

Determinant of Long-Term Liabilities the Agricultural Company: Empirical Evidence from the Indonesian Stock Exchange

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Abstract:

The purpose of this study is to analyze the influence of long-term liabilities determinants such as asset structure, the growth of a company, profitability, liquidity, non-debt tax shields, firm age, inflation, gross domestic product (GDP) and an interest rate on long-term liabilities of public-listed agricultural sector firms in Indonesia. This study used data from annual financial statements of 13 agricultural firms listed in Indonesia Stock Exchange over the period 2010-2015 while, inflation data are taken from central agency statistic Indonesia, interest rate data are taken from Bank of Indonesia and GDP data are taken from World Bank. The data was analyzed using panel data regression analysis. The results show that growth of company, profitability, liquidity, and firm age have significant effect to the long term debt to a total asset (LDTA). While the asset structure, non-debt tax shields, inflation, gross domestic product (GDP) and interest rate have no significant effect on the long term debt to a total asset (LDTA). This research is expected to complement the existing studies and can provide scientific contributions for future studies in addition to it can be used as a reference for company management to determine the company's funding.

Keywords - capital structure, data panel, pooled least square, long-term liabilities

INTRODUCTION

Capital structure is related to the source of funds, be it internal funding sources as well as external funding sources. The capital structure is a mix of funds between long-term debt and owner's equity that can maximize a company's value and maximize share price (Gitman and Zutter 2010). Companies should consider carefully in making capital structure policy, financial managers are interested in establishing sources of funds for corporate capital expenditure because in a business every decision taken can have implications on some financial aspects (Damodaran 2015).

Funding sources in the form of credit access from the financial institution is one of the obstacles in the development of agriculture industry, while the agricultural sector uses large land as capital asset in its operational activities, which means that it requires substantial funding because most of the investment used in this sector fulfilled by purchasing the land needed for operational, production or expansion purposes. In addition, infrastructure constraints from production centers into supply networks, competition in national markets towards agricultural imports, as well as the challenges of tariffs on agricultural products in highly developed countries are still challenged to be faced.

According to Brigham and Houston (2007), there are several factors that influence the decision of the company's capital structure such as sales stability, asset structure, operating leverage, growth rate, profitability, taxes, controls, management assertion, assertion of lender as well as assessment agencies, market conditions, Internal corporate conditions and financial flexibility. Bhaired and Lucey (2009) stated that age, size, level of intangible activity, ownership structure and the provision of collateral factors that affect capital structure decisions.

Anake *et al* (2014) examine important factors affecting capital structure decisions are profitability, tangibility, volatility (operating risk), growth opportunities and firm size. Ramjee and Gwatidzo (2012) argue that profitability and taxes have no effect on capital structure decisions. While Bayrakdaroglu *et al* (2013), Bassey *et al* (2014), Handoo and Sharma (2014), Gocmen and Sahin (2014) state that growth opportunities significantly influence capital structure decisions, which is inferred that fast-growing companies will need more capital, thus tending to use debt as a source of funding. Naseer and Mutairi (2015) argue that profitability, tangibility, and size factors have no effect on capital structure. This result is supported by Tandya research (2015) which concludes that profitability and size have no effect on capital structure decision. Jean and Viviani (2008), Sheikh and Wang (2011), Saputri and Margareta (2014), Imram and Akram (2015), Zerriaa and Noubbigh (2015), stated that the growth rate does not affect leverage; the higher the company grow the more potential it is to generate intangible assets so that the company prefers funding internally (Chen 2004).

Setyawan *et al* (2016) argue that liquidity does not affect the decision of capital structure. The empirical study of Yoshendy (2014) shows that the profitability, tangibility, and age of the company have the significant effect on capital

structure decisions while other variables such as firm size, non-debt tax shields, and corporate liquidity have no significant effect on capital structure decisions.

Noor (2015) results from a verdict that firm size and corporate growth significantly influence the decision of capital structure, while the profitability and liquidity variables do not affect the decision of capital structure while the asset structure variable has a positive but not significant influence. For the liquidity variable does not affect the decision of capital structure, the result has been in accordance with the pecking order theory that the higher the liquidity of a company then the company will tend to use internal funding.

Referring to some empirical studies and previous research, there are some inconsistencies (research gaps) in the determinants of capital structure, and few studies on the agricultural sector. While the agricultural sector is an interesting sector for research studies, especially in Indonesia. The agricultural sector in Indonesia is the main sector that plays a role in the absorption of the largest workforce compared to other sectors. In addition, Indonesia is a member of the G20 group which is a group of the largest economies and has the capacity to influence the map of the world's economy and trade. Moreover, it is also a country with the fourth largest population in the world and is the tenth largest producer of agricultural products.

This study is intended to re-examine determinant of long-term liabilities, especially in agricultural firms listed in Indonesia Stock Exchange over the period 2010-2015. The study consists of several industries in the agriculture sector such as food crop sub sector, plantation sub-sector, fishery sub-sector, and other sub-sectors with different characteristics, therefore it is expected that further research is suggested to classify according to their respective industries and adding other sectors to be used as research samples to be able to interpret to other sectors.

This research is expected to complement the existing studies and can provide scientific contributions for future studies in addition to it can be used as a reference for company management to determine the company's funding. Based on the above problem formulation, this research aims to analyze the picture of asset structure, growth, profitability, liquidity, non-debt tax shield, firm age, inflation rate, gross domestic product (GDP), interest rate for the long term liabilities and to analyze the influence of internal and external factors on the long-term liabilities.

LITERATURE REVIEW

Many researchers have studied on capital structure because it is very interesting and useful. Sheikh and Wang (2011) examined determinants of capital structure in manufacturing firms in Pakistan using panel data analysis, resulting in variables of profitability, earnings volatility and liquidity significantly negatively affect debt ratio, size variable significantly gives positive effect to debt ratio, variable of tangibility is negatively correlated to debt ratio, while variables of growth opportunities and non-debt tax shields have no significant relation to debt ratio.

Bassey et al (2014) analyzed the determinants of capital structure in plantation companies in Nigeria. Using panel data analysis, it results that variables of firm size, asset structure, tax, profitability, growth opportunity, significantly give a positive effect on short term debt ratio. While age, dividend payout, and risk are negatively related to short term debt ratio.

Alzomaia (2014) studied about capital structure determinants in some public companies in Saudi Arabia using data panel analysis resulting in variables of size and growth opportunities, which significantly give a positive effect on leverage. Variables of tangibility, profitability and business risk significantly give a negative effect on leverage.

Imran and Akram (2015) tested the determinants of the capital structure in manufacturing firms in Bangladesh resulting variables of managerial ownership, leverage, growth rate, profitability, debt service coverage ratio, liquidity, financial cost, free cash flow to firm, agency cost, and dividend payment which have negative and significant effect on capital structure. While tangibility and liquidity have a positive effect on long term debt as well as having a significantly negative effect on short term debt and total debt.

Handoo and Sharma (2014) studied the determinants of capital structure in companies in India and resulted in variables of profitability, growth asset tangibility, size, cost of debt, liquidity, financial distress, tax rate and debt serving capacity as well as age have a significant impact on short term and long term debt.

Zerriaa and Noubbigh (2015) analyzed the determinants of capital structure evidence listing companies in Tunisia and found variables of firm size and profitability, significantly give positive effect to debt ratio, growth opportunities, tangibility, while non-debt tax shields and interest rates give negative effect yet not significant to debt ratio.

Lim (2012) found that variables of profitability, firm size, non-debt tax shields, earnings volatility and non-circulating shares significantly effect on leverage.

Malinic et al (2013) examined the determinants of Capital Structure in Emerging Capital Markets in Serbia and argued that the liquidity, tangibility, profitability, and cash gap variables significantly give negative effect to the debt ratio, while the income volatility and growth opportunity variables significantly give positive effect to the debt ratio.

Moreover, the research of Margaretha and Ramadhan (2010), which examines the factors affecting capital structure in the manufacturing industry in Indonesia Stock Exchange found that the variable of size effect to the capital structure (long-term leverage), size does not affect the capital structure (total leverage and short-term leverage), while tangibility effects short-term-leverage and long-term leverage. Profitability effects total leverage and short-term

leverage. Liquidity effects total leverage and short-term leverage. Growth affects total leverage and long-term leverage. Non-debt tax shield does not affect leverage. Age affects short-term leverage. Investment does not affect leverage.

RESEARCH METHODOLOGY

This study used data from annual reports are formal financial statements that are published yearly of 13 agricultural firms listed in Indonesia Stock Exchange over the period 2010-2015 while inflation data are taken from central agency statistic Indonesia, interest rate data are taken from Bank of Indonesia and GDP data are taken from World Bank.

Long term debt to total assets (LDTA) is used as a dependent variable. While, the asset structure (SA), company growth (GRW), profitability (PROF), liquidity (LIQ), non-debt tax shield (NDTS), firm age (AGE), inflation (INF), gross domestic product (GDP) Interest rate (IR) are the independent variables.

The research model used in this study was panel data regression. Panel data is a combination of cross-sectional data with time series data. Analysis of panel regression data is used to measure the impact of various factors on capital structure.

This research refers to several studies including researches conducted by Imran and Akram (2015), and Bayrakdaroglu *et al* (2013). The model in this research is conducted to examine internal and external factors affecting the long-term liabilities. Thus, the research model is formulated as follows:

$$LDTA_{it} = \alpha + \beta_1 SA_{it} + \beta_2 GRW_{it} + \beta_3 PROF_{it} + \beta_4 LIQ_{it} + \beta_5 NDTs_{it} + \beta_6 AGE_{it} + \beta_7 INF_{it} + \beta_8 GDP_{it} + \beta_9 IR_{it} + \epsilon_{it}$$

Information:

- i* = number of agricultural sector issuers (cross section)
- t* = Observation Period (time series)
- α = Intercept
- β = Regression coefficient of independent variable (slope)
- LDTA* = Long Term Debt to Total Asset
- SA* = Structure of Asset
- GRW* = Growth of the company
- PROF* = Profitability (Return On Assets)
- LIQ* = Liquidity
- NDTS* = Non debt tax shields
- AGE* = Age of the company since its establishment up to the observation period
- INF* = Inflation
- GDP* = Growth Domestic Product
- IR* = BI Rate
- ϵ = Error

Table 1 Definition of Variabel

Variable	Measurement
LDTA	Total long-term liability / total asset
SA	Fixed asset / total asset
GRW	(Total asset ₁ - total asset ₀) / total asset ₀
PROF	Net profit / total asset
LIQ	Total current asset / total current liability
NDTS	Total depreciation / total asset
AGE	Log _n (year of research - year of establishment of company)
INF	Percentage of average inflation per year
PDB	Percentage of GDP per year
IR	Percentage of interest rate per year

1.1 Research Hypothesis

The hypothesis in this study is based on previous research:

- H1 The asset structure has positive and significant effect on long term debt to total asset.
- H2 The growth of company has positive and significant effect on long term debt to total asset.
- H3 Profitability has negative and significant effect on long term debt to total assets.
- H4 Liquidity has negative and significant effect on long term debt to total assets.
- H5 Non debt tax shield has negative and significant effect on long term debt to total asset.
- H6 Firm age has positive and significant effect on long term debt to total asset.

- H7 Inflation rate has negative and significant effect on long term debt to total asset.
- H8 Gross domestic product has positive and significant effect on long term debt to total asset.
- H9 The interest rate has negative and significant effect on long term debt to total asset.

RESULT AND DISCUSSION

4.1 Descriptive Statistics

The descriptive statistics in this study uses the annual financial report of 13 agricultural firms listed on the Indonesia Stock Exchange within the period of 2010-2015, which can be seen in Table 2.

Table 2 Variables of the Descriptive Statistics

	LDTA	SA	GRW	PROF	LIQ	NDTS	AGE	INF	PDB	IR
Mean	0.24	0.33	0.20	0.04	3.82	0.16	3.33	0.05	0.05	0.06
Max	0.87	0.71	2.64	0.25	67.46	0.56	4.64	0.08	0.06	0.08
Min	0.00	0.00	-0.16	-0.28	0.14	0.02	2.19	0.03	0.04	0.05
Std.Dev.	0.19	0.12	0.42	0.09	9.62	0.12	0.62	0.02	0.00	0.00

In table 2, LDTA has an average value of 0.244 which means that it amounts 24.40% of asset financing is using long-term debt. SA has an average of 0.33, which means that 33.00% of total assets owned by the company is an investment in the form of fixed assets. GRW has an average value of 0.20 which means that the average growth rate of company assets amounts 20.30%. PROF has an average of 0.044 which means that the company's profit generated from the use of assets is 4.4%. LIQ has an average of 3.82, which means that the company is able to meet its short-term debt of 382.8% average of the total current assets of the company. NDTS has an average of 0.164, which means that the average cost of depreciation expense contributes 16.4% to the total assets of the company. AGE has an average of 3,337, which means that the age of the company averagely contributes 333.7% for better management capabilities to gain more trust from investors. INF has an average of 0.059 which means the average inflation contributes 5.9% in the decision of the company's capital structure. GDP has an average of 0.056, which means that the average gross domestic product contributes 5.6% in the decision of the company's capital structure. IR has an average of 0.069, which means that the average interest rate contributes 6.9% in the decision of the company's capital structure.

4.2 Analysis Of Internal And External Factors That Affect The Long Term Debt To Total Asset

In this study, it was found the problem of heteroscedasticity. According to Widarjono (2009), to solve the problem of heteroscedasticity is to apply cross section weighted, and in determining the model using estimated generalized least square method (GLS) forms of transformation to address multicollinearity and heteroscedasticity (Nachrowi and Usman 2006). This study has applied cross section weighted and using estimated generalized least square method (GLS), but the heteroscedasticity problem is still indicated. It is as proven in the scatter plot diagram (Appendix 1) of Bumi Teknokultura Unggul (BTEK) and Central Proteinaprima Tbk (CPRO) showing the inequality of residuals in the regression model, BTEK in 2013 has long-term debt (LDTA) which increased dramatically to 785% (percent) from the previous year since in that period BTEK acquired two wood processing companies but in the financial report visible BTEK suffered losses when compared to previous periods. While, CPRO in 2011, the financial statements of the audit results show the company's net loss swelled up to 193% from the previous period, only in the period of 2013 CPRO generate significant profits but re-loss the period thereafter. Meanwhile, in 2014 the long-term debt increase is 223% (percent), this is because it decided to expand to build a factory. For those reasons, this study indicates heteroscedasticity problem. One solution to solve the problem of heteroscedasticity is to remove or replace the sample data, but if the data is discarded the results of research becomes unable to be interpreted temporarily to replace the sample data which is impossible to do because this study only covers the agricultural sector in Indonesia. Therefore, it was decided to keep the data in testing the regression model.

In determining the best model, several tests are applied such as Chow test, Hausman test and Lagrange Multiplier test (LM). Table 3 shows the results in the estimation model selection, which the PLS chow model test is the best model or received H0 with p-valued value > 0.05 that values 0.87770. When the chow test results H0, according to some experts, it is not required further Hausman test or LM test. However, to be more convincing this research, it can be seen that by applying the Hausman test, it results that REM model is the best model, while from LM test it results that PLS test is the best model with p-valued value > 0.05 that values 0.08160. This result can be concluded that the PLS model is the best model to be used in regression model, with weighted generalize least square (GLS) and adding long term debt to total asset LDTA (-1) and long term debt to total asset years after LDTA (1) to obtain optimal research results and to analyze the effect on long term debt to total assets.

Table 3 shows that in the pooled least square model (PLS) the R-square values 0.96655, the Durbin-Watson stat values 2.632978. The value of the coefficient of determination R-square on pooled least square model (PLS) which is in the range 0 to 1 has almost reached to 1 in this case the model shows that the variable can represent the problems studied because it can explain the variations that occur in the dependent variable. Similarly, Durbin-Watson stat values of pooled least square model (PLS) are in the range of number 2 which means that there is no autocorrelation problem.

Table 3. Results of pooled least square (PLS) model

Variable	Coef	Prob
SA	-0.077	0.057*
GRW	0.110	0.063*
PROF	-0.218	0.089*
LIQ	-0.001	0.001***
NDTS	0.104	0.095*
AGE	0.012	0.010**
INF	0.450	0.109
PDB	1.661	0.618
IR	-1.399	0.494
LDTA(-1)	0.446	0.080*
LDTA(1)	0.451	0.060*
C	-0.034	0.076
R-squared	0.96655	
Adjusted R-squared	0.95735	
Prob(F-statistic)	0.00000	
Durbin-Watson stat	2.63298	
Model Classification with H ₀ (p-valued > 0.05) :		
Chow Test		
H ₀ : PLS	PLS	0.87770
H ₁ : FEM		
Hausman Test		
H ₀ : REM	REM	1.00000
H ₁ : FEM		
LM Test		
H ₀ : PLS	PLS	0.08160
H ₁ : REM		

Remarks: *** = significant ($\alpha = 1\%$), ** = significant ($\alpha = 5\%$), * = significant ($\alpha = 10\%$)

In Table 3, it shows a significant relationship between independent variables and dependent variable. The SA variable has a negative and significant effect. This result is consistent with the researchers of Sheikh and Wang (2011), Bayrakdaroglu et al (2013), Imran and Akram (2015), Mutairi and Naser (2015), Tandya (2015), Alzomaia (2014) and Malinic et al (2013). In these study companies that have high assets tend not to use debt as the fulfillment of funding required by the company. The GRW variable has a positive and significant effect. This result is relevant to researchers of Jean and Viviani (2008), Ramjee and Gwatidzo (2012), Bayrakdaroglu et al (2013), Bassey et al (2014), Gocmen and Sahin (2014), Imran and Akram (2015), Mutairi and Naser (2015), Alzomaia (2014), Baharuddin et al (2011) and Malinic et al (2013). It shows that companies, which have high growth rates, tend to need debt because the companies have a chance to make the profitable investment. The result showing PROF variables have negative and significant effect is consistent with the researchers of Sheikh and Wang (2011), Ramjee and Gwatidzo (2012), Bayrakdaroglu et al (2013), Imran and Akram (2015), Mutairi and Naser (2015), Tandya (2015), Anake et al (2014). The LIQ variable has a negative and significant effect that is relevant to the research of Malinic et al (2013), Sheikh and Wang (2011), companies with large liquidity tend to prefer using internally generated funds, whereas companies with large liquidity explain that the companies are able to pay for their current liabilities. The NDTS variables have a positive and significant influence. This study is supported by researchers conducted by Bradley et al (1984) and Chaplinsky and Niehaus (1993). AGE variables have positive and significant influence, which is relevant to the opinion of Mutairi and Naser (2015) and Dada and Ghazali (2016) which explains that age affects the leverage of the company because the longer a company stands investor will be more confident in investing because of the better management assertion in solving the problem at hand. While the INF and PDB variables have a positive but not significant effect, but on the IR variables it seems that IR shows a negative and insignificant effect which proves the research opinion by Riaz et al (2014) and Zerriaa and Noubbigh (2015), which said that the company will keep increasing its debt even as interest rates increase.

CONCLUDING REMARKS

This study analyzes the influence of decision determinant of long term liabilities in agricultural sector public listed in Indonesia. In this study conducted by Jean and Viviani (2008), Ramjee and Gwatidzo (2012), Bayrakdaroglu et al (2013), Bassey et al (2014), Gocmen and Sahin (2014), Imran and Akram (2015), Mutairi and Naser (2015), Sudiyatno and Sari (2013), Alzomaia (2014), Baharuddin et al (2011), Malinic et al (2013), Margaretha and Rizky

(2010), Sheikh and Wang (2011), Tandya (2015), Anake et al (2014), Sudiyatno and Sari (2013), Sanjaya (2014), Alzomaia (2014) and Dada and Ghazali (2016) resulted that corporate growth, profitability, liquidity and age of company has significantly affected by debt. While in the structure of assets and non-debt tax shield there is no effect on long-term debt to the total asset.

This research has shown a significant effect on company growth, profitability, liquidity and company's age, and there is found when the interest rate is high, the company keeps increasing its debt although not very significant. As well as inflation and gross domestic product, there is an effect on debt although it is not significant because the company in the agricultural sector is a major sector that plays an important role in Indonesia as well as a sector for the survival of the people so that no matter how high-interest rates or inflation it will not influence the policy makers.

Based on the results of the analysis, managerial implications can be used as consideration of financing decisions for the company's management in the agricultural sector resulting from internal factor testing i.e. firm growth (GRW), profitability (PROF), liquidity (LIQ), and age of company (AGE). It can be used as a reference decision for the company to choose to fund. The result of external factor analysis i.e. gross domestic product (GDP) and interest rate (IR) shows both factors can also be used as the reference for companies in determining to fund, as shown in the analysis of the results, both factors have no significant effect. For another reference, this study adds to the previous LDTA (-1) and long term debt to total asset years after LDTA (1) debt variables that resulted in the debt of the previous period and the subsequent debt period having an influence in the firm's decision to reduce the debt or to increase the company's assets. While on asset structure testing (SA), non-debt tax shield (NDTS) and inflation have slightly affected the company's decision on funding selection. This study also found companies in the agricultural sector are very careful in using debt for the operational purposes of the company, therefore agricultural companies explicitly prefer internal funding. In addition, the old inefficient management policy in using debt, which was causing bankruptcy, cause companies preference of using the internal funding.

In further subsequent research, it can utilize more variables that are considered relevant including using other proxies of the capital structure. It is suggested using unbalance panel analysis in panel data regression analysis if there is not matching criteria in the data selection and adding equity as a variable which can show decision of capital structure.

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Appendix 1. Scatter Plot Diagram

