The Effect of Profitability, Asset Tangibility, Corporate Tax, Non-debt Tax Shield and Inflation upon the Financial Capital Structure of the Manufacturing Companies listed on the Indonesian Stock Exchange

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ABSTRACT

This study seeks to obtain empirical evidence about the effects of profitability, asset tangibility, corporate tax, non-debt tax shield, and rate of inflation upon the financial capital structure of the Manufacturing Companies listed on the Indonesia Stock Exchange. The research hypothesis is that return on assets, tangible assets, corporate tax, non-debt tax shield, and rate of inflationmay have significant influence, whether as a group or individually, upon a company's financial capital structure. The population for this study are the manufacturing companies in the consumption goods sector that are listed on the Indonesia Stock Exchange from 2014 to 2016. 36 of these Manufacturing Companies make up the research sample. The methods of statistical data analysis we used in this study are descriptive statistics and tests of classical assumption as well as multiple linear regression. The results of data processing for individual variables show that profitability and Non-debt tax shield have a negative influence upon the Financial Capital Structure whereas and Tangible Assets have a positive influence upon the Financial Capital Structure. Meanwhile, neither Corporate Tax nor Inflation Rate has any significant influence upon the Financial Capital Structure of the Manufacturing Companies listed on the Indonesia Stock Exchange. At the same time, it can be shown that that profitability, Asset Tangibility, Corporate Tax, Non-Debt Tax Shield, and rate of inflation together have a significant influence upon the Financial Capital Structure of the Manufacturing Companies Listed on the Indonesia Stock Exchange.

Type of paper: Empirical

Keywords: Profitability, asset tangibility, corporate tax, non-debt tax shield, inflation, manufacturing companies

1.   Introduction

Financial capital structure is an important issue for any company since the company's financial capital structure would have a direct effect upon its financial position. A company with a bad financial capital structure, such as one that carries a very large debt, would suffer a heavy

Table 1. Research Gaps

Dependent Variables	Independent Variables	Influence	Previous Researchers
Financial Capital Structure	Profitability (Return On Assets)	Negative Relationship	Nassar S (2016)
		Positive Relationship	Baddar and Saeed(2013)
	Asset Tangibility	Negative Relationship	Rajan and Zingales(1995)
		Positive Relationship	A.O Olankule and Emmanuel O. Oni (2015)
	Corporate Tax	Negative Relationship	Chen Deng (2015)
		Positive Relationship	Michael P Devereux, GiorgiaMaffini, Jing Xing (2015)
	Non Debt Tax Shield	Negative Relationship	Gill, Amarjit, NabuBiger, ChenpingPai, and SmitaBhutani. (2009)
		Positive Relationship	Ali, Khizer, Muhammad FarhanAkhtar, AbdShamaSada (2011)
	Inflation Rate	Negative Relationship	Shalom Hochman and OdedPalmon (1983)
		Positive Relationship	Hatzinikolaou, Katsimbris, and Noulas (2002)

financial burden. A company can achieve financial balance if it does not face any financial disturbances, or in other words when it achieves a balance between the amount of capital available and the amount of capital needed. There are two methods for managing a company's capital structure. The first method is to fulfill the need for capital with capital from an external source, known as "spending with debt." The second method is to fulfill the company's capital needs with its own internal resources, known as "spending its own capital." Funding decisions greatly determine the company's ability to perform its operations and would also affect the company's own risk profile. The analysis of capital structure basically seeks to determine the effect of liabilities upon a company's stock price, which would inform the company's decision on whether it should incorporate a debt component into its capital structure. Many successful entrepreneurs and big companies in the real world use debt as an effective way to grow their business quickly; the ideal course of action seems to be taking on debt within certain limits so that the company would still be able to repay the loan with interest even in difficult economic situations. Any liabilities beyond this limit would increase the risks that the company must face, including financial difficulties, failure to pay loan interest and principal, all the way to bankruptcy.

In reality, it is quite difficult for a company to determine the best financial capital structure along with the appropriate spending composition. It's easier for the company to estimate a range of leverage exposures that would be appropriate for it. Previous studies have indicated a research gap in the independent variables that affect financial capital structure. These independent variables are profitability, asset tangibility, corporate tax, non-debt tax shield, and inflation. Having identified this research gap, it becomes necessary to study the effect of those variables upon financial capital structure. The gaps in prior research related to this study are summarized in the table 1.

The inconsistency in previous research results has motivated us to examine the abovementioned variables for manufacturing companies listed on the Indonesia Stock

Exchange from 2014 to 2016. The reason for this choice is that most of the companies listed in Indonesia Stock Exchange are engaged in the manufacturing sector, so the possible sample size would be larger and the results would be more representative of all companies listed on the Stock Exchange.

The main objective of this paper is to examine the impacts or effects of Profitability, Asset Tangibility, Corporate Tax, Non-debt Tax Shield, and Rate of Inflation upon the financial capital structures of Manufacturing companies listed on the Indonesia Stock Exchange. We will use data on 36 firms listed as manufacturing sector companies on the Indonesia stock exchange (BEI) within the period 2014-2016.

2. Literature Review

2.1 *Financial Capital Structure*

Modern capital structure theory began in 1958, when the professors Franco Modigliani and Merton Miller (MM) published what has been called the most influential finance article ever written. MM's study was based on some strong assumptions, such as no taxes, no brokerage fees, no fees for bankruptcy, investors can borrow at the same rate as the company, all investors have the same information as the management about the company's future investment opportunities, and earnings before interest and tax (EBIT) are not affected by the use of debt.

2.2 *Profitability (Return on Assets)*

Profitability is a firm's performance in generating profit through the use of its assets, whether current and fixed, in productive activities as shown in the return on assets that allows them to self-finance from this internally generated fund. A basic measure of bank profitability is the return on assets, the net profit after taxes per dollar of assets (Miskhin & Eakins, 2006)

$$Return\ on\ Asset\ (ROA) = \frac{NetIncome}{Total\ Assets} \tag{1}$$

2.3 *Asset Tangibility*

Tangible Assets are physical assets that go through a relatively long period of use in the operation of the business, such as land, buildings, machinery, and construction in progress that can be offered as collateral to creditors in case of bankruptcy. The scale is used is a rational scale. A high ratio of fixed to total assets provides creditors with a high level of security since they'd be able to liquidate more assets in case bankruptcy. (Baker & Martin, 2011)

$$Tangibility = \frac{FixedAssets}{TotalAssets} \tag{2}$$

2.4 *Corporate Tax*

Taxes and tax rates, especially Corporate Income Tax Article 23, have important implications to business decisions and therefore the literature considers taxes as a determinant variable of

capital structure (Datta, 2008). According to Brigham (1994), interest is a deductible expense, and the deduction is of great value to firms subject to high corporate income tax rates under Article 23. Companies with high taxes seek to reduce their tax burden by exploiting interest tax shield from loan interest. The corporate tax scrutinized in this study is the amount of corporate tax with profit before tax (EBT) as measured by a rational scale. The formula for calculating corporate tax is:

$$Tax = \frac{EBT - EAT}{TotalAssets} \tag{3}$$

2.5 Non-debt tax shield

Non-debt tax shield are fixed tax-deductible expenses such as depreciation, depletion, amortization, research and development expense, investment tax credit, and others that act as tax shield with similar benefits to interest expenses from debt financing, thus lowering the probability that the firm would have to incur more debt. Ali et al (2011) computed it by dividing depreciation expenses with total assets.

$$Non - Debt\ Tax\ Shield = \frac{Depreciation}{TotalAssets} \tag{4}$$

2.6 Inflation Rate

Inflation is a condition where there is a sharp increase in absolute prices that lasts for a long time (Khalwaty, 2000). Along with the rise in prices, the intrinsic value of currency falls sharply. Interest rates are conventional instruments for controlling or suppressing the growth of inflation. High interest rates would suck up the money circulating in the economy. The policy of raising interest rates to control inflation affects the firm's preference for using its own debt or capital (equity) in its capital structure. This is because high interest rates would increase the cost of capital caused by the use of debt. The formula for calculating inflation rate is as follows:

$$l = \frac{IHKt - IHKt - l}{IHKt - l} \tag{5}$$

3. Research Methodology

This study is a causal research that aims to test the hypothesis and seeks to explain the phenomenon in the form of relationships between variables. In other words, the main purpose of this study is to identify the causal relationship between the various variables. This type of research belongs to a kind of quantitative historical research, whereby the study seeks to explain the causes or effects of past events and current phenomena or predict future conditions.

3.1 Operational Definition and Variable Measurement Scales

Operational definition can be defined as an operational concept that describes the characteristics of the object into observable elements so that the concept can be measured and operationalized into the study. In the operational definition, any concept of the variables used in the study should have a clear definition.

Table 2. Operational Definition and Variable Measurement Scale

Number	Variable	Definition	Measurement Scale	Formula
1	Capital Structure (Y)	Comparative ratio between Total Debt and Total Asset	Ratio	$DAR = \dfrac{TotalDebt}{TotalAssets}$
2	Profitability (Return on assets) (X1)	Comparative ratio between Net Profit before tax and Total Assets	Ratio	$ROA = \dfrac{NetIncome}{TotalAssets}$
3	Asset Tangibility (X2)	Comparative ratio between Fixed Assets and TotalAsset	Ratio	$Tangibility\ Assets = \dfrac{FixedAssets}{TotalAssets}$
4	Corporate Tax (X3)	Comparative ratio between EBT EAT and Total Asset	Ratio	$Tax = \dfrac{EBT - EAT}{TotalAssets}$
5	Non-Debt Tax Shield (X4)	Comparative ratio between Depreciation and Amortization with Total Assets	Ratio	$Non-debt\ tax\ shield = \dfrac{Depreciation}{TotalAssets}$
6	Inflation Rate (X5)	The rise in prices generally and continuously	Ratio	$I = \dfrac{IHKt - IHKt - l}{IHKt - l}$

Source: Various Journals

3.2   *Population and Research Sample*

The population for this study is made up of all the manufacturing companies listed on the Indonesia Stock Exchange from 2014 to 2016. The sampling method is Non-probability Sampling, specifically Purposive Sampling. The sample for study is the financial statements of the Manufacturing Companies that include the complete set of data needed to detect all existing variables.

The sample criteria used are as follows:
- Consumer goods manufacturing industry companies listed on the Indonesia Stock Exchange from 2014 to 2016.
- Manufacturing companies in the consumer goods industry sector that published financial statements from 2014 to 2016.
- The financial statements defined in the two criteria above includes adequate data on the calculation of capital structure, return on assets, tangibility, corporate tax, non-debt tax shield, and inflation.

4.   **Results**

4.1   *Simultaneous Test (F-Test)*

This test aims to determine whether the independent variables together affect the dependent variable significantly. The results of the F test are as follows:

The results of the F test above show an F value of 6.943 with a significance level of 0.00. The proposed error rate is 0.05. This means a significance value of F <0.05. It can be concluded that all independent variables, namely Profitability (Return on Assets) (X1), Asset Tangibility (X2), Corporate Tax (X3), Non-debt Tax Shield (X4), and Inflation Rate (X5) together have a significant influence upon Financial Capital Structure (Y).

Table 3. Numbering of samples obtained according to the criteria

Number	Company Name	Code	Criteria			Sample Number
			1	2	3	
1	Akasha Wira International Tbk	ADES	√	√	√	1
2	Tiga Pilar Sejahtera Food Tbk	AISA	√	-	√	
3	Tri Banyau Tirta Tbk	ALTO	√	√	√	2
4	Cahaya Kalbar Tbk	CEKA	√	√	√	3
5	Davomas AbadiTbk	DAVO	√	-	-	
6	Delta Djakarta Tbk	DLTA	√	√	√	4
7	Darya Varia Laboratoria Tbk	DVLA	√	√	√	5
8	Gudang Garam Tbk	GGRM	√	√	√	6
9	Hanjaya Mandala Sampoerna Tbk	HMSP	√	√	√	7
10	Indofood CBP Sukses Makmur Tbk	ICBP	√	√	√	8
11	Indofarma Tbk	INAF	√	√	√	9
12	Indofood Sukses Makmur Tbk	INDF	√	√	√	10
13	Kimia Farma Tbk	KAEF	√	√	√	11
14	Kedawung Setia Industrial Tbk	KDSI	√	-	√	
15	Kedaung Indah Can Tbk	KICI	√	√	√	12
16	Kalbe FarmaTbk	KLBF	√	√	√	13
17	Langgeng Makmur Industry Tbk	LMPI	√	√	√	14
18	Martina Berto Tbk	MBTO	√	√	√	15
19	Merck Tbk	MERK	√	√	√	16
20	Multi Bintang Indonesia Tbk	MLBI	√	√	√	17
21	Mustika Ratu Tbk	MRAT	√	√	√	18
22	Mayora Indah Tbk	MYOR	√	-	√	19
23	Prashida Aneka Niaga Tbk	PSDN	√	-	√	
24	Pyridam Farma Tbk	PYFA	√	√	√	20
25	Bentoel International Investama Tbk	RMBA	√	√	√	21
26	Nippon Indosari Corporindo Tbk	ROTI	√	√	√	22
27	Schering Plough Indonesia Tbk	SCPI	√	√	√	23
28	Sekar Bumi Tbk	SKBM	√	√	√	24
29	Sekar Laut Tbk	SKLT	√	√	√	25
30	Taisho Pharmaceutical Indonesia Tbk	SQBB	√	√	√	26
31	Siantar Top Tbk	STTP	√	√	√	27
32	Mandom Indonesia Tbk	TCID	√	√	√	28
33	Tempo Scan Pasific Tbk	TSPC	√	√	√	29
34	Ultrajaya Milk Industry Company Tbk	ULTJ	√	√	√	30
35	Unilever Indonesia Tbk	UNVR	√	-	√	
36	Wismilak Inti Makmur Tbk	WIIM	√	√	√	31

Table 4. Simultaneous Test (ANOVA[b])

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	10627.736	5	2125.547	6.943	.000[a]
Residual	26635.450	87	306.155		
Total	37263.186	92			

Source : Result of SPSS Processing, 2017

Table 5. Partial Tests (*t*-Test)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	*Std. Error*	*Beta*		
1 (Constant)	*35.475*	*10.910*		*3.352*	*.002*
ROA	*-.643*	*.225*	*-.426*	*-2.861*	*.005*
TANGIBILITY	*.437*	*.129*	*.318*	*3.389*	*.001*
TAX	*1.121*	*.644*	*.258*	*1.741*	*.085*
NON DEBT TAX	*-.423*	*.156*	*-.249*	*-2.712*	*.008*
INFLATION	*1.005*	*1.565*	*.058*	*.642*	*.523*

Source : Result of SPSS Processing, 2017

4.2   Individual Test (t-Test)

This test aims to determine whether each independent variable has a significant influence upon the dependent variable. The test threshold used (α) is 0.05. The acceptance or rejection of hypotheses relies upon the following criteria:
- If the *t*-value of significance> 0.05, then H0 is accepted and H1 is rejected. This means that the independent variable in question has no individual effect upon the dependent variable.
- If the significance value *t* <0.05, then H0 is rejected and H1 is accepted. This means that the independent variable in question individually affects the dependent variable.

According to Table 5, the results of regression analysis show that the Return on Assets negatively affects financial capital structure, asset tangibility positively affects capital structure, and Non-Debt Tax Shield negatively affects financial capital structure. Meanwhile, Corporate Tax and Inflation Rate do not affect financial capital structure. The nature of each variable's influence can be seen in whether the betaunstandardized coefficient variable is positive, while significance can be assessed by comparing the variable's significance value with 0.05; if the significance value < 0.05 then the independent variable has a significant individual effect upon the dependent variable. The significance offor Return on Assets is 0.005, which is smaller than 0.05, while its betaunstandardized coefficient has a negative value of -0.643. This result shows that Return on assets has a negative effect upon capital structure. The significance for Tangibility is 0.001 – less than 0.05 -- while the value of its beta unstandardized coefficient is positive at 0.437. These results indicate that Tangibility positively affects the capital structure. The significance for Corporate tax is 0.085, which is greater than 0.05, while the value of its beta unstandardized coefficient is positive value at 1.121. This result shows that Corporatetax does not affect capital structure. The significance of Non-debt tax shield is 0.008, smaller than 0.05, while its unstandardized beta coefficient has a negative value of 0.423. This indicates that non-debt tax shield has a negative effect upon capital structure. The significance for Inflation is 0.523, which is greater than 0.05, while its beta unstandardized coefficient has a positive value of 1.005. This result shows that the rate of inflation has no effect upon financial capital structure.

5.   Discussion

The results of the examination of the research variables as a group shows that Profitability (Return on assets), Asset Tangibility, Corporate tax, Non-debt tax shield and Inflation together have a significant effect upon Capital Structure as shown by their significance value F <0.05,

specifically F = 0.010. This result is in accord with a prior study by Boniface (2009), which concluded that profitability, asset tangibility, growth opportunity, non-debt tax shield, corporate tax, and inflation together have a significant effect upon capital structure.

Meanwhile, the results of individual testing for each independent variable are:

- Probability (Return on assets) negatively affects the dependent variable of capital structure. This is shown by a significance value of $t = 0.005$, which is smaller than the threshold value of 0.05. Meanwhile, the unstandardized beta coefficient has a negative value of -0.643. This result concurs with a previous study by Nassar S (2016) but differs from the results of research conducted by Baddar and Saed (2013). Baddar and Saed(2013) found that Return on assets had a positive effect upon Financial Capital Structure.
- Tangibility positively affects the dependent variable of Capital Structure. Its significance value of $t = 0.001$ is smaller than the threshold value of 0.05, while the beta unstandardized coefficient has a positive value of 0.437. The results of this study are in accord with previous research by A.O Olankule and Emmanuel O. Oni (2015). However, Rajan and Zingales(1995) found to the contrary that Tangibility has no effect on Financial Capital Structure.
- Corporate tax does not affect the dependent variable of capital structure. The significance value of $t = 0.085$ is greater than the threshold value of 0.05, while the value of the beta unstandardized coefficient is positive at 1.121. The results of this study are in accord with a previous study by Michael P Devereux (2015) but different from the results of research by Chen Deng (2015). Chen Deng (2015) found in his research that Corporate Tax was influential and insignificant to Financial Capital Structure.
- Non-debt tax shield negatively affects the dependent variable of capital structure. The significance value of $t = 0.008$ is smaller than the threshold value of 0.05, while the beta unstandardized coefficient shows a negative value of -0.423. The results of this study are consistent with previous research by Gill, Amarjit, Nabu Biger, Chenping Pai and Smita Bhutani(2009) but different from those of Ali, Khizer, Muhammad Farhan Akhtar, Abd Shama Sada(2011). Ali, Khizer, Muhammad Farhan Akhtar, Abd Shama Sada(2011) found that Non-debt Tax Shield had a positive and significant effect on Financial Capital Structure.
- Inflation does not affect the dependent variable of Capital Structure. The significance value of 0.523 is greater than the threshold value of 0.05, while the beta unstandardized coefficient has a positive value of 1.005. A previous study by Shalom Hochman and Oded Palmon(1983) found that the rate of inflation had a negative effect on Financial Capital Structure, but Hatzinikolaou and Katsimbiris(2002) found that Inflation positively affected Financial Capital Structure.

6.   Conclusion

This study aims to examine whether return on assets, asset tangibility, corporate tax, non-debt tax shield, and rate of inflation have an effect upon the Capital Structure of Manufacturing Companies listed on the Indonesia Stock Exchange. Based on the results discussed earlier, the conclusions of this study are as follows:

- The results of this study indicate that Return on assets, Asset Tangibility, Corporate Tax, Non-debt tax shield, and inflation together as a group significantly influence the Capital Structure of Manufacturing Companies listed on the Indonesia Stock Exchange, with a calculated F-value of 6.943 and a significance of 0.000.

- Meanwhile, the results of for individual variables indicate that Return on assets negatively affects capital structure, Tangibility positively affects capital structure and Non-debt tax shield negatively affects financial capital structure, while Corporate's tax and Inflation rate d not affect capital structure.

According to those results, we would like to suggest the following directions for further research:

- Follow-up studies should consider adding the variables of profitability and growth opportunity to see whether they affect the Financial Capital Structure of Manufacturing Companies listed on the Indonesian Stock Exchange.
- Adding another year of observationwould mean that the result obtained can be used as the basis of management decision.
- The calculation results of the coefficient of determination shows an R-Square value equal to 0.244. This means that 24.4% of the capital structure is influenced by return on assets, tangibility, corporate tax, non-debt tax shield and inflation rate, while the remaining 75.6% must be explained by factors outside this research model. The results indicate that the regression model still needs to be improved, so follow-up studies should consider adding several other independent variables that may affect capital structure such as firm size, collateral, dividend policy, and corporate ownership.

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