

# **The Effects Of Derivatives, Commitments and Contingencies on Banking Risk with Capital Adequacy Ratio As A Moderating Variable**

## **(In Banking Companies Listing on The Indonesia Stock Exchange in 2013-2018)**

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*Abstract— This study aims to examine the effect of derivatives, commitments and contingencies on bank risk with Capital Adequacy Ratio as a moderating variable on banking companies listing on the Indonesia Stock Exchange (IDX). This research is a quantitative study, which is measured using a panel data regression based method with eviws 10 . The population of this research is banking companies listing on the Indonesia Stock Exchange (IDX) in 2013-2018. The sample is determined based on the purposive sampling method, with a sample of 32 banking companies so that a total of 192 observations. The data used in this study are secondary data. The data collection technique using the method of documentation via the official website IDX: [www.idx.co.id](http://www.idx.co.id) . Hypothesis testing using t test. The results of the research prove that: (1) Derivatives have a negative effect on bank risk which means that derivatives are used by banks for hedging. (2) Commitment has a positive effect on bank risk which means that the commitment of lending at certain interest rates increases the dependence on interest rate volatility so that the use of commitments will increase risk. (3) However, contingencies are proven to have no effect on bank risk because they are used as collateral (contingencies) as a direct substitute for credit so that the counterparty is less likely to commit violations, so this does not affect bank risk. (4) Capital Adequacy Ratio is proven to weaken the negative influence of derivatives on bank risk which means that the CAR determined by the bank is intended to stabilize bank risk so that the CAR will weaken the risk reduction due to derivative transactions. (5) Capital Adequacy Ratio is also proven to be able to weaken the positive influence of*

*commitments on bank risk which means that CAR functions more to stabilize risk, namely when a committed transaction increases risk, CAR will weaken the increase in risk. (6) However, the Capital Adequacy Ratio is proven to be unable to weaken the positive effect of contingencies on bank risk, which means that there is a balance between administrative activities (contingencies) and reserves carried out so that they are not exposed to risk.*

### **I. INTRODUCTION**

The banking industry is an industry that is highly regulated by regulations and regulations (highly regulated industry) so that the banking function runs efficiently, is stable and risks are controlled. This is because banks are institutions that are exposed to risk in each of their operational activities, therefore risk management is very important. Saunders and Cornett (2011:181) mentions 10 risks faced by financial institutions, ie interest rate risk, market risk, credit risk, off balance sheet risk, technology risk, operational risk, foreign exchange risk, the risk of sovereignty (sovereign), liquidity risk and bankruptcy risk. From these risks, banks are required to diversify and innovation so banks no longer give priority to traditional banking activities as an intermediary institution in saving and lending money. One form of diversification and innovation of modern banking that is growing is the activity of banks to carry out transactions outside the balance sheet or off-balance

sheet activity such as derivative transactions, commitments and contingencies.

There is a phenomenon of an increase in off-balance sheet (OBS) activities in foreign exchange banks listed on the Indonesia Stock Exchange from 2013 to 2018 with an average growth of 14.9%. OBS activities that most banks do are commitment liabilities and contingencies followed by commitment assets and contingencies then followed by derivatives. To be easier to compare, the OBS values are standardized by total assets. The ratio of OBS to assets has fluctuated, with an average OBS to asset ratio of 46.30%. The peak was reached in 2018, which was 54.43%, which reached half of the total assets. Where according to PBI No.10/38/PBI/2008, Article 8, paragraph 1 that limit banks losses due to the OBS transaction at most 10% of the cumulative bank capital in the current year. Given the fact that OBS activities in Indonesia are quite large and have increased from time to time, which can have an impact on the potential for increased risk, the implementation of OBS activities needs to be taken seriously and risk management is carried out by bank management and supervisory institutions or regulators so that they do not provide adverse impact on bank risk, namely using financial ratios in the form of Capital Adequacy Ratio (CAR) in predicting the risk of loss that may be faced by banks.

Al-Tahat and AbuNqira (2016) prove that OBS activity has a positive effect on bank risk. The importance of off-balance sheet activities and the important role played by OBS activities in the banking sector shows a safe solvency from the economic crisis. While according to Saunders and Cornett (2011:421) states that although OBS activities can increase risk, OBS activities can also be used for hedging which can reduce risk and also generate income.

With the increase in OBS activities from year to year carried out by Indonesian banks, it shows that OBS activities have the potential to increase risk, so that bank management and supervisory institutions must be watched carefully so that they do not have a beneficial impact on banks. Thus the researcher considers it important to examine the effect of OBS activity on bank risk. However, this study differs from previous studies, in this study it looks more at the types of OBS instruments that are widely used in banks, namely derivatives, commitments and contingencies. The separation of the 3 OBS instruments was carried out in the hope of finding out how much the role of each OBS instrument tested against risk. This study also examines how effective the Capital Adequacy Ratio that has been implemented by banks can mitigate the risks posed by bank OBS activities. So far no research has been found that places the Capital Adequacy Ratio as a moderating variable in the effect of OBS activity of bank risk.

## II. LITERATURE REVIEW

### A. Bank Business Risk

According to Siamat (2009:91) business risk or business risk is the level of uncertainty about the expected revenue to be received. The higher the income uncertainty obtained by a bank, the more likely the risk faced.

### B. Derivative

The derivative is a financial instrument whose value comes from the value of other assets, groups of assets, or economic variables such as stock prices, bonds, commodity prices, interest rates, or exchange rates (Subramanyam and Wild, 2014:356). According to Tuckman (2016) derivative is an agreement between two parties to exchange money, goods, or securities in the future in accordance with predetermined regulations. There are four types of derivative instruments commonly used, namely Forward Contract, Swap Contract, Option Contract, and Futures Contract. Derivatives can be in the form of derivative assets and derivative liabilities (PAPI 2008 book 1 chapter VI letters A numbers 4 and 5).

### C. Commitment

Commitment of a potential claim on the company's resources based on performance in the future according to the contract (Subramanyam and Wild, 2014:215). According to Zuhri (2015) commitment is an engagement or contract in the form of a promise that cannot be canceled unilaterally and must be implemented if the terms agreed upon are fulfilled. Commitments can be in the form of long-term irrevocable contracts to buy goods or services at a certain price, and contracts to purchase fixed assets to be paid during the construction period, loan facilities that have not been withdrawn, spot buying/selling and ongoing L/C can be canceled and still running. Commitments can be in the form of assets or liabilities.

### D. Contingency

Contingencies an advantage and a potential loss settlement depends on one or more events in the future (Subramanyam and Wild, 2014:212). Contingencies, according to Zuhri (2015), are bank bills or obligations that arise depending on whether or not one or more events occur in the future. According to Statement of Financial Accounting Standards (PSAK) 57 (Revised 2009) concerning Provisions, Contingent Liabilities and Contingent Assets, contingencies can be in the form of guarantees, risk sharing, buying/selling of foreign exchange options, L/C that can be canceled and are still running and interest income in settlement.

Contingencies can be in the form of assets or liabilities.

#### E. Capital Adequacy Ratio

According to Bank Indonesia Regulation Number 9/13/PBI/2007 Capital Adequacy Ratio (CAR) is the provision of minimum capital for banks based on broad risk assets, both assets listed in the balance sheet and assets that are administrative in nature as reflected in the obligations that still contingent and or commitments provided by banks for third parties and market risk.

### III. RESEARCH METHODOLOGY

This research is a quantitative study, which is measured using a panel data regression based method with eviews 10. The population of this research is banking companies listing on the Indonesia Stock Exchange in 2013-2018. The sample is determined based on the purposive sampling method, with a total sample of 32 banking companies so that a total of 192 observations. The data used in this study are secondary data. The data collection technique using the method of documentation via the official website IDX: [www.idx.co.id](http://www.idx.co.id). Hypothesis testing using t test. In this study three types of research variables were used, namely the independent variable (derivatives, commitments, contingencies), the dependent variable (bank risk), and the Capital Adequacy Ratio as a moderating variable. Derivatives, commitments and contingencies are viewed on a net basis by comparing bills less liability with total assets. Bank risk is measured using a standard deviation of Return on Equity. The amount of the Capital Adequacy Ratio is measured from the ratio between bank capital to Risk Weighted Assets (ATMR). The calculation for each variable is as follows:

$$\text{Derivative} = \frac{(\text{Derivative Assets} - \text{Derivative Liabilities})}{\text{Total Assets}}$$

$$\text{Commitment} = \frac{(\text{Commitment Bills} - \text{Commitment Liability})}{\text{Total Assets}}$$

$$\text{Contingency} = \frac{(\text{Contingency Bill} - \text{Contingent Liabilities})}{\text{Total Assets}}$$

$$\sigma_{ROE} = \sqrt{\frac{\sum_{i=1}^n ROE_{it} - \overline{ROE}}{n}}$$

$$CAR = \frac{\text{Equity}}{\text{Risk Weighted Assets}} \times 100\%$$

### IV. RESULTS AND DISCUSSION

#### A. Research Result

Based on the panel data regression model approach with Eviews (Common Effect Model, Fixed Effect Model, and Random Effect Model) and the

tests that have been done (Chow Test and Hausman Test) show that the regression model that is more appropriate to be used in this study is the Fixed Effect Model. The results of panel data regression and t test are presented in the following table:

$STDEVROE = \alpha + \beta_1 OBSTADER_1 + \beta_2 OBSTAKOM_2 + \beta_3 OBSTAKON_3 + \beta_4 CAR + \beta_5 (OBSTADER_1 \cdot CAR) + \beta_6 (OBSTAKOM_2 \cdot CAR) + \beta_7 (OBSTAKON_3 \cdot CAR) + \varepsilon$			
<b>H1 : Derivatives have a positive effect on bank risk.</b> <b>H2 : Commitment have a positive effect on bank risk.</b> <b>H3 : Contingencies have a positive effect on bank risk.</b> <b>H4 : Capital Adequacy Ratio will weaken the positive influence of derivative on bank risk.</b> <b>H5 : Capital Adequacy Ratio will weaken the positive influence of commitment on bank risk.</b> <b>H6 : Capital Adequacy Ratio will weaken the positive influence of contingency on bank risk.</b>			
Variable	Prediction	Coefficient	Prob
Constanta		-3.391792	
OBSTADER	+	-6.366985	0.0449
OBSTAKOM	+	11.00399	0.0014
ABSTAKON	+	6.430320	0.4238
CAR		-4.114405	0.0436
OBSTADERXCAR	-	2.765924	0.0373
OBSTAKOMXCAR	-	-70.87104	0.0005
OBSTAKONXCAR	-	-32.43275	0.5766
N	:	192	
Adjusted R-squared	:	0.487583	
Prob (F-statistic)	:	0.000000	
<b>OBSTADER</b> = Off Balance Sheet to Total Asset (Net Derivatives); <b>OBSTAKOM</b> = Off Balance Sheet to Total Asset (Net Commitment); <b>OBSTAKON</b> = Off Balance Sheet to Total Asset (Net Contingencies); <b>CAR</b> = Capital Adequacy Ratio (Equity divided by RWA); <b>OBSTADERXCAR</b> = Off Balance Sheet to Total Asset (Net Derivatives)*Capital Adequacy Ratio; <b>OBSTAKOMXCAR</b> = Off Balance Sheet to Total Asset (Net Commitment)*Capital Adequacy Ratio; <b>OBSTAKONXCAR</b> = Off Balance Sheet to Total Asset (Net Contingencies)*Capital Adequacy Ratio.			
Significant at the 5% level			
<b>OBSTADER</b> significant negative → H1 rejected. <b>OBSTAKOM</b> significant positive → H2 accepted. <b>OBSTAKON</b> not significant → H3 rejected. <b>OBSTADERXCAR</b> significant positive → H4 rejected. <b>OBSTAKOMXCAR</b> significant negative → H5 accepted. <b>OBSTAKONXCAR</b> not significant → H6 rejected.			

Source: Output Eviews 10 "reprocessed"

Based on the results of the table above, the following results were found:

1. The effect of derivatives on bank risk results in a significance value of  $0.0449 < 0.05$ .

This means that derivatives have a negative effect on bank risk.

2. The effect of commitment to bank risk results in a significance value of  $0.0014 < 0.05$ . This means that commitment have a positive effect on bank risk.
3. The effect of contingencies on bank risk results in a significance value of  $0.4238 > 0.05$ . This means that contingencies do not affect bank risk.
4. Capital Adequacy Ratio moderates (weakens) the negative influence of derivatives on bank risk, with a significance value of  $0.0373 < 0.05$ . That is, the Capital Adequacy Ratio moderate (weaken) the negative relationship of derivatives with bank risk.
5. Capital Adequacy Ratio moderates (weakens) the positive influence of commitment on bank risk, with a significance value of  $0.0005 < 0.05$ . That is, the Capital Adequacy Ratio moderate (weaken) the positive effect of commitment to bank risk.
6. Capital Adequacy Ratio does not moderate the positive influence of contingencies on bank risk, with a significance value of  $0.5766 > 0.05$ . That is, the Capital Adequacy Ratio does not moderate the positive effect of contingencies on bank risk.

The coefficient of determination is 0.487583. This means that 48.7% of bank risk variations can be explained by derivatives, commitments and contingencies as well as interactions between derivatives, commitments and contingencies with the Capital Adequacy Ratio as moderating variables, while the remaining 51.3% is explained by other variables not included in the model this research.

#### *B. Discussion*

Derivatives have a negative effect on bank risk which means that derivative instruments are used by banks to reduce bank risk through the hedging function. The most common financial instrument used to hedge interest rate risk is interest rate swaps.

Commitment shows a significant positive effect on bank risk, meaning that the more banks use a commitment to dependence on changes in interest rates the greater. However, it should be noted that people may lose confidence in the banking system if these institutions fail to manage instruments that carry risks.

Kontinjensi proved no effect on the bank's risk. The cause of contingency fisheries is not significant due to the relatively small number of contingencies

so it does not greatly affect the increase in bank risk. As well as the use of collateral (contingencies), collateral is considered as a direct substitution of credit so that the opposing party is less likely to violate then it does not affect bank risk.

The derivative which is moderated by the Capital Adequacy Ratio shows a significant positive effect, which means that CAR will be able to weaken the negative influence of derivatives on bank risk. This result also strengthens the previous findings which show that derivative transactions can reduce bank risk through the use of more derivative instruments for hedging functions, so that CAR determined by banks is intended to stabilize bank risk so that CAR will weaken the risk reduction due to derivative transactions.

Capital Adequacy Ratio is also proven to be able to weaken the positive influence of commitments on bank risk which means that CAR is more functioning to stabilize risk ie when a committed transaction increases risk, CAR will weaken the increase in risk. Considering the impact of commitment activities on bank risk is also able to give a signal to shareholders about how high the level of control required for commitment activities carried out by management.

Capital Adequacy Ratio proved unable to weaken the positive effect of contingencies on bank risk. This is due to the effect of contingencies on the risk of the bank itself, which is not so strong that the CAR determined by the bank cannot influence the effect between the two. In other words, there is a balance between administrative activities (contingencies) and reserves carried out so that they are not exposed to risk.

#### V. CONCLUSION

Based on the results of the statistical test it can be concluded the following results:

1. Derivatives have a negative effect on bank risk which means that derivatives are used by banks for hedging.
2. Commitment have a positive effect on bank risk which means that lending commitments at certain interest rates increase dependence on interest rate volatility so that the use of commitments will increase risk.
3. However, contingencies are proven to have no effect on bank risk because it is used as collateral (contingencies) as a direct substitute for credit so that the counterparty is less likely to commit violations, so this does not affect bank risk.
4. Capital Adequacy Ratio is proven to be able to weaken the negative influence of derivatives on bank risk which means that CAR determined by banks is intended to

stabilize bank risk so that CAR will weaken the risk reduction due to derivative transactions.

5. Capital Adequacy Ratio is also proven to be able to weaken the positive influence of commitments on bank risk which means that CAR is more functioning to stabilize risk ie when a committed transaction increases risk, CAR will weaken the increase in risk.
6. However, the Capital Adequacy Ratio is proven to be unable to weaken the positive effect of contingencies on bank risk, which means that there is a balance between administrative activities (contingencies) and reserves carried out so that they are not exposed to risk.

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