of each band in that period. Unexpected loss is a Value at Risk (VaR) value of working capital and investment loans. In Table 8 it has informed the calculation of unexpected loss during 2014 until 2016.

Calculation of Economic Capital

Economic capital is the amount of bank capital that must be provided to cover unexpected loss. Eco-

nomical capital is calculated by subtracting the value of unexpected loss with expected loss value. Table 9 shows the economic capital for each period.

The calculation result of economic capital shows the decline from 2016 to 2014. This means that the amount of bank capital that must be provided to cover unexpected loss also decreased. The results of interviews with Ghafar and Rahardi obtained information that the decline in the value of economic capital at Bank BPR indicates the improvement of the quality of retail credit that is distributed, the number of debtors business that began to recover and managed to earn profits and allocate the right credit function causes the credit quality to improve. In addition, the management policies have to control the recovery process for default credits

The Ratio of Total Capital Reserves

Bank Indonesia has required Bank BPR to provide a minimum capital of 8% used as a credit risk recovery fund (Bank Indonesia 2011). Previously, Bank BPR has provided capital reserve by still using Approximate-Weighted Risk Asset (RWA) approach, with the determination of retail credit risk of 78%. The impact is that Bank BPR must provide the capital reserves to cover the risk of Micro-business Loans by 6.8% ($8\% \times 78\%$) of the total outstanding debts of their retail credit.

When using CreditRisk+ approach, the value of the unexpected loss is the amount of loss that must be covered by using capital. Thus, the credit risk weight for CreditRisk+ approach is the value of unexpected loss compared to the value of the debit tray of each period. For December 2014 with 99% confidence, the potential value of maximum loss faced by BPR Bank in band Rp 100.000.000 in retail lending is Rp 11.750.000.000. The amount represents 11.74% of the total outstanding debt. In accordance with the minimum capital requirement of 8%, BPR is required to provide a minimum capital reserve of 0.453% ($8\% \times 11.74\%$) of the total outstanding balance of Rp 830,114,000.

The results of this study (see Table 10) also indicate that there is a difference in the provision of the amount of capital requirement that must be provided to cover the credit risk of working capital and investment of bank BPR, by using ATMR approach through Bank Indonesia Circular Letter No. SE. 8/3/DPNP, when compared to CreditRisk+ method (Table 10). Therefore, in the next period, Bank BPR should determine the amount of allowance for impairment loss by using CreditRisk+ method.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

The ATMR approach is a method, previously, used by Bank BPR to calculate retail credit risk. The calculation is determined based on the risk weight determined by the rating agency acknowledged by Bank Indonesia. This research concludes that the ATMR method causes the Bank BPR to provide a very large recovery fund when compared to the CreditRisk+ method. In addition, the ATMR approach is considered not maximized in producing accurate measure of credit risk, in accordance with the actual condition.

CreditRisk+ is an alternative approach that can be used to measure retail credit risk with the excess of measurement characteristics in accordance with the Bank BPR's customers' condition, related to the amount and the availability of their historical data for 36 months. CreditRisk+ approach can be used by BPR Bank to manage its credit risk that meets the criteria of Bank Indonesia. This is due to the regulators, who until now have not yet determined a specific method for determining the allowance for impairment losses (CKPN).

This study implies that that CreditRisk+ approach can be used by BPR Bank to identify and measure retail credit risk. By using this code, they are expected to be able to determine exactly how much fund needed to perform recovery on credit that has decreased credit value. The results of this study also provide an implication for regulators and professional organizations of the Indonesian Institute of Accountants. They can use it as a source of information to evaluate the application of SFAS 55 (revised 2011), particularly in determining the CKPN. Suggestions for further research, is that the researcher can use CKPN calculations using non-statistical methods or also through the pattern of applying the right dynamic provision. This study, however, has a limitation due to the lack of information obtained from the informants related to the determination of objective evidence of impairment of credit scores, as the determination of individual or group assessments on the formation of CKPN.

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