Comparison of Sharia and Conventional Banking Bankruptcy Rates in Indonesia

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Abstract. *The purpose of this study is to determine the position of financial performance, the position of bankruptcy rates of Islamic banks, as well as compare it with conventional banks. This study also compares the accuracy of the bankruptcy predictions of the Islamic banks versus conventional banks using the Altman Z-Score method with the calculation of the financial services authority (OJK). This research compares two methods. First, the Financial Services Authority Regulation Approach (OJK Regulation No. 8/POJK.03/2014 which refers to Bank Indonesia Regulation No. 9/1/PBI/2007) aims to determine the position of financial performance. Second, the Altman Z-Score model which aims to find out the position of bankruptcy in Islamic and conventional banks. This study provides the finding of the position of the financial performance level and bankruptcy level of sharia and conventional banks. Based on the Financial Services Authority Regulation Approach, the position of Islamic banks performance level is ranked 3, and the position of conventional banks is ranked 1. While based on Altman Z-Score method, the risk of bankruptcy of sharia banks CBGB 2 is in the position of the gray zone, and conventional banks CBGB 2 is in the safe zone. These results prove that both Altman Z-Score method and the Financial Services Authority Regulation Approach can provide the same prediction result.*

Keywords: *Islamic Banking, Conventional Banking, CBGB (Commercial Bank – Group of Business), financial performance, Altman Z-Score.*

Abstrak. *Tujuan dari penelitian ini adalah untuk mengetahui posisi kinerja keuangan, posisi tingkat kebangkrutan bank syariah, serta membandingkannya dengan bank konvensional. Penelitian ini juga membandingkan keakuratan prediksi kebangkrutan bank syariah dibandingkan bank konvensional menggunakan metode Altman Z-Score dengan perhitungan otoritas jasa keuangan (OJK). Penelitian ini membandingkan dua metode. Pertama, Pendekatan Peraturan Otoritas Jasa Keuangan (Peraturan OJK No. 8/POJK.03/2014 yang mengacu pada Peraturan Bank Indonesia No. 9/1/PBI/2007) bertujuan untuk menentukan posisi kinerja keuangan. Kedua, model Altman Z-Score yang bertujuan untuk mengetahui posisi kebangkrutan di bank syariah dan konvensional. Penelitian ini memberikan temuan posisi tingkat kinerja keuangan dan tingkat kebangkrutan bank syariah dan konvensional. Berdasarkan Pendekatan Peraturan Otoritas Jasa Keuangan, posisi tingkat kinerja bank syariah berada di peringkat 3, dan posisi bank konvensional berada di peringkat 1. Sementara berdasarkan metode Altman Z-Score, risiko kebangkrutan bank syariah CBGB 2 berada di posisi zona abu-abu, dan bank konvensional CBGB 2 berada di zona aman. Hasil ini membuktikan bahwa baik metode Altman Z-Score dan Pendekatan Peraturan Otoritas Jasa Keuangan dapat memberikan hasil prediksi yang sama.*

Kata kunci: *Perbankan Syariah, Perbankan Konvensional, CBGB (Bank Umum - Kelompok Bisnis), kinerja keuangan, Altman Z-Score.*

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Introduction

The growth of Islamic finance in the world is very interesting for researchers, because these growths have a significant impact on the world economy. The IFSB Financial Stability Report put forward data in 2016, the assets of the Islamic finance industry rose from around USD 150 billion in the 1990s to around USD 2 trillion at the end of 2015 and predicted to continue to increase to USD 6.5 Trillion by 2020. This growth is driven by the presence of Islamic banks in both Muslim-majority countries such as Turkey and non-Muslim majority such as the United Kingdom (OJK Roadmap, 2019).
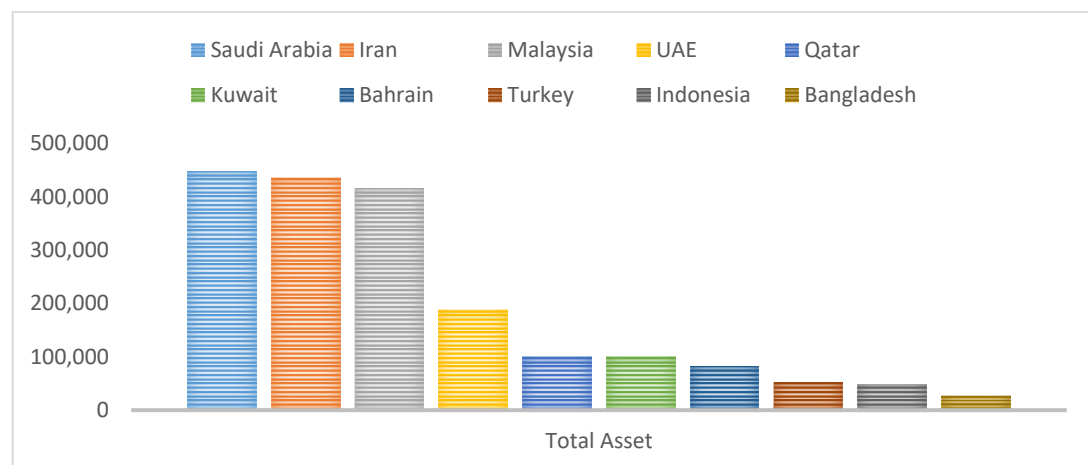

Figure 1. Countries with the World's Largest Islamic Financial Assets
Source: *Thomson Reuters Islamic Finance Development Report*, 2016

From the graph above it is known that the country with the largest Islamic financial assets is Saudi Arabia with total assets of 446 trillion Rupiah, and our neighboring country, Malaysia is ranked third with total assets of 414 trillion Rupiah. While Indonesia is ranked 9th with total assets of 47 trillion Rupiah. Even though, Indonesia has the largest number of Muslims but cannot yet become the largest financial institution in the world.

Indonesian sharia banking was beginning operations in 1991, with Muamalat Indonesia Bank as the leader of sharia commercial banks in Indonesia. The existence of Muamalat Indonesia Bank became an inspiration in

the formation of new Islamic banks in Indonesia, because Muamalat Indonesia Bank was able to withstand the critical global financial conditions in 1998. With the emergence of 13 new Islamic banking became a driver of the progress of Islamic economics in Indonesia. The peak development of Islamic banking was seen in 2011 with an increase in assets of 49% compared to 2010 (source: OJK SPS, 2011).

The very rapid growth of Islamic banking did not last long, after 2011 Islamic banking was running in place. From the Financial Services Authority data in the Islamic banking snapshot, the market share of Islamic banking cannot exceed the figure of more than 6%. This situation shows that Islamic banking has not provided good competition in the field of national financial institutions. The market share of Islamic Banking to General Banking is shown in the Table 1 below.

Table 1. Total Indonesian Banking Assets

Total Assets (in Trillion Rupiah)		*Market Share*
Islamic Bank (BUS, UUS, BPRS)	444.43	5.7%
General Bank (BUK, BUS, BPR/S)	7,791.32	

(Source: OJK Snapshot, 2018)

Note:

BUS: Bank Umum Syariah (Commercial Sharia Bank); UUS: Unit Usaha Syariah (Sharia Business Unit); BPRS: Bank Bank Pembiayaan Rakyat Syariah (Rural Sharia Bank); BUK: Bank Umum Konvensional (Commercial Bank)

The above conditions are necessary to detect the development of Islamic banking in the future. Therefore, this study aims to determine the position of financial performance in Islamic banking and conventional banking using the Altman Z-Score method and then compare it with the method of calculation of banking health levels in the financial services authority.

This research is very useful to find out the financial performance of Islamic banking towards conventional banking, and as an early warning system for Islamic banking in order to be more innovative in developing the Islamic finance business. In addition, this study also wants to prove the extent to which the accuracy of the Altman Z-Score model in predicting bankruptcy

by comparing the results of calculations of the Indonesian banking health analysis model used by financial service authorities.

In the previous studies (Endri, 2009 and Jan & Marimuthu, 2015) stated that the prediction results from the Altman Z-Score method were in accordance with the actual conditions of the studied companies which means that the results were very satisfying. This study compares between Islamic banks and other Islamic banks. In addition, based on the Kusumo research in 2008 and Prastika in 2010 using the BI regulatory approach No. 9/1/PBI/2007, the rank of financial performance in Islamic banking can be determined. This study aims to compare the Altman Z-Score method and the Financial Services Authority Regulation Approach (OJK Regulation No. 8/POJK.03/2014 which refers to Bank Indonesia Regulation No. 9/1/PBI/2007) to see the similarities or differences of the study result. This study also comparing between Islamic banking and conventional banking with the similarity of core capital, which is between 1 trillion to 5 trillion rupiah which is classified in the CBGB (Commercial Bank – Group of Business) 2 or in Indonesia is "*BUKU 2*".

The results of this study prove that the Altman Z-Score method is still relevant to be used in predicting financial performance in Islamic banking because it has the same results as the results of calculations using the regulatory approach No. 9/1/PBI/2007. The prediction results from the Altman Z-Score method explain that the BUKU 2 Islamic banking is in the gray zone, and the BUKU 2 conventional banking is in the safe zone. Similar results were also produced in the calculation method with the regulatory approach No. 9/1/PBI/2007 where Islamic banking BUKU 2 was rated 3, and conventional banking BUKU 2 was rated 1, this result could be interpreted that Islamic banks BUKU 2 were in a quite safe zone while conventional BOOK 2 is in the safe zone.

In future studies, it is recommended to also compare the prediction methods using other methods, such as the Artificial Neural Network method (Anwar and Hasan's research in 2016), or other latest prediction methods.

Using many methods can help in determining the direction of the Islamic financial business in the future.

Literature Review

Jan and Marimuthu (2015) in their research states that based on performance indicators such as liquidity, profitability, insolvency relations of five Islamic banks for bankruptcy are found to be significant. However, based on performance indicators, five major Islamic banking countries do not have a significant correlation. Therefore, it is proven that bankruptcy caused in various Islamic countries is due to different performance indicators except productivity.

This study aims to prove the similarity of the results of calculations using the Alt-Z-Score method with the method of calculating financial service authorities in determining the position level of Islamic banking financial performance compared to conventional banking. In accordance with the regulations of the financial services authority no. 8/POJK.03/2014 which refers to Bank Indonesia regulation no. 9/1/PBI/2007 concerning the assessment of the soundness of Sharia Commercial Banks and Sharia Business Units in chapter 3 of article 6 states that Sharia Commercial Banks are required to conduct an assessment of Bank Soundness individually with the scope of assessment of the following factors: 1. Risk profile; 2. Good Corporate Governance (GCG); 3. Profitability; 4. Capital.

Kusumo (2008) in his research analyzed the financial performance of Islamic Banks using the following ratios: 1. Capital ratio; 2. Earning Asset Quality Ratio; 3. Profitability ratio; 4. Liquidity ratio. His research is in accordance with the Circular of the Financial Services Authority (SEOJK) which regulates the health level of Islamic banking (SEOJK No. 10/SEOJK.03/2014 concerning Soundness Rating of Sharia Commercial Banks and Sharia Business Units). Whereas for conventional banks the assessment of the level of health is mentioned in SEOJK No. 14/SEOJK.03/2017 by referring to Bank Indonesia regulation no. 9/1/PBI/2007.

Altman Z-Score model

Altman (1977) in his research divides the calculation of corporate bankruptcy in 3 focus equations (models), namely:

1. If the company go public use the following equation:

   $Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + .999X_5$

2. If the company is a private firm, the following equation is used:

   $Z = 0.717 X_1 + 0.847 X_2 + 3.107 X_3 + 0.420 X_4 + 0.998 X_5$

3. Meanwhile, if the company is in the service sector, the following equation is used:

   $Z = 6.56 X_1 + 3.26 X_2 + 6.72 X_3 + 1.05 X_4$

This study uses the third Almant Z-Score model, which is a model with a company model in the service sector. The model used by several researchers namely Jan and Marimuthu (2015) were used to examine Islamic banking, Kyriazopoulos et al., (2014) using research on Greek banking to find accurate models of bankruptcy prediction, Chieng (2013) applying the Altman model to banking Europa zone and report models 100 percent accurate in finding financial distress, and Mamo (2010) was used Altman models in the Kenyan banking industry and reports overall models of 90 percent overall.

Calculation of Banking Health based on SEOJK No. 10/SEOJK.03/2014

Health calculation of Indonesian banks uses five indicators that have been regulated by the financial services infrastructure. This calculation has been used by Kusumo (2008) in finding the position of sharia banking health in Indonesia. The five indicators are:

The capital ratio has a function to determine the ability of banks to absorb losses that cannot be avoided, and can find out how much the bank's wealth. To calculate the usable capital ratio Minimum Capital Provision Obligation.

This ratio is used to determine the quality of productive assets. These results can see how to maximize earning assets in earning profits. Below is a calculation of the quality ratio of productive assets.

Profitability ratio is a tool to analyze or measure the level of business efficiency and the ability of banks to generate profits. The profitability ratio used in this study is Net Operational Margin (NOM).

Liquidity ratio is used to analyze the ability of banks to fulfill their obligations. A bank is declared liquid if the bank is able to fulfill its debt obligations, can repay all customer deposits, and be able to fulfill credit requests submitted without delay. In this study, the liquidity ratio used is Short Term Mismatch (STM).

Sensitive ratio of market ratios is used to determine the ability of banks to anticipate changes in market risk caused by exchange rate movements. This risk assessment is used to assess how much excess capital to cover a bank's risk compared to the amount of risk arising from the effect of exchange rate movements. The equation of the sensitivity ratio to market risk is:

Method

This research data uses Indonesian banking financial data which is focused on *Commercial Bank – Group of Business* (CBGB) 2 with a period of December 2014-2017. Based on financial services authority regulation No. 6/POJK.03/2016 concerning business activities and office network Based on the bank's core capital, banks are grouped into 4 *CBGB (Commercial Bank – Group of Business)*, namely: 1. *CBGB* 1 is a Bank with a Core Capital of less than Rp1,000,000,000,000.00 (one trillion rupiah); 2. *CBGB* 2 is a Bank with Core Capital of no less than Rp1,000,000,000.00 (one trillion rupiah) up to less than Rp5,000,000,000,000.00 (five trillion rupiah); 3. *CBGB* 3 is a Bank with Core Capital of no less than IDR 5,000,000,000,000 (five trillion rupiahs) to less than IDR 30,000,000,000,000.00 (thirty trillion rupiah); and 4. *CBGB* 4 is a Bank with Core Capital of at least IDR 30,000,000,000,000.00 (thirty trillion rupiah).

The focus of this study uses data in the CBGB 2 group with core capital of 1 trillion rupiah to less than 5 trillion rupiah so that between Islamic banks and conventional banks becomes apples to apples, and not classified as a new banks operated. This financial data is obtained from the website www.ojk.go.id with the following conditions: a. Capital Ratio; b. Earning Asset Quality Ratio; c. Profitability Ratio; d. Liquidity ratio.

Research on the early warning system (EWS) to predict banking bankruptcy has been highly developed. Among the prediction methods that developed were MDA (Multiple Discrimination Analysis), Zmijewski (X-Score) method, and Altman Z-Score. According to Al Zaabi's research in 2011, Kabir, Worthington and Gupta in 2015, Jan, A., & Marimuthu, M. 2015, and Halteh, Kumar, and Gepp, in 2018 explained research to test better financial performance for Islamic banking using the Altman Z-Score method because it is very relevant to the financial requirements in the bank. The weakness of the Altman Z-score method will be difficult to use altman calculations if the company is classified as not yet go public.

According to Altman (1994) dividing the bankruptcy prediction results with 3 levels/zones. Where if more than 2.9 companies are said to be safe from bankruptcy. If the score is $1.21 < Z < 2.9$ then it is included in the gray zone where Altman is included in the safe zone of bankruptcy. Where, if the score is less than 1.21 then the company is in the bankruptcy zone.

The variables needed to predict bankruptcy according to Islamic banking (Jan, A., and Marimuthu, M., (2015), Altman (1994)) are:

Z = Z-Score is the dependent variable used to indicate bankruptcy ratings.

$X1 = \frac{Working\ Capital}{Total\ Asset}$, show company liquidity. Where liquidity is the most important thing in determining bankruptcy.

$X2 = \frac{Retained\ Earning}{Total\ Asset}$, decisive advantage on the company distributed to shareholders.

$X3 = \frac{Earning\ before\ Interest\ and\ tax}{Total\ Asset}$, show the company's productivity in managing assets.

$X4 = \frac{book\ value\ of\ equity}{Book\ value\ of\ total\ liabilities}$, this ratio shows the company's resilience in facing the financial crisis (bankruptcy). If the ratio is large, the company is classified as safe from bankruptcy.

There is a rating category to control the business activities and financial health of Indonesian banks. Based on Circular Letter of OJK No. 10/SEOJK.03/2014 the rank to assess banking health is divided to 5 categories as follows:

Rank 1, reflecting that the financial condition of the Bank or UUS is very good in supporting business development and anticipating changes in economic conditions and the financial industry. The bank has strong financial capacity to support business development plans and risk control if there are significant changes in the banking industry.

Rank 2, reflecting that the financial condition of the Bank or UUS is classified as good in supporting business development and anticipating changes in economic conditions and the financial industry. Banks or UUS have adequate financial capacity to support business development plans and risk control if there are significant changes in the banking industry.

Rank 3, reflecting that the financial condition of the Bank or UUS is quite good in supporting business development but is still vulnerable/weak in anticipating risks due to changes in economic conditions and the financial industry. Banks have the financial capacity to support business development plans but are considered inadequate for risk control if there are errors in policy and significant changes in the banking industry.

Rank 4, reflecting that the financial condition of the Bank or UUS is classified as poor and sensitive to changes in economic conditions and the financial industry. Banks experience financial difficulties that have the potential to endanger business continuity.

Rank 5, reflects that the financial condition of the Bank or UUS is bad and is very sensitive to the negative effects of economic conditions, as well as the financial industry. The bank experiences financial difficulties that endanger the continuity of the business and cannot be saved.

In this section the results and analysis will be explained into 3 parts. First, explain the results and analysis of Islamic banking BUKU 2 using the Altman Z-Score method and the OJK regulatory approach method. Second, explain the results and analysis of conventional banking using the Altman Z-Score and OJK approach method. Third, compare the results of the two banks by providing conclusions.

Calculations using the Altman Z-Score method in Islamic banks CBGB 2 can be seen in the table below:

Table 2. Result of Z-Score to Sharia Bank

Variables	Explanation	(CBGB) 2 Sharia Bank Des 2014-May 2017
X1	Net Working Capital	4,268,774.298
		3,364,367.614
	Asset Total	4,464,655.427
	Result	0.203
X2	Retained Earning	42,413.953
	Asset Total	4,464,655.427
	Result	0.009
X3	Earning Before Tax	16,778.023
	Asset Total	4,464,655.427
	Result	0.004
X4	Paid-up capital	243,886.017
	Additional Capital	52,488.826
	Term Obligations	301,919.175
	Result	0.982
Z-Score Result		**2.416**

The result of the above calculation shows that Z-Score calculation of CBGB 2 Islamic Banking is 2,416. This score is in between the score of 1.21 <Z

<2.9, which categorized as gray zone or in other words can be interpreted as relatively safe from bankruptcy because it is closer to score 2.9.

The table above shows that the biggest variable the result is X4. Where this ratio shows the company's resilience in facing the financial crisis (bankruptcy). If the ratio is large, the company is classified as safe from bankruptcy. Thus, CBGB 2 Islamic banking is still relatively safe, because it has sufficient capital to mitigate the risk of bankruptcy.

Calculation using the Financial Services Authority (OJK) calculation method shows the same results. The following are the results of calculations using the Financial Services Authority (OJK) method.

Table 3. Calculation results based on OJK CBGB 2 Sharia

Ratio	Quality	Ranking in Numbers	Result
Capital Rating	25%	72	18
Earning Assets Quality Rating	50%	58	29
Rentability Rating	10%	27	2.7
Liquidity Rating	10%	100	10
Rating Sensitivity to Market Risk	5%	100	5
		Ranking 3	64.7

The results of the calculation above show that the ranking of CBGB 2 Islamic banking is ranked 3. This condition clearly illustrates that CBGB 2 Islamic banking is at the medium level. At the medium level it reflects that the financial condition of the Bank or UUS is quite good in supporting business development but is still vulnerable/weak in anticipating risks due to changes in economic conditions and the financial industry. Banks have the financial capacity to support business development plans but are considered inadequate for risk control if there are errors in policy and significant changes in the banking industry.

From the results of the two models (Altman Z-Score and Calculation based on OJK), it can be seen that the two models give the same results. Altman Z-Score shows safe results even in the gray zone. Meanwhile, based on the calculation of the method of the Financial Services Authority (OJK), it ranked 3rd, namely the Bank was still in a safe condition.

Calculations using the Altman Z-Score method in conventional banking CBGB 2 can be seen in the table below:

Table 4. Z-Score Result

Variables	Explanation	(CBGB) 2 Conventional Bank Des 2014-May 2017
X1	Net Working Capital	159,902.811
	Asset Total	846,491.578
	Result	0.189
X2	Retained Earning	15,749.098
	Asset Total	846,491.578
	Result	0.019
X3	Earning Before Tax	8,748.200
	Asset Total	887,227.424
	Result	0.010
X4	Paid-up capital	62,496.305
	Additional Capital	9,329.027
	Term Obligations	44,133.002
	Result	1.627
Z-Score Result		**3.075**

From the results above it can be seen that conventional banking BOOK 2 has a Z-Score score of 3.075 which means Z> 2.9. This score shows the position of conventional banking BOOK 2 is in a safe position. Where the existence of conventional banking is classified as a high level of stability. The results above also show that the X4 variable is the highest, the score is 1.627. This score indicates that the capital entered by conventional banking CBGB 2 is very high, and conclusions can be drawn from conventional banking BOOK 2 is very safe from bankruptcy because the capital can be sufficient if there is a failure in the financial services business. While the results of the calculations based on the Circular of the Financial Services Authority can be seen in the table below.

Table 5. Calculation results based on OJK CBGB 2 KONVEN

Ratio	Quality	Ranking in Numbers	Result
Capital Rating	25%	100	25
Earning Assets Quality Rating	50%	78	39
Rentability Rating	10%	100	10
Liquidity Rating	10%	100	10
Rating Sensitivity to Market Risk	5%	100	5
		Ranking 1	89

The table above proves that CBGB 2 Islamic banking is still strong in the first rank. According to the OJK Circular Letter, the first rating reflects that the financial condition of the Bank or UUS is very good in supporting business development and anticipating changes in economic conditions and the financial industry. The bank has strong financial capacity to support business development plans and risk control if there are significant changes in the banking industry.

This result also shows that the calculation using Altman Z-Score has the same results as the calculation of the health level based on Circular from the Financial Services Authority. Where in the calculation of the Z-Score method, the results obtained are relatively very safe, as well as the calculation method based on the OJK circular letter which gets the first rank.

The table below shows the difference between CBGB 2 sharia banking and conventional book banking 2. This comparison uses two approaches, namely using the Altman Z-Score model to determine the position of bankruptcy prediction of banks with Model Approach based on the calculation of the Financial Services Authority to determine the level of banking health. The following is a table comparing the two approaches.

Table 6. Comparison of Islamic and Conventional Banking

Model	Sharia Bank CBGB 2	Conventional Bank CBGB 2
	December 2014-2017	December 2014-2017
Approach to Financial Services Authority Regulation No. 8/POJK.03/2014	Rank 3	Rank 1
Almant Z-Score	Gray Zone	Safe Zone

The table above shows that there are similarities in the results of the two methods. The Altman Z-Score method and the calculation approach based on the CBGB 2 Islamic banking financial services authority are both in the middle (mid) zone. Likewise, in conventional banking the two models show that they are in the same safe zone. Thus, the Altman Z-Score model can be used and is suitable for predicting bankruptcy in banking companies.

In addition, from the comparison it was concluded that conventional banking CBGB 2 was still above that of CBGB 2 sharia banking. This shows that Islamic banking is still inadequate and still far from overcoming the superiority of conventional banking. Compared with the current situation, Islamic banking has not been able to get out of 6% in the market share of Indonesian banks. In other words, if Islamic banking does not optimize the concept of a sharia (Kaffah), then Islamic banking will never become the largest Islamic bank in Indonesia (mukhlisin, 2017).

Conclusion

From the discussion above, it can be concluded that: CBGB 2 Sharia Banking is in the middle (middle), namely in the gray zone and ranked 3. This is in accordance with the results of calculations based on the Financial Services Authority and the Z-Score Model. Based on these results it can be said that the financial condition of the Bank or UUS is quite good in supporting business development but is still vulnerable/weak in anticipating risks due to changes in economic conditions and the financial industry. Banks have the financial capacity to support business development plans but are considered inadequate for risk control if there are errors in policy and significant changes in the banking industry (SEOJK, 2014).

Conventional Banking CBGB 2 is in the safe zone and ranks 1. This result is in accordance with the calculations based on the Financial Services Authority and the Z-Score Model. In other words, this position can reflect that the financial condition of the Bank or UUS is very good in supporting business development and anticipating changes in economic conditions and the

financial industry. The Bank has strong financial capacity to support business development plans and risk control if there are significant changes in the banking industry (SEOJK, 2014).

The result equation between the Altman Z-Score method based on the OJK calculation shows that the Altman Z-Score method is right for predicting in services such as banking. Altman Z-Score method makes it easy to see the position of banking financial performance, and can make it easier to make decisions to invest in financial services companies.

Comparison between Islamic and conventional banking can be concluded that conventional banking CBGB 2 is still above the CBGB 2 sharia banking. This shows that Islamic banking is still inadequate and still far from overcoming the superiority of conventional banking. Compared with the current situation, Islamic banking has not been able to get out of 6% in the market share of Indonesian banks. In other words, if Islamic banking does not optimize the concept of a sharia (Kaffah), it will never be possible for Islamic banking in Indonesia to become the largest Islamic Bank in Indonesia (Mukhlisin, 2017).

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