

Market Discipline: Empirical Survey on Indonesia Government Domestic Bank

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The aim of this paper is to identify the hold of market discipline in Indonesia along with the factors involve on it, since it is undeniable the importance of it had been justified by the Basel II. Assuming systemic risk exists, the results indicate that public control is important for the sake of their liquidities and optimizing banks' performance.

JEL Codes: F34, G21 and G2

1. Introduction

Market discipline can be defined as public control towards banking institutions with the purpose to monitor banks' activities (Banker Association for Risk Management, 2012), of which based on the Basel Accord II, this strictness is included on the capital adequacy framework (Bank for International Settlements, 2011). Incorporating market discipline in the Basel II implicates that maintaining public trust and high-risk taking actions by banks is obligated to be supervised, yet it is inevitably contradictive (Hagendorff, et al., June 2012). Because in accordance to (Diamond & Rajan, April 2005) taking high-risk in term of channeling loan with the tendencies to result in a non-performing loan can be significantly profitable, nevertheless considering the risk changed into it. On the other hand, public trust can be obtained by implicating an optimal performance using the financial reports as the most suitable and acceptable parameter.

Although intermediation is most likely to be in tune with market discipline, (Cochran, et al., Fall 1999) findings suggests that high-risk credit creation is not intermediation, therefore contrastly different to the findings in Indonesia that indicates intermediation can be form into credit channeling (Jati & S., September 2012). Furthermore, profitability ratios were indicated to have significant effect towards the hold of market discipline, as well as adequate level of capitals (Sitompul, 2005). The indication of margin spread dominates the market discipline existence and default loans lower the implementation had been found in Russia (Hoggarth, et al., 2003), but similar findings have not yet been found in Indonesia.

The existence of deposit insurance is pointed to be the main reason for the market discipline weakening, not only that, economic crisis also responsible for it (Wagner, 2009). Preceding researches on Indonesian banks had found the indication of correlation between those two issues towards market discipline thoroughly, the indications are that public listed banks govern well-developed market discipline (Hutapea & Kasri, 2010) and systemic risk in term of risk associated with big banks

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are most likely to be suffered less in accordance to its capital (Hagendorff, et al., June 2012).

However, there has not been any specific research regarding the financial performance of which can influence the hold of market discipline in Indonesia. The lack of knowledge and findings suggested that it should be conducted a proper research since market discipline has been linked to a mandatory supervision by public using the financial performance of banking institutions. Thus, this research is purposed to identify the correlation of banking institution financial performance towards market discipline and determine the hold of market discipline in Indonesians government banks between 2006 – 2013. This paper is divided into five segments which are as follows: introduction, literature review, methodology, results, and conclusions. The first segment contains the background problem of this research. Literature review explains theoretical background which used as the foundation for the research. Methodology consists of the models and method to produce the proper result which will be explained on results segment. Last but not least the conclusion segment which briefly explains findings and result of this research.

2. Literature Review

2.1 Market Discipline

Market discipline arises as the consequence of risk-taking actions by banks (Hoggarth, et al., 2003), and as well serves as a method of regulation by central bank to satisfy the fulfillment of Basel II arrangement. High costs tend to accumulate accordingly to the high level of risk associated with non potential loan channeling (Espinosa, et al., 2011). Using third parties' perspective, it also can be assumed that this market strictness is closely related to public control towards the safety of liquidities. Banks' trustworthy is usually measured by the amount of third party funds based on the banks' financial statement (Diamond & Rajan, Dec 2000). Previous researches had indicated the significance of public trust to bank reflected by the amount of third party funds (Jati & S., September 2012). The amount of this type of liquidities is classified into three types which is demand deposits, saving deposits, and time deposits while all of which are respectively maintained by banks in order both to perform optimally and gain trust (Irwan, Des 2010).

2.2 Capital Adequacy and Intermedation

According to Indonesia Bank Regulation, banks is intended to keep sufficient amount of capital to support its activities and act as a buffer in case of any damage related to its core capital. The adequate level of capital is supposedly calculated using Capital Adequacy Ratio (CAR) (Diamond & Rajan, Dec 2000). It has been indicated that there is a significant correlation between capital adequacy and market discipline in Indonesian banks (Jati & S., September 2012), but the preceeding research limited its scope thus the correlation itself has not been indicated specifically. However, it is supposedly that adequate level of capital will support market discipline implementation in order to obtain trust(Espinosa, et al., 2011).

Banking industries is not only obligated to maintain its performance financially, but also they are aimed to serve public as a financial intermediary of which is included at banking institutions' functions(Irwan, Des 2010). This function requires banks to act as an medium to accomodate both depositors and debtor as a solution to high financing costs(Cochran, et al., Fall 1999). It is assumed that market discipline is simultaneously implemented while banks are acting as an intermediary in the economy. Nevertheless strengthen by the

findings that indicated intermediation and market discipline has the strongest yet significant correlation (Jati & S., September 2012), it is considered a must to identify the current condition of those two indications using Loan to Deposit Ratio (LDR) as the proxy of financial intermediation by banking industries.

2.3 Banks' High-Risk-Taking Actions and Profitability

Loan channeling is the implementation of distributing liquidities to public as a part of banks function as an intermediary using the capital funded by depositors (Cochran, et al., Fall 1999). Since banking industries is also a business organization, they will require profit to fund their operations, which banks' profit is specifically named as margin of interest (Hutapea & Kasri, 2010). This is calculated by subtracting the amount of interest obtained from depositors to the compensations paid to depositors, while the spread is usually named as Net Interest Margin (NIM). This margin is indicated to be negatively correlated to market discipline since high costs are implicated by market discipline (Jati & S., September 2012). On the other hand, banks will have to deal with loan which cannot be repaid back by debtors by classifying those loans to the potential default loans and being calculated using Non-Performing Loan (NPL) ratio. The more default loans the less trust obtained by banks, of which assumed to be the reason of negative correlation between them (Jati & S., September 2012). These two ratios had been indicated to be related to market discipline in Russia's banks (Hagendorff, et al., June 2012), while both ratios has not been applied to determine similar purpose on Indonesian banks.

Futhermore, banks will need to calculate their operational profit and overall profit to determine the continuity of their business. Banks' operating profit is measured using BOPO ratio, which compare the amount of operating expenses to operating margin. Not only that, general profitability ratios such as ROA and ROE are also applicable to banking industries. Preceeding research on Indonesian public-listed bank has indicated positive correlation between BOPO and market discipline assuming market discipline is associated with operating cost since the obligation has been banks' responsibility as well (Jati & S., September 2012). Since the research was conducted using public listed banks, the research applied ROE as its profitability proxy which resulted to a positive correlation as well. It is considered that ROA should be analyzed to determine its correlation towards market discipline on government banks in Indonesia because market discipline is a perspective of which must be concerned by the banks themselves (Yeyati, et al., t.thn.), thus this research applies ROA as its overall profitability ratio substitution.

3. The Methodology and Model

Incorporating the previous findings and its theories, a regression model is developed in order to process the data which further will be analysed and interpreted. The data is being processed using multiple linear regression as which this method has been applied in preceeding research with similar purposes.

The change of deposit amount will proxy the hold of market discipline, while all the explanatory variables are being selected based on the previous findings which needed improvement due to its limitations. The regression equation is as follows:

$$D DEP_x = \alpha_0 + \alpha_1 ROA + \alpha_2 CAR + \alpha_3 NPL + \alpha_4 NIM + \alpha_5 BOPO + \alpha_6 LDR + \mu$$

Whereas:

x = Government Domestic Bank

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α = regression coefficient

μ = error term

D DEP = Rate of Change in Public Deposits (%)

ROA = Return on Assets (%)

CAR = Capital Adequacy Ratio (%)

NPL = Non-Performing Loan (%)

NIM = Net Interest Margin (%)

BOPO = Operation Expense to Operation Income (%)

LDR = Loan to Deposit Ratio (%)

Temporary hypothesis have also been developed to set a baseline using all the literatures we compiled, whereas the hypothesis are as follows:

Table 1: Hypothesis

Factor	Expected Relationship (Hypothesis)
ROA	+
CAR	+
NPL	-
NIM	-
BOPO	+
LDR	+

Futhermore, we also will identify the existence of market discipline in Indonesia on government domestic banks, thus the premilinary assumption is that the hold of this discipline does exist on Indonesian banking institutions.

This research is intended to broaden the knowledge of banking insitution specifically its obidience according to Basel Accord II, which has not been done on government domestic banks. Previous research also did not indicate seperate correlation between those independent variables towards the hold of market discipline, not only that this research only uses financial ratios of which is included on the CAMELS rating scale. CAMELS rating scale is a best fitted parameters to determine banking institutions performance financially based on the most recent Indonesian central bank regulation(Hutapea & Kasri, 2010).

4. Findings

The table summarize the correlation between rates of change in public deposits in response to the independent variables. As the results, there are four independent variables which significantly correlated toward D DEP at 95% and 90% confidence level. There are only two significant variables at 99% level of confidence. The independent variables are 38.5% explanatory to the control variable, while the other 61.5% is explained by other variables which are not included.

Following are the results from the regression model and the current findings are being tested back to the temporary hypothesis.

Table 2: Data Analysis

Variable	Coefficients	Goodness of Fit	Hypothesis Testing
(Constant)	.828 (0.514)	0.385	-
ROA	14.514*** -3.986		accept
CAR	-3.723*** -1.038		reject
NPL	2.274** (0.950)		reject
NIM	-.714 -3.243		accept
BOPO	.268 (0.229)		accept
LDR	-.946** (0.284)		reject

Note: at critical level of (***) 1%; **) 5%; *) 10%
All standard errors in parentheses

The value of F is 4.133, thus the value of F indicates that the explanatory variables simultaneously give significant explanatory to the control variable with 95% level of confidence. The values of T test on the table indicate the effect of the explanatory variables to the control variable. T value applied to this regression is aimed to identify the correlation significance of each independent variables to the control variable. As the results, ROA and CAR show significant correlation with 99% confidence.

Based on the regression model, the estimated equation becomes:

$$D DEP_x = 0.828 + 14.514 ROA - 3.723 CAR + 2.274 NPL - 0.714 NIM + 0.268 BOPO - 0.946 LDR + \mu$$

Partial correlation analysis was conducted to identify correlation among independent variables, using D DEP as control variable. The results are as follows:

Table 3: Partial Correlation

	ROA	CAR	NPL	NIM	BOPO	LDR
ROA	1					
CAR	-.251	1				
NPL	-.403**	.755***	1			
NIM	.107	-.334*	-.291	1		
BOPO	-.583***	.130	.271	.040	1	
LDR	.679***	-.737***	-.767***	.224	-.534**	1

Note: at critical level of (***) 1%; **) 5%; *) 10%

This method is applied to identify correlation among independent variables. According to the result with 99% confidence level, ROA has significant correlation with BOPO and LDR, CAR with NPL and LDR, NPL with CAR and LDR, BOPO with ROA, and LDR with ROA, CAR, and NPL. LDR show significant correlation with most of independent variables. On the other hand, NIM as the only variable with no significant correlation to other independent variables.

5. Conclusions

Based on the regression model, the hold of market discipline is correlated to the independent variables, thus those variables are indicated to affect the hold of market discipline. The analysis of those will be explained later on.

Reserve requirements in several foreign countries have been considered as tax on banking business (Espinosa, et al., 2011)(Hagendorff, et al., June 2012), the mandatory capital to be put into central banks caused the banks' ability to channel loan to decrease (Diamond & Rajan, April 2005). But however, the concern of this issue stop at the perspective of banks' management since public concern towards banks' capital adequacy is not assumed to be important. Thus, banks are still going to channel loans with no respect to the amount of reserve cash, thus the correlation between D DEP and ROA is indicated to be negative.

Banks' action to channel loans aggressively without paying attention to the details, other than the margin has been indicated to be conducted throughout the years (Brock & Suarez, 2000). Supported by the discouragement by depositors and debtors whom do not concern about the financial condition, prudent lending behaviour is less likely to be done (Yeyati, et al., t.thn.). This condition will later worsen to a financial distress caused by a lot of potential default loans (Irwan, Des 2010), nevertheless since banks will have to maintain their liquidities, banks will be forced to reduce the loans being channeled to the public (Diamond & Rajan, April 2005). Thus, since the liquidity condition is not stable, depositors will treat the banks as if they are not able to safely maintains their capital as well, and this situation will surely worsen the condition, which explains the indication of positive correlation between NPL and D DEP.

The expenses paid by the banks from the default loans causes their margin to decrease as well, while performance inefficiency can be assumed by wide gap of margins (Sironi, September 2001). This gap can be interpreted as a warning to find another type of funding for debtors purposes and by that it means that public trust is lost. Since banking industries relies on trust to operates, this condition will make banks to suffer, therefore it is supposedly that NIM which calculates the interest spread is negatively correlated towards D DEP.

Banking industry is similar to other type of business organisations in term of profit and expenses ratios, thus the operating expenses of banking industry are significantly affected by the high amount of default loans (Sitompul, 2005). The cost must be beared by banks themselves as part of their losses. Not only that, an increase of deposit will lead to a increase of interest expenses to banks as compensations to depositors, while on the other hand, banks are not in condition to channel loans since the high amount of default loans increase the risk of loan channelling accordingly. Thus, it is supposedly that BOPO is negatively correlated towards D DEP

Futhermore, general profitability ratio is also being applied on banking industry to measure and compare its yield to other types of business. The more banks gain profit, the more depositors and debtors will choose those banks as their primary preference to deposit and

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borrow liquidities. Assuming banks are in optimal condition, high amount of both deposits and loans can be lucrative for banks, which increase their profit. Previous research indicated that high amount of capital which accumulated in form of third party funds can increase public trust (Hoggarth, et al., 2003). So, it is supposedly that positive correlation between ROA and D DEP is indicated on this research and on previous research as well.

Using other perspective of banks business, its function to be an intermediary will also be influenced by public trust. The trust can be gained by being a medium to accommodate both depositors and debtors. But, the act of credit channeling is not considered as financial intermediation (Cochran, et al., Fall 1999), and since the implementation of this function by banks in Indonesia is still relatively low (Irwan, Des 2010), the correlation of those two variables are negative.

The hold of market discipline in Indonesia is analysed by the correlation of the independent variables. It is indicated that all variables are correlated to each other, although public is neglected to control banks' performance but they are still paying attention to those ratios to determine whether they will trust the bank or not. Based on the results, the hold of market discipline in Indonesia does exist on government domestic banks.

From the analysis, it can be concluded that market discipline can be delegated by the amount of deposits which change accordingly through out the period in response to the change of the financial ratios. Independent ratios indicate significant correlation towards the market discipline, of which ROA and NPL are positively correlated while CAR and LDR are negatively correlated. Based on that indications, the conclusion is that optimal performance in term of efficiency can increase the hold of market discipline (Kunt & Huizinga, 2004). Since ROA is positively correlated towards public deposits, it can stimulate depositors willingness to increase their liquidities accumulation in banks. However, the implementation of intermediary function is still relatively low and is not being proxied by credit creation.

To sum up, banking industry is a sector of business relying on public trust to operate. We conclude that market discipline does exist in Indonesia but is still in respect to the condition adjustments. Since market discipline prevent banks to act on high-risk taking loan channeling, it responds not only to financial factors but also crisis. The regulation improvements have made several considerations to the hold of market discipline. However, this research is limited to the variables of which are the financial ratios, thus we hope that the further research in the future can include the deposit insurance which has been indicated to lower the hold of market discipline (Kunt & Huizinga, 2004). We also encourage public to increase awareness to banking industry to stimulate the existence of market discipline simultaneously.

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