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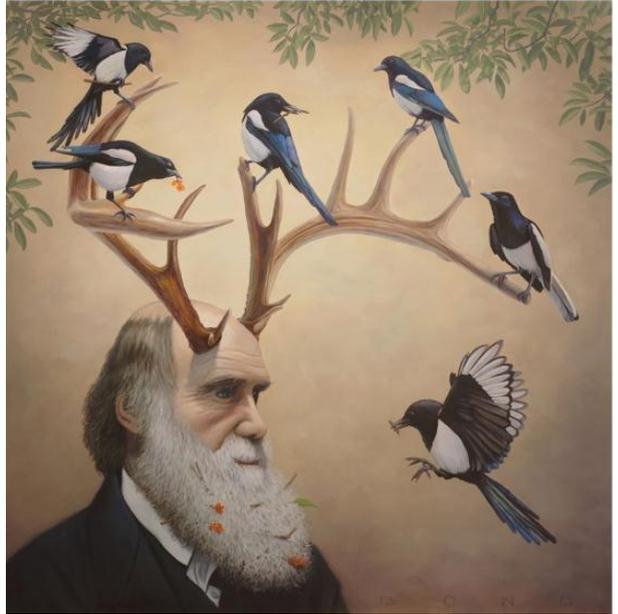
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Universidad del Zulia  
Facultad Experimental de Ciencias  
Departamento de Ciencias Humanas  
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# Competition, Diversification, and Stability: A Study at an Islamic Bank in Indonesia

**Djuminah<sup>1</sup>**

<sup>1</sup>Faculty of Economics and Business, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta, 57126, Indonesia. Djuminah.ac.ir

**Rachma Revida<sup>2</sup>**

<sup>2</sup>Faculty of Economics and Business, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta, 57126, Indonesia. RachmaRevida.ac.ir

**Dina Fitriisa Septiarini<sup>3</sup>**

<sup>3</sup>Faculty of Economics and Business, Universitas Airlangga, Jl. Airlangga 4-6, Surabaya, 60115, Indonesia. DinaFitriisaSeptiarini.ac.ir

## Abstract

This research reviews the level of competition between banks, diversification of income sources, and banking stability in Indonesia. The level of competition is measured by the Panzar-Rosse method, diversification of income sources is measured by loan focus and income focus index, and banking stability is measured by (ZScore= ZROA). Result analysis finds that the Islamic banking competition in Indonesia is monopolistic, while the diversification of lending in Islamic banks is well diversified. In conclusion, the stability condition of Islamic banking in Indonesia, especially Islamic commercial banks are very steady and tends to increase the level of stability.

**Keywords:** Competition, Diversification, Stability, Islamic, Bank.

## Competencia, diversificación y estabilidad: un estudio en un banco islámico en Indonesia

### Resumen

Esta investigación revisa el nivel de competencia entre los bancos, la diversificación de las fuentes de ingresos y la estabilidad

bancaria en Indonesia. El nivel de competencia se mide con el método Panzar-Rosse, la diversificación de las fuentes de ingresos se mide con el enfoque del préstamo y el índice de enfoque de los ingresos, y la estabilidad bancaria se mide con (ZScore= ZROA). El análisis de resultados encuentra que la competencia de la banca islámica en Indonesia es monopolística, mientras que la diversificación de los préstamos en los bancos islámicos está bien diversificada. En conclusión, la condición de estabilidad de la banca islámica en Indonesia, especialmente los bancos comerciales islámicos, es muy estable y tiende a aumentar el nivel de estabilidad.

**Palabras clave:** Competencia, Diversificación, Estabilidad, Banco, Islámico.

## 1. INTRODUCTION

In the contemporary economy, the financial and banking sectors play a very important and significant role. This is caused by the functional role of financial and banking sectors as intermediaries between creditors and debtors as well as intermediaries in channeling development financing in general. The intermediation function that runs well and efficiently is influenced by various factors, including the factor of market structure. In general, the more perfect the structure of a market, the more efficient the way the intermediation will take place in the market. This perfect market structure is usually characterized by products or services that tend to be homogeneous, perfect information, low transaction costs, and low levels of competition (KASRI & IMAN, 2010).

For the banking sector, Indonesia is one of the few countries that adopted a dual banking system, with conventional bank systems and Islamic banks which operate simultaneously and compete for relatively similar consumers. By this system, the level of banking competition would be suspected as high as which generally occurs in many countries. However, the data actually indicates the opposite. Until the end of 2018, even though there were 102 conventional banks in Indonesia, five large banks controlled 51% of total banking assets in national scale. The five banks are Bank Mandiri, BNI, BRI, BCA and CIMB Niaga. Islamic banking in the same period only controlled 4% of total national banking assets. Based on the market share, Sharia banking only controls 5.7% with a proportion of 66.22% of Islamic Commercial Banks, 31.25% Sharia Business Units and 2.53% Sharia Community Financing Banks.

Therefore, according to BERGER, DEYOUNG, FLANNERY & OZTEKIN (2008), it is very important to use a measure of bank risk that can accurately reflect credit risk or bank risk so that an empirical test of the relationship of competition and bank stability can show accurate evidence of whether one of these theories or both theories coincide with the facts of the field. Some previous researches such as FERNANDEZ, GONZALEZ & SUAREZ (2016), Carret CARRETTA, FARINA, FIOREDELISI, SCHWIZER, LOPES (2015) also CARLETTI & HARTMAN

(2003) use Z-index as an inverse proxy for overall bank risk. Based on the description above, this study will examine the level of competition between banks, diversifying sources of income with the stability of banks in Indonesia. This study will examine Islamic sharia banks.

## **2. LITERATURE REVIEW**

### *2.1. Competition Concept*

Without any prejudice to the important role of competition in the market system, a number of Islamic scientists have stressed the importance of the role of cooperation in Muslim societies. Not surprisingly, then one of the main transactions or contracts in Islamic economics is *mudaraba* (profit-sharing transactions) which are the result of economic cooperation (CHAPRA, 2000; UNVER, HIDIROGLU, DEDE & GUZEL, 2018). In the context of Islamic banking, this contract is manifested in one of the forms of financing products based on profit sharing principles (*mudaraba financing*).

### *2.2. Market Competition Model*

There are two main approaches commonly used to analyze the level of competition in a market, in this case, the market or the

banking industry, namely structural approaches and non-structural approaches. The structural approach is so named because in the analysis of industrial competition behavior is focused primarily on the market structure that occurs. The analysis in this approach is based on explicit information regarding the market structure in which an industry is located. While nonstructural analysis not only looks at competitive behavior through market structures, but rather looks at the performance of actors in an industry to determine the level of competition in the industry.

To find out the competition behavior that is contestable and PANZAR & ROSSE (1987) developed several nonstructural models. These methods do not measure banking competition behavior without explicitly using market structure information, but by estimating the difference in the cost structure of competitive prices. These models dominate current studies to analyze banking competition.

### *2.3. Previous Research and Hypotheses Development*

BECK's (2013) study that analyzed the comparison of business models, efficiency and stability in Islamic and conventional banks, found several major differences in business orientation. But there is evidence that Islamic banks are less

cost-effective, but have a higher intermediation ratio, higher asset quality, and better capitalization. This study also found large cross-country variations in the differences between conventional banks and Islamic banks and also in Islamic banks of different sizes. In addition, this study found that Islamic banks have better capitalization, have higher asset quality, and tend not to experience disintermediate during the crisis. The better stock performance of Islamic banks registered during the recent crisis was also caused by higher capitalization and better asset quality.

This study also shows the effects of diversification of income differently between banks depending on financial conditions, such as the number of capital buffers, and the business model. The type of channeled credit is also more varied and is not dominated by one type of credit.

### **3. RESEARCH METHOD**

#### *3.1. Population and Sample*

The population in this study is a Sharia Commercial Bank in Indonesia. Sampling in this study uses a purposive method, namely the selection of samples based on criteria. Based on predetermined criteria, the number of samples in this study was 10 Islamic Commercial Banks in the period 2011 to 2017. Data compilation

was done in a panel, so the amount of data used was 70 data samples.

### 3.2. Variable Measurement

#### a. Bank Competition

Competition between banks is measured using the Panzar-Rosse model. The Panzar-Rosse model tries to test market strength based on the premise that banks will implement price differentiation strategies to respond to changes in input costs that depend on the market structure in which the bank operates. Based on the study conducted by KASRI & IMAN (2010) which used the PR model to see banking competition and the approach and intermediation approach to define banking input-output, the shrinkage form of total acceptance (TINC) which is the general model in this study are as follows:

$$\ln \text{TINC}_{it} = \alpha_0 + \alpha_1 \ln \text{personalia}_{it} + \alpha_2 \ln \text{beblain}_{it} + \alpha_3 \ln \text{PFA}_{it} + \sum \varepsilon_i \ln \text{BSF}_{it} + \epsilon_{it} \quad (1)$$

with  $t = 1, \dots, T$ .  $T$  is the number of sending periods and  $I = 1, \dots, I$  is the total number of banks used as the object of research. The TINC dependent variable is the ratio of total revenue to total assets. While the independent variables are divided into two parts,

namely: (i) the main input variables, consisting of proxy for labor costs (Ln personnel), physical capital (Ln be blain) and financial capital or price of funds (Ln PFA); and (ii) bank-specific factor variables (Ln BSF). Following standard economic analysis, to facilitate calculation and interpretation, the logarithmic form is used for all of these variables. The empirical model to be estimated is as follows:

$$\ln \text{TINC}_{it} = \alpha_0 + \alpha_1 \ln \text{personalia}_{it} + \alpha_2 \ln \text{beblain}_{it} + \alpha_3 \ln \text{PFA}_{it} + \varepsilon_1 \ln \text{equity}_{it} + \varepsilon_2 \ln \text{NPL}_{it} + \varepsilon_3 \ln \text{financing}_{it} + \epsilon_{it} \quad (2)$$

Table 1: Sharia Bank Input-Output Indicator

Variabel	Proxy	Indicator (how to measure)
Ln receipt	Total income	(operating income + other income) / total assets
Ln personalia	Labor cost	Personnel expenses / total assets
Ln be blain	Physical capital cost	(other operating expenses – personnel expenses) / total assets
Ln PFA	Price of Funds	Deposits + Placements with BI + Placements with other banks / total assets
Ln equity	Difference in capital structure	Equity / total assets
Ln NPL	Specific banking risk	NPL / total assets
Ln financing	Intermediary level	Lending / total assets

#### b. Diversification of Bank Revenues

To measure the level of diversification of bank income, this study uses a conventional measure in the form of a Focus Index which is a Herfindahl – Hirschman Index (HHI). There are two diversifications that are measured, namely diversification of interest income, whether the focus is on one type of credit only from the four types, namely investment loans, working capital loans, consumption loans, and mortgage loans. To measure the Focus Index from the point of view of this type of credit, the measurement used is as used by ACHARYA, HASAN & SAUNDERS (2006):

$$\text{Loan Focus Indeks} = \sum_{i=1}^4 \left( \frac{\text{loan}_i}{\text{Total Loan}} \right)^2 \quad (3)$$

The Loan Focus Index is the sum of the squares of the percentage of the loan portfolio of all types of loans channeled by banks. The value of this Focus Index is between ¼ and 1. The greater the Loan Focus Index, the more focused the bank will give credit to only one type of credit, which means the lower the level of bank credit diversification.

The second measure of bank diversification of income is the Focus Index from a broader angle, namely the type of interest income and various other non-interest incomes. As used by STIROH & RUMBLE (2006), this Focus Index measures how focused and specialized banks are in their income-generating activities. This second Focus Index is calculated as follows:

$$\text{Income Fokus Indeks}_{i,t} = \sum_{j=1}^n RE_{i,t}^j. \quad (4)$$

The higher the Income Focus Index shows the more focused the bank is on a bank activity only; meaning that bank diversification is low.

### c. Bank Stability

This study uses bank risk indicators as a proxy for bank stability, namely the Z-index as a proxy for overall bank risk. Z-index is a proxy of the probability of bank failure by combining measures of bank profitability, leverage, and the volatility of the bank's profitability into a measure of bank stability. The Z index is calculated following an equation, as used also by FERNANDEZ ET AL. (2016) and BERGER ET AL. (2008). The higher the value of Z Index reflects the higher bank stability.

$$Z_{ROA} = \frac{\left(ROA + \frac{Eq}{TA}\right)}{SD_{ROA}} \quad (5)$$

Z: Index Z which describes the ROA of a bank's stability

ROA: Return on Bank Assets during the period of observation that illustrates the company's ability to generate profits

Eq: Average Equity / total bank capital during the observation period

TA: Average total bank assets during the observation period

SD: Volatility ROA calculated by ROA uses the standard deviation of the ROA of each bank in the observation period.

#### 4. RESULTS AND DISCUSSION

##### 4.1. Competition Analysis

To analyze the competitiveness of Islamic Commercial Banks, the Panzar-Rosse method with H-Stat will be used. The results of the Chow Test, HausmanTest and Breusch Chart Test series are conducted, concluded that the best data panel model is the Random Effect model. The results of random effect testing can be seen in Table 2 below:

Tabel 2: H-Stat Value of Islamic Commercial Banks

LnTINC	Coef.	Std. Error	T	Prob
LnPersonnel	0,022	0,021	1,07	0,285
LnBeblain	-0,453	0,284	-1,59	0,111
LnPFA	0,571	0,076	7,52	0,000
LnEquity	0,584	0,284	2,06	0,040
LnNPL	0,119	0,039	3,05	0,002

LnFinancing	0,115	0,056	2,06	0,039
Constanta	-1,428	0,298	-4,78	0,000
<b>H-Stat</b>	0,57			
R <sup>2</sup>	0,891			
Prob (Wald Chi2)	0,000			

Based on the estimated empirical model, the conditions of the market competition can be seen from the H-stat value, explained by an analysis of factors that affect the performance of a bank. With the methodology described previously, the H-Stat value is obtained by the sum of the coefficients (elasticity) of the cost variables, namely Ln personnel, Ln other, and Ln PFA which are statistically significant; the H-stat value is 0.57. The main contributor of H-Stat is the cost of funds (PFA) which is proxied by the third-party profit-sharing coefficient for Islamic banking. Other important contributors are factors that are owned by banks specifically, namely their own capital, NPL and financing while personnel expenses and other expenses do not significantly affect the ability to compete with Islamic banks. Based on these results, then  $0 < \text{H-stat} < 1$ , it can be concluded that Islamic commercial banks in Indonesia are in monopolistic market competition.

#### *4.2. Diversification of Bank Revenues*

To measure the level of diversification of bank income, this study uses a conventional measure in the form of a Focus Index which is a Herfindahl – Hirschman Index (HHI). There are two diversifications that are measured, namely diversification of interest income, whether the focus is on one type of credit only from the four types, namely investment loans, working capital loans, consumption loans, and mortgage loans. The second measure of bank diversification of income is the Focus Index from a broader angle, namely the type of interest income and various other non-interest income. The results of the calculation of income diversification can be seen in Table 3.

Table 3: Diversification of Bank Revenues

Year	LFI	AVERAGE	
		IFI	ZROA
2011	0.550	0.805	43.699
2012	0.528	0.822	19.578
2013	0.556	0.830	20.977
2014	0.484	0.857	21.732
2015	0.492	0.835	22.825
2016	0.530	0.815	21.158
2017	0.446	0.812	23.823
Average			
Total	0.512	0.825	24.827

Based on the results of the seven-year Loan Focus Index calculation, the average value is 0.512. This indicates that Islamic

commercial banks diversify from a credit side is quite high; banks do not only focus on a single source of credit income. For diversification from the income side, the average Income Focus Index value is 0.825, indicating that Islamic banks are still focused on the main source of income of the bank, meaning that in terms of diversification income is still low.

#### *4.3. Bank Stability*

The results of the calculation of the Z index of Islamic banks in Indonesia can be seen in Table 3. Islamic Commercial Banks have an average Z index of 24,827, which indicates that the stability level of Islamic banks is getting better since 2012 and experiencing a trend of up to the year 2017, though it had experienced a decline in 2011 to 2012. This increase was due to an increase in ROA of sharia commercial banks that had increased.

#### *4.4. Discussion*

The instability of the banking sector can be transmitted to other sectors through various forms, namely the disruption of the payment system, the decline in the number of loans, and the freezing of bank customers' deposits. Because of its serious and

widespread impact on the economy as a whole, regulators have generally focused attention and issued regulations aimed at maintaining the stability of the banking sector. Confidence in the effects of competition which can increase the fragility of the financial system (competition-fragility) possessed by most banking authorities has led to the emergence of many banking regulations which have resulted in low competition among banks.

The results of the analysis of competition with H-stat in Islamic banking in Indonesia obtained a H-stat value of 0.57, which indicates that competition in Islamic banking in Indonesia is in a monopolistic market, namely companies face competition in the industry. However, since each company has its own market segment, each can behave like a monopoly on the market segment it serves. The results of this study are consistent with the findings of research conducted BY KASRI & IMAN (2010) & CUPIAN (2017).

## **5. CONCLUSION**

The results of calculating the diversification of bank income sources indicate that Islamic banks in lending have been well diversified, not only focusing on one credit source whereas in the source of income, Islamic banks still focus on certain sources of

income, not yet well diversified. On the side of banking stability, Islamic commercial banks in Indonesia have very good stability and tend to increase, due to the better ROA held by Islamic commercial banks. Based on the analysis results and discussion above, it can be concluded that competition in Islamic banking in Indonesia is monopolistic, diversification of lending in Islamic Commercial Banks is well diversified, but from sources of income, Islamic banks are still not well diversified. The stability condition of Islamic banking in Indonesia, especially Islamic commercial banks is very steady and tends to increase the level of stability.

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