

# Empirical Evidence of Capital Structure in Indonesia

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Capital structure is part of the use of corporate debt and capital that is used to fund a company's operational activities. The determination of capital structure needs to be completed to determine the optimal capital structure in order to maximise the value of a company. The research examines the effects of asset structure, profitability, firm size, business risk and asset growth on capital structure in the mining, agriculture, and food and beverage sectors. The sampling method used is purposive sampling with a criterion of companies that do not do mergers or acquisitions. The results of the study consider the overall capital structure policy by profitability and business risk. In the mining sector, asset structure, profitability and business risks affect the capital structure, while the size of the company and the growth of the company do not. In the agricultural sector, capital structure is issued by structure, profitability, company size, business risk and company growth. In the food and beverage sector, the structure, profitability and business risks affect the capital structure, while the size of the company and company growth do not.

**Keywords:** *Capital Structure, The Mining Sector, The Agriculture Sector, The Food & Beverage Sector.*

## Introduction

Essentially, the capital structure policy involves a trade-off between the risks borne by shareholders and the rate of return expected by shareholders. The importance of funding decisions in a company requires the company management to find out what factors need to be considered in making a funding decision. This is done to facilitate company managers in making funding decisions, whether to make external funding through a debt loan or issue new shares as an alternative. The factors that influence the decisions of the company's capital structure include sales stability, asset structure, operating leverage, level of sales, profitability, taxes, controls, management attitudes, attitudes of lenders and rating agencies,



market conditions, the company's internal conditions, and financial flexibility. In several studies that discussed the factors that influenced the previous capital structure, there were inconsistencies in the results of the study. According to Frank and Goyal (2003), Chakarborty (2010), and Joni and Lina (2010), the structure of assets is stated to have a positive influence on capital structure. Meanwhile, Malemilola et al. (2017), Seftianne and Ruth (2011), and Li and Islam (2009) did not find the effect of asset structure on capital structure. Titman and Wessels (1988), Frank and Goyal (2003), and Tong and Green (2004) found results that profitability had a negative effect on the debt ratio, while Joni and Lina (2010), and Kumar et al. (2017) also examined the effect of business risk, firm size and company growth on debt levels.

Research on capital structure continues to develop by also considering management factors, industrial dynamics, capital market conditions, the economy, government regulations and social trends. The mining sector is one of the industries experiencing funding problems related to fluctuations in the global economy. The mining sector has several risks, such as market risk associated with changes in selling prices in the domestic market and foreign markets and financial risks related to funds invested in the previous exploration and exploitation stage, which is very high (migasreview.com).

The agricultural sector is a sector that has a lower risk, because some risks to mining do not occur in the agricultural sector. The agricultural sector is oriented towards the domestic market, in addition to other distinguishing characteristics. For example, it shows how the company funds its investment sources. In mining companies, the value of the debt to equity ratio (DER) is greater than the DER value of agricultural sector companies. This means that mining companies use more external funding sources in the form of debt compared to agricultural companies. In addition, according to the Central Bureau of Statistics (BPS), there are differences in the improvement of different business conditions.

The food and beverage (F&B) sector is a sector which contributed up to 34.95 per cent in 2017 (<https://bisnis.tempo.com>). This sector experienced sustained growth because the number of middle-class populations increased rapidly as users of food and beverage products. The market in the F&B sector includes exports to several countries such as Japan, the Chinese People's Republic and Europe. Theoretically, the high rate of return from return on assets (ROA) in the mining sector in 2013 was also followed by an increase in company leverage. The fact is, that it is necessary to examine what factors actually affect the company's capital structure in the two sectors, namely mining and agriculture. Therefore, the purpose of the study is to analyse the effect of asset structure, profitability, firm size, business risk, and asset growth on capital structure decisions in mining and agricultural sector companies.

## Literature Review

Funding decisions related to the selection of internal and external sources of funding are theoretically based on two theoretical frameworks: pecking order theory and balance theory. Pecking order theory is the most influential theory on capital structure and is based on the information asymmetry. Information asymmetry will affect the company's capital structure by limiting access to external sources of financing. The funding pattern sequences are based on a hierarchy of the most profitable at any given time (Myers & Majluf, 1984). The trade-off theory states that the company, in selecting the source of funding, is based on the targeted capital structure or the optimal capital structure. Therefore, the company will make a careful effort to maintain an optimal capital structure that can maximise the value of the firm (Bradley et al., 1984).

Debt costs arise because companies use funds from loans. The amount of the company's debt costs is calculated based on the interest rate that must be paid to creditors. If the cost of debt is greater than the ability to obtain profits on assets, then the addition of debt in the capital structure of the company will bring an unfavourable effect to the profits for the owner (equity) because it will lead to greater financial obligations for the company, and vice versa. The higher the cost of debt, the greater the probability of decreasing the company's income. This results in the possibility of financial difficulties that will be faced by the company being even greater. Therefore, companies that have high debt costs tend to reduce the proportion of their debt burden (Rajan & Zingales, 1995). Decreasing the debt ratio has consequences for companies to use greater equity financing.

### *The Effect of Assets Structure on Capital Structure*

Most companies in their capital industries are embedded in fixed assets that will fulfil funds from permanent funds sourced from equity or debt. The balance theory states that companies, in choosing funding sources, are based on targeted capital structure or optimal capital structure. Therefore, the company will do consciously to maintain an optimal capital structure that can maximise the value of the company. The concept of conservative financial structure states that the amount of owned capital should at least be able to close the same as fixed assets and other assets that are permanent. Companies with the majority of their activities consisting of current assets that are fixed, will fulfil debt. Chen (2004), and Joni and Lina (2010) found evidence that the higher the profitability ratio, the lower the debt level (Haron, 2016).

**H<sub>1</sub>:** Asset structure negatively effects the debt level of equity.

## ***The Effect of Profitability on Capital Structure***

Profitability can be interpreted as net income from a series of decisions and operational decisions of the company. Companies generally like the income they receive to be used as the main source for financing investments, according to the pecking order theory (POT). The POT states that companies prefer internal funding through retained earnings than from external sources through debt and finally, from equity. Internal fund sources from retained earnings or remaining profits, which are part of the remaining profits not shared with shareholders, will be reinvested into the company at the level of the required profit. Tong and Green (2004), Kayan dan Titman (2007), Joni and Lina (2010), and Koksal and Orman(2014) found evidence that the higher the profitability ratio, the lower the debt level.

**H2:** Profitability negatively effects the debt level of equity.

## ***The Effect of Size on Capital Structure***

Company size is an indicator that shows the company's financial strength. The larger the size of the company, the greater the tendency to use external funds. This is also because large companies have funding needs and one alternative is to use external funds. Large companies can access the capital market and have more flexibility and ability to obtain funds; this is also because large companies can provide guarantees for repayment of accounts receivable rather than small companies (size effect). Research by Joni and Lina (2010) found that the larger the size of the company, the higher the debt ratio (De Jong et al., 2008).

**H3:** The size of the company has a positive effect on the level of debt on equity.

## ***The Effect of Business Risk on Capital Structure***

Business risk is risk caused due to the uncertainty of cash flow from investments that will be faced if the company does not use debt. Variability of EBIT is influenced by income stability and the stability of costs. In companies that have a relatively stable level of price stability, the sales revenue will be stable so that the business risks faced are lower. Cost stability is related to valuation, relative to the input of price components and labour costs. The business risks of each industry will be different, as is the case between companies in the industry. Companies that have high business risks tend to use smaller debt levels than companies with low business risk. This is because the higher the business risk, the more likely financial distress is faced by the company. This is in accordance with the trade-off theory, which explains that the higher the likelihood of financial distress, the company will bear the higher cost of bankruptcy. The studies of Bayless and Diltz (1994), Joni and Lina (2010), and Seftianne and



Ruth (2011), found that the higher the company's business risk, the lower the company's debt. However, Prince (2004) found it did not influence it (<https://bisnis.tempo.com>).

**H4:** Business risk has a negative effect on the level of debt on equity.

### *The Effect of Assets Growth on Capital Structure*

The company's growth is measured by the increase in assets, namely the amount of funds allocated by the company to its assets. The growth of the company will require the company to finance its investment so that it can also be used as an indicator for the company's development in the future (Zang, 2009; Nguyen & Ramachandran, 2006). Companies with high growth rates must have sufficient capital to pay for the company. The pecking order theory states that companies prefer internal funding through retained earnings than from external sources through debt and finally, from equity. Therefore, if it is assumed that the company's assets experience growth, while other factors are considered constant, the increase in assets will cause additional debt. The research of Joni and Lina (2010), and Chakraborty (2010) found that in companies that have high asset growth, the greater the debt level.

**H5:** Company growth has a positive effect on the level of debt on equity.

### **Methodology**

The population of this research is all mining, agricultural, and F&B companies listed on the Indonesian Stock Exchange during the period of 2010–2014. The sample selection method uses purposive sampling with the criteria that the company does not have a negative total equity and profit balance in each sector, and the company uses debt funds because debt is one of the factors forming the capital structure. The data were pooled during the four years of the study period from 38 companies, so the observation data was 152. The sectors seen amounted to 60 from the mining sector, 36 from agriculture, and 56 from the (F&B) sector, that met the selection of criteria. All data were collected from the Indonesian Stock Exchange. This study uses multiple linear regression analysis to determine the effect of the independent variable on the company's capital structure decisions.

**Table 1:** The Measurement of Research Variables

Variable	Symbols	Measurement
The capital structure	DER	Total debt to total equity
The assets structure	AST	The fixed assets to total assets
Profitability	PROFIT	Earning after tax to total assets
Company size	Ln. SIZE	Natural logarithm of total assets
Business risk	RISK	The standard deviation of EBIT for sales over the last three years
Asset growth	GROWTH	Increase or decrease in total assets from the previous year (t-1) compared to the current year (t)

The research analysis method is a multiple linear regression model, expressed as follows:

$$DER_{it} = b_0 + b_1AST_{it} + b_2PROFIT_{it} + b_3LnSIZE_{it} + b_4RISK_{it} + b_5GROWTH_{it} + e_{it}$$

## Results and Discussion

### *Descriptive Statistic*

The results of the descriptive statistics of all the variables examined in the study are presented in Table 2 and 3.

**Table 2:** The measurement of research variables DER, AST and PRFT

Ratio	Sector	Min	Maxs	Mean	Std. dev.
DER	Mining	0,210	5.260	1.32	1.09
	AGRI	0.130	2.720	0.838	0.642
	F&B	-0.820	1.910	0.71	0.53
	Whole	-0.830	5.260	0.96	0.84
AST	Mining	0.210	5.260	1.320	1.090
	AGRI	0.130	2.720	0.838	0.642
	F&B	-0.820	1.910	0.710	0.530
	Whole	0.020	2.200	0.456	0.317
PRFT	Mining	0.010	0.950	0.180	0.170
	AGRI	0.010	0.340	0.150	0.090
	F&B	0.050	2.230	0.340	0.390
	Whole	0.010	2.230	0.240	0.280

Note: DER= Debt to Equity ratio, AST=Assets Structure,  
PRFT= Profitability

As shown in Table 2, it is known that overall the debt to equity ratio (DER) is 96 per cent. This ratio moves from the lowest of -83.8 per cent in the agricultural sector, and the highest of 526 per cent in the mining sector (Panel A). This shows that the mining sector uses more debt than equity. The asset structure ratios had an overall sample average of 46 per cent, while in the mining sector the average is 30 per cent, agriculture sector is 26 per cent, and F&B sector is 72 per cent. This shows that in the F&B sector, the value of assets remains very high compared to the other two sectors of mining and agriculture. The average profitability of assets as a whole is 24 per cent, in the mining sector the average is 18 per cent, the agriculture sector is 15 per cent, and the F&B sector is 34%. It appears that in the F&B sector, the average has the ability to obtain higher profits than the other two sectors ([www.vibiznews.com/ekonomi-business](http://www.vibiznews.com/ekonomi-business)).

In Table 3, the description of the ratio of the average company size as a whole is  $\ln 25.85 = \text{Rp } 168 \text{ Billion}$ , the average mining asset is  $24.54 = \text{Rp. } 45 \text{ Billion}$ , the average farm is  $24.20 = \text{Rp. } 32.3 \text{ billion}$ , and F&B is  $\ln 28.07 = \text{Rp. } 1,551 \text{ billion}$ . This shows that the assets of the F&B sector are on average the highest of the two other sectors of mining and agriculture. The highest spread is in the F&B sector, and the lowest is in the mining sector (Kayhan and Titman, 2007).

**Table 3:** The measurement of research variables BRISK and GROWTH

Ratio	Sector	Min	Max	Mean	Std. dev.
Ln Size	Mining	21.150	27.180	24.540	1.685
	AGRI	22.830	25.740	24.200	0.795
	F&B	25.560	31.390	28.070	1.550
	Whole	21.150	31.390	25.850	2.315
BRISK	Mining	0.010	0.460	0.110	0.090
	AGRI	0.010	0.310	0.070	0.050
	F&B	0.020	0.440	0.130	0.100
	Whole	0.010	0.460	0.109	0.080
GROWTH	Mining	-0.150	1.380	0.270	0.380
	AGRI	-0.320	2.260	0.290	0.460
	F&B	-0.320	1.070	0.230	0.270
	Whole	-0.320	2.650	0.250	0.370

Note: Ln Size = Company Size, BRISK = Business Risk,  
GROWTH= Assets Growth

The overall business risk is lower than the risk of the F&B business, followed by the mining sector and lastly, the agricultural sector. This shows that the F&B sector has a higher risk than the other two sectors. The ratio of the overall asset growth value is 25 per cent, in the

mining sector it is 27 per cent, in the agriculture sector it is 29 per cent, and in the F&B sector it is 23 per cent. This indicates that the agricultural sector grows its assets from the two other sectors. The results of the multiple regression analysis on mining, agricultural, and the F&B sectors are presented in Table 4 (<https://www.migasreview.com>).

**Table 4:** Pooling data Regression of Capital Structure

Description	All Sector	Sector		
		Mining	Agriculture	Food & Beverage
Constant	1.847 (2.302***)	1.604 (1,459)	4.699 (2.318**)	0.876 (0.566)
AST	-0.364 (-1.463)	-0.838 (-1.957*)	2.631 (1.800*)	0.771 (-1.972*)
PRFT	-0.603 (-2.111**)	-2.430 (-3.141***)	-3.709 (-4.087***)	-0.729 (-1.972*)
LnSize	-0.024 (-0.735)	0.043 (0.656)	-0.252 (-1.724*)	-0.031 (-0.595)
BRISK	-2.251 (-1.973*)	-2.611 (-1.654*)	-3.809 (-2.139**)	2.833 (1.800*)
Growth	0.277 (1.528)	0.289 (0.806)	0.386 (1.958*)	0.128 (0.513)
F Statistic	3.587***	3.482*	4.993***	1.479
Adjusted R2	0.079	0.187	0.363	0.039

Note: \*significant at  $\alpha=10\%$ , \*\*significant at  $\alpha=5\%$ , \*\*\*significant at  $\alpha=1\%$   
T- value are given in parenthesis

### *All Sectors*

The regression results indicate that the company's capital structure policy, as a whole, is influenced by profitability and business risk. In the mining and F&B sectors, capital structure policies are influenced by asset structure, profitability and business risk, while in the agricultural sector these policies are influenced by asset structure, profitability, company size, business risk and company growth (Zhang, 2010) ([www.idx.co.id](http://www.idx.co.id)).

### *Mining Sector*

The test results show that the capital structure in the mining sector is influenced by the structure of assets, profitability and business risk. Whereas, company size and company growth have no effect. A negative direction indicates that the larger the structure of a company's fixed assets, the lower the level of the company's debt or the greater the use of its own capital. This shows that in the mining sector, there is a tendency that management is





careful in owing because high debt will result in a higher interest burden.

Profitability has a negative effect on capital structure, meaning that companies that have high profitability will use these benefits to fund funding needs so that the need for external funds through debt is lower. Where business risk with a proxy for EBIT fluctuations is higher, the lower the level of debt used. This shows that mining companies with fluctuating EBIT will use equity funding sources that do not contain fixed interest costs. If it is associated with the condition of the mining sector, this sector has a high uncertainty, is full of risks, and requires large costs at the exploration and construction phase, resulting in banks or creditors being very careful in providing debt to companies. Meanwhile, company size and company growth have no effect on the size of the debt level.

### ***Agriculture Sector***

In the agricultural sector capital structure is influenced by the structure of asset profitability, firm size, business risk and company growth. The influence of positive asset structure shows that in companies that have high assets, the higher the use of debt. This is because agricultural companies tend to need low funds and have a relatively short production turnover, so it does not require a long time compared to mining companies. Profitability has a negative effect on capital structure. This means that companies that have high profitability will use these benefits to fund funding needs so that the need for funds from outside or through debt is decreasing.

The size of the company has a negative effect, indicating that in this sector, the larger the company, the lower the level of debt. This condition indicates that large companies have been able to overcome the funding so that they use lower debt, and vice versa. Where business risk with a proxy for EBIT fluctuations is higher, the lower the level of debt is used. This shows that mining companies with fluctuating EBIT will prefer equity funding sources that do not contain fixed interest costs. The company's growth has a positive effect on capital structure decisions, indicating that if the assets of an agricultural company experience growth, the leverage level of the company also increases. This is because the rapid growth of assets due to relatively short production turnover in agricultural companies will require companies to provide funds from debt.

### ***Food and Beverage (F&B) Sector***

In the F&B sector, the structure of profitability assets and business risk effect the capital structure, while the size of the company and the growth of the company do not. The positive asset structure influence shows that companies that have high assets, continue to use higher debt. This shows that fixed assets can be funded from debt. In the F&B sector, fixed assets,



when viewed from the average, are lower than the mining and agricultural sectors, so that they become lighter even though they are financed by debt, because the burden is not as high as the other two sectors. Profitability influencing negatively on the capital structure shows that companies that have high profitability will use less debt. The negative influence of this profitability ratio is in line with the agriculture and mining sectors. This condition shows the effectiveness of the pecking order theory (POT), which states that companies prefer internal funding from sources of retained earnings, but if it is not sufficient, the company uses external funding sources from debt.

Furthermore, business risk positively influences the capital structure, meaning that the more EBIT fluctuations are, the higher the company's debt ratio. This shows that mining companies that have fluctuating EBIT will prefer debt funding sources that contain fixed interest costs. If seen from the condition, this sector does have a higher average risk than the other two sectors, but the F&B sector also has a higher capacity than the other two sectors of agriculture and mining. A higher employment results in the F&B sector favouring sources of debt funding, despite having higher EBIT fluctuations.

## Conclusion

The capital structure policy is consistently influenced by the level of ability to obtain business profits and risks faced by the mining, agricultural, and F&B sectors. There is a trade-off between the burdens of using debt that causes risk, but the ability to earn profits can be a motivation for the company to owe. The asset structure factor is also an element of the company in making a capital structure policy, even though in each sector the way to influence it can be positive and negative. In the agricultural and F&B sectors, the asset structure has a positive effect, while in the mining sector it has a negative effect. Specifically, in the sector, it shows that the size of the company is the basis for the company to owe, as well as the growth of the company.



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