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Effect of Implementation of Risk Management on Financial Performance of Banking Company in Indonesia Stock Exchange

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Abstract:
This study aimed to examine effect of Non-Performing Loan (NPL), Net Interest Margin (NIM), Loan to Deposit Ratio (LDR) and BOPO toward financial performance (ROE). The data in this study was collected from Indonesian Banking Directory of 2013 -2015. Sampling technique using purposive sampling. The collected sample was 24 banks. The data is analyzed by using method of multiple linier regression. This result of research shows that BOPO affected positively significant toward financial performance (ROE) and NPL, NIM and LDR not affected toward financial performance. This study result is hoped to be a consideration for shareholders, government, management, investors and public community.

Keywords: *NPL, NIM, LDR, BOPO, ROE*

1. Introduction

1.1. Background Research

Bank is a business entity that collects funds from the public in the form of savings and distributes it to the community in the form of credit and or in other forms in order to improve the standard of living of many people. The banking industry has a strategic position as an intermediary institution to support the smoothness of the economy (Law No. 10 of 1998). Banking is a risky business. This is based on the fact that banks take risks, change risks, and impose risk on banking products and services (Arora and Agarwal, 2009 in Mokni et al, 2014). Risk management can be defined as a set of procedures and methodologies used to identify, measure, monitor and control risks arising from business or business activities.

The bank's performance, among others, is influenced by success in risk management. Efficient risk management is really needed by banking institutions because the implementation of good risk management will result in less risk to be borne by the bank and of course this will affect the financial performance of banking companies. If the inherent risks of a small bank, it can be said that the implementation of risk management in managing and controlling risk successfully. Bank Indonesia as a banking regulator in Indonesia issued Bank Indonesia Regulation No. PBI. 11/25 / PBI / 2009 concerning the implementation of risk management for commercial banks. With the implementation of good risk management is expected to improve banking performance so as to maximize shareholder wealth and reduce potential losses. To measure the performance of a company whose main purpose is profit motive can be used profitability analysis. Profitability can be measured with Return on Equity (ROE). Return on Equity (ROE) is the ratio used to measure the return rate of return for shareholders for one year.

Risks faced by banking companies include two things: financial risks and non-financial risks. Risks that will be focused in this study are financial risks that include credit risk, market risk, liquidity risk and operational risk. In an effort to minimize the risks that occur, the bank must perform its function by adhering to the prudent principles in managing public funds. Therefore, each bank is required to have risk management capable of identifying, measuring, monitoring, and controlling risks, so that all kinds of potential risks to emerge can be anticipated from the outset and to find ways to mitigate them (Attar, et al, 2014).

The research that examines the relationship between risk management and financial performance has been done by some previous researchers. Among the research conducted by Poudel (2012) who conducted research on the effect of credit risk management (default rate) proxied with Non-Performing Loan (NPL) against Financial performance of commercial banks in Nepal. The sample used were 31 banks operating in Nepal 2001-2011. The results showed that credit risk management had a significant negative impact on bank financial performance. The other research was conducted by Attar, et al (2014) which conducted research on the effect of credit risk, liquidity and operational risk management implementation on the financial performance of banks listed on the BEI 2007-2011. The results showed that only liquidity risk management had an effect on the financial performance of banks listed on the BEI. Alshatti (2015) conducted a study on credit risk management to financial performance at commercial banks in Jordan. The results showed that non-performing loans / gross loans ratio positively affected the performance of the company and the leverage ratio & provision for facilities loss / net facilities ratio negatively affect the company performance.

The inconsistency of previous research gaps, attracting the authors to re-examine the variables related to the implementation of risk management in the banking sector and its effects on financial performance. Another reason is to see whether there is an increased

implementation of risk management in a better direction in the banking sector due to its application obligations set forth in Bank Indonesia Regulation No 11/25 / PBI / 2009.

1.2. Research Questions

From the background of the above problems, the researchers formulate problems in this study as follows:

1. What is the effect of the implementation of credit risk management (NPL) to Return on Equity (ROE)?
2. What is the effect of the implementation of market risk management (NIM) to Return on Equity (ROE)?
3. What is the effect of the implementation of liquidity risk management (LDR) on Return on Equity (ROE)?
4. What is the effect of the implementation of operational risk management (BOPO) on Return on Equity (ROE)?

2. Literature Review & Hypothesis

2.1. Financial Performance

Performance is a pattern of actions implemented to achieve goals measured by basing on a comparison with various standards (Purwanto, 2008). Performance is the achievement of a goal of a particular activity or work to achieve company objectives as measured by the standard. The company's performance appraisal aims to determine the operational effectiveness of the company. Measurement of company performance can be done by using a method or approach. The company's performance measurements are grouped into two, i.e. non-financial performance measurement and financial performance measurement (Morse and Davis, 1996; Hirsch 1994: 594-607 in Tugiman, 2000).

Assessment of financial performance is one way that can be done by the management in order to fulfill its obligations to the funders and also achieve the goals set by the company. The most appropriate measurement of banking performance is by measuring the ability of banks to generate profits from various activities undertaken. Profitability analysis can be used to measure the performance of a company's profit motive. Profitability ratios used to measure the financial performance of banks one of them is Return on Equity (ROE). Rose et al (2010) states that Return on Equity (ROE) is the ratio used to measure the return rate of profit for shareholders for one year.

2.2. Risk Management

According to Bank Indonesia Regulation No 11/25/PBI/2009 risk management is a set of methodologies and procedures used to identify, measure, monitor, and control risks arising from all business activities of a bank. Risk management aims to manage risk so that the organization can survive. High awareness of risk management largely as a result of some corporate disasters and unexpected business failures (Walker, et al., In Orphans, 2009). Therefore, every company needs Enterprise Risk Management (ERM) to reduce and manage any possible corporate risks.

Basically, the risks faced by banks are divided into two categories, namely non-financial risks and financial risks. Non-financial risks include operational environmental risk, reputation risk, legal risk, money laundering risk, technological risk, strategic risk and control risk (Ghosh, 2012). While the financial risks that are focused in this research include:

2.2.1. Credit Risk

According to Bank Indonesia Regulation No 11/25/PBI/2009, Credit risk is a risk due to the failure of the debtor and / or other party in fulfilling the obligations to the bank. The ratio used in calculating credit risk is Non-Performing Loan (NPL) which is the ratio of total non-performing loans to total loans. Increased NPLs indicate worsening banking performance (Nugraheni and Hapsoro, 2007). The higher the NPL in a bank, the higher the risk of non-performing loans. This will affect the income of the bank so as to lower the ROE from the bank.

2.2.2. Market Risk

According to Bank Indonesia Regulation No 11/25 / PBI / 2009, market risk is the risk on balance sheet and administrative account position, including derivative transactions, due to the overall changes in market conditions, including the risk of changes in option prices. According to Mawardi (2005) one of the proxies of market risk is the interest rate, measured from the difference between the interest rate and the interest rate on the loan granted or in absolute form, is the difference between the total interest cost of the fund and the total interest on the loan which in the banking term is called Net Interest Margin (NIM). The NIM ratio reflects market risks arising from changes in market conditions that could harm banks (Hasibuan, 2007). NIM is used to measure the ability of bank management in generating revenue from interest by looking at bank performance in distributing credit. The higher the NIM, the interest income on the earning assets increases so that the possibility of banks in the less problematic condition is expected to have an impact on the financial performance of the bank is increasing.

2.2.3. Liquidity Risk

According to Bank Indonesia Regulation No 11/25 / PBI / 2009, liquidity risk is a risk due to the inability of the Bank to meet the matured liabilities of sources of cash flow financing and / or of high quality liquid assets that can be mortgaged, without disrupting the activity and financial condition of the bank. The LDR (Loan to Deposit Ratio) ratio is a measure of liquidity that measures the amount of funds placed in the form of loans derived from funds collected by banks, especially the public. The higher the LDR then the profit of the company increases with the assumption that the bank is able to channel credit effectively so that the amount of bad loans will be

small. Increased LDR means that the channeling of funds to the loan is increasing so that profits will increase (Banik and Das, 2013). Increased profit is expected to affect the improvement of financial performance of banking companies. Management in a company must be able to manage well the funds collected from the community which then funds will be disbursed in the form of credit (Sudiyatno and Suroso, 2010). This indicates that the higher the LDR ratio, the more funds disbursed in the form of credit so that interest income received by banks will be higher which also affects the improvement of financial performance as measured by ROE.

2.2.4. Operational Risk

According to Bank Indonesia Regulation No 11/25 / PBI / 2009 operational risks are risks due to inadequacy and or malfunction of internal processes, human error, system failure and or external events affecting bank operations. BOPO ratio is used to measure bank management capability in controlling operational cost to operational income (Almilia and Herdiningtyas, 2005). The low ratio of BOPO indicates better management performance in a company because the company is considered more efficient in using the existing resources in the company. The smaller the BOPO ratio the better the bank's performance. This is because the more efficient the bank operates its operational activities that affect the income generated by the bank. (Mahardian, 2008). If bank operational activities are carried out efficiently which means that the ratio of BOPO in a bank is low, then the income generated by the bank will rise (Supatra, 2007). Conversely, the higher the ratio of BOPO the more inefficient the operational costs incurred by the bank concerned, so the possibility of banks to earn a smaller profit.

2.3. Research Framework

Bank is an institution that acts as a financial intermediary between parties who have the funds and parties who need funds and in business activities to control public confidence so that the health of the bank needs to be maintained. Therefore, banks are required to maintain and improve their health by applying prudential principles and risk management in conducting their business activities. Assessment of bank performance is certainly very important for banking companies where this assessment is needed for many parties, especially for customers and shareholders. The level of health and financial performance of banks is usually measured by how much the level of profitability produced by the company. The principle of the bank is to seek profit or strive to increase profit then in the performance measurement can be used profitability analysis. Profitability ratios can be measured using the return on equity (ROE) ratio. In this study used risk ratios in banking companies used by previous researchers i.e. credit risk ratio (NPL), market risk ratio (NIM), liquidity risk ratio (LDR) and operational risk ratio (BOPO). Hypothesis proposed in this research are:

- H_1:Non-Performing Loan effect on Return on Equity (ROE)
- H_2: Net Interest Margin effect on Return on Equity (ROE)
- H_3: Loan to Deposit Ratio effect on Return on Equity (ROE)
- H_4: BOPO effect on Return on Equity (ROE)

3. Research Method

3.1. Population and Sample

The population used in this study are banking companies listing on the Indonesia Stock Exchange with the study period of 2013-2015. The sample in this study was chosen by using purposive sampling method with the following criteria:

a. Banking companies listed on the Indonesia Stock Exchange
b. Companies that publish annual reports in succession 2013-2015.
c. There is data completeness required in this research

3.2. Variable Measurement

3.2.1. Dependent Variable

3.2.1.1. Financial Performance

Information on the performance of the company is very useful for various parties such as investors, creditors, government, management and other parties concerned. The company's financial performance in this study is measured by the profitability profitability ratios of return on equity (ROE). ROE is used to measure the ability of banks in obtaining net profits using their own capital.

$$ROE = \frac{\text{Profit After Income Tax}}{\text{Total Equity}}$$

3.2.1.2. Independent Variable

1. Credit Risk

According to Bank Indonesia Regulation Number 11/25 / PBI / 2009 credit risk is the risk due to the failure of the debtor and / or other parties in fulfilling the obligations to the bank. The financial ratios used in measuring credit risk are Non-Performing Loans. Non-Performing Loan (NPL) shows the ratio of the number of nonperforming loans to total loans issued by banks.

2. Market Risk
One proxy for measuring market risk is the interest rate measured by the difference between the total interest cost of the fund and the total interest cost on the loan or in banking terms better known as Net Interest Margin (NIM).

3. Liquidity Risk
The financial ratios used in measuring liquidity risk are the Loan to Deposit Ratio (LDR) in which the LDR is a ratio that gives an idea of the extent to which the deposits can support the loan disbursed.

4. Operational Risk
The financial ratios used in measuring operational risk are BOPO to measure the bank's management capability in controlling operational costs against operating income. Based on SEBI No.13 / 30/2011, BOPO is formulated by comparing operational costs to operating income.

3.2.2. Data Analysis
Hypothesis testing in this study using multiple regression analysis. Multiple linear regression is a linear regression model whose dependent variable is a linear function of several independent variables. The regression equation used is as follows:
$Y= \beta 0 + \beta 1 (NPL) + \beta 2 (NIM) + \beta 3 (LDR) + \beta 4 (BOPO) + e$
Information:
Y =Financial performance as measured by *Return on Equity* (ROE)
$\beta 0$ = Regression coefficient
NPL = *Non-Performing Loan* (Credit Risk)
NIM = *Net Interest Margin* (Market Risk)
LDR = *Loan to Deposit Ratio* (Liquidity Risk)
BOPO = Operating Expenses with Operating Income (Operational Risk)
e = error

4. Result and Discussion

4.1. Data Description
The data used in this study is data of 30 banks that have been listed on the Indonesia Stock Exchange with the period 2013-2015. Based on the predefined data criteria, only 24 companies can be sampled in this study so that the total sample research for 3 years is 72 samples.

4.2. Classic Assumption Test
a. Multicollinearity Test. All independent variables in this study had tolerance values greater than 0.10 and also had a VIF value of less than 10 meaning that all independent variables in this study had no symptoms of multicollinearity with the rule if VIF <10 and tolerance value> 0.10 then no symptoms multicollinearity.
b. Autocorrelation test. The regression model formed did not occur autocorrelation because it has Durbin Watson between -2 to 2 that is 1,783 so the regressions are free from autocorrelation.
c. Heteroscedasticity Test. Heteroskedasticity test is done by looking at scatterplot chart pattern. The results of the scatterplot chart indicate that the data points are scattered in the area between 0 -Y and do not form a certain pattern, then the regression model formed is not identified heteroscedasticity. Because the treated data does not contain heteroscedasticity, the multiple linear regression equations obtained can be used for the study.
d. Normality test. Normality test is done by looking at normal chart pattern probably plots indicate that the data pattern spreads around the diagonal line and follow the direction of the diagonal line, so it can be said that the variables in this study meet the normality test.

4.3. Hypothesis Testing
The results of multiple regression testing in this study can be seen in table 1 below:

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	72.358	7.448		9.716	.000
	LDR	-.069	.042	-.113	-1.641	.105
	NPL	.851	.429	.143	1.984	.051
	NIM	-.494	.357	-.129	-1.383	.171
	BOPO	-.631	.064	-.950	-9.844	.001

a. Dependent Variable: ROE

Table 1: Multiple Regression Test Results

In this study used the model of regression equation as follows:
ROE = 72,538 + 0,851 (NPL) – 0,494 (NIM) - 0,069 (LDR) – 0,631 (BOPO) + e

4.3.1. Non-Performing Loan (NPL) and Return on Equity (ROE)
The results of the first hypothesis testing is the effect of non-performing loan (NPL) on return on equity (ROE) showed significant value of 0.051. Since the significance value is greater than 0.05 then this indicates that non-performing loans (NPL) have no effect on return on equity (ROE). The results of this study indicate the higher the bad credit in the management of bank credit will lower the level of bank income reflected through ROE. This is due to the lack of intermediary function which is the reason for the disbursement of credit to the debtor is still small. This is caused by concerns from the bank if the loans granted become problematic so banks are more careful to channel credit in order to minimize credit risk. In addition, there is a strict regulation from Bank Indonesia in terms of loan classification that resulted in the debtor that was in the current category can be down to non-current category. The results of this study do not support Alshatti's research results (2015).

4.3.2. Net Interest Margin (NIM) and Return on Equity (ROE)
The second hypothesis test result that is influence net interest margin (NIM) to return on equity (ROE) show significant value equal to 0,171. Because the value of significance is greater than 0.05 this shows that net interest margin (NIM) has no effect on return on equity (ROE). This is because the bank's management has not been able to manage its earning assets in the form of credit to generate net interest income, so that the increase of NIM does not affect the financial performance of the bank. NIM demonstrates the bank's ability to generate interest income by looking at the bank's performance in lending, given that the bank's operating income is highly dependent on the difference in interest from disbursed loans. To be able to increase the acquisition of NIM then need to press the cost of fund, fund cost is interest paid by bank to each source of bank fund concerned. NIM has increased every year it means profitable for the bank because the profit generated bank increases each year.

4.3.3. Loan to Deposit Ratio (LDR) and Return on Equity (ROE)
The third hypothesis test result is the influence of loan to deposit ratio (LDR) to return on equity (ROE) shows significant value equal to 0,105. Because the value of significance is greater than 0.05 then this indicates that the loan to deposit ratio (LDR) has no effect on return on equity (ROE). This is due to an increase in third party funds that are not offset by an increase in credit resulting in the bank having to bear interest expense that exceeds the interest income it receives so that the loss will affect the amount of equity and decrease ROE. Another reason is the low credit disbursed by banks, which causes some idle funds (idle funds that do not generate interest) so the loss of opportunity banks to obtain maximum profit.

4.3.4. BOPO and Return on Equity (ROE)
The results of the fourth hypothesis testing is the effect of BOPO on return on equity (ROE) showed a significant value of 0.001. Because the significance value is less than 0.05 then this It shows that BOPO has an effect on return on equity (ROE). To increase the value of ROE, the banks must manage the bank's efficient operational activities by reducing the bank's operational costs that greatly affect the level of bank profits as reflected by the ROE ratio. The results of this study indicate that the bank sampled in this study has the efficiency in carrying out operational activities so as to generate high ROE which means the bank has taken the right policy in cutting costs that are not needed. The results of this study are in line with research Dietrich (2010) and Sudiyatno & Suroso (2010).

5. Conclusion and Recommendation

5.1. Conclusion
Based on the descriptions of theory and analysis that have been done then the researchers concluded that:
a) Partially significant value α = 5% only BOPO variables that have significant effect on Return On Equity (ROE) while the Non Performing Loan (LDR), Net Interest Margin (NIM) and Loan to Deposit Ratio (LDR) Against return on equity (ROE)
b) The coefficient of determination (R2) in this study amounted to 0.680. These results indicate that the Return On Equity (ROE) variable can be explained by 68% by Non Performing Loan, Net Interest Margin, Loan to Deposit Ratio and BOPO while the remaining 32% is explained by other factors.

5.2. Recommendation
Suggestions that can be given for further research are:
1. Adding risk management measurement variables in banking companies in terms of non-financial risk measurement
2. The narrow observation period in this study can be considered for the expansion of observation period in subsequent research.

6. References

i. Almilia, Luciana Spica, dan Winny Herdiningtyas, 2005. "Analisa Rasio Camel terhadap Prediksi Kondisi Bermasalah pada Lembaga Perbankan Periode 2000-2002". Jurnal Akuntansi dan Keuangan. Volume 7 Nomor 2, STIE Perbanas, Surabaya, hal 12.
ii. Andreas Dietrich, and Gabrielle Wanzenried (2010) "Determinants of Bank Profitability Before and 15 During The Crisis: Evidence from Switzerland", IMF Working Paper

iii. Alshatti, Ali Sulaeman. 2015. The effect of credit risk management on financial performance of the Jordanian commercial banks. Investment Management and Financial Innovations, Vol 12, No.1

iv. Asosiasi Dana Pensiun Indonesia (ADPI). 2003. Dasar-Dasar Pedoman Umum Investasi Dana Pensiun.

v. Attar, Dini, Islahuddin, dan M. Shabri. 2014. Pengaruh Penerapan Manajemen Risiko terhadap Kinerja Keuangan Perbankan Yang Terdaftar di Bursa Efek Indonesia. Jurnal Akuntansi Pascasarjana Universitas Syiah Kuala, Vol 3, No.1, Februari.

vi. Banik, B., P. & Das, P., C. (2013). Comparison Financial Performance of State Owned Commercial Banks: A Case Study of Bangladesh. International Journal of Science and Research 2 (2): 423- 428.

vii. Bank Indonesia. (1998). Undang-Undang No. 10 Tahun 1998 Tentang Perubahan Undang-Undang Republik Indonesia No.7 Tahun 1992 Tentang Perbankan. Jakarta: Bank Indonesia

viii. Bank Indonesia. (2009). Perubahan Atas Peraturan Bank Indonesia No 5/8/PBI/2003 Tentang Penerapan Manajemen Risiko bagi Bank Umum. Peraturan Bank Indonesia No.11/25/PBI/2009.

ix. Ferdinand, Augusty. 2006. Metode Penelitian Manajemen. Edisi Kedua. Badan Penerbit Universitas Diponegoro, Semarang

x. Ghosh, Amalendu. (2012). Managing Risk in Commercial and Retail Banking. Singapore: John Wiley & Sons Pte. Ltd.

xi. Ghozali, Imam. 2011. Aplikasi Analisis Multivariate dengan Program IBM SPSS 19. Semarang: Badan Penerbit Universitas Diponegoro.

xii. Hasibuan, M. 2007. Dasar-dasar perbankan. Jakarta: PT. Bumi Aksara.

xiii. Hiro Tugiman. 2000. Pengaruh Peran Auditor Internal Serta Faktor-Faktor PendukungnyaTerhadap Peningkatan Pengendalian Internal Dan Kinerja Perusahaan. Disertasi Doktor pada Universitas Padjadjaran Bandung.

xiv. Hirsch, Maurice L. 1994. Advanced Management Accounting. Cincinnati, Ohio: South Western Publishing Co.

xv. Mahardian, Pandu. 2008. Analisis Pengaruh Rasio CAR, BOPO, NPL, NIM dan LDR terhadap Kinerja Keuangan Perbankan (Studi Kasus Perusahaan Perbankan yang Tercatat di BEJ Periode Juni 2002 – Juni 2007). Jurnal Ekonomi Universitas Diponegoro

xvi. Mawardi, Wisnu. 2005. Analisis Faktor-faktor Yang Mempengaruhi Kinerja Keuangan Bank Umum di Indonesia (Studi Kasus Pada Bank Umum dengan Total Assets Kurang dari 1 Triliun). Jurnal Bisnis dan Strategi, Vol 14, No.1, Juli.

xvii. Mokni, Rim Ben Selma et al. (2014). Risk Management Tools Practiced in Islamic Banks: Evidence in MENA Region. Journal of Islamic Accounting and Business Research, 5 (1): 77-97

xviii. Nugraheni, Fitri & Dody Hapsoro, 2007, Pengaruh Rasio Keuangan CAMEL, Tingkat Inflasi dan Ukuran Perusahaan terhadap Kinerja Keuangan Perusahaan Perbankan di BEJ, Wahana, Vol. 10, No. 2, Agustus 2007.

xix. Poudel, Ravi Prakash Sharma. (2012). The Impact of Credit Risk Management on Financial Performance of Commercial Banks in Nepal. International Journal of Arts and Commerce, 1(5): 10-15.

xx. Pramana, Tony. 2011. “Manajemen Risiko Bisnis”. Sinar Ilmu Publishing. Jakarta

xxi. Rose, Peter S. and Sylvia C.H. 2010. "Bank Management and Financial Services, Eight eddition". Singapore: McGraw-Hill.

xxii. Subramaniam, Nava, L. McManus, and Jiani Zhang 2009. Corporate Governance, Firm Characteristics, and Risk Management Committee Formation in Australia Companies. Managerial Auditing Journal, Vol.24, No.4, pp.336-339.

xxiii. Sudiyatno, Bambang dan Jati Suroso. 2010. Analisis Pengaruh Dana Pihak Ketiga, BOPO, CAR dan LDR terhadap Kinerja Keuangan Pada Sektor Perbankan yang GO PUBLIC di Bursa Efek Indonesia (BEI) (Periode 2005-2008). Jurnal Dinamika Keuangan dan Perbankan, Vol 2 No 2

xxiv. Supatra, Muljanto. 2007, Analisis Faktor-faktor yang Berpengaruh terhadap ROA, Jakarta: Kajian Ekonomi dan Keuangan, Vol.7, No.4, hlm. 103-115

xxv. Walker, P. L., Shenkir, W. G., & Barton, T. L. 2002. Enterprise risk management: Putting it all together. Altamonte Springs, FL: Institute of Internal Auditors Research Foundation.

xxvi. Yatim, Puan. 2009. Board Structures and The Establishment of a Risk Management Committee by Malaysian listed firms. Journal of Management and Governance, Vol.14, No.1, p.17-36.