Risk Of Sharia Banking In Indonesia: Viewed From Types Of Financing

Mashilal[1]

[1]Universitas Islam Negeri Walisongo Semarang, Indonesia

hilal@walisongo.ac.id

Abstract

Purpose - This study aims to analyze the influence of macroeconomic variables and specific variables of the bank on sharia bank credit risk in Indonesia based on the type of financing agreement. Islamic bank credit risks based on financing agreements consist of credit risk based on profit sharing, receivables and rent.
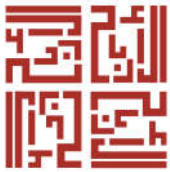
Method - This study uses secondary time series data. The data used is the data of Sharia Commercial Banks in Indonesia from January 2015 to March 2019. The data analysis method uses Vector Autoregression (VAR) with Eviews 10 software tools.

Result - Based on the results of the impulse response, the impact of shock on macroeconomic variables and banking-specific variables on sharia bank credit risk in general is almost the same except for credit risk based on rent in certain variables. Judging from the variance decomposition, in general the CAR variable has the greatest influence on the risk of Islamic bank credit in Indonesia.

Implication - There must be an acceleration in strengthening the capital structure of Islamic banks in Indonesia.

Originality - This research fills in the blanks about syariah bank credit risk based on the type of financing agreement.

Keywords: credit risk; financing agreement; macroeconomic variables; banking specific variables; autoregression vector.

Introduction

The Basel Committe (2001) identified that credit risk is the most dominant risk in the banking sector. Credit risk is closely related to the banking core business, namely as an intermediary function. implementation of the banking intermediary function through collecting public funds in the form of savings and channeling funds to the public in the form of credit. Credit risk does not only occur in conventional banks but also in islamic banks. Misman et al (2015) revealed the effect of specific banking variables on sharia bank credit risk in Malaysia. Among the results of the study indicate that the quality of financing and the capital adequacy ratio significantly influence the credit risk of islamic banks in Malaysia. Meanwhile, Effendi and Dwi Yuniarti (2018) examined the impact of macroeconomic variables on sharia bank credit risk in indonesia. Macroeconomic variables studied are economic growth, unemployment rates and inflation.

Credit risk, especially related to bad credit, causes many problems for bank. First, when costumers cannot pay their debts to the bank, the bank will start to have liquidity problems because they do not have cash flow on time. Second, high credit risk will reduce the bank's net profit due to bad credit. Third, high credit risk can cause a decline in the market. This is because investors do not like banks with low profits. Finally, taking into account the foregoing that high credit risk is very dangerous for the bank and can cause bankruptcy of the bank (Wiryono and Kharisya Ayu Effendi, 2018).

Research on the factors that drive credit risk in the banking sector is not only important for bank management but also for related stakeholders. Many previous studies about measuring credit risk using non-performing loans (NPL) indicators. In banking studies, loans are classified as NPL when interest and principal payments are due for 90 days or more. Higher NPLs cause banks to experience lower profit margins. Even when credit risk is higher and more serious, it can lead to a crisis (Misman et al, 2015). In Islamic financial and banking literature, NPLs in Islamic banks are known as Non-Performing Financing (NPF).
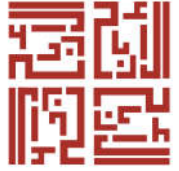
The ratio of problematic financing or Non Performing Financing (NPF) is one indicator of the health of Islamic bank asset quality in managing the distribution of financing. Asset quality assessment is an assessment of the condition of Islamic bank assets and the adequacy of credit risk management. In recent years, the NPF of Islamic banks in Indonesia, in this case Sharia Commercial Banks, was not very encouraging as illustrated in graph 1. At the end of 2014, the ratio of non-performing loans to Sharia Commercial Banks reached 4.99%. After that, for two consecutive years NPF Sharia Commercial Banks continued to experience a slight decline at the end of 2015 and 2016 to 4.93% and 4.41%, respectively. However, the downward trend in Sharia Commercial Bank problem financing did not last long. At the end of 2017, NPF of Sharia Commercial Banks increased again to 4.76%. NPF of Sharia Commercial Banks decreased significantly again at the end of 2018 to 3.26%.

Various studies on bank credit risk are more focused on factors that affect credit risk, both caused by macroeconomic variables and from specific variables of banking. In addition, research on credit risk can be seen from the structure of bank ownership which are classified as state banks, national private banks and foreign private banks. Meanwhile, research on credit risk of Islamic banks in Indonesia based on the type of financing agreement has never been found by the author. Therefore, the writer wants to fill the research gap in the gap. Based on this, this study compares the credit risk of Islamic banks in Indonesia based on the type of financing agreement, namely credit risk based on profit sharing, receivables and rent. In addition to comparing credit risk based on the type of financing agreement, this study also discusses the factors that affect credit risk both from macroeconomic variables and from specific variables of banking.

Literature Review

Credit Risk

function and financial services, the banking sector will never be free from various risks. One risk that often occurs in the banking sector is credit risk. Duffie and Singleton (2003) revealed that credit risk is one of the most
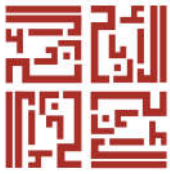
common risks for banks. This comes from the possibility that customers cannot repay their loans to banks.

Credit risk refers to the risk of economic loss due to a partner's failure to fulfill his contractual obligations (Jorion, 2009). Greuning and Sonja Brajovic Bratanovic (2009) define credit risk when the borrower fails to pay interest or pay the principal compared to the time required as stated in the credit contract. Credit risk is late payment or, in the worse case, a total failure in payment. This causes cash flow problems that affect bank liquidity. As such, credit risk can be broadly defined as the risk of financial loss (direct or indirect) when the risk of the borrower not performing their payment obligations as stated in the credit contract.

The term credit risk in Islamic finance and banking is usually replaced by the term financing risk. This is because credit is identical to the use of interest whereas financing in Islamic financial institutions is based on profit and loss sharing, profit margins and rent. Nevertheless, in this study, the term credit risk is used as the study of Sundararajan and Luca Errico (2002), Elgari (2003), Misman et al (2015), Ferhi (2017), Wiryono and Kharisya Ayu Effendi, 2018), Uda et al (2018), Akram and Khalil ur Rahman (2018) and Chamberlain et al (2019).

Credit risk is generally segmented into two types; systematic and unsystematic credit risk. Systematic credit risk arises from fluctuations in economic, social and political activities that affect capital markets and money markets. Meanwhile, credit risk does not systematically adhere to the characteristics of the industry in which the company operates. For example, consisting of management, innovation, technological development and changes in consumer tastes (Yurdakul, 2014). Based on the factors that influence bank credit risk, there are two decisive variables namely the macroeconomic variable and the specific variable of the bank itself (Misman et al, 2015).
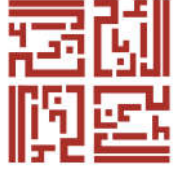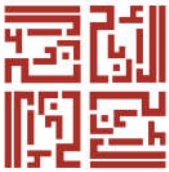
Transactions in Islamic Finance

Islamic finance prefers capital financing over debt and asset-based financing. Thus, unlike conventional finance where the risk is reflected in the amount of interest paid by the borrower, Islamic finance requires profit and loss sharing and other risk sharing. Capital distribution transactions in classical Islamic law require partnerships and profit sharing with contemporary structures in the form of venture capital, investment management and project financing. There are four Sharia financing and investment contracts which are often developed in Islamic finance (Balala, 2011) are as follows;

First, the musyarakah contract can be defined as capital participation or profit sharing and simply means partnership. Sundararajan and Luca Errico (2002) suggested that in the musyarakah contract, banks and other partners provide capital and divide the profit-loss according to a predetermined ratio. Most fiqh scholars agree that musyarakah presents Islamic financial and banking products to avoid the imposition of interest

Second, mudharabah contracts are a special form of partnership. This contract has been developed and is now used by modern Islamic financial institutions to provide fund management services. Characteristics of this financing agreement, one party (rabb al mal) entrusts his money to another party (mudarib) who is similar to fund managers and his contribution in partnership is the provision of necessary skills, managerial expertise or experience. Mudharib (fund managers) use capital in a mutually agreed manner and subsequently return capital and profits (if any) to the financiers (rabb al mal).

Third, murabahah contracts are defined as sales with agreed profit margins. In its modern scheme, murabaha involves the purchase of certain goods by Islamic financial institutions at the request of the client. The client then purchases the commodity from the Islamic financial institution based on deferred payment and an agreed mark-up which is structured to cover the costs of purchasing the commodity, the risk of client financing and profit

margins. Murabaha contract is the most common and popular Islamic financial product used by Islamic financial institutions. This is because the murabahah contract is responsible for almost 70% of all Islamic financial institution transactions.

Fourth, the ijarah contract has many characteristics with leasing and or leasing financing. A typical ijarah structure involves a lessor (financial institution) which buys an asset and leases it to the lessee for a certain period of time with an agreed lease or receives a part of the profit generated by the asset. There are two main types of leases in an ijarah agreement. The first type, involves long-term leases that usually end in the transfer of ownership of the property to the tenant. The second type, involves short-term leases and is usually terminated by Islamic financial institutions by maintaining ownership of these assets.

NPF (Non Performing Financing)

NPF (Non Performing Financing) is one indicator of the health of the quality of bank assets in managing the distribution of financing. Asset quality assessment is an assessment of the condition of bank assets and the adequacy of credit risk management. If the problematic financing increases, the risk of a decrease in profitability is even greater. If profitability decreases, the ability of banks to expand financing decreases and the rate of financing decreases. The risk of financing received by the bank is one of the business risks of the bank, which results from non-repayment of loans given or investments that are being made by the bank. NPF is used as an indicator of Islamic bank credit risk. This research uses NPF variable based on profit sharing, receivables and rent.

Production Index

The Indonesia Production Index is an economic indicator that measures the growth rate of medium and large scale industrial output except the oil and gas industry. Thus, the production index is one form of statistical reports for economic indicators especially as an approach of a country's output. The
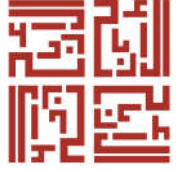
Indonesian production index is used as a proxy for Indonesia's economic growth.

Inflation

Inflation is simply defined as the tendency of prices to increase generally and continuously. This increase in prices generally results in the real value of a currency against goods and services or better known as purchasing power decreases.

CAR (Capital Adequacy Ratio)

CAR (Capital Adequacy Ratio) is a capital adequacy ratio that serves to accommodate the risk of loss that may be faced by banks. The higher the CAR, the better the bank's ability to bear the risk of any risky credit or productive assets. The decrease in CAR is a result of a decrease in the amount of bank capital or an increase in the number of Risk Weighted Assets (ATMR).

FDR (Financing to Deposit Ratio)

FDR (Financing to Deposit Ratio) is a ratio that shows the ratio between financing and total third party funds (DPK) plus equity. FDR states how far the bank's ability to repay withdrawals of funds by depositors by relying on financing provided as a source of liquidity. The higher the FDR level of one bank, the distribution of funds (financing) by banks will also increase.

Previous Research

Wiryono and Kharisya Ayu Effendi (2018) examined the effect of macroeconomic and banking factors on sharia bank credit risk in Indonesia. The study used panel data regression analysis with research data from 2010 to 2016. The results showed that total assets have a positive and significant effect on credit risk. Meanwhile, the amount of financing, the quality of financing, economic growth and inflation have a negative and significant impact on credit risk.
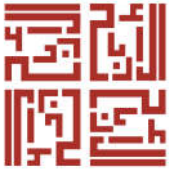
Mpofu and Eftychia Nikolaidou (2018) examined the effect of macroeconomics on credit risk in Sub-Saharan African countries. The study used a dynamic panel data regression analysis from 2010 to 2016. The results showed that economic growth had a negative and significant effect on credit risk. Meanwhile, inflation, credit growth, global volatility index, trade openness and dummy variables of the 2008/2009 global financial crisis had a positive and significant impact on credit risk.

Mukhtarov et al (2018) conducted a study to find out the factors that influence credit risk in Azerbaijani banks. Data analysis using logit regression with research data from 2010 to 2015. The results showed that the ratio of capital adequacy, total assets, interest rates have a negative relationship with credit risk. Meanwhile, there is a positive relationship between the unemployment rate and credit risk.

Uda et al (2018) examined the factors that influence credit risk in Malaysian banks both conventional and Islamic banks. The study used panel data regression analysis with research data starting in 2008-2016. The results showed that there was a positive and significant relationship between the cost of funds, bank size and LDR (Loan to Deposit Ratio) with credit risk. The variable management efficiency, leverage ratio and risk lending sector have a negative and significant relationship to credit risk in conventional banks. Meanwhile, in Islamic banks, only assets with risk weight and the proportion of loans to deposits have a significant positive relationship with credit risk. Variable management efficiency, risky loan sector and bank size have a negative relationship with credit risk.

Hypothesis

Based on the objectives, theoretical studies and previous research in this research, the following research hypothesis can be formulated as follows:

H1. There is a negative influence of economic growth on credit risk of Islamic banks

H2. There is a positive effect of inflation on Islamic bank credit risk
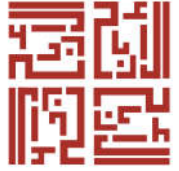
H3. There is a negative effect of CAR on Islamic bank credit risk

H4. There is a negative influence of FDR on Islamic bank credit risk sector.
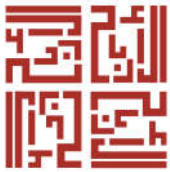
Methods

Research data

This study uses secondary time series data (time series). The data used in the form of monthly data from January 2015 to March 2019. The variables analyzed in this study are macroeconomic variables and specific variables of banking. The specific variable used is the banking data Sharia Commercial Bank in Indonesia. Banking specific variables include NPF (Non Performing Financing) based on profit sharing, receivables and rent, CAR and FDR. Meanwhile, macroeconomic variables include inflation and the production index as a proxy for Indonesia's economic growth. The data was obtained from the Islamic Banking Financial Services Authority (OJK) Statistics, Bank Indonesia (BI) and the Central Statistics Agency (BPS).

Data Analysis

The analytical method used in this study is the Vector Autoregression (VAR) method using the Eviews 10. According to Christopher Sims, the purpose of establishing a VAR is if there is a simultaneity between a set of variables, then these variables should be treated in a fair footing (equal footing) . Thus, there is no a priori difference between endogenous and exogenous variables (Gujarati, 2004).

VAR model is a regression equation model that uses time series data relating to the problem of stationarity and cointegration between variables in it. The initial step in forming the VAR model is the data stationarity test. If the data is stationary at the level level then use the standard VAR model. However, there is a conflict in determining whether a variable in VAR must be stationary or not. According to Enders (2015), Christopher Sims and other opponents do not approve of differentiation even though the variable has a root unit. They argue that the purpose of VAR is to determine the relationship

between variables, not to determine parameter estimates. These opponents argue that differencing will eliminate valuable information related to unidirectional movement of data (such as possible co integration relationships).

The VAR modeling is carried out with various stages that must be passed (Arsana, 2006; Ajija et al. 2011) as follows: 1.) Data stationarity test using the Augmented Dickey-Fuller (ADF) test; 2.) Optimal lag test using the Akaike Information Critirion (AIC) test; 3.) The model stability test can be seen from the modulus value in the AR-roots table; 4.) Impulse Response Function (IRF) and Variance Decomposition (VD) to see the behavior and shock role of each variable against certain variables.

Results and Discussion

Result

The data stationarity test was carried out with the ADF test. From the test results it is known that all variables both in the first, second and third stationary research models at the first difference level. Thus, data analysis uses the VAR model at the first difference level.

The optimal lag determination in this study is based on the smallest AIC value. The first and third research model of the smallest AIC value is in lag one. Therefore, lag one is defined as the optimal lag in the first and third models. In the second research model, the smallest AIC value is in lag two. Thus, lag two is determined as the optimal lag in the second model. Meanwhile, the model stability test states that the modulus values in the AR-roots table are all under one research model. Thus, the VAR model in this study is stable so that the results of impulse response and variance decomposition are valid.

Impulse Response Function (IRF) Analysis

One weakness of the VAR system is the difficulty of interpreting the coefficients generated in the estimation results of VAR. Therefore, impulse
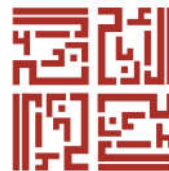
response is used to answer this research. Impulse response analysis is a method used to see the effect of shock from one variable to another. A shock to endogenous variables will affect the variable itself and will spread to other endogenous variables. In addition, IRF also provides a direction of the relationship of the magnitude of influence between endogenous variables.

Shock Macroeconomic Variables and Banking Specific Variables on Credit Risk Based on Revenue Sharing

Shock or economic growth shocks responded negatively by the NPF based on revenue sharing. The negative impact can be interpreted that economic growth causes a decrease in Islamic bank NPF. Based on the graph 2, the decrease in NPF in the 3rd period was 0.12% in response to the shock of economic growth variables. In the next period the percentage decrease in NPF decreases. In the 6th period, the NPF decreased by 0.06% in response to the variable shock of economic growth. The highest negative impact occurred in the second period, namely NPF decreased by 0.16%.

NPF response based on revenue sharing in responding to the shock of inflation variable is positive in the short term. Positive impact in the sense that inflation causes an increase in Islamic bank NPF. Based on graph 2, in the 3rd period, the shock that occurred in the inflation variable was responded by an NPF increase of 0.01%. The 6th period of NPF response reverses to negative, namely a decrease in NPF of 0.004%. In the next period, the 9th period of NPF decreased by 0.011% in response to the shock of inflation variable. The NPF response based on revenue sharing in response to the shock variable CAR is negative. In the 3rd period the shock that occurred in the CAR variable caused the NPF to decrease by 0.05%. In the next period, namely the 6th and 9th periods each NPF experienced a decrease of 0.03% and 0.02%.

Meanwhile, the FDR variable was responded negatively by the NPF variable based on revenue sharing in the initial period. In the 3rd period, NPF decreased by 0.02% in response to the FDR variable shock. In the 6th period the NPF experienced an increase of 0.01% in response to the FDR variable
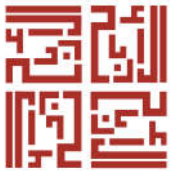
shock. The next period, the 9th period FDR variable caused an increase in NPF of 0.03%.

Shock Macroeconomic Variables and Banking Specific Variables on Credit Risk Based on Receivables

Variable economic growth causes a decrease in receivable-based NPF. Based on graph 3, in the 3rd period NPF decreased by 0.07% in response to the shock of variable economic growth. In the next period, the 6th and 9th periods of each NPF variable decreased by 0.031% and 0.033%.

In the early periods the NPF-based variable gave a response to the fluctuating inflation variable shock. In the second period, NPF gave a positive response of 0.011% in response to the shock of the inflation variable. In the 3rd period, NPF decreased by 0.007%. In the 4th period, it increased again by 0.002% in response to the variable inflation shock. In the next period, NPF of the 6th and 9th periods decreased by 0.011% and 0.010% respectively in response to the shock of the inflation variable.

The NPF based on accounts receivable in responding to the shock of the CAR variable is negative. In the 3rd period the shock that occurred in the CAR variable caused the NPF to decrease by 0.038%. In the next period, namely the 6th and 9th periods each NPF decreased by 0.09% and 0.07%.

Meanwhile, the FDR variable was responded negatively by the NPF variable based on accounts receivable in the initial period. In the 3rd period, NPF decreased by 0.013% in response to the shock of the FDR variable. In the 6th period NPF decreased by 0.004% in response to the shock variable FDR. The next period, the 9th period of shock of the FDR variable caused an increase in NPF of 0.013%.

Shock Macroeconomic Variables and Banking Specific Variables on Lease-Based Credit Risk

The variable of economic growth responded positively by the NPF variable based on rent in the initial period. In the second period, NPF experienced an increase of 0.06% in response to the variable shock of
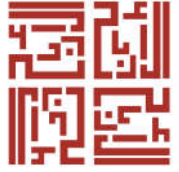
economic growth. In the 3rd period NPF has decreased by 0.01% in response to the variable shock of economic growth. In the next period, the 6th and 9th periods of economic growth variables caused NPF to decrease by 0.01% and 0.004%, respectively.

The variable inflation shock caused an increase in NPF based on rent in general, although in the initial period it declined. Based on the graph 4, in the second period the NPF decreased by 0.01% in response to the variable inflation shock. In the 3rd period, the NPF variable has increased by 0.01%. Furthermore, in the 6th and 9th periods each NPF variable increased by 0.04% and 0.05%.

Rental-based NPF in responding to the shock variable CAR is positive. In the 3rd period the shock that occurred in the CAR variable caused the NPF to increase by 0.16%. In the next period, namely the 6th and 9th periods each NPF experienced an increase of 0.15% and 0.13%.

Meanwhile, the shock of the FDR variable was responded positively by the NPF variable based on rent in the initial period. In the 3rd period, NPF experienced an increase of 0.02% in response to the FDR variable shock. In the 6th period the NPF had decreased by 0.02% in response to the FDR variable shock. In the next period, the 9th period of shockof the FDR variable caused a decrease in NPF of 0.04%.

Analysis of Variance Decomposition (VD)

Analysis of variance decomposition can describe the role of each variable due to shock. VD aims to predict the contribution of the percentage of variance to each variable due to changes in certain variables. In general, the biggest shock that affects the diversity of each variable is shock that originates from itself.

VD analysis in this study is more focused on getting a picture of the effect of the shock ofmacroeconomic variables and specific variables of the banking namely economic growth, inflation, CAR and FDR on the NPF variables of Islamic banks both on the basis of profit sharing, receivables and rents.
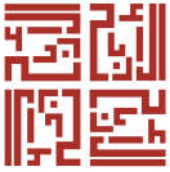
Table 1. Summary of VD NPF Results Based on Revenue Sharing

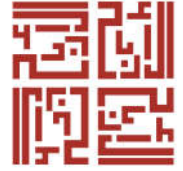| Periode	S.E	DNPF_BH	DIPI	DINF	DCAR	DFDR
3	0.699795	90.39996	8.149784	0.047053	0.937949	0.465250
6	0.772693	88.55026	9.501344	0.048165	1.482410	0.417819
9	0.793281	87.79437	9.850570	0.093250	1.619368	0.642441
12	0.802135	87.13982	9.969247	0.179315	1.668718	1.042901

The biggest contribution to the NPF variable based on revenue sharing is a variant to the NPF variable based on the results itself. Seen in table 1, the contribution of variants to the NPF variable continued to decline until the 12th period but remained the most dominant. In the 6th period, the contribution of variants to the NPF variable has dropped to 88.55% from 90.39% in the 3rd period. The contribution of variants to the NPF variable up to the 12th period was 87.13%.

The effect of macroeconomic shock variables and specific banking variables that have the greatest contribution to the NPF based on profit sharing is a variant on the variable of economic growth. In the 12th period, the contribution of variants to the variable economic growth of 9.96% increased from the 3rd period of 8.14%. The second, third and fourth largest influences were respectively occupied by the CAR, FDR and inflation variables with the magnitude of the 12th period respectively 1.66%, 1.04% and 0.17%.

Then based on table 2, the receivable-based NPF variant shows that the receivable-based NPF variable is still dominantly influenced by the variant of the variable itself with a contribution of 89.85% in the 3rd period. The contribution of variance to the receivable-based NPF variable up to the 12th period was 66.22%.

Table 2. A Summary of The Finndings Based Credit VD NPF

Periode	S.E	DNPF_P	DIPI	DINF	DCAR	DFDR
3	0.399474	89.85880	5.464960	0.106702	2.010374	2.559167
6	0.444651	79.26463	6.050210	0.147640	12.31434	2.223173
9	0.480697	71.44685	6.406299	0.232861	19.92649	1.987501
12	0.509267	66.22828	7.145757	0.471251	23.81862	2.336086

Table 3. Summary of the Results of Rental-Based VD NPF

Periode	S.E	DNPF_S	DIPI	DINF	DCAR	DFDR
3	0.526743	82.48936	1.388169	0.088806	15.24486	0.788801
6	0.605976	64.29582	1.275841	1.222446	32.51825	0.687648
9	0.662124	54.55412	1.114171	2.770218	40.19743	1.364061
12	0.707624	48.17563	0.977151	4.258307	43.78254	2.806363

The effect of shock on macroeconomic variables and specific banking variables that have the greatest contribution to the receivable-based NPF is the variant on the CAR variable. In the 12th period, the contribution of variants to the CAR variable of 23.81% increased significantly from the 3rd period of 2.01%. The second, third and fourth largest influences were respectively occupied by the variables of economic growth, FDR and inflation with the magnitude of the 12th period respectively 7.14%, 2.33% and 0.47%.

The results of VD on NPF based on rent as shown in table 3, show that the variance on the variable itself gives the most dominant influence. In the 6th period, the contribution of variants to the NPF variable based on rent was 64.29%, down from the 3rd period of 82.48%. The contribution of variants to the NPF variable based on rent to the variable itself in the 12th period was 48.17%.

The effect of macroeconomic shock variables and specific banking variables that have the largest contribution to the rental-based NPF is a variant on the CAR variable. In the 12th period, the contribution of variants to the CAR variable of 43.78% increased significantly from the 3rd period of 15.24%. The second, third and fourth largest influences were respectively occupied by inflation, FDR and economic growth variables in the 12th period respectively 4.25%, 2.80% and 0.97%.

Discussion

Based on the results of the impulse response, the impact of the shock of macroeconomic and banking variables on credit risk of Islamic banks in general is almost the same except for credit risk based on rent under certain indicators. Judging from the variance decomposition, in general the CAR

variable has the greatest influence on sharia bank credit risk. This indicates that capital is one of the most important factors in controlling credit risk in Islamic banks. Therefore, Islamic banks must find a way out so that capital increases so that credit risk decreases.

### Economic Growth Variable Shock to Credit Risk

The impact of economic growth on credit risk based on profit sharing, receivables and rent is negative. NPF in general decreases when economic growth rises. The results of this study are in line with research by Wiryono and Kharisya Ayu Effendi (2018), Mpofu and Eftychia Nikolaidou (2018). In view of the variance decomposition, economic growth variables have more influence on credit risk based on profit sharing than on credit risk based on receivables and leases. This is because the characteristics of profit sharing financing emphasize the real sector (productive business) rather than consumptive. The real sector is very dependent on the economic conditions of a country.

Variable Shock Inflation towards Credit Risk

In general, the shock of the inflation variable on the risk of Islamic bank credit is positive. That is, the shock that occurs in the inflation variable causes an increase in Islamic bank NPF. The results of this study are in line with research by Mpofu and Eftychia Nikolaidou (2018). Judging from the variance decomposition, inflation is the smallest variable in this study giving influence to the credit risk of Islamic banks except for rental-based financing. Inflation variable gives the second biggest effect after CAR variable on the risk of rental-based credit.

CAR Variable Shock to Credit Risk

CAR variable shock to Islamic bank NPF is not uniform. Sharia NPF based on profit sharing and receivables giving response to the CAR variable is negative. The results of this study are in line with research by Mukhtarov et al (2018). Meanwhile, NPF of sharia banks in responding to the CAR variable was positive. Judging from the variance decomposition, CAR variable gives
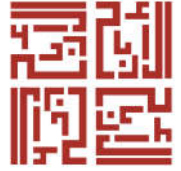
the greatest influence on the risk of Islamic bank loans based on leases and receivables while the NPF of Islamic banks based on revenue sharing gives the second largest effect after the FDR.
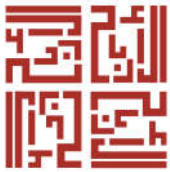
Shock Variable on Credit Risk

In general, the FDR variable shock to sharia bank credit risk is negative. NPF of Islamic banks declined in response to the FDR variable. The results of this study are in line with research by Wiryono and Kharisya Ayu Effendi (2018). Judging from the variance decomposition, the FDR variable gives a not too large influence on the risk of Islamic bank credit. The FDR variable provides a third effect on Islamic bank credit risk in this study.

Conclusion

This study compares the differences in Islamic bank credit risk response based on financing agreements, namely credit risk based on profit sharing, receivables and rent. Based on the results of the study, the following conclusions can be drawn; First, the variable economic growth, CAR and FDR give a negative response to the credit risk of Islamic banks in Indonesia. However, the CAR variable provides a positive response to the risk of Islamic bank loans based on rent. Second, the inflation variable gives a positive response to the credit risk of Islamic banks in Indonesia, both credit risk based on profit sharing, receivables and rent. Third, overall CAR variable, which is an indicator of capital adequacy ratio, is the most influential factor on sharia bank credit risk in Indonesia.

The problem of capital is one of the main problems that exist in Islamic banks in Indonesia today. The problem of capital in Islamic banks is confirmed through this study in which the capital adequacy ratio is the most influential factor on the credit risk of Islamic banks in Indonesia. The policy implications that can be taken are to strengthen the capital structure of Islamic banks in Indonesia. In addition to reducing credit risk, strengthening the capital structure is also carried out to increase the penetration of Islamic bank financing in Indonesia.
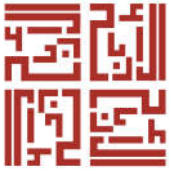
References

Ajija, S.R, Dyah W. Sari, Rahmat H. Setianto dan Martha R. Primanti. (2011). Cara cerdas menguasai Eviews, Jakarta: Salemba Empat.

Akram, H., and Khalil ur Rahman. (2018). "Credit risk management a comparative study of Islamic banks and conventional banks in Pakistan". ISRA International Journal of Islamic Finance. Vol. 10 No. 2.

Arsana, I Gede Putra. (2006). VAR course with Eviews 4. Jakarta: Laboratorium Komputasi Ilmu Ekonomi Universitas Indonesia.

Balala, M.H. (2011). Islamic finance and law; theory and practice in a globalized world. New York: Palgrave Macmillan.

Basel Committee on Banking Supervision. (2001). Risk management practices and regulatory capital: cross-sectorial comparison. Switzerland: Bank for International Settlements.

Chamberlain, T., Sutan Hidayat and Abdul Rahman Khokhar. (2019). "Credit risk in Islamic banking: evidence from the GCC". Journal of Islamic Accounting and Business Research.

Duffie, Darrelland Kenneth J. Singleton. (2003). Credit risk; pricing, measurement, and management. New Jersey: Princeton University Press,

Effendi, K.A. and Rozmita Dewi Yuniarti. (2018). "Credit risk and macroeconomics of Islamic banking in Indonesia". Journal of Smart Economic Growth. Vol. 3, No. 1.

Enders, W. (2015). Applied Econometric Time Series. New York: John Wiley and Sons Inc.

Elgari, Mohamed Ali. (2003). "Credit risk in Islamic banking and finance.Islamic Economic Studies". Vol. 10, No. 2.

Ferhi, Afifa. (2017). "Credit risk and banking stability: a comparative study between Islamic and conventional banks". International Journal of Law and Management. Vol. 60 No. 4.

Greuning, H.V. And Sonja Brajovic Bratanovic. (2009).Analyzing banking risk a framework for assessing corporate governance and risk management. Washington, D.C: The International Bank for Reconstruction and Development/ The World Bank.
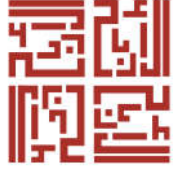
Gujarati, D. N. (2004). Basic Econometrics. The McGraw-Hill Companies.

Jorion, Philippe. (2009). Financial risk manager handbook. New Jersey: John Wiley & Sons, Inc.

Misman, F.N, Ishaq Bhatti, Weifang Lou, Syamsyul Samsudin and Nor Hadaliza Abd Rahman. (2015). "Islamic banks credit risk: a panel study". Procedia Economics and Finance 31, 75–82.

Mpofu,T.R. and Eftychia Nikolaidou. (2018). "Determinants of credit risk in the banking system in Sub-Saharan Africa". Review of Development Finance 8, 141–153.

Mukhtarov, S., Serhat Yüksel and Elvin Mammadov. (2018). "Factors that increase credit risk of Azerbaijani banks". Journal of International Studies, 11(2), 63-75.

Sundararajan, V. and Luca Errico. (2002), "Islamic financial institutions and products in the global financial system: key issues in risk management and challenges ahead", IMF Working Paper. Vol. 2 No. 192.

Uda, N.A.Z. @, M.A. Hamid and Hawati binti Janor. (2018). "Determinants of credit risk in Islamic and conventional bank: evidence from Malaysia". International Journal of Academic Research in Business and Social Sciences, 8(6), 1054-1068.

Wiryono, S.K and Kharisya Ayu Effendi. (2018). "Islamic bank credit risk: macroeconomic and bank specific factors". European Research Studies Journal, Volume XXI, Issue 3, 53-62.

Yurdakul, Funda. (2014). "Macroeconomic modelling of credit risk for banks". Procedia - Social and Behavioral Sciences 109, 784–793.

Mashilal