# OPTIMAL CAPITAL STRUCTURE ANALYSIS FOR BANKING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE

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**Abstract.** *The topic of optimal capital structure has been the subject of many studies. This research is aim to find out what is the composite of the capital structure in banking companies listed in Indonesia Stock Exchange and identify the optimal capital structure of each companies and also examines whether the actual capital structure implement by the companies has reach the optimal point. The scope for this research is only focuses on the banking companies that listed in Indonesia Stock Exchange (IDX) with the range of time from 2013 to 2017. The main methodology will be used to calculate the optimal capital structure is by using cost of capital approach that will consider the Weight Average Cost of Capital (WACC). The findings will be providing the current capital structure of baking companies and also the optimal capital structure for each banking companies.*

Keywords: *Optimal Capital Structure; Banking Company; Cost of Capital; Indonesia.*

## INTRODUCTION

The main objectives of managerial finance is to maximize shareholders' wealth. In order to achieve the objectives, some decision need to be made, including long-term financial decision. The company's most basic long-term financial decision is selecting the appropriate proportion of a firm's mix of debt and equity financing commonly known as capital structure. According to Madiha and Rehman (2016), capital structures refers to the use of finance by utilizing different proportions of various source of debt and shareholders' equities for the benefit of the firm, whether it is measuring in terms of profitability or valuation of the firm. Moreover, capital structure also provides insight into how risky a company is for potential investor which affect the improvement and development of the company.

The capital structure for each company is relative and depends on the companies. There are companies that would choose to finance their assets with equity as the majority. In the other hand, there are companies that prefer to finance their assets with debt as the majority. Most of the companies manage their capital structure with a certain proportion of these two.

Each of financing method, whether debt or equity, have their own benefit and drawbacks. For that reason, all the companies share the same purpose in combining their capital structure which is to achieve a certain proportions of debt and equity that can maximize the value of the company and also the shareholder wealth. Unsuitable proportion of capital structure decision may generates a high cost of capital that will lower the value of the companies. Effective capital structure decision can lower the cost of capital, resulting in higher NPVs and more acceptable project-and thereby increasing the value of the firm (Gitman & Zutter, 2012)

There are several sector of industries in Indonesia. One of them are the banking sector. Banking sector is one of the sector that important in supporting the human's life. There are many players in banking sector in Indonesia from many form of business organization. Some of these companies are publicly listed, which means that those companies' shares are listed on a recognized stock exchange for general public trading, and the other have not go to pubic yet.

This research is aim to find out what is the composite of the capital structure in banking companies listed in Indonesia Stock Exchange and identify the optimal capital structure of each companies and also examines whether the actual capital structure implement by the companies has reach the optimal point. And also to see the difference of the banks based on their category. The scope for this research is only focuses on the banking companies that listed in Indonesia Stock Exchange (IDX) with the range of time from 2013 to 2017. The main methodology will be used to calculate the optimal capital structure is by using cost of capital approach that will consider the Weight Average Cost of Capital (WACC) and continued with the Mann-Whitney U test to calculate the difference.

# LITERATURE REVIEW

### Capital Structure
Capital structure can be interpret as a strategy to determine the proportion of capital sources to support company's financial performance and business activities. The phrase capital structure refer to the mix of debt and equity securities in the long-term financial structure of a company. There are two sources of the capital, debt capital and the equity capital. Each of the sources have benefit and drawbacks. According to Gitman and Zutter (2012), all of the items on the right-hand side of the firm's balance sheet, excluding current liabilities, are sources of capital.

### Cost of Capital Approach
Cost of capital basically represent the firm's cost of financing. This is showing the average cost of financing made by the company based on the desired capital structure. According to Damodaran (2001), it is one of the alternative to determine the optimal capital structure. The cost of capital is weighted average of the cost of the different component of capital used by a company to fund their financial needs.

### Cost of Debt
Debt is involving all of the borrowing activities that made by the company, both directly from the lender such as bank and from issuing the corporate bond. The amount of debt that affect the capital structure analysis comes from long term debt, such as bank loans, bond payable, and leasing (Damodaran, 2001). Due to the company will use various bonds, loans and other forms of debt, cost of debt is considered helpful to give the ideas of the overall rate being paid by the company to use the debt financing. This will give the projection for the investor about how risky the company compare to the others, the higher cost of debt, the riskier the companies may be.

### Cost of Equity
Basically, the cost of equity shows both of the expected return by the investor in the marketplace and the risk of the investment. Cost of equity is applied in analysis and valuation which shows the rate of return required by the investor that appeals investor to take the risk to investing to the companies. The higher the cost of equity, will increase the risk of the investor to invest, this will shows the lower return of an investment and it is not a good things to attract the investors. Based on Gitman (2012), there are two common method in general to estimate the cost of equity, the first one is dividend growth valuation model and capital assets pricing model (CAPM) method.

### Weight Average Cost of Capital
According to Gitman, "Weight Average Cost Capital reflects the expected average future cost of capital over the long run, found by weighting the cost of each specific type of capital by its proportion in the firm's capital structure" (2012). WACC is a straightforward method to calculate the firm's overall cost of capital. The equation for WACC is described in equation below:

$$WACC = W_E + R_E + W_D \times R_D \times (I-T)$$

$W_E$ = Weight of equity capital    $W_D$ = Weight of debt capital    $T$ = Tax rate
$R_E$ = Cost of equity    $R_D$ = Cost of debt

### Optimal Capital Structure
The optimal capital structure is a condition where company reach at its maximum value because the weighted average cost of capital has been minimized. It is directly shows that the optimal capital structure have a strong financial relationship with the value of the firm. The value of the firm itself means the present value of future cash flow. As Gitman (2012) mentioned, in other words that the present value of the future cash flow is at its highest when the discount rate (cost of capital) at its lowest. And this is further explain equation to find value of the firm using the simple valuation below:

$$\text{Value of the firm (V)} = \frac{[EBIT(1-T)]}{WACC}$$

Where,
EBIT    = Earnings Before Interest and Taxes
T    = Tax rate
WACC    = Weight Average Cost of Capital

By assuming that EBIT is constant, it is clear that the value of the firms is maximized when the weighted average cost of capital is in the minimum values. The value of the firm rises as the cost of capital falls, and it goes downwards as the cost of capital rises. The optimal capital structure is found at the optimum point where the value of the firm is at its highest and the cost of capital at its lowest.

## Bank Category
### BUKU

BUKU is stands for Bank Umum Kegiatan Usaha, or in english stands for commercial banks business activities. This BUKU is a group of level of banking company based on their core capital. Each banks, both commercial bank and a sharia bank, must have the capital for the operational of the banks, and it is called core capital. This core capotal consist of the paid-up capital plus profit obtained by the banks after tax decuction. According to Bank Indonesia regualtions, conventional banking businesses are group into 4 BUKU classes. Thi sregulation classifies banks into 4 categories of BUKU

| | |
|---|---|
| **BUKU 1** | : It is a bank with the core capital of more than 1 trillion rupiah. |
| **BUKU 2** | : It is a bank with the core capital between 1 trillion rupiah upto 5 trillion rupiah. |
| **BUKU 3** | : It is a bank with the core capital between 5 trillion rupiah upto 30 trillion rupiah. |
| **BUKU 4** | : It is a bank with the core capotal more than or equal to 30 trillion rupiah. |

### Ownership

It is the majority of ownership of the company. The company can be own by the foreign investor or the local investor.

### Foreign exchange bank

A foreign exchange bank is a bank that receives an appointment letter from Bank Indonesia to be able to conduct banking business activities in foreign exchange. Foreign exchange banks can offer bank services related to these foreign currencies such as foreign transfers, foreign exchange trading, import export transactions, and other foreign exchange services. There are some requirment to be the foreign exchange banks.

### Government and Private bank

A government bank is a bank whose part or all of its shares are owned by the Government of Indonesia. While the private bank is a bank where most of its shares are owned by national private companies and the founding deed was established by the private sector, the profit sharing is also for the national private sector.

## METHODOLOGY

### Data Collection

For analyzing the optimal capital structure, the data needed are both company's data and market data. This research requires data from last 5 years which is from 2013 to 2017. This input helps calculating the cost of equity and cost of debt. Company's data such as company's financial report, stock price history can be gather from secondary data on internet from several website including Indonesia stock exchange website, companies website, stock bit and yahoo finance. After screening all of the data, there are only 23 of the listed banking companies that meet all of the requirement.

### Data Analysis
### Capital Structure

After gathering the required data, next is analyzing them. The main methodology will be used to calculate the optimal capital structure is by using cost of capital approach that will consider the Weight Average Cost of Capital (WACC). As Damodran (2011) state, this approach is used because it is represent the firm's cost of financing that pays attention to cost and proportion of capital. The two component that involves in WACC are, cost of debt and cost of equity. For the cost of debt will be calculated using the synthetic rating method. While the cost of equity will be calculated using the Capital Assets Pricing Method (CAPM).

### Mann Whitney U test

We are using Mann Whitney U test to see if there is a significant difference between each categorize of the banks. The categorize that will be testing using Mann Whitney U test are:

1. The difference between BUKU Bank 2 and BUKU Bank 3
2. The difference between BUKU Bank 2 and BUKU Bank 4
3. The difference between BUKU Bank 3 and BUKU Bank 4
4. The difference between foreign and local ownership of the bank in BUKU Bank 2
5. The difference between foreign and local ownership of the bank in BUKU Bank 3
6. The difference between foreign exchange bank and non-foreign exchange bank in BUKU Bank 2
7. The difference between foreign exchange bank and non-foreign exchange bank in BUKU Bank 3
8. The difference between government and private bank in BUKU Bank 3
9. The difference between government and private bank in BUKU Bank 4

## FINDINGS AND ARGUMENT

### Table 1. The Difference Between Actual and Optimal Capital Structurre

| BANK | 2017 | 2016 | 2015 | 2014 | 2013 |
|------|------|------|------|------|------|
| AGRO | 0.42% | 0.00% | 0.00% | -17.06% | -37.20% |
| BABP | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| BACA | 1.49% | -0.57% | -0.57% | 0.00% | 0.00% |
| BBCA | -26.03% | 0.00% | 0.00% | -18.07% | -8.05% |
| BBKP | 5.27% | 3.83% | 3.83% | -95.58% | -95.41% |
| BBNI | 2.33% | 0.00% | 0.00% | 0.00% | 0.00% |
| BBRI | -43.32% | 11.13% | 11.13% | 0.00% | -68.05% |
| BBTN | 5.48% | 19.33% | 19.33% | -87.04% | -84.09% |
| BDMN | 0.00% | 0.00% | 0.00% | -96.30% | 0.00% |
| BJBR | 5.20% | 3.15% | 3.15% | -70.60% | -94.97% |
| BKSW | -31.21% | -91.19% | -91.19% | -2.39% | 0.00% |
| BMRI | 3.42% | 6.53% | 6.53% | -15.53% | -34.97% |
| BNBA | 0.00% | 0.00% | 0.00% | 0.00% | -44.43% |
| BNGA | -19.78% | 5.61% | 5.61% | -80.91% | 5.85% |
| BTPN | -88.62% | -87.62% | -87.62% | -95.63% | -25.21% |
| BVIC | 2.22% | 2.31% | 2.31% | -55.50% | 3.13% |
| MAYA | 5.59% | 3.49% | 3.49% | -19.34% | 5.02% |
| MCOR | 0.00% | 0.00% | 0.00% | -7.39% | 0.00% |
| MEGA | -34.45% | -15.07% | -15.07% | -65.28% | 0.00% |
| NISP | -10.72% | -68.34% | -68.34% | -95.73% | -92.49% |
| PNBN | -10.00% | 7.08% | 7.08% | -95.78% | -94.96% |
| SDRA | 0.64% | 1.12% | 1.12% | 1.12% | 3.28% |

In table 1 we can see the difference from the actual capital structure and the optimal capital structure of the banking listed companies for the past 5 years. This data will be using to see the difference between the category that already been mention above.

### Table 2. Mann-Whitney U test

| Category | Year | Significant of Homogenity | Significant of Mann-Whitney U | Category | Year | Significant of Homogenity | Significant of Mann-Whitney U |
|----------|------|---------------------------|-------------------------------|----------|------|---------------------------|-------------------------------|
| BUKU 2 and BUKU 3 | 2017 | 0.070 | 0.529 | Foreign and local ownership BUKU 3 | 2017 | 0.138 | 0.806 |
| | 2016 | 0.487 | 0.284 | | 2014 | 0.079 | 0.086 |
| | 2015 | 0.420 | 0.051 | | 2013 | 0.569 | 0.712 |
| | 2014 | 0.428 | 0.001 | Foreign and non-foreign exchange bank BUKU 3 | 2016 | 0.141 | 0.143 |
| BUKU 2 and BUKU 4 | 2017 | 0.112 | 0.768 | | 2015 | 0.081 | 0.040 |
| | 2016 | 0.169 | 0.065 | | 2014 | 0.152 | 0.143 |
| | 2015 | 0.277 | 0.524 | | 2013 | 0.126 | 0.303 |
| | 2014 | 0.308 | 0.366 | Government and private bank BUKU 3 | 2017 | 0.595 | 1.000 |
| | 2013 | 0.215 | 0.547 | | 2016 | 0.130 | 0.242 |
| BUKU 3 and BUKU 4 | 2017 | 0.533 | 0.593 | | 2015 | 0.428 | 0.143 |
| | 2015 | 0.116 | 0.095 | | 2014 | 0.326 | 0.380 |
| | 2014 | 0.677 | 0.009 | Government and private bank BUKU 4 | 2017 | 0.079 | 0.564 |
| Foreign and local ownership BUKU 2 | 2017 | 0.238 | 0.040 | | 2016 | 0.636 | 0.374 |
| | 2016 | 0.244 | 0.722 | | 2013 | 0.348 | 0.248 |
| Foreign and non-foreign exchange bank BUKU 2 | 2015 | 0.236 | 0.445 | | | | |

Using Mann-Whitney U test required the data to be homogen. So we check the homogenity of the data. The result is shown on the table 2. And from table 2 we can see that the category that shown a significant different are BUKU 2 and BUKU 3 in 2014, BUKU 3 and BUKU 4 in 2014, Foreign and local ownership BUKU 2 in 2017, and Foreign and non-foreign exchange bank BUKU 3 in 2015. Other than that, there are no significant different between the category.

## CONCLUSIONS

Capital structure takes the major role in company's financial conditions. The decision to decide the portion between debt and equity in capital structure must be done wisely and considering both internall and external aspects of the company. All of the baking companies current capital structure still haven't reach the optimal point of the capital structure that they could reach. We can also see that most dont have the significant difference from the others. The result of the optimal capital structure of this reseacrh may be used by the banking companies that listed in Indonesia Stock Exchange for the consideration of their proportion of capital structure in the future planning. It is important for the companies to pay attention to their financial condition and the economic situation that happen during the period of time. By applying the optimal capital structure for the company, they can generate the higher value of their company.

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