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Funding Liquidity Risk, Bank Risk Taking, Capital Buffers and Bank Size (study on conventional banking and Sharia in Indonesia 2015-2019)

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Abstract

This study aims to determine the effect of funding liquidity risk on bank risk taking as moderated by the capital buffer and the size of the bank. The research data was taken from a combination of the annual reports of Indonesian conventional and Islamic banking on the websites of each bank and the websites of the OJK with a total sample of 74 banks with a purposive sampling method. The results of this study indicates that the liquidity risk of funding does not directly affect the risk-taking behavior of the bank. However, the moderating variable of capital buffer and bank size limits the effect of funding liquidity risk on bank risk-taking behavior. A high capital buffer encourage banks to minimize the risks they take. Meanwhile, the size of the bank has the results of a study with a phenomenon in Indonesia, namely large banks tend to choose a bigger risk.

1. . Introduction

In institution finance specifically banking, funding liquidity very take effect to activity banking. Funding liquidity bank is ability bank in got money cash which originated from sources funding such as asset sales and pooled funds from customers for the purpose of investation. Funding liquidity interpreted as ability in solution obligation appropriate time (Drehmann & Nikolaou, 2013). Therefore, if bank no liquid so bank the no able for complete obligation

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appropriate time. Funding liquidity which problem often called with funding liquidity. Funding liquidity risk occur if there is lack of trust sources funding to something bank so that bank the no can get cash.

Measurement funding liquidity could be measured with deposit futures. Deposit futures originated from savings customer conditions withdrawal already own agreement time certain. Deposit futures also could said as investation which could done customer. Flower in deposit futures push customer for save in total which more many than savings normal. Number in deposit futures show how much big fund which collected from customer. Amount deposit bank which big signify that bank own many fund which originated from customer. Deposit bank which too big no good for activity of a bank because large deposits also indicate that the bank cannot channel fund for activity finance. Deposit which excessive will make the funds owned by the bank are idle because they are not channeled effectively.

Funding liquidity often linked in bank risk taking. Deposit which tall signify funding liquidity risk which low which will impact on taking risk which big by bank (Khan et al., 2017).Therefore, deposit bank influence activity bank in take risk. This case is also related with fund which owned by bank. Amount activity bank in take risk signify that bank own many fund savings. Amount decision risky which taken by bank show that risk the low. Therefore, if risk big so decision bank in take risk the low to prevent bank losses.

In take risk, bank required consider time front bank. The case useful for prevent loss bank in time front wrong the only one is bankruptcy. Z-score used for measure level bankruptcy bank. In relation with deposit, Z-score which low prove existence enhancement deposit (Khan et al., 2017). Case the prove that funding liquidity risk which low is consequence from Z-score which low because stash many which increase will causing decrease funding liquidity risk so that causing the more height risk which taken by bank. Mark Z-score which low is sign that bank in category healthy so that banks tend to take more

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risk. Research conducted by Khan et al (2017) with sample data of American banks Union year 1986-2014 show results that funding liquidity risk which low push bank for take more many risk which be measured with Mark Risk Weighted Assets (RWA) and high liquidity creation but value Z-score which low. The results show that low Mark Z-score indicates a healthy bank category, thus encouraging banks to increase risk taken. Whereas on study which done by Hutasoit & Haryanto (2016) with data sample bank general conventional in Indonesia year 2012-2014 show results which different that is funding liquidity risk no take effect significant to Z-score. Results the find fact that phenomenon which occurred in Indonesia, the liquidity of banks as a whole cannot if only seen from the funding but also must be seen from market liquidity.

In test influence funding liquidity risk to bank risk taking there is restrictions which result could strengthen or weaken results. In study Khan et al. (2017) influence funding liquidity risk to taking risk bank done restrictions with capital buffer and size bank. Capital buffer is size for knowing how much big capital which maintained for bear risk whereas size bank used for knowing how much big asset which owned bank. Results study the show results that bank which own capital buffer which big tend reduce the risk taken and large banks tend to reduce the risk taken supported by a high Z-score value in response to liquidity risk low funding.

Study which done by Jokipii & Milne (2011) show results that bank will maintain capital buffer when capital increase with Upgrade risk. Study which done by Hakenes & Schnabel (2011) show results that bank which small tend choose strategy investation which more risky for compete with bank which more big caused by treatment no same Among bank big and bank small based on agreement Basel II. This case proves that banks that dare to take high bank risks only bank sized small. However, the case depends on consideration which decided by the bank. Small bank risks tend to be taken by banks more large ones because if the bank takes a big risk then the big loss will be borne bank will more big. However no all bank

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big own risk which large because large banks are considered more capable of managing their funding (Bertay et al., 2013). Research conducted by Daley et al (2008) found the opinion "too big to file" which means that bank which big more take precedence safety if occur failure. Phenomenon study which done in Jamaica the find the fact that large banks tend to take greater risks.

Based on results study which different on every country, Writer want determine the effect of funding liquidity risk on the risk taking of banks that occur in Indonesia because study the still seldom done. Therefore, Writer interested for do study with title "Funding Liquidity Risk, Bank Risk Taking, Capital buffer and Size Bank (Studies on Banking Conventional and Sharia in Indonesia in 2015-2019)".

2. Theoritical Basis

Funding liquidity Risk

Funding liquidity is ability in get enough money with time as soon as possible. Bank said liquid if bank capable get money in period time which fast. Funding liquidity risk interpreted as whether or not the bank is able to fulfill its short-term obligations from source other for example Bank Indonesia. In relation with solvency, funding liquidity is draft point time and binary that is bank could complete obligation or no by appropriate time (Drehmann & Nikolaou, 2013). Liquidity bank rated from ability in got money with quick to use complete obligation period in short. Bank which too big liquid could said no good because Case the means that bank no can use fund which owned with good for activity finance. Liquidity something bank should proportionate to the effectiveness of the funds being used.

Study which done by Dahir et al. (2018) define funding liquidity as deposit which is part from total asset. Wrong one source funding liquidity is from deposit. Deposit is money savings customer with period time certain which has agreed useful for activity finance by bank. Ratio deposit used as proxy from funding liquidity risk with reason that is deposit guard bank from risk "runs" (Acharya & Naqvi, 2012). Bank no will experience risk lack fund if bank own stash which excess. Therefore, deposit which tall signify funding liquidity risk

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which low which result in height taking risk by bank (Khan et al., 2017).

Bank Risk Taking

Taking risk bank is steps which taken by bank in face risk bank which will occur in time front. In study Khan et al. (2017) explain that influence risk liquidity bank to taking risk bank be measured with Z-score. Results study the show risk liquidity low funding encourages banks to take more proven risk with a low Z-score (Khan et al., 2017).

Mark Z-score show level bankruptcy bank. Low Mark Z-score is a sign that the bank is in category healthy whereas Mark Z-score which is tall is a sign that the bank is in category bad. Therefore, if banks in the healthy category are willing to take more risks.

Capital Buffer

Capital buffer is size which show big small asset risky which owned by bank. Capital buffer which tall show that bank own many assets are at risk. Capital buffer used for maintain capital to use anticipate loss. Bank which own capital buffer tall tend take risk which so as not to incur a large loss in the event of a failure.

Bank Size

Bank size is used to find out how much risk the bank takes measured by the size of the bank. In the research of Hakenes & Schnabel (2011) which researching connection size bank and risk bank based on Basel II show that bank which big could use Approach based on Standard and Approach Internal in take risk so that could choose risk which more low. Meanwhile, small banks are encouraged to take bigger risks.

The case proves that risk which big tend taken by the bank which sized small. Bank which more big tend choose risk which low because to prevent large losses in case of failure.

The Effect of Funding Liquidity Risk on Bank Risk Taking

` Funding liquidity risk show capable or whether or not bank in complete obligation with time which in accordance with agreement. Funding liquidity risk be measured with deposit. Funding liquidity risk which low show that deposit bank tall. In relation with with risk bank, bank which own deposit which tall so risk bank the low so that

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bank brave take more many risk. The case proves that funding liquidity risk low will influence bank for take more many risky assets. High deposits indicate low funding liquidity risk which will have an impact on large risk taking by banks (Khan et al., 2017).

Manager bank own authority for lower ethnic group flower loan which aim push customer do loan bank. Case the aim for Upgrade income bank through flower which got from loan customer. However, before manager decide for lower ethnic group loan should consider availability liquidity which there is in bank. Decision the only could done if bank own availability liquidity which enough many. Manager will audited and caught penalty if method which done in Upgrade income as manager with lower ethnic group flower loan which push increase volume loan without considering availability of bank liquidity so that it can cause bank losses or failures (Acharya & Naqvi, 2012).

Not all bank big own risk which big because bank big considered more capable in arrange the funding (Bertay et al., 2013). Study which done by Daley et al (2008) find opinion "too" big to files" which means that bank which big more take precedence safety if occur failure. Phenomenon study which done in Jamaica the find fact that bank big ones tend to take bigger risks. Deposit which tall causing funding liquidity risk which lows so that will upgrade taking a risk by a bank (Acharya & Naqvi, 2012). Study which done by Khan et al (2017) produce that risk liquidity low funding due to high deposits encourages banks to take more many risk which proved with height Mark Assets Weighted according to Risk (ATMR) and liquidity creation However own Mark Z-score which low. Based on explanation, then the first hypothesis of this study is:

H1: Funding liquidity risk has a negative effect on bank risk taking

Effect of Capital Buffer in Moderating Risk Relationship Funding Liquidity on Bank Risk Taking

Low funding liquidity risk results in high bank deposits because bank own stash which excess. Deposit which tall will causing bank risk is low so the bank will take more risk. In relation with a capital buffer, a high capital buffer is the result of deposits bank which tall.

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Deposit which tall is results from funding liquidity he low one.

Capital buffer which tall used for reduce risk. Study by Lindquist (2004) find results that capital buffer no take effect positive to risk bank which taken. Case this prove that bank which own large capital prefers to take smaller risks to prevent losses and is a response to low funding liquidity risk. Bank will lower risk if own capital buffer which lows so that push bank in increase the capital buffer (Jokipii & Milne, 2011).

Bank should take policy which appropriate in take risk bank in accordance with condition liquidity nor risk which will facing in time front. Holder bank stocks with high capital decide to take low risk for anticipate risk if occur failure in time front (Repullo, 2004). The case explains that a bank that owns capital that big will prevent large losses in the future by reducing the risk to be taken.

Study which done Khan et al. (2017) prove that capital buffer which big and deposit own connection negative and significant with Asset Weighted according to Risk (ATMR), Reserve Loss Decrease Mark (CKPN), and liquidity creation However own Mark Z-score high, causing banks to take less risk when they have a high capital buffer. That matter could explain risk which more low tend taken by bank that owns capital buffer which tall. Based on description the, so hypothesis second in this research are:

H2: Capital buffer take effect negative in moderate connection funding liquidity risk for bank risk taking.

The Effect of Bank Size in Moderating the Risk Relationship Funding Liquidity on Bank Risk Taking

Study by Hakenes & Schnabel (2011) researching connection size bank and risk bank based on Basel II show that bank which big could using a Standards-Based Approach and an Internal Approach in taking risk so that bank could lower risk which taken whereas bank small pushed for Upgrade risk which taken. The case proves that bank which big tend choose risk which small aim for prevent loss which big if occur failure whereas bank which small tend take a high risk.

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Research conducted by Khan et al. (2017) show that large banks and time deposits have a negative relationship with Risk Weighted Assets (RWA) and liquidity creation so that bank which more big more choose reduce risk which taken when stash which owned bank tall which proved with enhancement Mark Z-score. Therefore, funding liquidity risk which low as consequence from stash bank which too much causing drop risk which taken by a large bank. Based on this description, the third hypothesis in this research are:

H3: Size bank take effect negative in moderate connection funding liquidity risk for bank risk taking.

3. Research Methods

Research Deisgn

Study this categorized as as study causal because goal for researching influence variable independent to variable dependent. Based on data analysis, this study uses panel data regression, which is a combination of time series and cross sections.

Based on the type of data, this research is included in the type of quantitative data because: data which obtained could calculated with count statistics. Taking data done with view bank financial statements on the website OJK and website each bank researched.

Population, Sample, and Sampling Technique

Population which taken in study this is whole company banking conventional and sharia which there is in Indonesia period 2015 until with 2019 as much 109 bank. Sample which used in study this is 74 bank which have criteria certain which expected could represent population which researched. Criteria from sample data that is company banking conventional and sharia in Indonesia which registered on OJK year 2015-2019 and showing data which needed for research.

Technique taking sample which used is purposive sampling. Reason use technique sampling this is Writer own criteria certain in taking sample which could represent population study and in accordance with purpose study.

Operational Definition and Measurement of Variables

Variable dependent which there is in study this is taking risk bank. Bank risk taking is measured using the Z-score. Z-score used

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for measure level bankruptcy bank. Mark Z-score which low show that bank in category healthy whereas height Mark Z-score show bank in category which bad. Researcher use logarithm natural from Z-Score for study.

Variable independent which there is in study this is funding liquidity risk. A deposit bank is a proxy for funding liquidity risk because By looking at the deposits in the bank, you can find out what they are like funding liquidity risk bank. Data variable in shape ratio could obtained from the financial statements.

The moderating variable contained in this study is capital buffer and size bank. Capital buffer show size how much big capital bank which maintained which be measured with subtraction CAR bank to CAR minimum bank. Size bank show criteria size bank in take risk which measured using the natural logarithm of total assets.

The control variables in this study are loan, equity, ROA, GDP, level unemployment and change index price House. Loan is money which borrowed debtor which given by bank accompanied with flower. Loan be measured with ratio from total loan on total asset (Khan et al., 2017). Equity is ownership which owned by something company. Part company equity owned by individual in shape share. Equity be measured with ratio total equity on total assets (Khan et al., 2017). Return on Assets (ROA) is a measure used to knowing how much big ability company in produce profit. ROA be measured with ratio profit clean on total asset. Product Domestic Gross (GDP) is tool which used for measure growth economy something country.

Researcher use level GDP annual in do study in shape percentage. Level unemployment is total person which no have profession which be measured with percentage. Researcher use level unemployment annual in do study. Index this explain change price House from year to year which bought by consumer. Changes in index prices are measured by subtraction index price year with index price year previously in shape percentage.

Data analysis technique

Analysis regression data panel in study this processed use STATA 14. Analysis which done first time is statistics descriptive for knowing description study by general which covers Mark average, standard deviation, Mark minimum and Mark maximum. Second, test model estimation for knowing

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is model study use method Pooled Least Square (PLS), Fixed Effect Model (FEM) or Random Effect Model (GLS). Third, test assumption classic which consist from test normality, test multicollinearity, test heteroscedasticity and test outliers. Fourth, test regression for knowing results regression which use STATA 14. Fifth, discussion hypothesis which is explanation from results regression covers test coefficient of determination (R-Squared), partial significance test (T test) and simultaneous test (F tes Then the last is to interpret the research results.

4. Result and Discussion

Descriptive Statistical Analysis

Analysis statistics descriptive used for knowing description by general variable study which covers Mark mean, standard deviation, minimum and maximum. Following is results analysis statistics descriptive variable study from whole sample company:

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Minimum	Maximum
Dependent Variable					
Z-score	370	1.6759	0.5115	0.0850	3.4290
Independent Variable					
Deposit	370	0.4714	0.1752	0	0.7823
Moderating Variables					
Buff	370	0.1866	0.2261	0.0252	2.3384
Size	370	9.8038	1.7563	6.2046	14.1639
Control Variable					
loan	370	0.5949	0.1502	0.0032	0.8694
Equity	370	0.1839	0.1084	0.0318	0.8613
ROA	370	0.0097	0.0336	-0.2013	0.3700
GDP	370	0.0503	0.0009	0.0488	0.0517
Unemploy	370	0.0558	0.0032	0.0528	0.0618
house	370	0.0242	0.0318	-0.0136	0.0710

Source: Stata 14 Data Processing Results

Based on the results of the normality test above, it can be seen that all regression models on own Mark (Prob>chi2) < 0.05 so that data in regression the no distribute normal. Therefore, required test outliers for look data which no distribute normal so that need done cut off on data extreme the. After that use robust regression test to overcome these deviations.

The multicollinearity test is used to see if there are deviations, namely linear relationship between independent variables in the regression model. This test can be performed by looking at the correlation coefficient between the independent variables. If the correlation result is it can be concluded that there is no multicollinearity in the regression.

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Table 3. Multicollinearity Test

	Deposito	Buff	Size	Loan	Equity	ROA	GDP	Unemploy	House
Deposito	1								
Buff	-0.3415	1							
Size	-0.3952	-0.3861	1						
Loan	0.0979	-0.3527	0.13345	1					
Ekuitas	-0.2976	0.8040	-0.4592	-0.1617	1				
ROA	-0.1653	-0.0484	0.2219	0.1008	0.0029	1			
GDP	-0.0902	-0.0256	0.0573	-0.0861	0.0412	0.0868	1		
Unemploy	0.1258	-0.0783	-0.0829	0.1210	-0.0554	-0.0660	-0.8254	1	
House	-0.0646	0.0509	0.0344	-0.0457	0.0050	0.0263	-0.2420	-0.0663	1

Source: STATA 14 Data Processing Results

Based on the results of the multicollinearity test in table 4.6, it can be seen that the variable free which consist from variable independent, variable moderation and variable control each has a value less than 0.8. This shows that at the regression model does not occur multicollinearity.

Test heteroscedasticity used for knowing is occur difference variance from Mark residual something period observation to period observation other. The regression model has heteroscedasticity problems if the value (Prob>chi2) is less than alpha 0.05.

Table 4. Heteroscedasticity Test

Dependent Variable	Description	Prob>chi2	Description
Z-Score	**Model 1**	0.6309	No Heteroscedasticity Problems
	Model 2	0.9301	No Heteroscedasticity Problems
	Model 3	0.6074	No Heteroscedasticity Problems

Source: STATA 14 Data Processing Results

Based on the results of the heteroscedasticity test above, it can be seen that all models regression the own Mark (Prob>chi2) < 0.05 which means that regression the experience problem heteroscedasticity. For overcome problem the test regression used is a robust regression test.

Regression Test

Study this test how influence funding liquidity risk which proxied by the ratio of deposits to bank risk taking as measured by Z-score moderated by capital buffer and bank size

Table 5. Results of Panel Data Baseline Regression with Robust

	(1)	(2)	(3)
	zscore	zscore	zscore
Variabel Independen			
deposito	0.373	-0.666*	5.590**
	(1.66)	(-2.04)	(2.93)
Variabel Interaksi			
deposito_buff		4.557**	
		(3.34)	
deposito_size			-0.582**
			(-3.10)
Variabel Moderasi			
buff		-1.862*	
		(-2.24)	
size			0.293*
			(2.54)
Variabel Kontrol			
loan	-0.657**	-0.825***	-0.506
	(-3.01)	(-4.13)	(-1.99)
ekuitas	3.558***	3.515***	3.951***
	(8.15)	(5.46)	(8.36)
roa	2.352*	4.014***	2.597*
	(2.42)	(6.32)	(2.47)
unemploy	18.28***	22.74***	27.13***
	(5.91)	(8.57)	(4.12)
house	-2.083***	-2.050***	-2.118***
	(-8.12)	(-8.50)	(-4.67)
_cons	0.294	0.595***	-3.073*
	(1.40)	(3.56)	(-2.42)
Observations	262	273	144
R-Squared	0.497	0.543	0.557
Adjusted R-Squared	39.32	54.21	18.14

Source: STATA 14 Data Processing Results
Significance Level: *p<0.05, **p<0.01, ***p<0.001

Hypothesis Testing

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Based on table 4.9 could seen that Mark R-Squared Z-score on model 1 as big as 0.931. Results show that ability variable free which consists from deposit, loans, equity, ROA, GDP, unemployed, and house explain variable bound Z-score on model 1 as big as 93.1% whereas 6.9% explained by variable other in the outside model. Mark R-Squared Z-score on model 2 as big as 0.941 show that ability variable free which consist from from deposit, loans , equity, ROA, GDP, unemployed , and house explain variable bound Z-score on model 2 is 94.1% while 5.9% is explained by other variables outside the model. Mark R-Squared Z-score on model 3 as big as 0.946 show that ability variable free which consist from from deposit, loans, equity, ROA, GDP, unemployed and house explains the dependent variable Z-score in model 3 is 94.6% while 5.4% explained by other variables outside the model.

Test t on results regression robust Z-score model 1 show that variable independent equity, ROA, GDP, unemployment (unemployment rate) and house (change index price House) by Partial take effect significant to variable dependent Z-score. Whereas variable independent deposit and loan by Partial no take effect significant to variable dependent Z-score. Test t on results regression robust Z-score model 2 show that whole variable independent by Partial take effect significant to variable dependent Z-score. Test t on results regression robust Z-score model 3 show that variable independent deposit, sizes , deposit_size, ROA, GDP, unemployed (level unemployment) and house (change index price House) by Partial take effect significant to variable dependent Z-score. Whereas which by Partial no take effect significant only variable independent loans.

On results regression robust Z-score model 1 own Mark (Prob>F) 0.0000 which it means p-value < 0.05 so could concluded that variable free by simultaneous or jointly have a significant effect on the dependent variable, namely the Z-score model 1. The results of the robust Z-score regression model 2 have a value (Prob>F) of 0.0000 which means p-value < 0.05 so could concluded that variable free by simultaneous or together take effect significant to variable bound that is Z-score model 2. In the robust regression results, Z-score model 3 has a value of (Prob>F) 0.0000 which means p- value < 0.05 so could concluded that variable free by simultaneous or together have a significant

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effect on the dependent variable, namely Z-score model 3.

Interpretation of Discussion Results

H1: Funding liquidity risk has a negative effect on bank risk taking.

On table 4.9 show Mark p-value 0.801 which no significant. Results the prove that variable independent funding liquidity risk which be measured with ratio deposit no take effect significant to variable dependent bank risk taking as measured by Z-score. These results are not in accordance with hypothesis that has been proposed in this study. Therefore H1 is rejected, then the funding liquidity risk does not affect risk taking by banks.

This result is not in line with the research conducted by Khan et al (2017) in the bank America Union that funding liquidity risk which low push bank for take more many risk. Decision banks take many risks proved with Mark Z-score which low. Phenomenon in study the different with phenomenon which occur in Indonesia. Results This research is in line with study which done by Hutasoit & Haryanto (2016) which also done in Indonesia that funding liquidity risk no take effect significant to Z- scores. Results the find fact that phenomenon which occur in Indonesia, liquidity bank by whole no can if only seen from funding However must also be seen from the market liquidity.

H2: Capital buffer take effect negative in moderate connection funding liquidity risk for bank risk taking.

Table 4.9 shows that the p-value of 0.012 is significant at the level of significance 5% and coefficient positive. The case proves that interaction variable moderation capital buffer with variable independent deposit take to effect positive and significant to variable dependent Z-score. Capital buffer which tall push bank for reduce risk which taken which showed by height Mark Z-score which is response from low funding liquidity risk. Therefore H2 received, so capital buffer take effect significant and negative in moderate the relationship between funding liquidity risk and bank risk taking.

The results of this study are in line with research conducted by Khan et al (2017) that capital buffer limit bank in take risk.

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Height Mark Z-score indicates that level bankruptcy something company which more small which means company the in category healthy. Therefore, with Mark Z-score A high level encourages banks to minimize their risk taking.

H3: Size bank take effect negative in moderate connection funding liquidity risk for bank risk taking.

On table 4.9 show with Mark p-value 0.012 significant on level significance 5% and coefficient negative. Results prove that interaction variable moderation size bank with variable independent deposit take effect negative and significant to variable dependent Z-score. Bank which big tend take more many risk which showed by low Mark Z-score. Results the no in accordance with hypothesis on study this. Therefore H3 rejected, so size bank take effect positive in moderate connection funding liquidity risk for bank risk taking.

The results of this study are not in line with the research conducted by Khan et al (2017) that bank which big will take risk which more small. Phenomenon study which done in Bank America Union the different with phenomenon which occur in Indonesia. Results study this in line with study which done by Daley et al (2008) which was conducted in Jamaica which means that the phenomenon of banks in Jamaica same case with phenomenon bank which occur in Indonesia that is bank which big will take more risks which will lead to failure bank. Level large corporate bankruptcies are indicated by the low Z-value scores. However, it should be noted that not all big banks have big risks because large banks are considered more capable of managing their funding (Bertay et al., 2013). Study which done by Daley et al (2008) find opinion " too big to files " which means that bank which big more take precedence safety if failure occurs.

5. Conclusision

Based on results study which done could drawn a number of conclusion. First, funding liquidity risk has no significant effect on decision making risk bank in Indonesia. The size funding liquidity risk no affect behavior taking decision risk bank which occur in Indonesia. Second, c capital buffer take effect negative in moderate connection funding liquidity risk to taking risk bank which proved with height Mark Z-score. Capital buffers

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are proven to limit bank risk decision-making behavior so that push bank reduce risk which taken. Third, size bank take effect positive in moderate connection funding liquidity risk to taking risk bank which showed with low Mark Z-score. Phenomenon which occur Indonesia is a big bank that tends to take big risks.

Suggestion for study next first is add year observation which aim so that free from assumption classic so that results which obtained could more accurate. Second, add year observation before and after happening crisis so that could look difference results study on year before and after the crisis.

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