



Indonesian islamic rural banks (IRBs), banking risk factors: In a context of resilience?

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Abstract

The Islamic Rural Bank (IRB) in improving its performance also faces banking risks, both internal and external risks. These risks have a direct and indirect impact on their performance that reflected by ROA (Return on Assets). The internal risks of IRB are reflected by the variable Non Performing Financing (NPF) and Capital Adequacy Ratio (CAR). While its external risks reflected by Inflation risk (Inf) and Economic Growth (EG). This study also use the variables Total Asset (Size) to see IRB’s resistance behavior faces the banking risks. It’s all also to see how the resilience of IRB to absorbs shocks, and continues or recovers. This study used Panel data, 420 data from 21 sample of Indonesian IRBs with 1 dependent variable and 5 independent variables that has mentioned. The data is taken quarterly for the period March 2013 - December 2017, and estimated by Random Effect Model (REM) as a best model.

Keywords: IRB, performance, internal risk, external risk

1. Introduction

Islamic Rural Bank (IRB) in its effort to achieve profits, will face banking risks, both internal and external risks. These risks have a direct and indirect impact on banking performance (Almazari, 2014) [6]. One of the internal risks often faced by IRB is problem financing (Non-Performing Financing) and the risk of bankruptcy. When the NPF is higher, it will impact to higher the financing risks of IRB, because the IRB must meet the Allowance for Earning Assets (AEA). If this condition continues to increase, the IRB’s capital will be absorbed to pay the AEA. That is why the IRB expects the NPF value to be always low to increase the value of the IRB profitability (Said, 2015) [25]. The presence of IRB has a special purpose to provide banking products and services with Islamic principles for Small Micro and Medium Enterprises (SMEs) both in cities and in rural areas (Hosen, 2013) [15]. In channeling funds, the IRB offers financing products, using several contracts such as: profit-loss sharing contracts in the form of equity-based financing namely mudarabah and musyarakah, sale and purchase contracts in the form of debt-based financing namely murabahah, istishna, salam and qardh (lending and borrowing), also the lease agreement (ijarah). The contract scheme implemented by the IRB shows that the scheme of financial transactions is classified as Islamic and halal (OJK, 2016) [21].

The development of Islamic Rural Bank (IRB) in Indonesia is quite encouraging. In the third quarter of 2018, IRB in Indonesia reached to 168 IRBs which previously amounted

to 165 IRB in the third quarter of 2016. West Java, East Java and Central Java were the three provinces with the highest number of IRB. In addition, the IRB is able to absorb 4,495 direct workers in 459 offices (OJK, 2018). Nonetheless, the economic slowdown in 2017 made the growth of the Islamic banking industry in particular the IRB is decrease. However, the growth potential of the Islamic finance industry in Indonesia is predicted to still have great potential to grow. When compared to the level of market share of Islamic banks with conventional banks that are still moving slowly between 4% to 5%. Viewed from the previous six years, Bank Indonesia (BI) projects the growth of Islamic banking in Indonesia in 2011 to be around 35% to 45%. The projection is based on the condition of Islamic banking in Indonesia which continues to improve and national in 2011 which reached 6% to 6.5%, with a controlled economic growth inflation rate of less than 5% (Siregar, 2010) [27]. As the development of IRB continues to increase, the analysis of internal and external risks of IRB is really important. The purposes of this research are to analyze the influence of internal risks and external risks are reflected by variable Non-Performing Financing (NPF), Capital Adequacy Ratio (CAR), inflation (Inf) and Economic Growth (EC), and Total Asset (Size) on the performance of the IRB.

2. Definition of operational variables

The following is a table of the definition of operational variables that used in this study:

Table 1: Variable Definitions

No.	Variable	Definition
1	Return on Asset (ROA)	The return of assets that are used to measure the ability of management to obtain overall profits (Dumawi, 2012).
2	Non Performing Financing (NPF)	A problematic financing ratio that is used to measure the failure rate of repayment of financing by banks (Wibowo, 2013) [32].
3	Capital Adequacy Ratio (CAR)	The percentage of the financial capital's primary capital to its assets and is used as a measure of its financial strength and stability (Asikhia, 2013).

4	Inflation (Inf)	A situation where the overall price of goods increases in a certain period of time (Mankiw N, 2018).
5	Economic Growth (EG)	A process of change in conditions economy a country continually leads to better conditions over a period of time (Mankiw N, 2018).
6	Total Assets (Size)	The overall amount of the company's wealth consisting of fixed assets, current assets and other assets, whose value is balanced with total liabilities and equity in a certain period (Kasmir, 2014).

3. Methods

The type of this study used quantitative methods, namely research by obtaining numerical data (Widarjono, 2018). The data used in this study are secondary data in the form of Panel data. According Basuki (2017), secondary data is a source of research data obtained indirectly through intermediary media (obtained and recorded by other parties).

In this study, the data is taken quarterly data for the period March 2013 - December 2017 issued by Bank of Indonesia, the Financial Services Authority (FSA) and the Central Bureau of Statistics (CBS). The scope of this study is limited to the sample to be tested, which uses one sample IRB in each province. The sample taken is the sample that has the greatest assets and the best performance in each province.

The analysis of this study uses an estimation model of Random Effect Model (REM). The dependent variable used in measuring the performance of IRB is Return on Assets (ROA). While the independent variables used are Non-Performing Financing (NPF), Capital Adequacy Ratio (CAR), Inflation (Inf), Economic Growth (EG), and Total Assets (Size). The research model is as follows (Econometric approach);

$$Profitability_{it} = \beta_0 + \beta_1 NPF_{it} + \beta_2 CAR_{it} + \beta_4 Inf_{it} + \beta_5 EG_{it} + \beta_2 Lnsiz_{e_{it}} + \varepsilon_{it}$$

- Profitability it = ROA of IRB i in the quarter t
- NPF it = Credit Risk of IRB i in the quarter t
- CAR it = Risk of Health Level of IRB i in the quarter t
- Inf it = Provincial level inflation i in the quarter t
- EG it = Provincial level economic growth i in the quarter t
- Lnsiz = Log total assets of IRB i in the quarter t
- ε_{it} = Error-term

3.1 Descriptive Analysis

Descriptive Test is an explanation in the description of the data of each variable used in this study. In this study the type of data used is secondary data in the form of panel data and the data used is in the form of quarterly data from Q1:2013 to Q4:2017. This study was conducted to determine whether the independent variables influence the dependent variable. The variables used are as follows:

- i) Variabel Dependent
 - a. Return on Assets (ROA) (Y_1) : Return on Assets in Q1: 2013 to Q4: 2017
- ii) Independent Variables
 - a. Non Performing Financing (NPF) : The Non Performing Financing of Indonesian IRBs in Q1:2013 to Q4:2017

- b. Capital Adequacy Ratio (CAR): The Capital Adequacy Ratio of Indonesian IRBs in Q1:2013 to Q4:2017
- c. Inflation (Inf): The provincial inflation rate of Indonesia in Q1:2013 to Q4:2017
- d. Economic Growth (EG): The provincial economic growth of Indonesia in Q1:2013 to Q4:2017
- e. Total Assets (Ln size): Log of total assets of Indonesian IRBs in Q1:2013 to Q4:2017

3.2 Panel Data Analysis

3.2.1 Estimated Results of Common Effect Model (CEM)

Table 2: Estimated Results of the Common Effect Model (CEM)

Variable	ROA	
	Coefficient	t-Statistics
NPF	- 4.30E-06	-0.1 98780
CAR	0.026354	1.073184
Inf	0.126970	0.304909
EG	1.858647	3.721301 *
Lnsiz	0.277233	0.431409
R-squared	0.038021	
Adjusted R-squared	0.026403	
F-statistics	3.272539	
Prob (F-Statistic)	0.006549	
Durbin-Watson Stat	1.872786	
Total panel (balanced) observations	420	

Description: significance of variable α 1% (*), α 5% (**), α 10% (***)

3.2.2 Estimated Results of Fixed Effect Model (FEM)

Table 3: Estimated Results of Fixed Effect Model (FEM)

Variable	ROA	
	Coefficient	t-Statistics
NPF	-2. 06 E-06	-0.096288
CAR	0.024944	0.986763
Inf	0.249695	0.407806
EG	1. 113982	1,767981 ***
Lnsiz	- 2.287793	-1.386768
R-squared	0. 144140	
Adjusted R-squared	0. 089835	
F-statistics	2.654237	
Prob (F-Statistic)	0. 000039	
Durbin-Watson Stat	2.101379	
Total panel (balanced) observations	420	

Description: significance of variable α 1% (*), α 5% (**), α 10% (***)

3.2.3 Chow test

The Chow Test is a test to determine whether Common Effect Model (CEM) the right method of analysis, or is it right Fixed Effect Model (FEM). With the hypothesis as follows:

- Ho = If Chi Square > 0.05, the best model is CEM.
- Ha = If Chi Square < 0.05, the best model is FEM.

Table 4: Chow Test Results

Effect Test	Probability
Chi-square cross-section	0.0003

Based on Chow test results above, ROA get the Chi-Square probability value of 0.0003 which means the probability is smaller than α (5 %) then reject Ho, which means the best model is the Fixed Effect Model (FEM). Furthermore, to obtain the best model, proceed with estimating REM which will be compared with FEM.

3.2.4 Estimated Results of Random Effect Model (REM)

Table 5: Estimated Results of Random Effect Model (REM)

Variable	ROA	
	Coefficient	t-Statistics
NPF	-2.93E-06	-0.138241
CAR	0.025566	1.036855
Inf	0.275731	0.556329
EG	1.478031	2.632416 *
Lnsiz	-0.296468	-0.325711
R-squared	0.021333	
Adjusted R-squared	0.009514	
F-statistics	1.804919	
Prob (F-Statistic)	0.110675	
Durbin-Watson Stat	2.002472	
Total panel (balanced) observations	420	

Description: significance of variable α 1% (*), α 5% (**), α 10% (***)

3.2.5 Hausman Test

The Hausman test is a test to determine the best model between the Random Effect Model (REM) and Fixed Effect Model (FEM). With the hypothesis as follows:

Ho = If Chi Square > 0.05, then the best model is REM

Ha = If Chi Square < 0.05, the best model is FEM

Table 6: Hausman Test Results

Effect Test	Probability
Random cross-section	0.5003

Based on The Hausman test results above, obtained a Chi-Square probability value of 0.5003 which means that the probability is greater than α (5 %) then it fails to reject Ho, which means the best model is REM.

4. Results and Discussion

Table 7: Estimated Results of Best Model (Random Effect Model)

Variable	ROA	
	Coefficient	t-Statistic
NPF	-2.93E-06	-0.138241
CAR	0.025566	1.036855
Inf	0.275731	0.556329
EG	1.4780311	2.632416*
Lnsiz	-0.296648	-0.325711
R-squared	0.021333	
Adjusted R-squared	0.009514	
F-statistic	1.804919	
Prob(F-Statistic)	0.110675	
Durbin-Watson Stat	2.002472	
Total panel (balanced) observations	420	

Description: significance of variable α 1% (*), α 5% (**), α 10% (***)

4.1 The Effects of Non Performing Financing (NPF) on The Performance of IRB

Based on the estimation results above, the Non Performing Financing (NPF) variable has a coefficient of -2.93E-06 and its probability value is 0.8901 which means that it is greater than the significance level $\alpha = 5\%$, meaning that the Non Performing Financing (NPF) variable has a negative relationship and does not significantly influence Return on Assets (ROA). This is expected to occur because the IRB risk management is good. IRB has a specificity in handling troubled financing, so that the small moral hazard in the financing of IRB financing is small. Therefore, financing problems with IRB have little effect on their performance (Mutamimah and Siti, 2012) [18].

According to Sudarsono, H (2017) [29] explained that NPF was not significant towards ROA because the management of Islamic banks was less considering the amount of NPF to determine funding distribution policies to partners. The ability of a good bank management managed to control NPF during the study period. This is the reason NPF does not affect financing. Previous research showed the same results with this research, Hanania, L (2015) [11], Mulyaningsih, S and Iwan, F. (2016) [19] found that NPF had no effect on ROA.

4.2 The Effect of Capital Adequacy Ratio (CAR) on The Performance of IRB

Based on the estimation results with Random Effect Model (REM) above, the Capital Adequacy Ratio (CAR) has a coefficient of 0.025566 and a probability value of 0.3004 which means greater than the significance level $\alpha = 5\%$, meaning that the Non Performing Financing variable (NPF) has a positive relationship and does not significantly affect to Return on Assets (ROA). This is predicted to occur, because the IRB is still categorized as a small bank with a small capital in average (still below idr 10 billion). Thus, CAR is not significant in ROA (Novi Lidiawati, 2016) [20]. This result was also found by Hindarto (2011) [14] in his research stating that CAR did not significantly influence ROA.

4.3 The Effect of Inflation on The Performance of IRB

Based on the estimation results above, the Inflation variable (INF) has a coefficient of 0.275731 and a probability value of 0.5783 which means greater than the significance level $\alpha=5\%$, meaning that the Inflation variable (INF) has a positive relationship and does not significantly affect Return on Assets (ROA). This is expected to occur, because the management of the IRB is already good so that it is less vulnerable to inflation risks. Inflation has no effect on ROA estimated because the average inflation rate during the research period was 5.86%, where the market could accept an inflation rate below the 10%. Inflation that occurred in the 2013-2017 period which tended to be stable made public financial planning better, affordable purchasing power, fulfilled living needs, investment more smoothly because investment was not speculative and credit did not experience congestion. So that inflation does not affect ROA (Adegbite, 2010) [4]. This result is also in line with the results of a study from Sahara (2013) [24] and Wibowo (2013) [32] that the Inflation variable does not affect the performance of IRB.

4.4 The Effects of Economic Growth on The Performance of IRB

From the results of the Random Effect Model (REM) estimation, it was found that the Economic Growth variable has a coefficient of 1.478031 and the probability value is 0.0088 which means that it is smaller than the significance level $\alpha = 5\%$ which means that it rejects H_0 . This shows that the Economic Growth variable has a positive and significant effect on Return on Assets (ROA). This is expected to occur because when economic growth increases, the economic performance of the community is also good and smooth, so that public consumption increases. People who have an average business as SMEs need more capital injections from IRB to increase their business capital and increase capability to pay back, so that the return of financing to IRB is also smooth. The same results were also found by Sahara (2013) ^[24] and Rizki (2016) ^[23], which stated that economic growth had a positive and significant effect on the performance of IRB.

4.5 The Effect of Total Assets (Size) on The Performance of IRB

Referring to the results of the Random Effect Model (REM) above, stating that the Total Asset (Size) variable has a coefficient of -0.296468 and the probability value is 0.7448, which means greater than the significance level $\alpha = 5\%$, meaning that the Total Asset variable (Size) has a negative relationship and does not have a significant effect on Return on Assets (ROA). This negative and insignificant relationship is expected because IRB tend not to add financing. This is estimated because IRB is more careful in calculating the risk of increasing financing and has the authority that tends to wait and see in responding to market turmoil, so it is not optimal in generating profits (Ahmet, 2011) ^[5]. The results of the same study were also found by Prasanjaya (2013) ^[22] which stated that Size does not have a significant effect on ROA.

5. Conclusion

Based on the results of research data that has been done by the author with Random Effect Model (REM) as best model, the authors can conclude that the effects of the internal and external risks of IRB that reflected by Non Performing Financing (NPF), Capital Adequacy Ratio (CAR), Inflation (Inf), Economic Growth (PE) and Total Assets (Size) on the performance of IRB that reflected by Return on Assets (ROA) are

First, the Non Performing Financing (NPF) variable is negatively related and does not significantly influence the performance of the IRB. This is expected to occur because the IRB risk management is good. IRB has a specificity in handling troubled financing, so that the small moral hazard in the financing of IRB financing is small. Therefore, financing problems with IRB have little effect on their performance.

Second, the Capital Adequacy Ratio (CAR) variable is positively related and does not have a significant effect on the performance of IRB. This is because the IRB is still categorized as a small bank with a small capital average (still below 5 billion), so funds from third parties will be expensive and the cost of margins will be high so that the performance of the IRB will decline.

Third, the Inflation (Inf) variable is positively related and does not have a significant effect on the performance of

IRB. This is expected to occur because the management of the IRB is already good so that it is less vulnerable to inflation risks. Because in the research period inflation tends to be stable and still acceptable to the market, so that public financial planning is good, purchasing power is affordable, life needs are met, investment is more smooth because investment is not speculative and credit is not problematic. Therefore, inflation does not affect the performance of IRB. Fourth, the variable Economic Growth (PE) is positively and significantly related to the performance of IRB. This is expected to occur because when economic growth increases, the economic performance of the community is also good and smooth, so that public consumption increases. People who have an average business as Small and Medium Enterprises (SMEs) actors need more capital injections from IRB to increase their business capital and increase capability to pay back, so that the return of financing to IRB is also smooth.

Fifth, the Total Asset (Size) variable is negatively related and does not have a significant effect on the performance of the IRB, estimated because IRB are more careful in calculating the risk of increasing financing and have a wait and see authority in responding to market turmoil, so that IRB are not optimal in generating profits.

Therefore, Islamic Rural Banks (IRBs) will be able to pay attention to internal and external risks that can be affected to the performance of Islamic Rural Banks (IRBs). So, by paying attention to these factors, IRB can be consideration to further analyze in their risks and produce good policies and also have a good impact for the future glory of Indonesian Islamic Rural Banks (IRBs).

6. References

1. Abba G. Capital Adequacy Ratio and Banking Risks in the Nigerian Money Deposit Banks. *Research Journal of Finance and Accounting*. 2013; 4(17):2222-2847.
2. Adegbite. The Nigerian Financial System: Emerging Issues and Global Relevance. *University of Lagos Journal*. 2010; 2(1):233-248.
3. Ahmet. Determinant of capital adequacy ratio in Turkish Bank: A data analysis panel. *African Journal of Business Management*. 2011; 5(27):11199-11209.
4. Almazari A. Impact of internal factors on bank profitability: comparative study between Saudi Arabia and Jordan. *Journal of Applied Finance & Banking*. 2014; 5(1):125-140.
5. Ardiansari A. Effect of Third Party Funds, Performing Financing, Capital Adequacy Ratio and Return On Assets, Against Liquidity Levels. *Management Analysis Journal*. 2015; 5(1):13-23.
6. Asikhia. Capital Adequacy and Banks' Profitability: Empirical Evidence from Nigeria. *American International Journal of Contemporary Research*. 2013; 3(10):87-93.
7. Dumawi H. *Banking Management*. Jakarta: Bumi Aksara, 2012.
8. Fakhrunnas F. Macroeconomic Effect And Risk-Taking Behavior in A Dual Banking System. *Economic Journal of Emerging Markets*. 2018; 10(2):165-176.
9. Hanania L. FEB Perbanas Institute. Internal and External Factors Affecting the Profitability of Islamic Banking in the Short and Long Term. *Perbanas Journal*. 2015; 1(1):151-168.
10. Harley T. Determinant of Capital Equity in the Banking

- Sub sector of the Nigerian Economy: Efficacy of Camels (A Model Specification with Co-Integration Analysis). *International Journal of Academic Research in Business and Social Sciences*. 2011; 1(3):233-248.
11. Hashemi S. The Impact of Financial Leverage Operating Cash Flow and Size of the Company on Dividend Policy. *Interdisciplinary Journal of Contemporary Research Business*. 2012; 3(10):264-270.
 12. Hindarto C. Effect Analysis of CAR, LDR, NPL, Bopo and KAP Against Return On Assets. *Business Journal Strategy*. 2011; 20(2):15-21.
 13. Hosen M. Efficiency of the Islamic Rural Bank in Indonesia Lead to Modified Camel. *International Journal of Academic Research in Economics and Management Sciences*. 2013; 2(5):2226-3624.
 14. Kasmir M. *Banks and Financial Institutions*. Jakarta: Rajawali Press, 2014.
 15. Mankiw NG. *Introduction to Macro Economics*. Jakarta: Salemba Empat, 2018.
 16. Mutamimah Siti. External and Internal Analysis in determining Non Performing Financing of Islamic Commercial Banks. *Journal of Business and Economics*. 2012; 19(1):14-25.
 17. Mulyaningsih S, Iwan F. The Effect of Non Performing Financing on Mudharabah and Non Performing Financing Financing Musyarakah Financing on Profitability in Islamic Commercial Banks in Indonesia. *National Journal of UMP*. 2016; 16(1):22-37.
 18. Novi Lidiawati NF. Effect of Audit Quality, Audit Committee, Institutional Ownership, Company Size on Profit Management. *Journal of Accounting Science and Research*. 2016; 15(3):313-331.
 19. OJK. *Financial Services Authority Regulation No. 3 / POJK.03 IRB*. Jakarta: Financial Services Authority, 2016.
 20. Prasanjaya A. Analysis of the Effect of CAR, BOPO, LDR and Firm Size on Profitability of Banks Registered on the IDX. *Accounting Journal of Udayana University*. 2013; 4 (1):230-245.
 21. Rizki K. Influence of Inflation and Unemployment Rate on Economic Growth in Indonesia. *I-Economic Journal*. 2016; 2(1):50-64.
 22. Sahara. Analysis of Inflation Effect, BI Interest Rate, and Gross Domestic Product on Return on Assets (ROA) of Islamic Banks in Indonesia. *Journal of Management Sciences*. 2013; 1(1):149-157.
 23. Said S. Islamic Banking Performance In Makassar. *Journal Al-Ulum*. 2015; 15(1):21-42.
 24. Samson W. An Empirical Analysis of Capital Adequacy in the Banking Sub-Sector of the Nigerian Economy. *International Journal of Economics and Finance*. 2012; 4(5):208-215.
 25. Siregar S. Projections for Islamic Banking Growth. *Journal of Islamic Economics and Business*. 2010; 2(1):1-15.
 26. Sukirno S. *Macroeconomics of Introduction Theory*. Jakarta: Rajagrafindo, 2012.
 27. Sudarsono H. Analysis of the Effect of Financial Performance on the Profitability of Islamic Banks in Indonesia. *Journal of Islamic Economics*. 2017; 8(2):175-203.
 28. Triwulandari. Analysis of the Effect of Beta, Company Size (SIZE), EPS, and ROA on Consumer Goods Company Stock Returns for the Period 2008-2012. *Management Journal of STIE MDP Palembang*. 2013; 1(14):1-14.
 29. Trujillo-Ponce A. What determines the profitability of banks? Evidence from Spain. *Journal Accounting and Finance*. 2013; 53(2):561-586.
 30. Wibowo. Analysis of the Effect of Interest Rates, Inflation, CAR, BOPO, NPF on Profitability of Islamic Banks. *Accounting Journal of Diponegoro University*. 2013; 2(2):1-10.