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RISK MANAGEMENT AND PERFORMANCE OF CONVENTIONAL BANKING IN INDONESIA

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Abstract: *The aim of this studi to examine the effect of risk management to performance of convenstioanl bank in Indonesia. Risk management consist of capital risik that measured by CAR, liquidity risk measured by LDR, credit risk measured by NPL, operating risk measured by BOPO and management risk measured by NIM. Meanwhile banking performance measured by return on assets (ROA).*

Population of this studi is all of conventional bank that registered on Indonesia Stock Exchange and sample consist of 14 conventioanl banks with purpossive sampling. We use quarterly data in periode 2013-2014. The tool of analysis used multiple regression and processed by SPSS 17.0

Result of this studi show capital risk (CAR) has a negatif effect to banking performnace but no siginficant. Liquidity risk (LDR) has a positive and signifikan effect, but credit risk (NPL) no significant effect to banking performance. Meanwhile, operating risik (BOPO) has signifikan and negatif effect and management risk (NIM) has a positive and significant to banking performance.

Key word: *Banking performance, CAR, LDR, NPL, BOPO, and NIM*

BACKGROUND

In accordance to Law No. 10 Year 1998 about banking, which explain the bank is an entity that collects funds from the public in the form of deposits, and distribute it to the public in the form of credit or other forms, in order to improve people's lives. Thus the bank serves as a financial intermediary between people who have excess funds to people who need funds. The source of the majority of bank's funds is from public, so the government has an obligation to protect the public from banking practices which is inadvertent. Therefore, banking is a company that is highly regulated by the government. Monetary authorities regulates the bank capital, credit, non perform loans, bank liquidity, and the bank's operations. Even to be bank manager need permission from *Financial Services Authority* through fit and proper test.

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The bank's managements is not only demanded by owners to improve profitability, but also to be able in managing the risks which are faced by banks. Risks that must be managed by the bank include capital risk, credit risk, liquidity risk, management risk, operating risk, and market risk. Capital risk is measured by its capital adequacy ratio (CAR), the amount set by Bank Indonesia at a minimum of 8% in accordance to the regulations *Banking International Settlements* (BIS). The bigger the CAR showed healthier the bank, so it is expected there is an improvement in its performance. Research conducted by Almazari (2014) and Gul *et.al* (2011) and Lelissa (2014) measures capital risk by capital adequacy ratio (CAR).

Banking is a business of trust, which means in order to be trusted the bank should be able to provide sufficient funds, thus when the customer decide to do the withdrawal at any time the funds are always available. Banks are also required to provide credit, so it is necessary to provide sufficient funds to complete loan commitments. Policy to provide fund for withdrawal at any time and fullfil credit commitments is referred to liquidity management. In this study, loan to deposit ratio (LDR) is used to measure the liquidity policy, LDR is the ratio between a given loans and the third party funds. The bigger LDR means the higher credit given therefore it is increasing profits, but it also increasing the risk. Hutangalung *et.al* (2011) and Margaretha and Zai (2013) using LDR to measure of liquidity risk, as well as Gul *et.al* (2011) and Javaid *et.al* (2011).

The main income from the conventional banking is from given loans, it means more loans the greater bank earning is. However, with the increasing credit can also raise the potential for non perform loans. Therefore, bank management must be able to manage credit risk is problematic. Purwoko and Sudiyatno (2013) and Hutagalung *et.al* (2011) measure credit risk with non performing loan (NPL), it is similar to the research by Frederick (2014) and Ongore and Kusa (2013).

The bank's management are also required to raise the level of efficiency, so that the cost can be reduced which ultimately able to increase profits. Efficiency is indicated by a comparison between the operating expense and the operating income (BOPO). Operating risk occurs if the bank in less efficient operations so that BOPO increases, because the higher the BOPO will degrade the performance of the bank. Hutagalung *et.al* (2011) and Margaretha and Zai (2013) use as a proxy BOPO for operating risks. Similarly, frederick (2014) and Indris (2011) also uses BOPO as variables that affect the performance of the bank. Bank efficiency is also measured by the ability of banks to manage risk management as measured by the net interest margin (NIM), which is the ratio between the interest income on loans. The higher NIM indicates more efficient in operation. Purwoko and Sudiyatno (2013), Hutagalung *et.al* (2011) and Margaretha and Zai (2013) using the NIM as a proxy efficiency policies. Similar to research Ongore and Kusa (2013) and Frederick (2014) also use NIM as a measure of efficiency policy.

PREVIOUS STUDY

Idris *et.al* (2011) conducted a study in Malaysia find a positive and significant influence between liquidity which is measured by the LDR and the firm size on the performance of the bank. But the capital risk (CAR) and BOPO is not significant effect. While Abera (2012) who conducted a study on the bank's performance in Eutopia found a significant relationship between capital and the size of the company on the performance of the bank, while the credit risk (NPL) and BOPO have a significant and negative effect, but the liquidity risk does not significantly effect the bank's performance. Frederick (2014), who examined the factors that affect the performance of banks in Uganda found that NIM has a positive and significant effect on the performance of bank, while the CAR and NPL have significant and negative effect on the performance of the bank.

Tabari *et.al* (2013) found the effect of liquidity and credit risk have a significant and negative effect on the performance of the bank, while the capital risk (CAR) has a significant and positive effect. Almazari (2104) who studied Arabic banks and Nigerian banks found that in Arab capital risk and liquidity risk have significant effect on the performance of banks, whereas in Negeria liquidity (LDR) and credit risk (NPL) as well as the firm size significantly affects the bank's performance. While Gul *et.al* (2011) found the LDR and firm size have influence on the performance of the bank, while the capital (CAR) does not affect the performance of the bank. Ongore and Kusa (2013), which examines banks in Kenya found the CAR and NIM positive effect while the LDR and the NPL does not affect the bank's performance.

Setyorini (2012) found that banking in Indonesia, capital risk (CAR) has a negative and significant effect and liquidity risk (LDR) significantly positive effect on the bank performance, while the credit risk does not the effect significantly. Javaid *et.al* (2011) found the size of the company has significant influence but negatively on the performance of the bank, while the CAR and LDR has a significant positive effect on the performance of the bank. Instead Lelissa 2014) found the CAR does not affect the bank's performance. While Hutagalung *et.al* (2011) who studied banking in Indonesia find NIM positive significant effect on banking performance, while LDR significantly and negative effect, but CAR and NPL does not affect the bank's performance. Margaretha and Zai (2013) found a significant and positive effect among CAR, NPL, LDR and NIM on the performance of banks in Indonesia. While Purwoko and Sudiyatno (2013) found that variables that significantly positive effect on bank performance is NIM, while BOPO and NPL significant and negative affect same as CAR and LDR which not affect the bank performance.

HYPOTHESIS DEVELOPMENT

1. Capital risk and bank's performance: The function of capital in the banking system is not only giving funds needed by bank in order to sustain the expansion of credit, but also to back up the bank's losses. Bank's capital is regulated by banking authorities and measured by the capital adequacy ratio (CAR), decided with minimum value of 8%. The higher the CAR means the better bank. But if the bank has too high CAR indicates banks are less efficient because the fund distributed more than the bank's capital, thereby reducing the performance of the bank. Margaretha and Zai (2013) who studied banking in Indonesia found a positive effect between the CAR with the performance of the bank. Frederick (2014) also find on the banks in Uganda CAR positive effect on the performance of the bank. Similarly, Javaid (2011) and Ongore and Kusa (2013) also found the same thing. There are some researchers, among others Hutagalung *et.al* (2011), Purwoko and Sudiyatno (2013) and Idris *et.al* discovered CAR is not significant effect to the performance of the bank.

   $H_{1:}$ Risk capital measured by CAR positively effect on the performance of banks

2. Liquidity risk and bank's performance: The bank's business is trust, thus must be able to provide sufficient funds in order to the withdrawal of funds by the public could be served at any time. Banks also need to provide funds to meet commitments approved credit. Bank liquidity risk can be measured by the two measuring devices the minimum reserve requirement (GWM) intended to meet community decision at any time, and loan to deposit ratio (LDR) to meet credit commitments to customers. LDR shows the amount of loans granted compared with public funds, for example, the greater the greater the LDR loans so as to increase interest income which will ultimately improve profitailitas. Tabari *et.al* (2013) and Margaretha and Zai (2013) found LDR positive and significant effect on the performance of the bank. Javaid *et.al* (2011), Gul *et.al* (2011), and Almazari (2014) also found a positive effect between LDR with the performance of the bank.

   $H_{2:}$ Liquidity risk is measured by the LDR positively effect on the performance of banks

3. Credit risk and bank's performance: On one side the amount of credit granted will increase interest income but on the other side if the loans were not analyzed properly would pose a risk in the form of increased credit risk that the troubled loans or non-performing loan (NPL). Management should be able to maintain the NPL does not exceed regulations imposed by Bank Indonesia, namely a maximum of 5%, due to higher NPL will reduce the level of profitability. Tabari (2013) found a significant and negative effect between the NPL and the bank's performance. Purwoko and Sudiyatno (2013) also found in commercial banking in Indonesia NPL significant and negative effect on the performance of the bank. Similarly, Frederick (2014), Gul *et.al* (2011) and Idris *et.al* (2011) also found

a negative and significant influence between the NPL with performance. However Hutagalung *et.al* (2011) and Ongore and Kusa (2013) found no significant relationship between the performances of the bank NPL.

$H_{3:}$ Credit risk measured by NPL negative effect on the performance of banks

4. Managements risk and bank's performance: Bank management has to strive to work efficiently so they can widen the spread between interest rates on loans with interest rates on savings. Bank management ability in order to earn interest on credit is called the net interest margin (NIM). Therefore, risk management is often proxied by net interest margin (NIM) which is the ratio between the interest incomes to total loans. The higher NIM greater the level of profit the bank, so that if the bank in the operation can reduce its overhead costs, the performance of banks will be increased. Margaretha and Zai (2013) found in the Indonesian banking NIM significant and positive impact on the performance of the bank. Purwoko and Sudiyatno (2013) and Hutagalung *et.al* (2011) also found the same thing. Similarly, the Ongore and Kusa (2013) which done research in Kenya also found NIM positive effect on the performance of the bank.

   $H_{4:}$ Management risk that proxied by NPM positively effect on the performance of banks

5. Operating risk and bank's performance: In the operation,beside interest to be paid to depositors, banks also have to spend other expenses are referred to as overhead costs. Interest expense and overhead costs is called by operating expenses. The higher operating expense further reduced the profitability of banks, thus bank's management must be able to control the operating exxpense. Operating risk is measured from the ratio of operating expenses to operating income (BOPO). Banks should be able to press BOPO in order to improve its performance. Research on banking in Indonesia by Margaetha and Zai (2013), Purwoko and Sudiyanto (2014) and Hutagalung *et.al* (2011) found a significant and negative effect among BOPO with ROA. Similarly, Frederick (2014), Obamunyi (2013), and Ongore and Kusa (2013) also found a significant and negative effect among BOPO and the performance of the bank.

   $H_{5:}$ Operating risk is measured by BOPO negative effect on the performance of banks

RESEARCH METHOD

1. **Data and Samples:** The research population is the banking industry that has been registered in the Indonesia Stock Exchange. While samples taken as many as 16 commercial banks with purposive sampling method. The data required in this research is financial statements of the banks into the sample. Sources of data obtained from a sample bank's website and also the website of Bank Indonesia.

2. **Variables and Variables Measurement:** In this research there is one dependent variable in the form of banking performance as measured by return on assets (ROA), and 5 independent variables consisting of capital risk (CAR), liquidity risk (LDR), credit risk (NPL), management risk (NIM), and operating risk (BOPO). The measurement and formulation variables as follows:

Table 1
Variable Measurement

No	*Variable*	*Measurement*
1	Return on Assets (ROA)	Net Income/Total Assets
2	Capital Adequacy Ratio (CAR)	Total Equity/Weigthed Assets by Risk
3	Loan to Deposit Ratio (LDR)	Total Credit /Third Fund Party
4	Non Performing Loan (NPL)	Credit non perform/Total Credit
5	Net Interest Margin (NIM)	Interest Income/Total Credit
6	Operating Expense to Operating Income (BOPO)	Operating Expense / Operating Income

3. **Analysis Tools:** This research is to investigate the influence of independent variables on the dependent variable. The analysis tool used is multiple regressions with regression equation as follows:

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 LDR + \beta_3 NPL + \beta_4 NIM + \beta_5 \, BOPO$$

Where:

ROA = return on assets

CAR = capital adequacy ratio

LDR = loan to deposit ratio

NPL = non performing loan

NIM = net interest margin

BOPO = Operating Expense/Operating Income

RESEARCH RESULTS

1. **Descriptive Data:** From a sample of 16 conventional banks listed on the Indonesia Stock Exchange, after being processed using SPSS 17.0 descriptive statistics obtained as follows:

Bank performance measured by ROA represents an average of 2.09% with a maximum of 5% and a minimum of 1%. Liquidity (LDR) the banking average of 85.89% is comparatively low due to less than ideal about 95%, even minimum lending only 57%. Capital adequacy ratio (CAR) is still reasonable because the average indicates the number of 16.54%, while non-performing loans as

Table 2
Descriptive Statistics

	N	*Minimum*	*Maximum*	*Mean*		*Std. Deviation*
	Statistic	*Statistic*	*Statistic*	*Statistic*	*Std. Error*	*Statistic*
ROA	98	.01	.05	.0209	.00115	.01141
LDR	98	.57	1.10	.8589	.01120	.11084
CAR	98	.12	.24	.1654	.00264	.02617
NPL	98	.01	.05	.0201	.00098	.00969
NIM	98	.03	.09	.0543	.00158	.01560
BOPO	98	.60	.94	.7790	.00972	.09624
Valid N (listwise)	98					

measured by the NPL figures show that relatively small with an average of 2:01% is far below the stipulated maximum of 5%. Net interest margin on average 5:43% and BOPO in the category of great as it could on average 77.90%.

2. **Hypothesis Testing Result:** To test whether there is an effect of the independent variable on the independent variable used multiple regression equation. By using SPSS 17.0, obtained the following results of hypothesis testing

Table 3
Hypothesis Test Result

Model		*Unstandardized Coefficients*		*Standardized Coefficients*		
		B	*Std. Error*	*Beta*	*t*	*Sig.*
1	(Constant)	.049	.010		4.798	.000
	LDR	.019	.006	.181	2.954	.004
	CAR	-.019	.028	-.044	-.680	.498
	NPL	-.089	.072	-.075	-1.240	.218
	NIM	.265	.050	.362	5.275	.000
	BOPO	-.069	.008	-.579	-8.952	.000

a. Dependent Variable: ROA

From Table 3, it can be known the influence of each independent variable on the dependent variable. Liquidity risk is measured by the LDR generates a significance level of 0.004 is smaller than that required of 0.05, meaning LDR significant and positive impact on the performance of conventional banks. Capital risk measured by CAR figures showed a significance of 0.498 is greater than the specified significant level of 5%, meaning CAR not significant effect on the performance of the bank. The result of credit risk as measured by the NPL shows a significance value of 0.218 is greater than the required significance level of 5%. This reveals that the NPL effect is not significant to the performance of the bank.

While risk management is measured by the NIM result a significance level of 0.000 is smaller than required so that NIM was significant and positive effect on the performance of the bank. Similarly, operating risk measured by BOPO has a significance value of 0000 is smaller than the significance level, so BOPO significant and negative effect on the performance of the bank.

DISCUSSION

Hypothesis testing of liquidity risk which is measured by measured by the LDR showed significant results and positive means higher LDR increasing the performance of the bank. LDR is an indicator of the amount of credit granted, so the higher LDR showed higher loans, and the higher loans would provide the advantage of high interest income, thus encouraging high profitability. These results are consistent with research Margaretha and Zai (2013) who found LDR significant positive effect on the performance of the bank. Similarly, Javaid *et.al* (2011) who studied banking Pakistan and Almazari (2014), and Albera (2012) also found the same thing. Obamuyi (2013) also find on the banking in Negeria.

From the hypothesis test the risks of capital which is measured by using CAR shows there is no significant effect on the performance of the bank, meaning that the level of CAR does not affect the performance of the banking system. Thus the hypothesis is not proven. This is possible because bank capital is a major aspect that is assessed by the banking authority, so the banks should be able to control the CAR in order to always meet the minimum requirement of 8%. Descriptive statistics can be seen that the CAR is relatively safe with an average of 16.54% with a maximum of 24% and a minimum of 12%. This shows that the banks are very cautious in managing risk capital. These results are consistent with findings Purwoko and Sudiyatno (2013) who studied commercial bank in Indonesia. Similar to Gul *et.al* (2011) also found a negative influence but not statistically significant.

The variable that is most feared by the bank management is problem loans or non-performing loan (NPL). NPL is a risk faced by banks in providing credit. Therefore, bank management should try to control over problem loans. But the results of this study indicate NPL does not affect the performance of the bank. This result is understandable, because the banks are very cautious in giving credit, it is proved on average only about 2.20% NPL is much smaller compared with a maximum of 5%. This result was also possible because NPLs value is not too varied, which means that the effect is not significant. This finding is consistent with research results Hutagalung *et.al* (2011), Setyorini (2012) and Margaretha and Zai (2013) who conducted research on commercial bank in Indonesia. Similarly, the Ongore and Kusa (2013) who conducted the research in Kenya banking also found no significant effect between the NPL, the bank's performance. Tabari *et.al* (2013), and Javaid (2011) also found the same thing.

The results also found that risk management is measured by NIM showed no positive and significant effect on the performance of the bank. This implies that the better management in managing the bank further improves the bank's performance. Results of this study was supported by research Purwoko and Sudiyatno (2013) and Hutagalung *et.al* (2011) who found a significant and positive effect between the NIM with the performance of commercial banks in Indonesia. Similarly, Margaretha and Zai (2013) and Ongore and Kusa (2013) also found the same thing.

Test the hypothesis of the influence of operating risk is proxies by BOPO the performance of the bank showed a significant and negative effect. This result means that the higher the BOPO will degrade the performance of the bank. Therefore, control of the amount of operating costs is needed in order to improve the performance of the bank. Frederick (2014) in Uganda, Tabari *et.al* (2013) in Malaysia, and Obamunyi (2013) who conducted research in Negeria also found a significant and negative effect among BOPO with the performance of the bank. Similarly, Purwoko and Sudiyatno (2013) and Hutagalung *et.al* (2011), which conducts research in Indonesia also found that exhibited significantly and negatively influence the performance BOPO the bank.

CONCLUSION

From the results of the study of theory, hypothesis testing and discussions can be concluded that risk management is needed in managing banks, because banks managing public funds if bankruptcy resulted in a national impact. Banking risk which significantly and positively affect the performance of banks is liquidity risk (LDR) and management risk (NIM). While the operating risk (BOPO) also significantly affect the performance but the negative effect, meanwhile capaital risk (CAR) and credit risk (NPL) is not significant effect. The operating risks also significantly affect the performance but the negative effect. The capital risk and and credit risk is not significant effect to banking's performance.

Management of banks is expected to manage the risks of banking by promoting the prudencal principle. To improve the performance of the bank's management can increase the LDR to some extent so as to improve its profitability, in addition, it also must be able to manage the risk by lowering raio of operating expense to operating income (BOPO) in order to improve the performance of the bank.

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