

The Effect of Risk Taking Behavior Performed by The Economic Agents Toward The Risk of the Bankruptcy of Banks

Ignatia Ryana Widyatini
Universitas Atma Jaya Yogyakarta

— *Review of* —
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— *Research* —

ABSTRACT

The concentrated loan portfolio strategy is one of risk-taking behaviors of economic agents. The concentrated loan portfolio strategy is the act of consumption maximization performed by the economic agents. Banking is one of the economic agents. Risk-taking behavior by bank industry can lead to increased risk of bankruptcy of banks that may have an impact on the financial system instability. The aim of this study is to explore the effect of risk-taking behavior of banking industry towards the risk of bankruptcy of banks. Study on General Bank in Indonesia. The panel of data analysis used eviews version 7.2. The sample data were general banks registered at IDX in 2009 to 2012 period. The collecting of the data was based on the certain criteria. The results of this research showed that risk-taking behaviors performed by the banking industry have positive effects toward the bankruptcy of banks. Risk-taking behavior by the banking industry was measured from concentrated loan portfolio strategy by type of loan and economic sector.

Keywords: risk taking behavior, banking, economic agents, bankruptcy of banks

1. INTRODUCTION

The financial system of a country consists of economic agents that interact in economic activities. Economic activities involve consumption, distribution, and production. The five major groups of economic agent are family households, communities, corporations, governments and countries. Each group of economic actor has their respective roles in the activities of consumption, distribution, and production.

The role of economic agents as consumers is a sure thing. There are several factors that affect the rate of consumption, namely income, family size, socioeconomic status, property and services required, the procurement of materials and equipment, funding employee wages. To achieve the level of satisfaction, the economic agents as consumers tend to maximize the financial consumption. The behavior performed by the economic agents in maximizing financial consumption is called risk-taking behavior.

Risk-taking behavior by economic agents to maximize financial consumption will trigger the fragility of the financial system. The hallmark of the financial fragility is the credit enhancement which is not in accordance with the financial capacity, increased concentrations of loan, and increased in foreign debt (Bank Indonesia, 2016)

Banking industry is one of economic agents, which has an important role in the financial system of the country. The banking industry is the key to the success of the monetary policy implementation. Monetary policy is a policy issued by Bank Indonesia to keep the inflation at the level prescribed by the government. The main goal of the monetary policy is to achieve the stable financial system. Bank Indonesia uses two instruments to apply

monetary policy, namely the money supply and interest rates. The monetary policy is implemented to the banking industry first and then to the real sector afterward. (Bank Indonesia, 2016)

Based on the statistics of Indonesian Banking Industry in 2011, loan or financing is a major activity performed by banks. Therefore 70% -80% of banking assets consist of loan to fund which were distributed to the public. Therefore, the balance of the bank will be dominated by the number of outstanding loans. The banking income statement comes largely from the interest income obtained from loans and the cost of provision. Interest income from loans is obtained through surplus or the difference between the fund placement interest from a third party and the loan interest charged to the party receiving the loan.

The elements of banking management also include risk taking behavior. That is the behavior of banking management attitude which tends to provide loan aggressively without referring to the carefulness principle. Aggressive lending is does not comply with the financial capacity of the debtor or is only concentrated in certain sectors (BI Regulation No.8 / 13 / PBI / 2006 regarding Legal Lending Limit for Commercial Banks).

According to Indonesian Banking Accounting Guidelines 2008, management effectiveness in managing the fund and distributing the funds in form of bank loans becomes the measurement for the bank's performance. Information about the bank's performance is used to predict the bank's capacity to generate cash flow of available resources (Pedoman Akuntansi Perbankan Indonesia, 2008).

Bank's management should manage their loan portfolio management strategy, especially in relation to the loan portfolio strategy they adopted. If loan portfolio is concentrated only in certain sectors it will worryingly lead to the increased levels of credit risk. The high level of credit risk increases the likelihood of bank bankruptcy. The implementation of the monetary policy is initially applied to banking industry to then the real sector. Therefore, the bankruptcy of the bank industry will lead to instability of the financial system (Bank Indonesia, 2016). Accordingly, the purpose of this study is: to examine the influence of the risk-taking behavior performed by the bank as economic agents toward the risk of bankruptcy of banks that may cause fragility of the state's financial system.

2. LITERATURE REVIEW

2.1 Banking Industry

According to Law 10 of 1998 Article 1 on the Principles of Banking, banks are defined as business entities that gather fund from the public in form of deposits and then channel it to the communities in form of loan and other forms. Loan aims to improve people's standard of living. A bank refers to a financial intermediary with the main function to link the parties possessing the excess of fund (surplus units) to those lacking for fund (deficit units).

Bank is an intermediary organization that has an important role in stimulating economic growth (Chakraborty and Ray 2004). Since economic growth is the primary requirement for the economic development success, the Indonesian government determines loan growth achievement be attained by banks. (Bank Indonesia Regulation No.8 / 13 / PBI / 2006 regarding Legal Lending Limit for Commercial Bank)

According to Bank Indonesia Regulation No.8 / 13 / PBI / 2006 regarding Legal Lending Limit for Commercial Bank, banks in their role to encourage economic growth, should concern about the activity of real sector financing. Banks provide financing to the real sector through working capital funds, investment funds and consumption fund necessary for the industrial businesses within the economy.

Most third party funds take place in commercial banks rather than in the Islamic banks and rural banks. The amount of the third party fund affects the amount of the loan channeled. The greater the third party funds collected, the greater loan can be disbursed. Therefore, in the banking industry, commercial banks have a greater role in promoting economic growth (Bank Indonesia 2011).

2.2 Portfolio theory

Baele et al. (2007), conducted a research on the banking industry in Europe to investigate the impact of diversification toward the long-term performance. The research uses franchise value from year to year as the indicator. The research findings show that the diversification can increase the franchise value and decrease the banking risk level.

Bebezuk and Galindo (2005), conducted a research on the financial crisis in Argentina from 2001 to 2002. The results shows that diversification strategy has significant positive effects toward the return rate of bank loans. The higher the level of the loan diversification, the higher the return generated. Further it is explained that the benefits of diversification will be greater when the business cycle declines. Additionally large size banks tend to be more diversified so that it has the opportunity to generate a larger return.

Rossi et al. (2009), conducted a research on banking industry in Austria from 1997 to 2003. The research takes a look at the effect of credit risk diversification towards banks' cost efficiency and capitalization. The results show that the more diversified the loan disbursement, the more efficient the cost. Diversification can reduce the capital requirements, allowing the banks to operate at low capital cost. Diversification of the loan portfolio is capable of dragging down the level of the inherent risk. Besides, the more diversified the loan, the higher the level of the bank capitalization. This study shows that the regulation and supervision might contribute to the low level of bank credit risk.

A similar point on the diversification strategy is proposed by Kamp et al. (2005), who conducted a research on the banking sector in Germany from 1993 to 2002. This research shows that a diversified loan portfolio is able to reduce the level of banking risks. However, concentrations of credit portfolio might provide a higher return for the banking business.

2.3 Credit Risk

The term risk refers to the potential loss arising from any particular event. Risk is the possibility of losses due to an event. Credit risk is the inability of the debtor to pay both principal and interest obligations to the banks at the due time (BI Regulation No.11 / 25 / PBI / 2009 concerning Amendment to Regulation of BI No5 / PBI / 2003 regarding Implementation of Risk Management for Commercial Banks)

According to the Regulation of Bank Indonesia No.7 / 2 / PBI / 2005 on Credit Quality, there are five categories of loan status, namely current, special mention, substandard, doubtful and loss. According to Bank Indonesia, non-performing loans or so-called NPL, consists of status substandard, doubtful and loss. To have a proper operation, the banking industry must maintain the NPL ratio at 5%.

According to the Appendix of BI Circular Letter No.13 / 23 / DPNP of 2011, the credit risk may arise from the various business activities of the bank. The concentration of the credit risk is caused by the concentration of the main banking activities, namely loan payment. The loan portfolio is said to be concentrated or diversified depending on the grouping of the loan financing. The grouping is based on the borrower group, geographic region, product, type of financing or field of business and economic sectors.

According to Appendix II BI Circular Letter No.13 / 24 / DPNP of 2011 concerning Commercial Bank Rating, the rating risk profile is obtained from the mapping into eight levels of banking risk. These risk factors taken as the basis for determining the bank's risk

profile ranking are credit risk, market risk, liquidity risk, operational risk, legal risk, strategic risk, compliance risk, and reputation risk. Since most banking activities are in form of lending, the credit risk level is dominant. Therefore the determination of the significance level of the credit risk will be higher than the others.

2.4 Hypothesis Development

The effect of Risk Taking Behavior of Economic Agents toward the Risk of Bankruptcy of Banks

According to the Attachment II in the Letter of BI No. 13/24/DPNP of 2011 about The Assessment of General Bank Performance Level, inherent risk is stated to be in low level if the loan portfolios are diversified appropriately. According to the Diamond research (1984), diversification strategies decrease the level of loan payment failure risk because the risk spreads in many sectors. Banks adopting the strategy of diversified lending system will be more resistant to external conditions such as economic fragility. Through diversification, the risk will disperse so that the level of default risk will decrease. Diversification of credit portfolio channels funds to each economic sector with the nearly even proportion of values.

Kamp et al. (2005) also has the same opinion, well diversified loan portfolio will be able to decrease banking risk. Elsas et al. (2009), states that diversification has a positive effect toward the health of banking condition in dealing with economic crisis arising from the external environment.

Although the lending must be optimized since loan holds an important role in economic growth and development success factor, the disbursement should concern with the quality of loan. Therefore, in the BI Regulation No.8 / 13 / PBI / 2006 regarding Legal Lending Limit for Commercial Banks, Bank Indonesia establishes the obligation for the banks to pay attention to the precautionary principle in lending loan. Banks are required to manage the risk appropriately, particularly the risks related to the bank loan portfolio concentration both by the type of use and by the economic sector.

From the aforementioned information, the hypothesis can be formulated as follows:

H1: Concentrated loan portfolio will increase bank credit risk

H1a: Concentrated loan portfolio by type of use will increase bank credit risk

H1b: Concentrated loan portfolio by economic sector will increase bank credit risk

3. RESEARCH METHOD

3.1 Population and Sample

This study uses secondary data from the financial statements in the period of 2009 to 2012. The data were obtained from the published reports of Bank Indonesia, Indonesian Capital Market Directory (ICMD) and the Indonesian Stock Exchange (IDX). The population used in this study is all commercial banks listed on the Indonesian Stock Exchange in the period of 2009 to 2012.

The sample data gathering was based on the certain criteria, namely bank that have been listed on the Indonesia Stock Exchange since 2009 or earlier, the bank operational in the period 2009 to 2012, and the bank with the complete data.

3.2 Data Types and Variables Measurements

3.2.1 Independent Variable (Loan Portfolio)

The data were taken from the notes in the financial statements on the loans classified based on the type of credit use and economic sectors. To determine whether the loan portfolio strategy is concentrated or diversified, we apply Hirschman Herfindahl Index (HHI) (Cajueiro et al. 2000). HHI is a market concentration indicator where the score ranges

between 0 to 1. If the HHI comes closer to 0, it means that the loan portfolio is more diversified.

Here is the formula to measure the HHIU and the HHIE (Cajueiro et al. 2010) :

$$HHIU \text{ or } HHIE = \frac{\sum_{i=1}^n r_i^2}{\sum_{i=1}^n r_i^2}$$

Means :

- HHIU :Hirschman Herfindahl Index loan portfolio by type of loan
 HHIE :Hirschman Herfindahl Index loan portfolio by economic sector
 n : the number of measured groups
 i : the number of industrial sectors
 r : the number of each sector loan divided the total of loans

3.2.2 Dependent Variable (Credit risk level)

The data on the level of credit risk were derived from the financial statements classified based on the credit collectability status. Lending is considered as having a high risk level if it belongs to the category of substandard (collectibility 3), doubtful (collectibility 4) and loss (collectibility 5). Then, the loans with the high risk level are included in non performing loan (NPL) group.

Lending activity is the main banking activity. NPL is the most representative ratio to assess the quality of loans. The lower value of NPL means less credit risk.

The measurement of credit risk level based on NPL score ratio :

$$\text{NPL Rasio} = \frac{\text{non performing loan}}{\text{the total of loans}}$$

Which means:

- Non performing loan : substandard, doubtful, and loss
 The total of loans : whole loans granted

3.2.3 Control Variable (Bank Size)

Bank size is used as a control variable because the big size banks tend to has diversified loan portfolio (Bebezuk and Galindo 2005). Bank size is calculated based on the value of total assets per balance sheet according to the sample period.

The total assets are converted into the natural logarithm (ln) for other independent variables are the ratio scale with small nominal. Ln is intended to reduce the deviation when the variable size of the bank is regressed with the other independent variables.

The measurement of the bank size control variable is calculated by this formula:

$$\text{Bank size} = \text{Ln}(\text{total asset})$$

3.3 Analysis method

The hypothesis testing in this study applies multiple regression analysis to measure the effect of the concentrated loan portfolio toward the increase of the bank credit risk. The applied regression equation is as follows:

Model 1a:

$$\text{NPL} = \alpha + \beta_1 \text{HHIU} + \beta_3 \text{size} + e$$

Model 1b:

$$NPL = \alpha + \beta_2 HHIE + \beta_3 size + e$$

Which means :

NPL: Non-performing loans

HHIU: Herfindahl Hirschman Index of the loan portfolio by type of use

HHIE: Herfindahl Hirschman Index of the loan portfolio by economic sector

Size: the size of the bank by assets

4. ANALYSIS AND INTERPRETATION

4.1 Discussions

The panel data analysis uses evIEWS version 7.2. The data sample is the general banks that registered at BEI in 2009 to 2012 period. The data collection was based on the certain criteria and there were 20 banks.

Prior to conducting the regression analysis, the researcher tested this panel data research to obtain the most appropriate model. The panel data selection was conducted within two steps. First, it was conducted by comparing the pool effect model and the fixed effect model. Second, it was by comparing the fixed effect model and the random effect model. The panel data regression technique was suited to the chosen panel data model. Afterward, the classic assumption test toward panel data was carried out to determine whether the individual variable structure (cross section) contains heteroscedastic and autocorrelation aspects or not.

4.2 Hypothesis testing

4.2.1 Concentrated loan portfolio by type of use will increase bank credit risk

1a model:

$$NPL = \alpha + \beta_1 HHIU + \beta_3 size + e$$

Table 4.1
Regression of the 1a Model *Fixed Effect Model*
Cross-section weights (PCSE) standard errors & covariance (no d.f. corrected)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|--------|
| C | 0.548339 | 0.041574 | 13.18931 | 0.0000 |
| HHIU | 0.042508 | 0.021094 | 2.015180 | 0.0485 |
| ASSET | -0.030495 | 0.002314 | -13.17875 | 0.0000 |

Weighted Statistics

| | | | |
|--------------------|----------|--------------------|----------|
| R-squared | 0.848655 | Mean dependent var | 0.111203 |
| Adjusted R-squared | 0.793857 | S.D. dependent var | 0.103413 |
| S.E. of regression | 0.029844 | Sum squared resid | 0.051660 |
| F-statistic | 15.48713 | Durbin-Watson stat | 2.190729 |

Prob(F-statistic) 0.000000

Which means :

NPL : Non-performing loans

HHIU : Herfindahl Hirschman Index of the loan portfolio by type of use

Size : the size of the bank by assets

In accordance to the panel data test model, the appropriate model was fixed effect model. The model contains heteroscedasticity, thus the test was conducted by using cross section weight (PCSE).

The adjusted r-square 0.7938, which means 79.38% of the NPL can be explained by the model. The significance of F-statistic probability is at the level of 5%, which means that the regression of the independent variable on the dependent variable by fixed effect model has statistical significance.

The result of regression showed that β_1 HHIU has a positive effect at the significance level of 5%. It means that H1a : Concentrated loan portfolio by type of use will increase bank credit risk is acceptable.

4.2.2 Concentrated loan portfolio by economic sector will increase bank credit risk

1b model:

$$NPL = \alpha + \beta_2 HHIE + \beta_3 size + e$$

Table 4.2
Regression of the 1b Model Fixed Effect Model
Cross-section weights (PCSE) standard errors & covariance (no d.f. corrected)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---------------------|-------------|--------------------|-------------|--------|
| C | 0.667538 | 0.053380 | 12.50541 | 0.0000 |
| HHIE | -0.047656 | 0.027701 | -1.720367 | 0.0907 |
| ASSET | -0.035564 | 0.002901 | -12.25881 | 0.0000 |
| Weighted Statistics | | | | |
| R-squared | 0.866800 | Mean dependent var | 0.122978 | |
| Adjusted R-squared | 0.818572 | S.D. dependent var | 0.140249 | |
| S.E. of regression | 0.031706 | Sum squared resid | 0.058307 | |
| F-statistic | 17.97307 | Durbin-Watson stat | 2.009513 | |
| Prob(F-statistic) | 0.000000 | | | |

Which means :

NPL : Non-performing loans

HHIE : Herfindahl Hirschman Index of the loan portfolio by economic sector

Size : the size of the bank by assets

In accordance to the panel data test model, the appropriate model was fixed effect model. The model contains heteroscedastics, so the test was conducted by using cross section weight (PCSE).

The adjusted r-square 0.8185, which means 81.85% of the NPL can be explained by the model. The significance of F-statistic probability is at the level of 5%, which means, the regression of the independent variable on the dependent variable by the fixed effect model has no statistical significance.

The result of regression showed that β_2 HHIE has negative effect at the significance level of 5%. It means that H1b: concentrated loan portfolio by economic sector will increase bank credit risk is rejected.

5. CONCLUSION

The results of this research show that the concentrated loan portfolio will increase the bank credit risk.. The positive effect of the concentrated loan portfolio toward the credit risk level is consistent by the type of loan only. This result supports the findings of the researches conducted by Diamond (1984), Baele et al. (2007), Kamp et al (2005), Babezuk and Galindo (2005), Elsas et al (2009), Rossi et al (2009).

In order to reduce the level of credit risk, the bank shall manage the credit portfolio to be appropriately diversified. Credit risk is the risk caused by the failure of the debtors to meet their obligation to pay both principal and interest loan on the due date. Therefore, too aggressive loan will be the main factor of the banking fallout if it is not matched by the quality of the credit itself (Fahmi and Hadi 2010).

Credit quality can be seen in the value of non-performing loans based on the bank notes in the financial statements. Non-performing loans hereinafter are referred to NPL, a class of credit with the status substandard, doubtful and loss (BI Regulation No.7 / 2 / PBI / 2005). The smaller the NPL value, the less credit risk faced. BI Regulation No.7 / 2 / PBI / 2005 on Credit Quality Ratings, requires banks to establish the principles of carefulness in lending to reduce the credit risk level. The loan should be granted not only by referring to the amount of credit granted. The process of the loan granting should also be taken into account. Banks are required to apply the principle of carefulness in lending so that NPL can be maintained at a low level.

The credit risk will be higher when the loan fund portfolio is not well diversified. Credit risk will have impact on the financial condition of the unhealthy banks and cause the bankruptcy of the banking industry. Bank Indonesia refined a method of commercial banks rating to consider the level of the credit risk. BI Circular Letter No.13 / 23 / DPNP in 2011 regarding the implementation of the Risk Management for the Commercial Bank, explains that the risk profile is a factor in the assessment of the bank. The refinement of the assessment criteria of the bank is carried out by the assessment using a risk-based approach (risk based bank rating).

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