THE DETERMINANTS OF COMMERCIAL BANK PROFITABILITY IN INDONESIA

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ABSTRACT

This paper seeks to examine the determinants of bank profitability in Indonesia. The sample used is a panel data of 25 publicly traded Indonesian commercial banks in 2007-2012 period. This research used Return on Assets (ROA) and Return on Equity (ROE) as proxies of profitability and analyze how variables from three categories that is internal, external, and market share variable affects them. We found some intriguing findings from this study, namely, the effect of CAR that we found to be negative towards profitability,which indicated that the capitals of Indonesian banks are beyond their optimal level. Then we found that Loan to Deposit ratio and Market Share of Credit, contrary to common sense, also demonstrated a negative effect, which appears to be caused by the 2008-2010 Global Financial Crisis. Last, we also found that Inflation positively affect profitability, which seemingly caused by a demand-pull type of inflation.

Keywords: Return on Assets, Return on Equity, Loan to Deposit Ratio, Credit Market Share

1. INTRODUCTION

Despite the effect of global financial crisis, Indonesian banking industry continues to show positive improvement. In year 2012, it reached its highest ever net profit of 92.83 trillion rupiah, up 23.65% from the previous year.Total asset also saw increase of more than one and a half times of its value at the end of the crisis, from 2534.1 trillion rupiah in December 2009 to4262.59 trillion in December 2012. In fact, credits even rose to almost twofold of its starting value during that period, from 1437.9 trillion to 2707.86 trillion. Overall, the progress showed by Indonesian banking industry from year 2000 to 2012 can be observed from the changes in the variablebelow.

Table 1
Variable changes 2000-2012

Variable	Total Assets (T Rp)	Third Party Funds (T Rp)	Credits (T Rp)	CAR (%)	NPL gross(%)
Change	249%	361%	745%	36%	-90%
Variable	**NPL nett(%)**	**ROA (%)**	**CIR (%)**	**LDR (%)**	**Inflation (%)**
Change	-87%	242%	-30%	83%	103%

This table shows the changes of Total Assets, Third Party Funds, Credits, Capital Adequacy Ratio (CAR), Gross Non Performing Loans (NPL), Nett Non Performing Loans, Return on Assets (ROA), Cost to Income Ratio (CIR), Loan to Deposit Ratio (LDR), and Inflation Rate during the period of 2000-2012

It can be seen that during this period, variables that pertain to income, Creditsand Third Party Funds, recorded a very significant increase at 745% while the other grew 361% respectively. This, in addition to the decrease in cost related variableswhich are Cost to Income Ratio (CIR) and Non-Performing Loans (NPL) gross and nett, which decreased by 30%, 90%, and 87% respectively, leads to the thought that the banking industry's ability to gain profitability must have also increased. But, when one look at the profitability indicator, where Return on Assets (ROA) shows an increase of 242%, it can be said that it is on a similar level to what Total Assets has also achieved at 249%. Hence, it seems that ROA growth only followed the increase of Total Assets despite considerable increase in income and decrease in cost. Given these points, even though the average ROA and ROE (Return on Equity) of Indonesian banks is the highest in ASEAN (Syafri, 2012), it can be argued that there is still an untapped potential in reaching even greater profitability.

There are at least two things that support this argument. First, the average efficiency of Indonesian banks is still way above the average ASEAN ratio that ranges in 40-60% (Investor Daily, 2011) where Indonesia's ratio so far has only been able to reach 74.15% in the year 2012. Second, loans from Indonesian banks has only been able to reach 28% of Indonesia's population, and only counted to 30% of Gross Domestic Product (GDP), this numbers are among the lowest in major Asian markets, where neighboring countries such as Singapore and Malaysia have recorded Loans to GDP ratio as high as 150% and 125% respectively (Valikappen&Moestafa, 2013).

All things considered, the attempt to improve banking profitability in Indonesia continues to be an important agenda to be pursued by all parties involved. One aspect that can help in pursuing this agenda is to identify the variables that determine Indonesian bank's profitability. That is what this paper aims to accomplish.

2. LITERATURE REVIEW

In this section, we summarize some prevous research regarding determinants of bank profitability that influenced this paper.

First, in Indonesia, Suyono (2005) with a sample data period of 2001-2003 found that Capital Adequacy Ratio (CAR) and Loan to Deposit Ratio (LDR) positively affected Return on Assets (ROA), while Cost to Income Ratio (CIR) negatively affected ROA.

Then there is Anwar and Herwany (2006) with a dataset of locally owned commercial bank in the period of 1993-2000, which found the result that Capital and Reserves to Total Assets (CRTA) and Loans to Deposits Ratio (LIQ) consistently affected Return on Assets (ROA) and Return of Equity (ROE), where CRTA demonstrated a positive effect, and LIQ a negative effect toward

those two measures of profitability.

Next, there are Sukarno and Syaichu (2006) which used 2001-2005 data that found that CAR and LDR positively affect ROA.

Some years later, Sufian and Habibullan (2010) using 1990-2005 data, found that Non Interest Income per Total Asset (NII/TA) and Equity per Total Asset (EQASS) always positively affected ROA in every model they tested, while Non-Interest Expense per Total Asset (NIE/TA) always has a negative effect. They also found that natural log of GDP (LNGDP) and concentration ratio of 3 largest bank (CR3) positively affected profitability before and during crisis period, but not after the period of crisis.

Last, there is Syafri (2012) who founds that Loan per Total Assets (L/TA), Total Equity per Total Assets (TE/TA), and Loan Loss Provision per Total Loan (LLP/TA) positively affected ROA, while Log of Total Assets, Cost to Income Ratio (CIR), and Inflation negatively affected ROA as the proxy of profitability.

From outside of Indonesia, Husain and Abdullah (2008) in Kuwait, which used data period of 1993-2005, found that Equity to Assets Ratio and Log of Total Assets positively affected ROA while Non-Interest Assets to Total Assets Ratio demonstrated a negative effect.

Then in Japan, Liu and Wilson (2010) found that Diversification, Capital to Asset Ratio, and Loans to Assets Ratio positively affected Return on Assets, whereas Cost to Income Ratio, Impaired Loan to Gross Loans, Market Share, Herfindahl-Hirschman index of Industry Concentration, Real GDP Growth, and Percentage of Market Capitalization of listed companies over GPD was found to have negative effect on ROA.

After that, there is Hoffman (2011) that used a dataset of US banks from the period of 1995-2007, who founds that Capital Ratio, Natural Log of Total Assets, Total

Loans & Leases per Total Assets, Investment in security at market value per Total Assets, and Total Deposits per Total Assets showed negative effect to the measure of profitability that they used, Net Income per Equity. While at the same time they also found that Interest Expense per Equity and Bank's share of market deposits per year demonstrated a positive effect towards Net Income per Equity.

A year later, Lee (2012) in Korea, using data from 1994-2008, founds that Natural log of Total Asset, Capital to Asset Ratio, Loan to Asset Ratio, and Net Interest Margin to Asset Ratio affected Return on Asset significantly with a positive sign. While Nonperforming Loans to Loans Ratio exhibited a negative effect. Interestingly, Net interest margin reversed its direction of effect to negative when he used Return on Equity as the proxy of profitability instead of Return on Asset.

Next, Yilmaz (2013) used a multinational data from Turkey, Brazil, Czech Republic, Hongary, Malaysia, Mexico, Polandia, South Africa, and Taiwan with observation period of 2005-2010. They found that Liquidity Risk, Operating Expenses Management, Measure of Capitalization, Bank Size, and Inflation, affected Return on Asset with a positive sign, while Measure of Credit Risk and Merger & Acquisition demonstrated a negative effect.

In the same year, Rachdi (2013) in Tunisia did a research using ten year data from 2000 to 2010. He found that Capital Adequacy, Liquidity, Inflation, and GDP are the variables that demonstrated a positive effect towards both proxies of profitability that they used, Return on Asset and Return on Equity. While on the other hand, Cost-Income Ratio, Yearly Growth of Deposits, Off Balance Sheet Activities, and Herfindahl-Hirschman Concentration Index exhibited a negative effect.

Last, Raza, Jawaid, Shafqat (2013) in

Pakistan with data from the period of 2001-2010, found that Bank Size, Credit Risk, Liquidity, Banking Sector Development, and Inflation, demonstrated a negative effect toward Bank Profitability.

3. DATA AND METHODOLOGY
3.1 Data

For this research, we used a regression analysis of a panel data of publicly traded Indonesian commercial bank during the period of 2007-2012. We managed to collect 25 banks as sample in this panel data. As for the regression model, we followed the framework of Anwar & Herwany (2006), which said the determinants of commercial bank profitability can be classified into two main categories, namely those that are management controllable and those that are beyond the control of management.

3.2 Method

The management controllable aspects are referred as internal determinants and the other as external determinants. This is the viewpoint that is also being used in this paper, but we add another category that we refer to as market determinants, which we define as a variable that is kind of a mix of internal and external determinants, where management has a degree of control, but external factor also plays a great part. So after reviewing previous literatures, the model that we used to analyze the determinants of bank's profitability in Indonesia is as follows:

$$ROA \text{ or } ROE = a + \beta_1 CAR + \beta_2 NPL + \beta_3 CIR + \beta_4 LDR + \beta_5 SIZE + \beta_6 CAP + \beta_7 MTPF + \beta_8 MCRED + \beta_9 GDP + \beta_{10} INT + \beta_{11} INF + \in$$

We followed the majority of previous research in using Return on Asset (ROA) and Return on Equity (ROE) as the proxy of profitability for our dependent variable. In the independent variables, Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Cost to Income Ratio (CIR), Loan to Deposit Ratio (LDR), and natural log of Total Asset (SIZE) are our internal variables. Market Capitalization (CAP), Market Share of Third Party Funds (MTPF), and Market Share of Credit (MCRED) made up our market variables. Then for external variables we used Annual Gross Domestic Product Growth (GDP), Annual Interest Rate (INT), and Annual Inflation Rate (INF).

We did something extra for the external variables. Instead of just using the numbers obtained straightaway, we divided it first by what we called as proxy for interest margin, which was calculated by dividing Net Interest Profit with Total Loans then subtracting the result withNon-Performing Loans value. With this, we made the values for the external variables unique to each sample, instead of an identical value for all bank at the same year because the data that is being used is Indonesian yearly data.

4. RESULTS AND DISCUSSION
4.1 Descriptive Analysis

The descriptive statistics of the data used in this research, are as follows:

Table 2
Descriptive Statistics

	ROA	ROE	CAR (%)	NPL	CIR	LDR
Mean	0.010	0.096	17.243	0.033	0.833	0.993
Median	0.011	0.093	15.085	0.022	0.824	0.988
Maximum	0.033	0.278	49.570	0.625	2.037	1.757
Minimum	-0.184	-0.887	9.810	0.000	0.596	0.341
Std. Dev.	0.019	0.127	7.048	0.061	0.147	0.269
Skewness	-7.582	-3.994	2.367	7.133	3.723	0.180
Kurtosis	77.034	28.846	9.234	64.116	31.621	2.607
Jarque-Bera	35694.250	4573.867	382.960	24617.040	5466.304	1.778

Source: Proceed

Table 3
Descriptive Statistics

	SIZE	CAP	MTPF	MCRED	GDP	INT	INF
Mean	16.829	28.780	0.028	0.035	1.222	1.605	1.638
Median	16.657	28.520	0.006	0.008	1.376	1.455	1.103
Maximum	20.146	33.045	0.156	0.263	48.298	74.290	88.827
Minimum	13.970	24.419	0.000	0.000	-81.840	-103.187	-85.000
Std. Dev.	1.839	2.112	0.043	0.055	9.490	12.874	11.823
Skewness	0.142	0.280	1.746	2.181	-3.476	-2.088	0.526
Kurtosis	1.676	1.964	4.707	7.571	46.111	39.412	41.607
Jarque-Bera	11.461	8.673	94.466	249.516	11917.930	8395.634	9322.567

Some notable findings from this statistics are, on average, Indonesian banks in our sample recorded a Return on Asset value of 1 percent, with a maximum value of 3.3 percent and minimum value of minus 0.185 percent. This is below the average of all banks in Indonesia, which includes foreign and private owned banks that do not met the criteria of our sample, which ranges from 2.8 to 3.08 percent in 2007-2012 period. That was also the case for Return on Equity, where the 9.6 percent average that we found are way below the average of overall Indonesian banks that ranges in around 20% in recent years. This is seemingly caused by the large standard deviation for that variable, which implies that the effect of Global Financial Crisis varies greatly towards the banks in our sample. Capital Adequacy Ratio showed an average of 17.24 percent, which is more than twice the minimum requirements set by the Indonesian central bank. Then, for *Cost to Income Ratio*, the average value for our sample is 83.3 percent, way above the average of other ASEAN countries that ranges in 40-60%. Last, it should be noted that, as stated previously, we divide the external variables (GDP, INT, INF) with proxy of interest margin, and the values shown in this table are those values, not the original value of the external variables.

4.2 Research Results

Fixed Effects panel regression is the method that was most suitable for the sample and data used. Thefull results are displayed in Table 2 below.

ROA

$$= a + \beta_1 CAR + \beta_2 NPL + \beta_3 CIR + \beta_4 LDR + \beta_5 SIZE$$
$$+ \beta_6 CAP + \beta_7 MTPF + \beta_8 MCRED + \beta_9 GDP + \beta_{10} INT$$
$$+ \beta_{11} INF + \epsilon$$

ROE

$$= a + \beta_1 CAR + \beta_2 NPL + \beta_3 CIR + \beta_4 LDR + \beta_5 SIZE$$
$$+ \beta_6 CAP + \beta_7 MTPF + \beta_8 MCRED + \beta_9 GDP + \beta_{10} INT$$
$$+ \beta_{11} INF + \epsilon$$

Table 4
Panel Data Regression

	Model 1 Dependent Variable ROA	Model 2 Dependent Variable ROE
Constant	0.0582***	0.4778***
CAR	-0.0002***	-0.0012**
NPL	-0.1585***	-0.5138***
CIR	-0.0684***	-0.3481***
LDR	-0.0028*	-0.0222*
SIZE	-0.0013	0.0023
CAP	0.0013*	-0.0033
MTPF	0.2038***	1.0881***
MCRED	-0.0754***	-0.2012**
GDP	0.0003	0.0032
INT	-0.0004	-0.0029
INF	0.0002***	0.0008
R^2	0.9330	0.958
Adjusted R^2	0.9125	0.945
Unweighted R^2	0.9184	0.861
F	45.3861	74.266
Prob	0.000	0.000

*Note: *, **, and *** denote significance at α = 10%, 5%, and 1% respectively*

Capital Adequacy Ratio consistently showed a negative effect both in ROA and ROE models, in contrast to previous studies by Suyono (2005), Sukarno and Syaichu (2006) and Rachdi (2013) which found a positive effect. This result can be explained by the study of Osborne, Fuertes, and Milne (2012) that found that bank with higher capital than their target capital demonstrated a negative effect towards profitability. This is related to the tradeoff theory of capital structure that says that companies balance their benefits of debt with the financial distress cost of debt. Apparently, based on this theory, the banks in our dataset are indicated to have a capital value above their optimal target value.

As for Non-Performing Loans (NPL), our findings also showed a consistent negative result for both models, in accordance with what Liu and Wilson (2010) and Lee (2012) also found. This serves to reinforce the simple logic that bank profitability will be higher if bank manages to supress the rate

of troublesome loans that it gives.

Similarly, Cost to Income Ratio (CIR) also exhibited a negative effect in both model, in line with Sukarno and Syaichu (2006), Syafri (2012), and Rachdi (2013), this also, again, confims common sense that the lower the Cost to Income Ratio gets, bank will be more profitable.

Loan to Deposit Ratio (LDR), showed a negative effect on both models, albeit on lower significancy than previous variables. It means that for the banks in our sample, high Loan to Deposit Ratio resulted in less profitability. We think this result is largely caused by the global financial crisis, which caused bank loans to be suboptimal around that period. This indication is supported by the evidence that before and around the crisis period, banks in our sample have LDR value as high as 175%, which means that they borrowed money then lend it at higher rates in hope to gain spread as their revenue, but then the Global Financial Crisis struck. It indicated that there is a lack of prudency in lending practices in Indonesian banks, this notion is also supported by the fact that at the end of 2013, the central bank of Indonesia lowered the maximum LDR value allowed for bank to 92% from the previous 100% that was set in October 2010 to encourage more prudent funding and lending practices in banks. As for the previous results for this variable, our finding is in line with Anwar and Herwany (2006), but opposite of what Suyono (2005) and Sukarno and Syaichu (2006) found.

Total Asset (SIZE) does not show a statistically significant effect in both ROA and ROE models. So it can be said that we failed to find indication that Total Asset affect profitability, unlike what Anwar and Herwany (2006), Husain and Abdullah (2008), Hoffmann (2011), Syafri (2012), Rachdi (2013), and Yilmaz (2013) found.

For the variable Market Capitalization (CAP), we found a significant positive effect in ROA model and negative but insignificant effect in ROE model. Thus it can be interpreted that there is indication that market capitalization affected bank's profitability, particularly when the bank's *leverage* was accounted. Because when ROE, that does not include *leverage*, was used as the proxy of profitability, there is no such indication. So it can be inferred that market capitalization is closely related to bank's leverage. This finding is in accordance with what Raza, Jawaid, and Shafqat (2013) found.

For the variable Market Share of Third Party Funds, we found that it has a positive and significant effect towards profitability in both ROA and ROE model. So it is safe to say that the more third party funds a bank can gather compared to other bank should lead to greater profitability for that bank. This finding is in line with what Hoffmann (2011) also found.

Correspondingly, Market Share of Credits also exhibited a significant effect towards profitability as proxied by ROA or ROE, except that this time, the direction of the effect is negative. This, similar to Loan to Deposit Ratio, can be explained as the effect of global financial crisis combined with low prudency in lending,. As the market share of credits of a bank gets bigger, it will also be exposed to more suboptimal loans, which eventually made profitability suffers if the bank is unable to manage thoseloans effectively.

Last, for the external variables, among the three variables that we used, we only found one variable as the variable that has indication to affect profitability significantly. For the variable GDP, we found positive but not significant coefficient towards both proxies of profitability used, ROA and ROE. This differs from the findings of Liu and Wilson (2010), Sufian and Habibullah (2010), and Rachdi (2013) who found a significant effect. For Interest Rate, we found a negative coefficient for both ROA and ROE models

but those coefficients are not statistically significant. Then, for the variable Inflation, at last we found a significant effect although only in the ROA model. Based on that, it can be inferred that inflation has a positive effect towards bank's profitability, this phenomena can be explained by the notion that as inflation increases, bank's revenue will also increase more compared to the increase of its cost, so in the end bank will gain more profitability. This finding is in accordance to the studies of Rachdi (2013), and Yilmaz (2013) who found similar result.

5. CONCLUDING COMMENTS

Our findings provide an insight into the factors that are determined the profitability of a bank, we found results that both support and contradict previous studies. In conclusion, we found that internal variables, which consisted of Capital Adequacy Ratio, Non-Performing Loans, and Cost to Income Ratio are the variables that have a strong evidence of being a determining factor of banking profitability in Indonesia based on this study and previous study. So we strongly recommend banks to give special attention to those three variables. We also found that two market variables, Market Share of Third Party Funds, and Market Share of Credits significantly affect bank's profitability. We believe that this finding are new for studies on Indonesian banks, as we did not find any previous research regarding this matter. Finally, we encourage further research to improve the result of this study. Among other things that can be done are increasing the number of observation, and use a more robust statistical methodology.

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