

Analysis of Capital Structure in Corporate Telecommunications Operators in Indonesia

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Abstract- The purpose of the paper are (1) to study the difference capital structure based on the average of Debt Equity Ratio, Ownership Structure and Destructive Technological Change; (2) to find out if the company has a target capital structure; (3) to know the influence of profitability, the age of firm, asset structure, growth and business risk of the capital structure on a telecommunications company in Indonesia. In processing data, we are using analysis of variance, partial adjustment model and panel data regression techniques. The result of the research shows that there is no difference between capital structure of the company, based on ownership structure and the technology used. Telecommunications companies in Indonesia have a target capital structure with the speed adjustment of 74.89% within 3 months. A significant factor affecting capital structure is profitability. Capital structure on telecommunication operators companies in Indonesia did not have differences, but it has a target of capital structure and determining structure recently affected by level profitability.

Keywords- ANOVA; Data Panel; Capital Structure; Partial Adjustment Model; Telecommunication

I. INTRODUCTION

Recent development of telecommunication markets showed growth of around 3% to 9% in Asian countries. The factors driving this growth is strong and is an increasingly rapid technological change and increased investment in the field of infrastructure network [1]. Although the development of the telecommunication market is still relatively good, it did not follow the development level of profits earned by the operator. A less scrupulous investment patterns and changes in technology that quickly led to the growth of the profit decline. A price war among operators is inevitable to maintain market share and cover the fixed cost.

In general, financial decisions of a company can be categorized into three major groups, namely, the decision of the division of investment, decision of the results (dividends) and decision of funding. Funding decisions are closely related to the selection of the source of funds, whether coming from inside (internal) or outside (external) companies. Companies that source of funding comes from within (internal equity financing), namely, profit withheld results stemming from the company's business activities, reserves and depreciation. While coming from outside (external financing) are funds from the lenders, owners/shareholders and stakeholders of the company. The proportion of long-term debt and private equity in meeting the needs of corporate funds hereinafter referred to capital structure [2].

Research on capital structure more leads to empirical research (empirical research), compared with development in theory. Research questions within the capital structure are always associate with the maximum with company capital structure optimal. In The Capital Structure Puzzle by Myers [3], companies prefer funding from within compared with doing the borrowing in the form of debt. Funding strategies like this turn out not to be always right to increase the value of the company. The capital structure of the company is good depending on the behavior of the management of the company itself. In the end, it is referred to as the financing behavior.

As for the problems in this research, they are as follows:

1. is there any difference in the structure of capital at a telecommunications company in Indonesia between the company, based on the structure of ownership and disruptive technological change?
2. does the company telecommunications operators in Indonesia have a target leverage and how to make adjustments to the target company?
3. how to influence company characteristics (size, profitability, age of firm, asset structure, growth and business risk) against the capital structure on a telecommunications company in Indonesia?

II. THEORETICAL REVIEW

Modigliani and Miller Model I (a proposition I) without tax. In the model of Modigliani and Miller (MM), it is said that the value of the company by using debt are the same. His debt has no major impact on the value of the company. Modigliani and Miller Model II (Proposition II) without tax. An implication of MM Proposition I using a rate of return of shareholders increased in linear in structure of capital increases. Modigliani and Miller Model I (a proposition I) with tax. In a variety of economic models, Modigliani and Miller made an assumption early figures for cost of capital to facilitate analysis. Many are

doing this because the assumption of criticism against eliminating the tax on companies factor in the cost of capital in the company. Modigliani and Miller Model II (Proposition II) with tax. After taxes are included in the company's capital structure there is the assumption that any increase in the debt reduces the cost of capital, which will eventually reduce the cost of the debt itself. According to trade-offs an attribute theory expressed by Myers [4], the company will owe a certain debt to the level, where tax savings (tax shields) of additional debt is equal to the cost of financial hardship (financial distress). The optimal debt level is reached when the tax savings (tax shields) reached maximum amount towards the cost of financial distress (costs of financial distress).

Pecking Order theory was first introduced by Donalson [5] while Pecking Order Theory plantings done by Myers [3]. Briefly this theory states that the company may make the process of funding the order of funding easier and cheaper.

One of the differences between the theory of Trade Off and Pecking Order Theory is the argument regarding adjustments to long-term leverage targets. According to the theory of Trade Off, with a target capital structure, then there will be adjustments to long-term leverage targets. Meanwhile, according to the theory of Pecking Order, the company decided the issue solely funding sources related to the cost of capital. Therefore, internal funds are preferred rather than externally, and the source of funds through debt preferred equity, so that companies do not make adjustments to long-term leverage targets [6].

Jalilvand and Harris [7], declared the existence of a partial adjustment (partial adjustment) toward long-term financial targets, with speed adjustment that varies between companies over time. Hovakimian et al. [8] States that the company is likely to adjust its capital structure and moving toward a target leverage. Target leverage this will change over time in line with changes in the company's profit and share price. Korajczyk and Levi [9] stated that the deviation from the target leverage explains funding options, and the company is consistent with the theory of a Trade Off.

Ozkan [10] declared that the company has a target of leverage and make adjustments with relatively quickly towards the target. This shows the importance of costs so as not to be on target and cost adjustments. Adjustment Model to leverage long-term targets (Partial Adjustment Model) can be explained as follows. For example, long-term target leverage an enterprise is a function of several variables:

$$DA_{it}^* = \sum_k \beta_k x_{kit} + \varepsilon_{it} \quad (1)$$

$$DA_{it} - DA_{it-1} = \lambda (DA_{it}^* - DA_{it-1}^*) \quad (2)$$

$$DA_{it} = (1 - \lambda) DA_{it-1} + \sum_k \lambda \beta_k x_{kit} + \lambda \varepsilon_{it} \quad (3)$$

That can be wrote by :

$$DA_{it} = \gamma_0 DA_{it-1} + \sum_k \gamma_k x_{kit} + u_{it} \quad (4)$$

Where : $\gamma_0 = 1 - \lambda$; $\gamma_k = \lambda \beta_k$ and $u_{it} = \lambda \varepsilon_{it}$ (u_{it} has the same properties with ε_{it}). Further speed of adjustments (λ) can be calculated from the $(1 - \gamma_0)$.

Until recently, the theory that is used as a reference in determining the factors affecting the capital structure is according to Harris and Raviv [11]. These factors are called determinants of capital structure, namely: volatility, bankruptcy probability, fixed assets, non debt tax shield, advertising, R&D expenditures, profitability, growth, size oportunities, free cash flow, and uniqueness.

III. EMPIRICAL REVIEW

Rajan and Zigales [12], Ozkan [10] proposed that the leverage previously have an influence on the structure of capital at this time. With time lag = 1, $DA =$ function f (DA t-1, size, growth, profitability, liquidity, tangibility). DA is the current capital structure formed by DA t-1 (the previous capital structure), the size of the company, the opportunity for growth, the level of liquidity and tangibilitas. The results of this study indicate that the target capital structure has an impact on the formation of the current capital structure. Krishnan and Moyer [13] investigated how capital structure management in companies in various countries and industrial models used $Leverage = f$ (Asset Structure, Growth, Size, Profitability, R & amp; D, Tax Rate, Risk Country, Industry). Seppa [14], investigated the relationship between financial factors at various companies with different sizes of companies by using the method of correlation and regression. Decisions in capital structure in the company of non financial companies fueled by large or small (size of firm). Research performed by Hsiang, et al. [15] in the IT industry in Taiwan showed that there are influences from R&D ratio, past profitability, firm size, tangible asset, capital intensity, and firm age of leverage. Bokpin [16], investigated the relationship between macroeconomics and capital structure in a variety of emerging country including Indonesia. By using the panel data regression $Y_{it} = \beta_0 + \beta_1 MACRO_{it} + \varepsilon_{it}$; it is known which of the factors that affect the macroeconomic structure of capital across countries. The result is a negative factor to the GDP formation of capital structure, while inflation, stockmarket, investment opportunity set, strong profitability became the driving factor in the formation of capital structure. Al-Najjar and Taylor [17], investigated the relationship between the comparatively ownership structures with capital structure. This research applies econometric models based on single equation and reduced form equation using data panel. The results obtained are described through the ownership structure of the asset structure, business risk, growth opportunity, firm size has an impact on capital structure. Su [18], investigated the relationship

between ownership structure and diversification of company capital structure. Using a Parametric approach Two Sample t- test by using a test as well as a non parametric approach to the Kolmogorov Smirnov test and Kruskal Wallis Test and Rank Analysis Cluster. The results obtained are consistent with predictions of where to improve the level of a company can be done by adding to the debt. The debt became one part of the capital structure of the company. Abor and Biekpe [19], investigate how the use of capital structure in Small Medium Enterprise (SME) in Ghana, Africa using a regression model of the relationship between the level of capital structure based on firm long term debt and short term debt ratio. As a result there is influence between age of firm, size, structure, the profitability of the asset growth affect structure capital mainly by using short term debt ratio. According to Kalavakunta [20], the development of telecommunications technology very quickly. New investors (new entrants) who entered the telecommunications industry can directly use the latest technologies while long player (incumbent) have to go through some of the evolution of technology. The company through some of the evolution of technology is called disruptive technological change, where the strategy does is leave the old technology and into the latest technology. Two conditions the company will form a different capital structures. Ahmed [21] doing research on optimal capital structure in a telecommunications company in the United Kingdom (UK). The results of this study showed there is no optimum capital structure at the same ratios at the company in the telecommunications industry in the UK.

IV. THE HYPOTHESIS OF RESEARCH

1. There is no significant difference between capital structure between companies on telecommunications companies in Indonesia.
2. There are no significant differences in capital structure of the company ownership is concentrated and distributed at a telecommunications company in Indonesia.
3. There is no significant difference between capital structure of companies and new entrants in a disruptive meets the technology used at a telecommunications company in Indonesia.
4. There are no significant effects between capital structure leverage lag at a telecommunications company in Indonesia.
5. No significant effects of size, profitability, age of firm, asset structure, growth, business risk capital structure on a telecommunications company in Indonesia.

V. RESEARCH METHODS

This study uses secondary data collected from various sources and official literatures such as the financial statements of each company, is bind to the data structure of capital, profitability, company size, age of firm, asset structure, growth, business risk, and leverage, the lag structure of ownership information, technological change disruptive information and stock price information. This research was conducted in Indonesia in the company's telecommunications operator in Indonesia using the data panel in the period from 2006 to 2011 which has been listed on the Indonesia stock exchange.

VI. METHODS OF ANALYSIS

1. To analyze whether there is a difference of capital structure based on the type of company, the structure of ownership, disruptive technological change is done using Analysis of Variance (ANOVA)
2. To see significant effects between capital structure leverage lag at a telecommunications company in Indonesia can be generated with the following models:

$$DER_{it} = \gamma_0 + \gamma_1 L_LEV_{it-1} + u_{it}$$

3. To see the influence of company characteristics (size, profitability, age of firm, asset structure, growth and business risk) against the capital structure can be generated with the following model:

$$DER_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 PROFIT_{it} + \beta_3 AGE_{it} + \beta_4 STRUCT_{it} + \beta_5 GROWTH_{it} + \beta_6 B_RISK_{it} + \varepsilon_{it}$$

VII. RESULTS AND DISCUSSION

A. Difference between Capital Structure of the Company

Table 1 shows the characteristics of telecommunications companies in 5 years back. It doesn't look very striking characteristics exclude age of company.

From Table 2 (sig < 0.05) below, it can be concluded that there is a difference in the structure of capital in Indonesia that telecommunications companies measured by the mean value.

TABLE 1 DESKRIPTIF STATISTICS DER, SIZE, AGE, GROWTH, PROFITABILITY, BUSINESS RISK DAN Asset Structure

StatistikVariable	Observations	Mean	Median	Maximum	Minimum	Std. Dev.
DER	120	1.033	0.901	4.273	0.282	0.599
SIZE	120	11.693	13.115	14.997	4.027	3.392
AGE	120	99.900	100.500	193.000	3.000	48.392
GROWTH	120	1.120	1.184	3.374	0.000	0.862
PROFITABILITY	120	0.142	0.121	0.436	-0.003	0.093
BUSINESS RISK	120	3.417	2.931	7.926	1.592	1.770
ASSET STRUCTURE	120	0.790	0.833	0.927	0.059	0.137

TABLE 2 ANOVA-1

			Sum of Squares	df	Mean Square	F	Sig
DER*PERUSAHAAN	Between Groups	(Combined)	18,646	4	4,661	22,269	,000
	Within Groups		24,072	115	,209		
	Total		42,718	119			

B. Differences in Capital Structure Based on the Distribution of Share Ownership

From Table 4 ($\text{sig} < 0.05$) below, it can be concluded that there is a difference in the structure of capital in Indonesia for telecommunications companies that distributed ownership and not distributed. Table 3 shows the capital structure of the telecommunications company in the five years based on the number of owners, for a distributed group more diverse than of not distributed.

TABLE 3 CAPITAL STRUCTURE OF TELECOMMUNICATION INDONESIA 2006 – 2011 BASED ON THE DISTRIBUTION OF SHARE OWNERSHIP

share ownership	Observations	Mean	Std. Dev.
distributed	48	1.2049	0.8829
not distributed	72	0.9187	0.2288
TOTAL	120	1.0332	0.5991

TABLE 4 ANOVA-2

			Sum of Squares	df	Mean Square	F	Sig
DER*DISTRIBUS	Between Groups	(Combined)	2,360	1	2,360	6,900	,010
	Within Groups		40,358	118	,342		
	Total		42,718	119			

C. Differences Capital Structure Based on Disruptive Technological Change

From Table 6 ($\text{sig} < 0.05$) below, it can be concluded that there is a difference in the structure of capital in Indonesia with the telecommunications companies of technological change. Table 5 shows that companies that use the technology are having high capital structure, and it is in accordance with the conditions of the companies that are growing.

TABLE 5 CAPITAL STRUCTURE OF TELECOMMUNICATION INDONESIA 2006 – 2011 BASED ON THE DISRUPTIVE TECHNOLOGICAL CHANGE

Technological Change Level	Observations	Mean	Std. Dev.
LOW	24	0.8352	0.1362
MEDIUM	48	1.2711	0.8520
HIGH	48	0.8942	0.2761
TOTAL	120	1.0332	0.5991

TABLE 6 ANOVA-3

			Sum of Squares	df	Mean Square	F	Sig
DER*DESTRUCTIVE	Between Groups	(Combined)	4,586	2	2,293	7,035	,001

Within Groups	38,132	117	,326
Total	42,718	119	

D. Target Leverage on the Company's Telecommunications Operator in Indonesia

Specifications model to test the mean reversion of leverage or adjustment toward a target leverage in this research is done by the method of partial adjustment model used also by Jalilvand and Harris [7]; Fama and Frech [22]; Flannery and Rangan [23] as follows:

$$DA_{it} = \gamma_0 DA_{it-1} + \sum_k \gamma_k x_{kit} + u_{it}$$

Table 7 showed that significant variables influencing DER are DER (t-1), Size, Profitability (-), Age (-), and Business Risk (-). The level of the coefficients γ_0 of the DER is 0.2511. DER which means there is a positive relationship of 25.11%. Where $\gamma_0 = 1 - \lambda$, so, $\lambda = 74.89\%$ mean = rate of speed adjustment of 74.89% within 1 year. A similar study carried out by Dang (2006) for companies in the United Kingdom shows the adjustment speed is between 53-57% within one year.

TABLE 7 RESULTS OF REGRESSION COMBINATION MODEL TOT ANDPOT

Dependent Variable: DER				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER (t-1)	0.251186	0.092012	2.729920	0.0076
SIZE	0.074388	0.031473	2.363590	0.0202
PROFITABILITY	-2.694304	0.936939	-2.875645	0.0050
AGE	-0.004743	0.002320	-2.043899	0.0438
ASSET STRUCTURE	1.208313	0.424560	2.846034	0.0054
GROWTH	0.133225	0.068461	1.946004	0.0547
BUSINESS RISK	-0.088773	0.040884	-2.171311	0.0325
R-squared	0.383419			

E. Influence of Size, Profitability, Asset, the Age Structure, Growth and Business Risk to Capital Structure

Panel data regression results using a fixed effect method of data-financial data telecommunications company in Indonesia for the period from 2006 to 2011 can be seen in Table 8.

TABLE 8 TESTING ESTIMATION RESULTS THE INFLUENCE OF SIZE, PROFITABILITY, ASSET, THE AGE STRUCTURE, GROWTH AND BUSINESS RISK OF DEBT EQUITY RATIO

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.296425	0.786161	2.921061	0.0042
SIZE	-0.064718	0.060881	-1.063030	0.2901
PROFITABILITY	-2.986620	0.832231	-3.588692	0.0005
AGE	-0.001655	0.002535	-0.652882	0.5152
ASSET STRUCTURE	-0.128586	0.376000	-0.341983	0.7330
GROWTH	-0.041520	0.050639	-0.819923	0.4140
BUSINESS RISK	0.067748	0.054064	1.253113	0.2128
R-squared	0.524033			
F-statistic	12.00077			
Prob(F-statistic)	0.000000			

$$DER = 2.296 - 0.065SIZE - 2.987PROFIT - 0.001AGE - 0.128STRUCT - 0.042GROWTH + 0.068 B_RISK$$

VIII. OVERALL CONCLUSION

The research found that the company's capital structure pattern of the telecommunications operator in Indonesia showed the difference of each other well seen from the distribution of ownership and adoption of technology. The company has a target of leverage and speed adjustment to the target leverage leverage is considered optimal and is in accordance with the predictions of the Trade Of Theory. Factors influencing the pattern of capital structure is profitability.

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