

Bankruptcy And Its Effect On Corporate Hedging

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ABSTRACT

Corporate hedging is basically an effort of the companies to protect their values which has an impact on the shareholders' welfare. This study aims at examining and analyzing the variable bankruptcy of the companies and their effects on Islamic corporate hedging conducted by Islamic commercial banks in Indonesia. The bankruptcy variable in this study uses the Grover G Score model represented by the variable ratio: (1) net working capital to total assets, (2) earnings before interest and tax to total assets and (3) return on assets (ROA), while the corporate hedging is measured by utilizing dummy variables. The finding of logistical regression analysis reveals that all variables used in bankruptcy assessment had a significant influence on corporate hedging decisions.

Keywords: corporate hedging, bankruptcy, the Grover G Score model, net working capital to total asset ratio, earning before interest and tax to total asset ratio, return on asset ratio

1. Introduction

Corporate hedging is a protection mechanism used by companies to increase the value of the company which as influence the welfare of the company's shareholders. The concept of corporate hedging actually appeared at the time of the emergence of classical financial theory which was advanced by Modigliani and Miller (1958) although the existence of corporate hedging was not yet considered a strategy to increase the value of the company.

In the next development, corporate hedging can be used as a tool that can be used to carry out risk management for companies. The corporate hedging is leading to the stability of profits, value and liquidity of the company. The advantage of using corporate hedging is that this activity will reduce the cost variability of financial distress, agency cost and tax liability. Corporate hedging activities will maximize the value of the company by using the cost and profit base of this corporate hedging activity (Jin and Jorion, 2006; Campello et al, 2011; Allayannis et al, 2012).

In the existing financial literature, one of the efforts to do hedging is to use derivative products that can be used as a tool to protect companies from risk (Nguyen and Faff, 2010). With the innovations of derivative products, the existence of corporate hedging which, according to Modigliani and Miller is irrelevant becomes very important for managers in making financial decisions of their companies. In the financial literature, there is much debate about corporate hedging between theory and reality in the field. This difference raises the curiosity of researchers to see exactly what is the main motivation of a manager to do hedging activities.

This study was conducted to determine what factors are the reasons for a manager or company management to conduct hedging activities. One factor that motivates a manager to hedge is financial distress and bankruptcy. There is a negative relationship between the possibility of bankruptcy with the decision to do hedging by the company. This happens because companies with high bankruptcy potential will increase managers to take more speculative actions to protect and increase company stability (Stulz, 1996). On the other hand Adam research et al (2015) found a positive relationship between financial distress that caused bankruptcy and hedging activities.

Several studies related to hedging have been carried out by researchers who have found determinant factors that influence the emergence of hedging. In his meta-analysis study Aretz

and Bartram (2010) said that there were 54 different variations used by researchers related to hedging in the existing financial literature using 175 research samples about hedging. There are several factors that affect corporate hedging, namely capex, dividend yield, debt ratio, foreign sales, firm size, geographical diversification, interest coverage ratio, liquidity, market to book ratio, option ownership, profitability, research and development, share ownership, tax-loss carry forwards (Klingeberg, et al, 2019).

Besides that it was also found that the ownership structure has a positive influence on the use of derivatives as hedging activities which will impact on increasing the value of the company (Limpaphayom, P. et al, 2019). On the other hand Fauver and Naranjo (2010) stated that the use of derivatives had no impact on increasing the value of the company. In companies that have high levels of leverage, the use of hedging is used as an effort to increase leverage and profit from taxes, as well as companies that have a high probability of bankruptcy using hedging will also increase (Ammon, R., 2015).

In relation to corporate leverage, the use of hedging activities has a significant impact on the level of corporate leverage (Haushalter, 2000) which is in accordance with the theory that hedging can reduce the potential for financial distress and bankruptcy. Besides that, the use of hedging activities also has an impact on increasing company liabilities and increasing debt capacity (Graham and Rogers, 2002).

In this study the focus of discussion on the effect of bankruptcy on corporate hedging activities carried out on Islamic commercial banks in Indonesia with the 2015-2017 research period is in line with the issuance of a fatwa by the Indonesian Ulama Council (MUI) which allows hedging activities to be carried out by sharia-based companies. The main contribution of this research is to expand the literature on hedging where research on hedging so far has only focused on conventional companies while in this study the object of study is sharia-based companies. Besides this research is also intended to examine whether the variables that influence hedging activities in conventional companies also affect hedging activities in sharia-based companies.

This research consists of part 1 introduction, part 2 literature review and hypothesis development, part 3 data and methodology, part 4 Empirical Results and Discussion and part 5 conclusions.

2. Literature Review and Hypothesis Development

In the financial literature it is stated that a manager will try to control the risk of the company with the ultimate goal of maximizing shareholder value. One of the efforts made by managers is to do hedging as a tool to reduce risk that might interfere with company stability. Various reasons that underlie hedging activities by companies including hedging can reduce the risk of financial distress that leads to bankruptcy, can reduce taxes (Smith and Stulz, 1985), can increase leverage (Leland, 1997), can reduce underinvestment (Froot et al, 1993).

One of the things that drives hedging activities in the company's operational activities is related to investment decisions that will involve working capital and all assets owned by the company, hedging actions that are carried out will be able to cause a retention on capital expenditure (Campello et al, 2011).

H1 The ratio of Net Working Capital to total assets has a significant effect on corporate hedging

Related to a company's liquidity, hedging can also be used as a tool to increase company liquidity when viewed from the role of hedging that can maximize company returns (Mello, A., S. and Persons, J.E., 2000). With this goal the goal of maximizing shareholder value which is the main objective will be achieved because on the other hand hedging will also increase cash flow that will impact on increasing investment opportunities and minimize the occurrence of underinvestment that will impact on the value of the company and minimize bankruptcy (Froot et al, 1993).

H2 The EBIT ratio to total assets has a significant effect on corporate hedging

Hedging activities will have an impact on reducing the possibility of bankruptcy and financial distress if tested against the relationship between liquidity and corporate risk management (Jang and Park, 2011).

Hedging has a negative influence on company profitability (Gay, et al, 2011) which is caused when the level of corporate profitability is low, then managers will try to increase hedging activities so that cash flow alliances can increase company profitability (Hsin, et al, 2007). But on the other hand to increase profitability, hedging activities carried out by managers will sometimes have the effect of increasing hedging cost activity. On the other hand hedging can have a positive effect because increasing hedging will cause an increase in company value which is a result of increased profitability (Clark and Mefteh, 2010). Measurement of the level of profitability based on the financial distress cost hypothesis can be proxied using Return on Assets (ROA).

H3 Return on Assets (ROA) has a significant effect on corporate hedging

3. Data and Methodology

The data used in this study are secondary data taken from annual reports published by each company taken from the web of the company used as research samples. For independent variables using indicators used to measure bankruptcy in this study using ratios: (1) net working capital to total assets, (2) earnings before interest and tax to total assets and (3) return on assets (ROA). The dependent variable, namely corporate hedging using dummy variables which, when in the company's financial report mentions the existence of hedging activities that are numbered 1, while if it is not found to be the number 0.

The data used as a sample in this study are Islamic commercial banks with a study period of 2015-2017 using a sampling technique that is saturated samples in which all Islamic commercial banks are used as samples. In this study the samples used were 13 Islamic commercial banks and 1 Islamic commercial bank excluded from the sample because it was established after 2015. The selection of the 2015 research was also caused because hedging could be carried out by Islamic companies including Islamic banks, starting that year after the fatwa was issued by the Ulama Council Indonesia (MUI).

To identify the influence of independent variables consisting of: (1) net working capital to total assets, (2) earnings before interest and tax to total assets and (3) return on assets (ROA) on the dependent variable, corporate hedging, this study using panel data logistic regression. This is done because the measurement of corporate hedging variables uses non-metric categorical variables as done by Marshall, et al (2013); Campello et al. (2011) and Buyukara et al (2018).

Specifications model used in this study to identify the effect of independent variables on the dependent variable, namely:

$$Y_{it} = bx_{it} + \mu_{it}$$

Where: Y_{it} is the dependent variable described with a value of 1 or 0, b is the coefficient of the independent variable and μ_{it} indicates an error term.

4. Empirical Results and Discussion

Based on the results of logistic regression testing conducted to identify the effect of independent variables, namely (1) net working capital to total assets, (2) earnings before interest and tax to total assets and (3) return on assets (ROA) on the dependent variable, corporate hedging can be seen in the table below:

Table 4.1
Logistic regression test results

Dependent Variable: Y
Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)
Date: 08/29/19 Time: 08:52

Sample: 2015 2017

Included observations: 36

Convergence achieved after 6 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	1.637732	1.157249	1.415194	0.1570
X1	-15.32699	9.130447	-1.678668	0.0232
X2	29.50105	25.03917	1.178196	0.0487
X3	-31.63654	18.48026	-1.711910	0.0369
McFadden R-squared	0.175241	Mean dependent var		0.416667
S.D. dependent var	0.500000	S.E. of regression		0.470890
Akaike info criterion	1.342563	Sum squared resid		7.095587
Schwarz criterion	1.518510	Log likelihood		-20.16614
Hannan-Quinn criter.	1.403973	Deviance		40.33227
Restr. Deviance	48.90192	Restr. log likelihood		-24.45096
LR statistic	8.569642	Avg. log likelihood		-0.560170
Prob(LR statistic)	0.035595			
Obs with Dep=0	21	Total obs		36
Obs with Dep=1	15			

Source: Primary data processed, 2019

By looking at the regression results in table 4.1 above as, a whole to test the accuracy of the model obtained the probability value of 0.0035595 which is smaller than the significance level of 5% so it can be concluded that the independent variables included in the research model can be used to identify corporate hedging variables with a confidence level of 95 %.

In partial testing for each independent variable, the probability value can be used where the variable is said to have an effect if the probability value is smaller than the significance value of 5%. Based on the results of logistic regression testing conducted can be seen in table 4.1 above. For the ratio of net working capital to total assets, the probability value of 0.0232 is smaller than the significance level of 5% so that the variable has a significant effect on the corporate hedging variable.

The probability of the EBIT to total assets variable also has a probability of 0.0487 which is smaller than the significance level of 5% so it can also be said that the variable has an influence on corporate hedging. The third variable that is Return on Assets (ROA) has a probability based on the test results of 0.0369 which is smaller than the 5% signification level. This also shows that the ROA variable also has a significant effect on corporate hedging.

In contrast to multiple regression, in logistic regression the coefficient values of each variable cannot be interpreted directly. The coefficient value of each variable must be expended to get the odds ratio, so that the coefficient value can be interpreted. The exponential value of the coefficient of the ratio of net working capital to total assets is 2.20583E-07, the EBIT variable to total assets is 6.49E + 12 and the Return on Assets (ROA) variable is 1.82E-14.

Based on the odds ratio above, for the ratio of net working capital to total assets shows that the smaller the ratio of net working capital to total assets, the value of corporate hedging variables will also be smaller. For EBIT to total asset the odds ratio value is positive, which means the greater the EBIT to total Asset ratio, the greater the corporate hedging variable. For the 3rd variable Return on Assets (ROA) the odds ratio value is negative, meaning that the smaller the value of Return on Assets, the corporate hedging variable will be smaller.

The ratio of net working capital to total assets basically has a domino effect related to the success of the company's operations in generating profits that impact the welfare of shareholders so that basically this ratio is related to company liquidity. If this ratio is high, the company's ability to generate profits. In the financial literature, it has also been mentioned that when the profitability of a company is high, the possibility of hedging activities within the company is also high and applies vice versa.

EBIT to total asset ratio is a ratio that shows the company's ability to generate profits by using assets owned by the company. When this ratio is high, the company's ability to generate profits is also high. In the existing financial literature as already mentioned in the review literature when the EBIT ratio of total assets is high, it can be caused by the high hedging activity undertaken by the company. High hedging activities are carried out as an effort to minimize the occurrence of financial distress or minimize bankruptcy because it will increase the company's ability to generate.

Return on Assets (ROA) is a ratio that shows the efficient use of assets used by companies in generating profits. When the Return on Asset ratio is high, the effectiveness of the use of funds increases and the company profits are also high. With the high profits generated by the company, the company's hedging activities are also high.

5. Conclusion

The results of this study support the proposed hypothesis that the independent variables consisting of (1) net working capital to total assets, (2) earnings before interest and tax to total assets and (3) return on assets (ROA) have a significant effect on the dependent variable is corporate hedging which is measured using a dummy variable.

The results of this study base themselves on the concept of Islamic hedging so as to broaden the literature on the concept of corporate hedging which so far research on this concept has mostly been carried out on conventional companies.

The results of this study also have practical implications where the practice of hedging can already be carried out on sharia-based company after a fatwa was issued by the Indonesian Ulama Council (MUI) about permitting hedging practices by using Islamic principles that aim to hedge and not constitute speculative acts.

REFERENCES

- Adam, T.R. et al. 2015. Why Do Firms Engage in Selective Hedging? Evidence from the Gold Mining Industry. *Journal of Banking and Finance* 77 (2017) 269–282
- Aretz, K., & Bartram, S. M. (2010). Corporate hedging and shareholder value. *The Journal of Financial Research*, 33, 317–371.
- Allayannis, G., et al. 2012. The use of foreign currency derivatives, corporate governance and firm value around the world. *Journal of International Economics*, 87, 65-79. Retrieved from <http://dx.doi.org/10.1016/j.jinteco.2011.12.003>
- Ammon, R. 2015. Why Hedge? A Critical Review of Theory and Empirical Evidence. *Working Paper. ZEW - Zentrum für Europäische Wirtschaftsforschung International Finance and Financial Management*
- Buyyukara, G., et al. 2018. Exchange Rate Risk and Corporate Hedging: Evidence from Turkey, *Emerging Markets Finance and Trade*, DOI: 10.1080/1540496X.2018.1490262
- Campello, M., et al. ., 2011, The real and financial implications of corporate hedging, *The Journal of Finance*, 66, 1615-1647. doi:10.1111/j.1540-6261.2011.01683.x.
- Clark, E., & Mefteh, S. (2010). Foreign Currency Derivatives Use, Firm Value and the Effect of the Exposure Profile: Evidence from France. *International Journal of Business*, 15(2).
- Fauver, L. and Naranjo, A., 2010, Derivative usage and firm value: The influence of agency costs and monitoring problems, *Journal of Corporate Finance*, 16, 719-735.
- Froot, K. et al. 1997. Risk management : Coordinating corporate investment and financing policies, *Journal of Finance* 48, 1629-58
- Gay, G. D., et al. 2011. Corporate Derivatives Use And The Cost Of Equity. *Journal of Banking & Finance*, 35, 1491-1506
- Graham, J and Rogers, D. 2002. Do firms hedge in response to tax incentives? *Journal of Finance* 57, 323-54
- Haushalter, D. 2000. Financing policy, basis risk, and corporate hedging: Evidence from oil and gas producers. *Journal of Finance* 55, 107-52
- Hsin, C. W., et al. 2007. Stock return exposure to exchange rate risk: A perspective from delayed reactions and hedging effects. *Journal of Multi Finance Management*, 17, 384-400.
- Jang, S., and Park, K. 2011. Inter-relationship between firm growth and profitability. *International Journal of Hospitality Management*, 30, 1027- 1035.

- Jin, Y. and Jorion, P., 2006, Firm value and hedging: Evidence from U.S. Oil and gas producers, *The Journal of Finance*, 61, 893-919.
- Klingeberg J.G. et al, 2019. What drives financial hedging? A meta-regression analysis of corporate hedging determinants. *International Review of Financial Analysis* 61 (2019) 203–221
- Leland, H. 1997. Agency cost, risk management, and capital structure. *Journal of Finance* 53 1213-43
- Limpaphayom, P. et al. 2019. Bank equity ownership and corporate hedging: Evidence from Japan. *Journal of Corporate Finance*, <https://doi.org/10.1016/j.jcorpfin.2019.07.001>
- Marshall, A., et al. 2013. The determinants of foreign exchange hedging in alternative investment market firms. *The European Journal of Finance* 19 (2):89–111. doi:10.1080/1351847X.2012.659267.
- Mello, A.,S. dan Persons, J.E., 2000. Hedging and Liquidity. *The Review of Financial Studies Spring 2000 Vol 13 No 1 pp127-153*
- Nguyen, H., Faff, R., 2010. Are firms hedging or speculating? The relationship between financial derivatives and firm risk. *Appl. Financ. Econ.* 20, 827–843.
- Smith, C. and Stulz, R. 1985. The determinans of firms hedging policies. *Journal of Financial and Quantitative Analysis*.20,391- 405
- Stulz, R. M., 1996. Rethinking risk management. *Journal of Applied Corporate Finance* 9, 8-24.