



The Role of Business Risk in the Capital Structure of Islamic Commercial Banks with Company Size as a Moderating Variable

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Abstract: This study aims to analyze the effect of business risk on capital structure with firm size as a moderating variable in Islamic Commercial Banks in Indonesia. Business risk is proxied by Non-Performing Financing (NPF), while capital structure is measured using the Capital Adequacy Ratio (CAR). The research population includes all Islamic Commercial Banks operating in Indonesia during the 2021–2024 period. Using a purposive sampling technique, eight Islamic Commercial Banks were selected as the research sample. Panel data regression analysis (pooled data) was employed as the analytical method using EViews 10 software. The results indicate that business risk, as measured by NPF, has no significant effect on capital structure (CAR). Furthermore, firm size does not moderate the relationship between business risk and capital structure. These findings suggest that the level of problematic financing does not play a decisive role in determining capital structure decisions in Islamic Commercial Banks during the observed period. This study contributes to the existing literature by extending empirical evidence on the direct relationship between business risk and capital structure in Islamic banking, an area that has not been extensively examined in previous studies. Practically, the results are expected to provide insights for bank management and regulators in formulating more effective risk management and capital adequacy policies.

Keywords : Business Risk, Capital Structure, Firm Size, Islamic Commercial Banks, Capital Adequacy Ratio

1. BACKGROUND

Relying on equity to build a company or gain market share can be very challenging for a corporation. Therefore, the use of debt is generally permitted as a tool to help companies win market competition and improve their financial performance. However, when using debt, managers must be able to manage the company's finances properly, as excessive debt is expected not to exceed the company's capital (equity) capacity, as capital expenditures are derived from interest costs charged to creditors. Therefore, organizations must have professional and outstanding management when making financial decisions or capital structure. To increase consumer confidence and maintain the sustainability of Islamic banks, management must pay attention to monitoring criteria for banking health and performance. Therefore, an adequate capital structure is crucial and requires close attention when analyzing financial performance, as it is one indicator of banking health, given that banks depend on public trust in their industrial system.

This research was conducted at Islamic commercial banks, which face significant financial needs for their operations. Without significant financial assistance, they will undoubtedly struggle to grow and thrive, both for business development and other capital needs. Limited capital and financing sources significantly impact the performance of Islamic banks due to increasingly fierce competition in the financial services market. (M. Syafi'i Antonio, 2001) · Because this will impact the banking risk itself and significantly affect the

bank's ability to generate profits, bank financial managers must optimize financing decisions in carrying out their operational activities.

One factor determining capital structure is the level of risk associated with non-performing loans (NPF). There will always be threats to a company's ability to meet its financial obligations. If a company's capital structure is not ideal, it may go bankrupt or fail to achieve its profit targets, both of which impact investment and financing decisions and ultimately reduce the company's value. This means that managers must be careful when deciding on capital structure.

The results of previous studies conducted by (Saputra et al., 2014) and (Khariry & Yusniar, 2016) " This shows that capital structure is partly influenced by business risk, which means that the capital structure will develop in proportion to the company's risk. The results of other studies contradict this. (Nicko & Ardiana, 2014) and (Natalia, 2015) This proves that company risk has no effect on capital structure. The company's financial structure does not seem to have any influence on the level of business risk, according to this.

Several research findings differ regarding the variables influencing capital structure, suggesting that firm size is a contributing factor. A firm's total assets can be used to determine its size. A larger firm will lead to increased use of external financing because investors or creditors will be more interested in investing in the firm. Therefore, a larger firm size sends a more positive signal in attracting investment. A larger firm will make it easier for creditors to allocate payments to it. Consequently, researchers consider firm size as a moderator that will influence how independent and dependent variables relate to each other.

Results of previous research conducted (Nadzirah et al., 2016) and (Putri, nd) Therefore, it is clear that capital structure is positively influenced by firm size. The value of a firm's capital structure can be enhanced because bondholders can access large loans secured by substantial assets. Meanwhile, research by (Joni, 2020) and (Surjadi, n.d.) Based on these findings, capital structure is not affected by company size. This indicates that company size should not be considered when selecting funding sources because it does not guarantee the sustainability and smooth operation of the company. Furthermore, the following table displays typical business risks affecting the capital structure of Islamic commercial banks between 2022 and 2025:

Table 1 Capital Structure Components of Islamic Commercial Banks

Year	NPF	CAR
202 2	2.5 4 %	17.50%
202 3	2.66%	18.76%
202 4	2.82%	19.35%
202 5	2.65%	21.11%

Source: BUS Financial Report

The table above contains information regarding the average dependent and independent variables. Capital structure, represented by the Capital Adequacy Ratio (CAR), increases annually from 2022 to 2025. Furthermore, corporate risk, as measured by the Non-Performing Loan (NPF) Ratio, changes annually. In 2022, the NPF increased, but the CAR did not decrease. This violates the pecking order hypothesis, which states that a company's debt ratio will decrease as risk increases, as the use of long-term debt makes it more difficult for companies to repay their loans.

The challenges faced in this study are the discrepancies in previous research on business risk, as defined by NPF, and firm size, which influence capital structure. Furthermore, the events outlined above make this study significant because they require further analysis of the influence of variables affecting capital structure in Islamic commercial banks for the 2022-2025 period.

The main difference from previous studies lies in the type of assets and the time period used. Furthermore, another key element is the presence of firm size, which is considered a moderating factor influencing capital structure. The purpose of this study is to explore the influence of business risk, defined as Non-Performing Loans (NPF) as an independent variable, and firm size as a moderating variable, on the capital structure of Islamic commercial banks for the period 2022-2025. Therefore, the authors evaluate these factors using panel data regression techniques (pooled data) utilizing eViews 10 software.

2. THEORETICAL STUDY

Capital Structure

A company's capital structure shows the proportion of external investment (debt, common stock, and preferred stock) and internal investment (retained earnings) in relation to the total amount of funding received and used by the business for its operations. (Husnan, 2013)

. The purpose of capital structure is to generate income by combining various funding sources, which form the financial or capital composition of a business. Therefore, a company's value can be increased by using an ideal capital structure or corporate leverage.

Capital Structure Theory

Capital structure theory, which can serve as a foundation for thinking, describes the appropriate capital structure for a business. There are several theories about capital structure, such as the trade-off theory and the pecking order theory. (Anum, 2017)

a. Pecking Order Theory

The pecking order hypothesis suggests that companies prefer to reduce debt rather than increase it in their capital structure and prioritize funding from retained earnings. The pecking order hypothesis argues that companies seek to maximize investor and shareholder wealth. According to the pecking order principle, businesses are better off financing new initiatives using internal cash as much as possible. The pecking order approach suggests that management routinely prioritizes internal funds (retained earnings) over external funds when supporting investments.

b. Trade-off Theory

This theory explains the concept of weighing the benefits of debt against the risks of bankruptcy. *Trade-off theory* explains the ideal financing arrangement. This theory aims to explain that debt is acceptable as long as the benefits outweigh the costs, given that both the benefits and the trade-off result from the use of debt. In short, trade-off theory, driven by capital structure decisions made by companies, demonstrates the relationship between taxes, bankruptcy risk, and debt utilization.

Capital Structure Indicators

Capital adequacy is a major issue in the banking business. " A bank with a strong capital adequacy level is considered healthy. The Capital Adequacy Ratio (CAR) is a ratio that indicates a bank's capital adequacy . " (Muhammad, 2015) This bank's capital adequacy ratio can be measured by: (Istiqamah & Supriyanto, 2017)

Begin by comparing equity with external cash. Capital generated in relation to third-party deposits (savings, time deposits, and checking accounts) forms the basis of the calculation. The capital-to-liability ratio is a measure of the security of public deposits in a bank, from the perspective of safeguarding depositors' interests.

Second , compare the capital held with risky assets. The objectives of setting the CAR at 8% are as follows:

1. “ To maintain public trust in banking.
2. The bank concerned will protect third party funds
3. To fulfill the provisions of BIS (*Bank for International Settlements*) with the following criteria: (Muchdarsyah, 1993)
 - a. 4% core capital, namely *preferred stock, shareholder equity, and free services*, as well as
 - b. 4% of secondary capital consists of *loan loss provisions, hybrid subordinate debt, securities, and revolution reserves* . ”

Because each financing source has a different financial impact, managers must consider the advantages and disadvantages of each option when making funding choices. The Capital Adequacy Ratio (CAR) is a ratio that indicates how adequate a bank's capital is. (Muhammad, 2015) .” The formula for finding the capital adequacy ratio (CAR) is as follows:

Business Risk

$$CAR = \frac{\text{Modal Bank}}{\text{Aset Tertimbang Menurut Resiko}} \times 100\%$$

Simply put, business risk is the uncertainty regarding future returns on assets. (Bringham, 2011) The trade-off argument states that due to high business risk and the high cost of capital, tax breaks will not be enough to offset these losses. Conversely, low-risk businesses can take advantage of tax breaks to borrow more money and increase the value of their companies. However, according to the pecking order theory, businesses should use their own funds to finance new projects whenever they can. The pecking order hypothesis states that, when given the choice between using retained earnings or raising capital from outside sources, management will usually choose the former.

Islamic banking measures corporate risk using the Non-Performing Loan (NPF) ratio. Non-Performing Loans (NPF) reflect the financing risk a bank incurs from granting loans and investing those funds in various portfolios. The following formula is used in Islamic banking to determine corporate risk:

$$NPF = \frac{\text{Pembiayaan Bermasalah}}{\text{Total Pembiayaan}} \times 100\%$$

The Relationship Between Business Risk and Capital Structure

Due to the potential for bankruptcy for businesses with significant business risk, managers must manage the use of debt in their operations. However, investors will actually prefer companies with greater business risk. These investors are risk-takers because they adhere to the "high risk, high reward" philosophy, where the greater the investment risk, the greater the potential reward. Therefore, organizations cannot precisely identify the level of business risk and the capital structure they will adopt. (Natalia, 2015)

Company Size

The amount of assets a company holds can be used to determine its size. Company size can affect how much money it can raise from outside sources if it needs additional capital. (Firnanti, 2011) Larger companies often have higher total assets. Consequently, company size is another factor that determines its capital structure. It may be easier for larger organizations to obtain loans or other forms of external financing if their total assets are greater. (Putri, n.d.) The formula for company size is described as follows:

Relationship between Company Size and Capital Structure

$$\boxed{\text{Ukuran Perusahaan} = \text{LN} (\text{ Total Aset})}$$

Financing decisions, or capital structure, play a crucial role. Therefore, company size must be taken into consideration. Increasing financial needs lead to the assessment that a company has the potential for increased expenditures to cover the costs of growing activities within a large organization. (Nita & Hairul, 2017)

Capital Structure in Islamic Perspective

Accounts receivable and payable operations are crucial to running any organization. Businesses that conduct receivable and payable transactions in accordance with Sharia principles and adhere to Islamic law will benefit both parties, as Islam permits transactions involving receivables and payments. An explanation of receivables and payables is found in Surah al-Hadid, verse 11:

Meaning: *"Who is he who will lend Allah a goodly loan, then Allah will increase it manifold to his credit, and he will have a good reward."*

Framework for Thinking and Hypothesis Development

The outline of the framework of thought in this paper that influences capital structure is as follows:

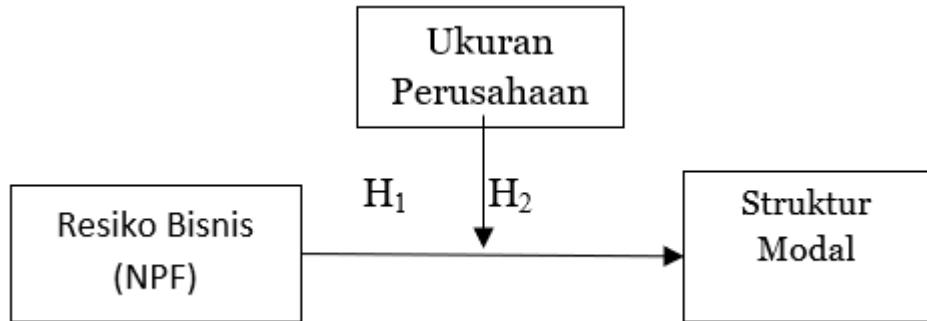


Figure 1. Research Framework

The conceptual framework above highlights the influence of business risk on capital structure, with firm size serving as a moderating factor in capital optimization. The following theory is proposed based on the aforementioned figure:

“ H_1 : Business risk affects capital structure

H_2 : Firm size moderates the relationship between business risk and capital structure .

3. RESEARCH METHODS

Data. This study used a population of 14 registered Islamic commercial banks throughout Indonesia. The research sample was selected using *purposive sampling* , a method of selecting samples based on specific indicators. (Sugiyono, 2011) (Sugiyono, 2011) . So the sample selected from the study was 8 Islamic commercial banks. The data in this study were financial reports for the period 2022-2025 which were taken with quarterly data from *the official website* of Islamic commercial banks related to the object of study , namely www.ojk.go.id.

Analysis Method. " This study will analyze the level of influence of business risk on capital structure and as a moderating variable, namely company size in Islamic commercial banks using a panel data regression approach (pooled data) with Eviews 10 software. " The regression equation model used in this study is as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 Z_{it} + \beta_3 X_{1it} * Z_{it} + \epsilon_{it}$$

Keterangan :

Y = Variabel dependen (CAR)
 α = Konstanta
 X_1 = Variabel independen (NPF)
Z = Variabel Moderasi (Ukuran Perusahaan)
 $X_1 * Z$ = Moderasi antara NPF dengan CAR
 ϵ_{it} = Residual
b1, b2, b3, b4, b5 = Koefisien Regresi

4. RESULTS AND DISCUSSION

From the two panel data regression model selection tests, " it can be seen that the *Fixed Effect Model* (FEM) panel data regression model is better than the *Common Effect Model* (CEM) and *Random Effect Model* (REM) panel data regression models, " so a *classical assumption test must be carried out* with the following results:

Table 2. Fixed Effect Model (FEM)

Method: Panel Least Squares				
Cross-sections included: 8				
Total panel (balanced) observations: 128				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-161.10	62.177	-2.5910	0.0108
X1	-17.01	11.943	-1.4245	0.1570
Z	5.9386	2.0433	2.9062	0.0044
X1Z	0.5490	0.3906	1.4055	0.1625

Source: Results of Eviews 10 software processing

Sehingga persamaan regresinya menjadi :

$$Y = -161.10 - 17.013X_1 + 5.9386 Z + 0.5490 X_1Z + \varepsilon_{it}$$

(Sign $X_1=0.1570$) (Sign $Z=0.0044$) (Sign $X_1Z=0.1625$)

From the regression equation above, it is known that the constant value (α) is - 161.10, which means that " if the business risk variable (NPF) and Company Size are zero, then the movement of the company's capital structure decreases by -161.10 . The business risk regression coefficient measured by NPF is - 17,013, which means that if the NPF level increases by 1 unit, the capital structure as measured by CAR will experience a decrease of - 17,013, assuming that other variables are held constant."

Furthermore, the regression coefficient X_1Z " as a moderator of business risk on capital structure is 0.5490 with a significance of 0.1625 , which is > 0.05 , so company size as a moderator between NPF and CAR is not significant. This shows that the hypothesis that company size is able to moderate the relationship between business risk and capital structure is rejected. "

Coefficient of Determination

The model's ability to explain variance in the dependent variable is indicated by the coefficient of determination, which can range from zero to one. The following are the expected projected results:

Method: Panel Least Squares			
Adjusted R-squared	0.705135	S.D. dependent var	6.465186
Prob(F-statistic)	0.000000		

Table 3. Determination Coefficient Test

Source: Results of Eviews 10 *software processing*

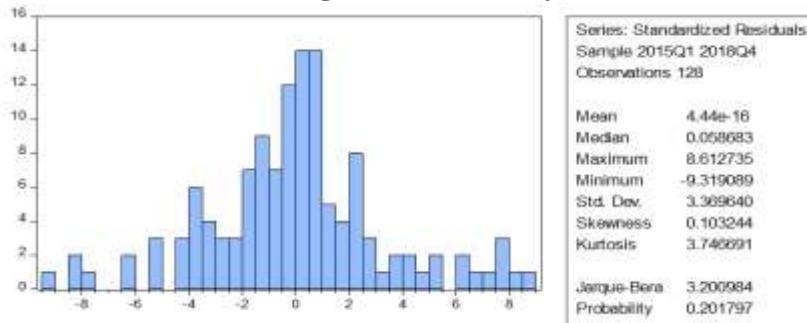
Based on the Adjusted R-squared value in the table above, the coefficient of determination is 0.7051 (70.51%). " This indicates that the dependent variable (CAR) is influenced by the independent variable (NPF) and the moderating variable by 70.51%. Other factors not discussed in this study have an influence of the remaining 29.49%. "

Classical Assumption Test

Normality Test

A normality test is performed to determine whether a regression model is normally distributed or not. The estimated results are as follows:

Figure 2. Normality Test



Source: Results of Eviews 10 *software processing*

The probability value of the JB statistic is 0.201797, as shown in the figure above, which is the result of the normality test using the Jarque-Bera test. The normality criterion is met because the probability value (p 0.2017) is greater than 0.05.

Multicollinearity Test

The estimated results of the multicollinearity test, which examines the regression model by examining the correlation between independent variables, are as follows:

Table 4. Multicollinearity Test

Correlation	NPF	Z
NPF	1,000,000	0.390709
Z	0.390709	1,000,000

Source: Results of Eviews 10 *software processing*

The independent variables show no signs of multicollinearity, as seen in the multicollinearity test results table. This is evidenced by the correlation coefficient between the independent variables, which is at least 0.80.

Heteroscedasticity Test

This test aims to determine whether there is equality of residual variance in a regression or not, with the following results:

Table 5. Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-151.2074	118.9112	-1.271600	0.2064
LOGX1	-1.354008	1.198191	-1.130044	0.2611
LOGZ	46.13338	35.10422	1.314183	0.1917

Source: Results of Eviews 10 *software processing*

The table above shows that the significance level of the independent variable when tested using the Glejser test is more than 5% (or 0.05). This proves that NPF is not a heteroscedastic measure of business risk.

Autocorrelation Test

According to Field (Puteri Anggi Lubis, 2015), using the Durbin-Watson test, we can verify whether the residuals are independent (i.e., not auto-correlated). Auto-correlation occurs when the Durbin-Watson statistic is less than 1 or more than 3. On the other hand, a Durbin-Watson statistic value between 1 and 3 can rule out auto-correlation. The findings of the Durbin-Watson test are as follows:

Table 6. Autocorrelation Test

Method: Panel Least Squares			
Prob(F-statistic)	0.000000	Durbin Watson stat	1.206326

Source: Results of Eviews 10 *software processing*

Based on the table above, it shows that " the Durbin-Watson statistical value lies between 1 and 3, namely $1 < 2.257872 < 3$, so the non-autocorrelation assumption is met. In other words, there is no high autocorrelation symptom in the residuals. "

Discussion

The Influence of Business Risk on Capital Structure

The business risk variable evaluated by NPF has a coefficient of -17.01 and a significance value (Prob.) of 0.1570, which is greater than 0.05, according to the findings of hypothesis testing conducted using the *Fixed Effect Model* (FEM) approach. From the

significance value (prob.), which shows that the NPF variable in Islamic commercial banks has no effect on the CAR variable from 2022 to 2025, it can be concluded that the hypothesis stating that NPF affects capital structure is wrong. The results of this study are in line with (Seftianne, 2011) which states that factors that influence a company's risk profile do not impact its capital structure. This study found that the bank's capital structure is not affected by the magnitude of its business risk.

The business risk in question is Non -*Performing Financing* (NPF), or problematic financing due to the inability of customers to repay disbursed funds (Murabahah, Musyarakah, and Mudharabah). The uncertainty of business risks stemming from non-performing financing causes a company's business risk value to vary, as does the resulting capital structure. A company will require substantial capital if it also faces high business risks, and using external investment is one method to meet this financial need. However, external stakeholders, especially funders, are also concerned about companies with high business risks, so they need to be careful when choosing to offer additional investment.

Because other parties, such as investors or funds obtained from third parties, continue to invest money in the bank, its capital structure is not affected by the level of business risk. Furthermore, businesses with moderate risk tend to attract risk-averse investors. Because they believe that higher levels of risk have the potential for greater rewards, individuals tend to choose high-risk investments. (Seftianne, 2011) " However, banks are expected to maintain *the Non-Performing Financing* (NPF) value so that it does not exceed the predetermined maximum limit of 5%. "

Company Size as a Moderating Variable of the Influence of Business Risk on Capital Structure

In Islamic commercial banking, the relationship between business risk (assessed by Non-Performing Loans, or NPF) and capital structure (as measured by Capital Asset Allocation Fund, or CAR) from 2022 to 2025 can be moderated by considering the variable of company size. This is illustrated by the coefficient X1Z (NPF_Company Size), as shown in Table 2. The probability value is 0.1625, or >0.05 . Therefore, the variable of company size, as a moderator of the NPF-CAR relationship, has no effect. This indicates a rejection of the premise that the relationship between capital structure and business risk is moderated by company size. " This shows that company size has not been proven as a moderating variable between business risk (NPF) and capital structure (CAR) in Islamic commercial banks. "

This condition indicates that " decisions affecting a company's capital structure funding are independent of its size. This implies that Islamic commercial banks do not require a large company size to calculate the capital structure correctly. " This is because if a company has a high level of risk, it will also lead to a decrease in public or consumer trust, thus encouraging greater caution in entrusting their finances to Islamic commercial banks. Therefore, when a company must decide whether to use internal or external capital, the company must also be able to adapt to the high-risk situation it faces.

5. CONCLUSION AND SUGGESTIONS

Business risk has a partial impact on capital structure. Furthermore, firm size does not act as a moderator in the relationship between capital structure and business risk. For 2022–2025, the capital structure of Islamic commercial banks was influenced by factors such as firm size and business risk by 70.51%, with other factors contributing the remaining 29.49%. These findings can be considered by Islamic commercial banks in improving their capital structure. Raising as much funding as possible from the public or other sources is one method that management can use to strengthen the capital structure through external financing. On the other hand, as internal financing or company profitability increases, management can also reduce its capital structure. Future research can extend the research period and include other components to further explain the function and relationship between financial ratios and capital structure.

REFERENCE LIST

Anum, F. (2017). Analysis of Factors Influencing Capital Structure with Company Size as a Moderating Variable in Consumer Goods Companies Listed on the IDX. 56–141.

Bringham, H. (2011). Fundamentals of Financial Management (Eleven). Salemba Empat.

Firnanti, F. (2011). Factors Influencing the Capital Structure of Manufacturing Companies on the Indonesia Stock Exchange. Journal of Business and Accounting, Vol 13 no, 122.

Husnan, S. (2013). Long-Term Financial Management Theory and Application. BPFE.

Istiqamah, M., & Supriyanto, N. (2017). Analysis of the Capital Structure of Islamic Banking in Indonesia 2011-2015. Research Journal, 14(2), 201–214. <https://doi.org/10.28918/jupe.v14i2.979>

Joni, L. (2020). Factors Affecting Capital Structure. Journal of Accounting and Business, 4(1), 97–113. <https://doi.org/10.24176/agj.v4i1.4318>

Khairy, M., & Yusniar, MW (2016). Factors Influencing Capital Structure (Case study of Manufacturing Companies Listed on the Indonesia Stock Exchange 2011–2014). Journal of Management Insights, 4(2), 113–124.

M. Syafi'i Antonio. (2001). Sharia Banking from Theory to Practice. Gema Insani.

Muchdarsyah. (1993). Management of Islamic Bank Funds. Rineka Cipta.

Muhammad. (2015). Sharia Bank Fund Management (1st Edition). Rajawali Pers.

Nadzirah, Yudiaatmaja, F., & Cipta, W. (2016). The Influence of Company Size, Asset Structure, and Profitability on Capital Structure. Bisma E-Journal, Ganesha University of Education, 4(1), 1–13.

Natalia, P. (2015). The Influence of Profitability, Sales Growth, Asset Structure, and Business Risk on Capital Structure in Kompas 100 Issuers (Non-Banking). Maranatha Management Journal, 14(2), 141–164.

Nicko, I., & Ardiana, P. (2014). The Influence of Company Size, Business Risk, Asset Growth, Profitability, and Liquidity Level on Capital Structure. E-Journal of Accounting, 10(1), 14–30.

Nita, N., & Hairul, A. (2017). Analysis of Factors Influencing the Capital Structure of Mining Sector Companies. JSHP (Journal of Social, Humanities and Education), 1(1), 53. <https://doi.org/10.32487/jshp.v1i1.235>

Puteri Anggi Lubis. (2015). Analysis of Factors Influencing Capital Structure in Manufacturing Companies Listed on the Indonesia Stock Exchange for the Period 2011-2014. Diponegoro Journal of Accounting, 4(4), 23–30.

Putri, AK (nd). Factors Influencing Capital Structure in Real Estate and Property Companies on the IDX. Imiah-Vidya, Vol 24 no, 54.

Saputra, KL, Sujana, E., & Darmawan, NAS (2014). Analysis of Asset Growth, Business Risk, and Profitability Affecting the Capital Structure of Service Industry Companies Listed on the Indonesia Stock Exchange for the 2009-2013 Period. E-Journal S1 Ak Ganesha University of Education, 2(1).

Seftianne. (2011). Factors Influencing Capital Structure in Public Companies in the Manufacturing Sector Seftianne, Alumnus of Trisakti University of Economics, Ratih Handayani. Journal of Business and Accounting, 13(1), 39–56.

Sugiyono. (2011). Quantitative and Qualitative Research Methods. Alfabeta.

Surjadi, M. (nd). Factors Influencing Capital Structure in Manufacturing Companies. Journal of Accounting and Business, 9(2), 309–320.