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DETERMINANT OF CAPITAL STRUCTURE ON PROFITABILITY AND SHARE PRICES OF BANKS LISTED IN IDX

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ABSTRACT

The aim of the study is to find out the determinant of capital structure on profitability and share prices of banks listed on IDX. The study used Path analysis. Results indicated an insignificant effect of capital structure (5.4%), and yet significant effect of profitability (49.3%), both on stock prices, which included a direct effect (50.7%) and indirect effect (1.4%). Through profitability as a moderator variable, the effect of DER and DAR on share prices was -15% and -3.1%, respectively. This study has documented how path analysis extended the scope of what affected the share prices. Future studies are expected to broaden this scope still further and reveal effect patterns for other variable(s) not previously observed. The selection of other variables that can affect the stock price which results in 94.6% is not observed in this study

1. Introduction

Profitability ratios measure companies' ability to generate profits, therefore providing a definitive evaluation of overall management effectiveness based on returns both on sales and investment (R. Ang and V. Chng, 2015). These ratios form a basis of comparison among various figures and components in balance sheets and income statements (Hand, John R. M. and Martin, Nicholas, 2017). Assessment for several operating cycles may be necessary so as to lay out a company's growth rate within a time frame, regardless of whether it is increasing or decreasing, and to go over what drives the progress or the setback.

Share prices represent a company's worth; the greater the performance of a publicly-traded company, the higher the company's value. By contrast, its market value declines as the company underperforms (Sammut, Joseph, 2010). There are exceptions to this rule, but a company performance evaluation is, more often than not, subject to the changing stock prices (Ircham, 2014).

In a simple term, optimal capital structure is a target that value-maximizing companies, including banks, constantly achieve. To achieve that end, as proposed by trade-off or balancing theory, a company must finance its underlying assets through a prudent balance (trade-off) between the benefits or the returns and the risks or the incurred costs in a manner that maximizes the company's value (Brigham, 2005, Peter Brusov, et.al., 2015).

The aim of this study is examine the determinants of capital structure which include a number of financial ratios, viz., debt-to-equity ratio, debt-to-asset ratio and current asset ratio. The remaining sections of this research are designed as follows: Section 2 defines literature review; Section 3 focuses on research model and Hypotheses ; Section 4 data analyses and result and Section 5 represents conclusion which includes future research directions.

2. Literature Review

2.1 Capital Structure

The policy of capital structure is closely related to financing decision. Capital structure constitutes one of the most substantial process in financial decision-making as it reciprocally relates to the decisions of other financial variables (Harold Bierman, 2003, Estelami H, 2016). High capital costs are attributed to weak capital-structure decisions. Effective capital-structure decisions, in contrast, depress capital costs and, hence, maximize a company's value (Gitman, 2009, Y. Agarwal, 2012).

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Sources of finance for a company are grouped into two; internal source of finance, which includes equities and retained profits; and external source of finance from creditors, thus generating debts (Cetin Cine, 2018). (Brigham 2005,Calen, 2018) posits that capital-structure policy seeks an ideal mixture (trade-off) between the risk and rate of return. An inadequate proportion of debt and equity can impact the value of a company. When more debt is used, financial risks faced by shareholders will increase as well. However, greater use of debt will usually lead to an increase in the expectation of obtaining higher return on equity. Capital structure, therefore, needs to be optimal to balance the influence of risk and return, and, hence, maximizes the share prices of a company.

Modigliani-Miller (MM) Theory

Modigliani and Miller (1958), hereafter MM, in Brigham (2005) construct their analysis under the assumption without taxes and analysis with corporate taxes. MM theorize that a company's value remains constant despite changes in capital structure. At its heart, the theorem describes that shareholders perceive greater risks as an increase in debt to capital structure raises return on equity. Since both influences are mutually exclusive–no taxes and, thus, no bankruptcy costs– the market value of a company is not subject to the degree of leverage (Detemple Jerome, Kitapayev Yerkin, 2019). Therefore, MM indicate that the value of a leveraged company is the same as that of an unleveraged company.

MM argue that, based on the proposition with taxes, a greater proportion of debt equity ratio benefits the value of a company owing to corporate tax shield. They propose that, in a perfect capital market with taxes, the interest payments that result from debts, in most cases, can be used to reduce the amount of taxable income and, thus, are tax-deductible interest. With the advantage of tax shield benefits, the levered company will enjoy a higher market value than the unlevered company. There are, however, a number of authorities who are not in favor of the so-called corporate tax shield. Such is criticized in terms of the capital market, which is perfectly competitive and frictionless, while in an imperfect capital market, costs associated with bankruptcy and agency problems, and asymmetric information are very likely to occur, and an ample sum of debt can distress the company value, accordingly (Brigham, 2005; Peirson, 2006).

Trade-Off Theory

This theory advocates the idea that a company can capitalize on an optimal capital structure by trading off the benefits and the costs of debt, as described by (Peirson, 2006; Abel. Andrew B, 2017). Trade-off theory is similar to balancing theory, developed by (Myers, 1984; Abel. Andrew B, 2017), which suggests an optimal mix of debt and equity to achieve a minimum cost of capital structure. This theory, in essence, deals with the dynamic application of trade-off between the tax advantage of debt and myriad leverage-related costs. Providing that the benefits outweigh the costs, debts will be increased. By contrast, once the benefits are less than the costs, taking on more debts will lower the company's value. These debt-pertaining costs may be in the form of bankruptcy costs and agency costs.

Pecking Order Theory

Pecking order theory (Miglo. Anton, 2018) posits that a company adheres to a hierarchy for financing resources, where internal financing is highly preferred, when available, before resorting to any forms of external financing. Should a company turn to external financing, taking on a debt is more prioritized than funding with additional capital to avoid issuing new stocks (external equity).

Consistent with Myers & Majluf (1984), pecking order theory establishes a hierarchy managers conform to when it comes to financing decisions. Managers will prefer retained profits, but will take on debts if such profits are exhausted, before resorting to external equity as the last alternative (Tsuji, Chikashi, 2011). The theory is based on an argument that the use of retained profits incurs lower costs than external funds. The use of external funds in the form of debts would be necessary once the costs associated with investment are higher than those obtaining internal funds.

In most cases, a company will prefer debts (Muscat. A, 2016), if external funding is required, to new equities or shares, given that the cost of bond issuance is cheaper than that of new shares. When new shares are issued, the price of old shares lowers, which, in turn, can be a bad signal for investors (Huang, Sheng and Zhang, Zhe, 2011). Asymmetric information between managers (insiders) and shareholders (outsiders) may result in the decline of share prices (Loureiro,G. And Taboada, A. G, 2015). In this sense, the managers are more aware of the prospects of the company than the shareholders.

Funding Sources for Banks

Funds management in banks (Borisoff Alexander & Andrew Compton, 2015), commonly referred to as Manajemen Pasiva Bank in Indonesia, is very important given that banks are primarily funded (more than 90%) by parties outside the bank owners (Mandala, 2004; Hoque, Hafiz and Kashefi-Pour, Eilnaz, 2015). The bulk of bank funding sources come from public savings (Third-Party Funds) in the form of demand deposits, savings and deposits. Additional funds may be obtained from equities and loans from outside parties.

Taswan (2010:174; Sutton, H. 2018) postulates that banks must pay close attention to the composition of funds, interest rates and overhead costs to capitalize on cash flow opportunities by considering the following principles (Tham, Joseph and Ignacio Velez-Pareja, 2004):

1. Cost of funds is minimized to the least possible level by setting up a certain composition.
2. Funds with low volatility and high stability are the bedrock of liquidity management.

The composition of funding sources holds the implementation of credit commitments and placement of other productive assets to the largest extent possible.

The capital structure of banks is fundamentally different from that of non-financial companies on account of different business characteristics and operational activities (Beltrame F., Previtali D, 2016; Mehar MR, 2018; Han, JoongHo. 2005). Furthermore, banks must hold a buffer in accordance with the provision or the regulation of minimum core capital determined by monetary authority, central bank in this regard, so as to protect their depositors' funds (Saunders, 2008; Decker. F, 2017; Giannini. C, 2011; Roseline Misati and Anne Kamau, 2017). Funding sources from Third-Party Funds make funds completely fragile. Given that banks are intermediary institutions, they are regularly troubled with respect to depositors' withdrawals of any amount at any time (Samad, Abdus, 2018). On the other hand, banks who provide loans to enterpreneurs frequently confront issues regarding the uncertainty inherent in late payment of debts, which can severely disrupt cash flow, and, in turn, liquidity and stable funding (Diamond & Rajan, 2000; Fiedler. R, 2012). Banks, therefore, need to take these funds into account while combining the benefits and the incurred risks that make up the target (optimal) capital structure (Maati-Sauvez, Christine and Maati, Jerome. 2011; Taliaferro, Ryan. 2009).

2.2 Probability

Profitability of a company will affect investment policy, and, in turn, market outcome (Rutkowska-Ziarko. A, 2015). Company's ability to continually drive profits will attract investors and future benefits for business expansion. By contrast, insecured profitability lessens financial attractiveness and, thus, deters a company from subsequent rounds of funding. Within the company itself, profitability is the key operational variable, among others, for management effectiveness evaluation of a company. Brigham (2005:79) asserts *"Profitability is the net result of a large number of policies and decision. Profitability ratios provide information about the way the firm operates, but the profitability ratios show the combined objects of liquidity, asset management, and debt management on operating results."*

Profitability ratio is a group of ratio that shows a combined effect of liquidity, asset management and debt management on overall operating results (Brigham & Houston, 2010:146). Sudana (2011:22) defines profitability as a company's ability to generate a return on its resources. Hanafi (2008:42 as cited in Ircham, 2014; Kitchen. John, 2015) describes profitability ratio as a financial metric used to gauge a company's ability to generate profits relative to certain sales, assets and capital stocks. Profitability is, thus, significant for a company's long-run survivability as otherwise a company can ultimately collapse the business. The importance of improving profitability, or at least remaining profitable, assures long-term paths to success to sustain survivability, as suggested by Battazzi, Angelo Secchi, and Federico Tamagni, 2008; Mallick, S. and Yang, Y. 2011) in a journal called "Productivity, Profitability, and Financial Performance" that presents a comparative analysis of two crucial dimensions of a firm's performance*:* profitability and productivity. They find, independently from the particular sector of activity and from financial conditions, there seems to be weak market pressure and little behavioral inclination for the more efficient and more profitable firms to grow faster.

Most studies on capital structure have focused on pooled set of firms regardless of their size from both developed and developing countries, Since such parametric regressions with all types of firms can easily hide individual firms capital structure and its impact on its performance, it could be misleading to generalize the results of these studies for all types of firms (Mallick, S. and Yang, Y. 2011). There are several common types of profitability ratios used to evaluate a company's performance, and this study only presented ROA (Return on Asset) to measure the extent to which a company earns a return in relation to its overall assets. Hanafi and Halim (2003) identify ROA as a financial benchmark that gives the idea as to how efficient a company's management is at using its assets to generate earnings. Higher ROA is necessarily indicative of a company's more efficient management, and, hence, a greater amount of net income.

2.3 Share Prices

A share price is the amount of money in rupiah currency at a given time based on the demand and supply of shares determined by market participants at Stock Exchange (idx.co.id). In a similar sense, Ircham (2014) contends that a share price refers to a point where traders and dealers of shares meet for the benefit of the company.

A share confers a proof of ownership of a business form called Limited Liability Company (LLC). A share price is subject to a market price. A share price, at the basic level, refers to the price per share. Changes in a share price are influenced by the basic force of demand and supply in a secondary market. Once investors are more likely to buy or hold a share, the share price moves upwards. If, however, there is a reason to believe that a share will perform poorly, there are often more investors looking to sell than to buy, therefore driving the price downwards. The current share price, in the best possible way, is supposed to represent the true picture of a company's worth (Binangkit, 2014).

Stocks appeal to investors for various reasons. Generally, the law of supply and demand affects the market and determines the prices of individual stocks that make up the market. Stock prices tend to lose their value in case of excessive bid and increase to a significant degree in the event of great demands. The gross profits on sales that result from the fluctuations in stock prices normally result in a capital gain or a capital loss.

A capital gain refers to a profit that results from a sale of a stock when the selling price exceeds the purchase price. If, however, the stock is sold for a price lower than the original purchase price, the result is a capital loss. Typically, stockholders do not seek to sell their stocks immediately to avoid selling them at a loss, hoping that the selling price will rise. These days, several investors buy stocks aiming to make fast capital gains through increases in stock prices, while others choose dividend-paying stocks. There are different types of stocks investors can own, viz., common stocks, preferred stocks and cumulative preferred stocks (Riyanto, 2005).

Nainggolan (2008) breaks down the macro and micro factors that influence the direction of a particular large-scale market causing fluctuations in share prices. The macro factors, or market factors, include the rate of inflation and interest,

monetary and fiscal policy, economic and international business situation. The micro factors include corporate earnings, distributed dividends, corporate cash flows, fundamental changes in a corporation and changes in investment behavior, such as shifting investment from stocks to bonds. In a similar sense, what leads the share prices to rise and fall may also be attributed to internal and external factors. Internal factors include corporate performance, corporate cash flows, dividends, corporate profits and profits on sales, while external factors include interest rate, inflation rate, government policy and economic conditions. (Halim, 2005; Rajan, G. B. Sabari, 2012) sorts out the types of technical analysis on stock movement as follows:

- Dow Theory
  Dow theory identifies the major market trends and uses them to gauge the likely direction of the individual and the overall stocks. Dow theory points out three types of stock movements or trends. Primary movement represents the broad underlying trend in the long run–thus the major trend of market. Secondary movement refers to a shorter-term trend, typically lasting for several months, and does not shift direction of the primary movement, but rather confirms the validity of correction within the primary movement. Tertiary movement constitutes a minor trend, due to its very short-term nature, which only spots daily fluctuations.
- Bar Chart
  This approach includes three basic types of diagram, viz., line diagram, bar diagram and point & figure diagram. These diagrams use a bar chart that shows the volume of shares traded at each price change.
- Market Strength Analysis
  Market strength analysis compares the number of all stocks increasing in price and those decreasing in price and accumulates them.
- Relative Strength Analysis
  Relative strength identifies stocks perceived to have a relative strength to other stocks. Stocks showing high relative strength are likely to continue increasing in price.

In general, a wide array of theories predicts that a company constructs its capital structure by balancing the benefits of debt against its costs. When the benefits of debt increase, debt load increases linearly, despite potential financial distress such as bankruptcy risk. The costs (eg. bankruptcy costs and agency costs), however, may outweigh those benefits at some point, so using more debt is no longer financially beneficial.

3. Research Model and Hypotheses

Path analysis evaluates causal models by examining the causal relationship between two free variables, i.e., DER and DAR, and a bound variable, i.e., profitability. Program applications such as SPSS and LISREL can be used to run estimated path analysis to analyze such relationship.

3.1 Overall Significance Test (F-Test Statistics)

The correlation between the independent variables and dependent variable is simultaneously hypothesized:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \cdots + b_8X_8 + \varepsilon$$

H_0: $\rho_{xy_1} = \rho_{xy_2} = \ldots = \rho_{xy_8} = 0$

H_a: at least one $\rho_{yx_i} \neq 0$; i = 1, 2, …, k

The F-test of the overall significance test for a regression model is as follows:

$$F = \frac{(n-k-1)\sum_{t=1}^{k} \rho_{yxi} r_{yxi}}{k\left(1 - \sum_{i=1}^{k} \rho_{yxi} r_{yxi}\right)}$$

Source: Gujarati (2006)

H1: The capital structure of banks directly affects their share prices
H2: The capital structure of banks indirectly affects their share prices through profitability

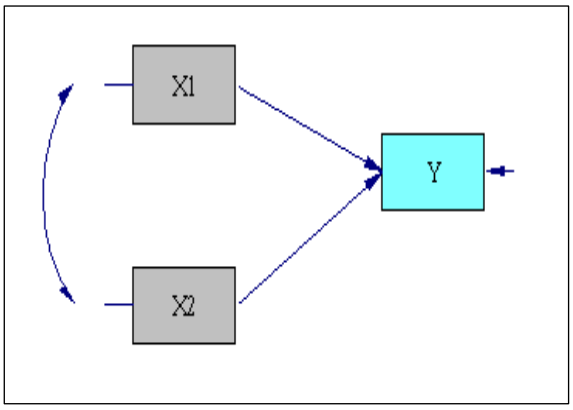

Fig. 1. Research conceptual model.

4. METHODOLOGY

4.1 Sampling

Data used in the study is quantitative data which results from an observation within a given time range in terms of numbers that measure and represent the values of the variables observed. These data are secondary data readily available to the public through publications of balance sheets and income statements of publicly-traded companies from 2010 to 2015 and data on the proportion of bank stock ownership. These data were applied with the use of purposive sampling based on the following criteria:

a. The financial statements of conventional commercial banks in Indonesia operating from 2010 to 2015 were identified and observed.
b. Banks had periodically released the fully audited financial statements during the observation period.

4.2 Measurement

Operational variables used in this study is shown in table 1.

Table 1: Operational variables

Variable	Formula	Scale	Data Type
Capital Structure (X) :			
Debt to Equity Ratio	$Debt\ to\ equity\ ratio = \frac{Total\ Hutang}{Modal\ Sendiri}$	Ratio	Secondary
Debt To Asset Ratio	$Debt\ to\ Asset\ ratio = \frac{Total\ Debt}{Total\ Asset}$	Ratio	Secondary
Profitability (Y)	$ROA = \frac{Laba\ Setelah\ Pajak}{Total\ Asset}$	Ratio	Secondary
Share Prices (Z)		Ratio	Secondary

5. Data Analysis and Results

Data of the study was analyzed using path analysis to examine the mediation of bank profitability in a capital structure model on bank share prices. This includes a model equivalent to the "beta" coefficient of standardized regression analysis. SPSS can output a set of estimated standardized and unstandardized coefficients so that path analysis can be constructed by using these outputs. Path analysis, as such, can be a straightforward extension to regression analysis that allows us to quantitatively examine the direct and indirect contribution to the variable observed.

5.1 Descriptive Statistics

The path model that accounts for the functional relationship between DER-DAR and profitability is as follows:

$Y = \rho_{YX1}X_1 + \rho_{YX2}X_2 + \varepsilon_1$

Where:

Y = Profitability
X_1 = DER
X_2 = DAR
ε_1 = Contribution from other variables (*epsilon*)
ρ_{YXi} = Path coefficient from X to-i on Y; i = 1, 2

In SPSS, the output of estimated path coefficients is as follows at table 1.

Table 2: Result of Estimated Path Coefficient

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.324	1.156		2.876	.005
	DER	-.086	.043	-.211	-2.018	.046
	DAR	-.598	1.431	-.044	-.418	.677

a. Dependent Variable: Profitabilitas

In the output above, the path coefficients for each variable are:
ρ_{YX1} = -0,211
ρ_{YX2} = -0,044
This leads to the following path equation:
$Y = -0{,}211\ X_1 - 0{,}044\ X_2 + \varepsilon_1$
The equation is similar to the result of estimated path analysis using LISREL presented in the following diagram:

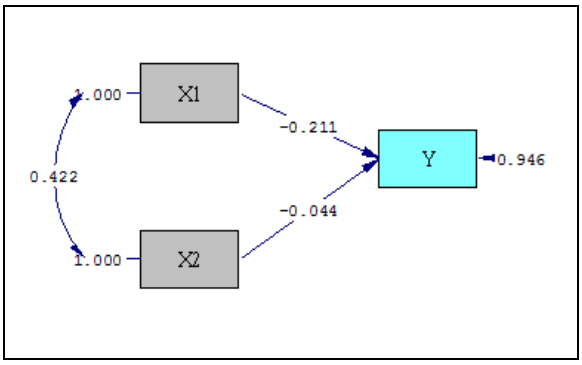

Fig. 2. Path Coefficient Diagram

The value of the coefficient of determination and the contribution of other variables are shown in the following:

Table 3: The Result of Estimated Coefficient of Determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.233[a]	.054	.036	1.22037

a. Predictors: (Constant), DAR, DER

The table shows that the resulting R-squared is 0,054, indicating that the effect of DER and DAR, simultaneously, on profitability is 5,4%. The remaining 94,6% accounts for other variables unknown in the study.

5.2 Measurement Model

Parameter Significance Test
The following hypotheses, whether both of the free variables have effects on the bound variable defined by the previous equation, are simultaneously tested using F-test and partially tested using T-test.

Simultaneous Hypothesis Testing (F-Test)
The hypotheses we wish to test simultaneously are:
$H_0 \rightarrow \rho_{YXi} = 0$ There is no significant effect of DER and DAR, simultaneoously, on profitability.
$H_1 \rightarrow \rho_{YXi} \neq 0$ There is a significant effect of DER and DAR, simultaneously, on profitability.
The significance level is set at $\alpha = 5\%$.
F statistic is used to interpret the hypotheses.
Using SPSS, the resulting F value is presented in the following table:

Table 4: The Result of Estimated Simultaneous Hypothesis Test

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.981	2	4.490	3.015	.053[a]
	Residual	156.378	105	1.489		
	Total	165.359	107			

a. Predictors: (Constant), DAR, DER

b. Dependent Variable: Profitabilitas

The simultaneous test outputs F_{cal} of 3,015. This value is subsequently compared with the F value in F distribution table. The degree of freedom would be calculated as $df_1 = k = 2$, and $df_2 = n\text{-}k\text{-}1 = 108\text{-}2\text{-}1 = 105$ for α=5% with the resulting F_{table} of 3,083.

The criteria upon which the null hypothesis is tested against the alternative hypothesis are:

H_0 is rejected and H_1 is accepted if $F_{cal} \geq F_{table}$; or

H_0 is accepted and H_1 is rejected if $F_{cal} < F_{table}$.

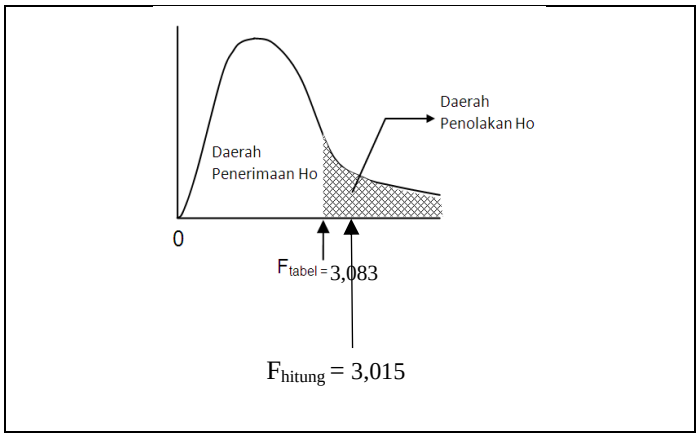

Fig. 3. The Curve of Simulaneous Hypothesis Test

Given that the F_{cal} (3,015) < F_{table} (3,083), H_1 is rejected in favor of H_0. The simultaneous effect of DER and DAR is, thus, insignificant on profitability.

Partial Hypothesis Testing (T-Test)

The hypotheses partially tested are:

1) $H_0 \rightarrow \rho_{YX1} = 0$ Partially, DER does not have a significant effect on profitability;
   $H_1 \rightarrow \rho_{YX1} \neq 0$ Partially, DER has a significant effect on profitability.
2) $H_0 \rightarrow \rho_{YX2} = 0$ Partially, DAR does not have a significant effect on profitability;
   $H_1 \rightarrow \rho_{YX2} \neq 0$ Partially, DAR has a significant effect on profitability;

The significance level is set at α = 5%.

T statistic is used to interpret the hypotheses.

The resulting value of T statistic in SPSS is presented in the following table:

Table 5: The Result of Estimated Partial Hypothesis Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.324	1.156		2.876	.005
	DER	-.086	.043	-.211	-2.018	.046
	DAR	-.598	1.431	-.044	-.418	.677

a. Dependent Variable: Profitabilitas

In the output above, the T_{cal} of DER and DAR is -2,018 and -0,418, respectively. These values are then compared with the T-value in T-distribution table. For α=5%, df = n-k-1 = 108-2-1 = 105 in a two-sided test displays T_{table} of 1,983 and -1,983.

The criteria upon which the null hypothesis is tested against the alternative hypothesis are:

H_0 is rejected and H_1 is accepted if $T_{table} \geq T_{cal} \geq T_{table}$; or

H_0 is accepted and H_1 is rejected if $T_{table} < T_{cal} < T_{table}$.

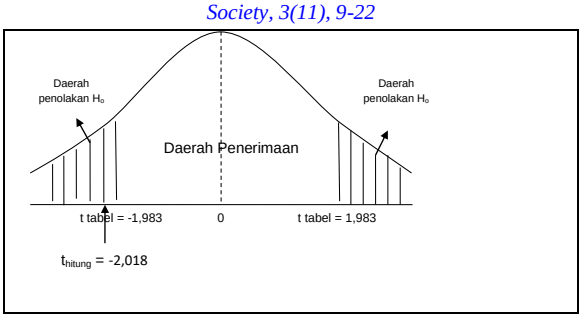

Fig. 4. The Curve of Partial Hypothesis Testing on DER Impact on Profitability

Based on the aforementioned test criteria, T_{cal} (2,018) < T_{table} (-1,983) indicates H_0 is rejected in favor of H_1. The partial effect of DER on profitability is accordingly significant.

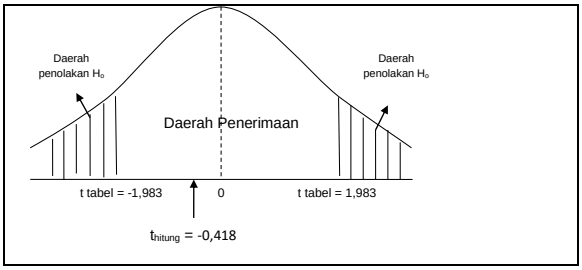

Fig. 5. The Curve of Partial Hypothesis Testing on DAR Effect on Profitability

T_{cal} (-0,418) > T_{table} (-1,983) indicates H_1 is rejected in favor of H_0. Unlike DER, the partial effect of DAR on profitability is not significant.

5.3 Structural Model

The Analysis of Direct Effect and Indirect Effect

In the model at hand, the relationship between both of the free variables and the bound variable can be statistically identified and specified in terms of direct and/or indirect effect.

Table 6: The Result of Estimated Direct Effect and Indirect Effect

Var	Path coefficient	Direct effect (%)	Indirect effect (%)		Total (%)
			X1	X2	
X1	-0.211	4.5	-	0.4	4.8
X2	-0.044	0.2	0.4	-	0.6
Total effect					**5.4**

- DER has a significant effect on profitability, as shown in T-test, with a total effect of 4,8%, decomposed into a direct effect (4,5%) and an indirect effect (0,4%).
- DAR does not have a significant effect on profitability, as shown in T-test, with a total effect of 0,6%, decomposed into a direct effect (0,2%) and an indirect effect (0,4%).

Therefore, the sum that makes up the total effect of DER and DAR, simultaneously, on profitability is 5,4%. The remaining 94,6% constitutes the effect of other variables unknown or unaccounted for.

Path Analysis on Sub-Structure 2

a. *Estimated Path Coefficient*

Three free variables, viz., DER, DAR and profitability, are examined in terms of their causal relationship in a structural model with the bound variable–share prices. Path analysis is estimated in SPSS and LISREL to analyze this relationship.

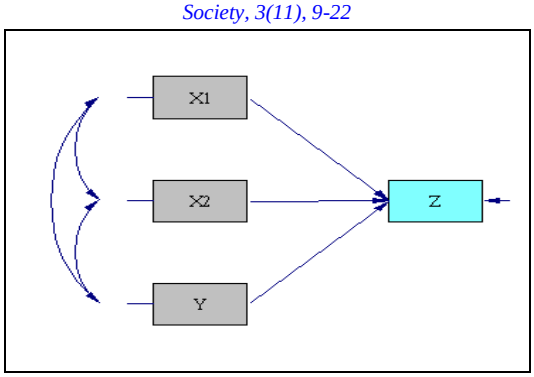

Fig. 6. Conceptual Diagram of Path Analysis

The path model that accounts for the functional relationship between DER-DAR-profitability and share prices is:
$Z = \rho_{ZX1}X_1 + \rho_{ZX2}X_2 + \rho_{ZY}Y + \varepsilon_1$
Where:
Z = Share prices
Y = Profitability
X_1 = DER
X_2 = DAR
ε_1 = Contribution of other variables (*epsilon*)
ρ_{ZXi} = Path coefficient from X to-i on Z; i = 1, 2, 3

The output of estimated path coefficients in SPSS is presented in the following table:

Table 7: The Result of Estimated Path Coefficient

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.854	2.280		-.375	.709
	DER	.118	.083	.112	1.423	.158
	DAR	-1.691	2.720	-.048	-.622	.536
	Profitabilitas	1.833	.185	.712	9.887	.000

a. Dependent Variable: Harga Saham

The output of path coefficient for each variable is:
ρ_{ZX1} = 0,112
ρ_{ZX2} = -0,048
ρ_{ZY} = 0,712
This leads us to this equation:
$Z = 0{,}112\ X_1 - 0{,}048\ X_2 + 0{,}712\ Y + \varepsilon_1$
The equation is similar to the result of estimated path analysis in LISREL presented in the following diagram:

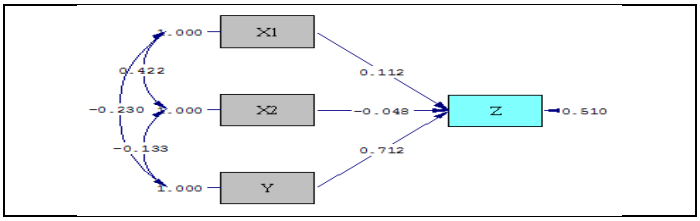

Fig. 7. Diagram of Path Coefficient

The value of coefficient of determination and the contribution of other variables are shown in the following table:

Table 8: The Result of Estimated Coeffiecient of Determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.700[a]	.490	.475	2.31808

a. Predictors: (Constant), Profitabilitas, DAR, DER

R-squared of 0,490 indicates that the simultaneous effect of DER, DAR and profitability on share prices is 49,0%. The remaining 51,0% constitutes a variance unaccounted for by specific variation due to unknown and unobserved effects.

b. Parameter Significance Test

The following hypotheses, whether both of the free variables have effects on the bound variable defined by the previously mentioned equation, are simultaneously and partially tested using F-test and T-test, respectively.

Simultaneous Hypothesis Testing (F-Test)

The hypotheses we wish to test simultaneously are:

$H_0 \rightarrow \rho_{YXi} = 0$ There is no significant effect of DER, DAR and profitability, simultaneously, on share prices.

$H_1 \rightarrow \rho_{YXi} \neq 0$ There is a significant effect of DER and DAR and profitability, simultaneously, on share prices.

The significance level is set at $\alpha = 5\%$.

F statistic is used to interpret the hypotheses.

The resulting F value in SPSS is:

Table 9: The Result of Estimated Simultaneous Hypothesis Test

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	536.586	3	178.862	33.286	.000[a]
	Residual	558.843	104	5.373		
	Total	1095.429	107			

a. Predictors: (Constant), Profitabilitas, DAR, DER

b. Dependent Variable: Harga Saham

The simultaneous test outputs F_{cal} of 33,286. This value is subsequently compared with the F value in F distribution table. For α=5%, $df_1 = k = 3$, and $db_2 = n\text{-}k\text{-}1 = 108\text{-}3\text{-}1 = 104$ generates F_{table} of 2,692.

The criteria upon which the null hypothesis is tested against the alternative hypothesis are:

H_0 is rejected and H_1 is accepted if $F_{cal} \geq F_{table}$; or

H_0 is accepted and H_1 is rejected if $F_{cal} < F_{table}$.

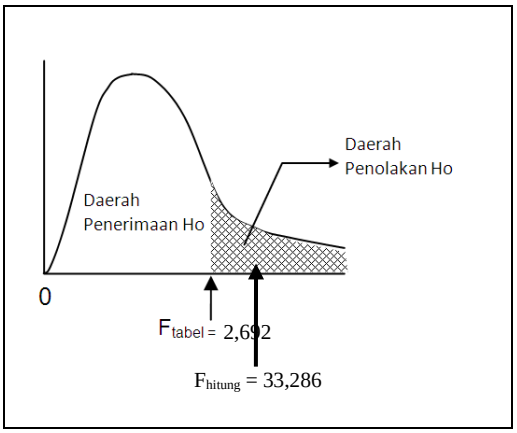

Fig. 8. The Curve of Simultaneous Hypothesis Test

Given that F_{cal} (33,286) > F_{table} ((2,692), H_0 is rejected in favor of H_1. The simultaneous effect of DER, DAR and profitability on share prices is thus significant.

- *Partial Hypothesis Testing (T-Test)*

  The hypotheses partially tested are:

  1) $H_0 \rightarrow \rho_{YX1} = 0$ Partially, DER does not significantly affect share prices;
     $H_1 \rightarrow \rho_{YX1} \neq 0$ Partially, DER significantly affects share prices.
  2) $H_0 \rightarrow \rho_{YX2} = 0$ Partially, DAR does not significantly affect share prices;
     $H_1 \rightarrow \rho_{YX2} \neq 0$ Partially, DAR significantly affects share prices;
  3) $H_0 \rightarrow \rho_{ZY} = 0$ Partially, profitability does not significantly affect share prices;
     $H_1 \rightarrow \rho_{ZY} \neq 0$ Partially, profitability significantly affects share prices.

The significance level is set at $\alpha = 5\%$.

T statistic is used to interpret the hypotheses.

The resulting value of T statistic in SPSS is presented in the following table:

Table 10: The Result of Estimated Partial Hypothesis Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.854	2.280		-.375	.709
	DER	.118	.083	.112	1.423	.158
	DAR	-1.691	2.720	-.048	-.622	.536
	Profitabilitas	1.833	.185	.712	9.887	.000

a. Dependent Variable: Harga Saham

In the output above, T_{cal} of DER, DAR and profitability is 1,423, -0,622 and 9,887, respectively. These values are then compared with the T-value in T-distribution table. For α=5%, df = n-k-1 = 108-3-1 = 104 in a two-tailed test displays T_{table} of 1,983 and -1,983.

The criteria upon which the null hypothesis is tested against the alternative hypothesis are:

H_0 is rejected, and H_1 is accepted if $T_{table} \geq T_{cal} \geq T_{table}$; or

H_0 is accepted, and H_1 is rejected if $T_{table} < T_{cal} < T_{table}$.

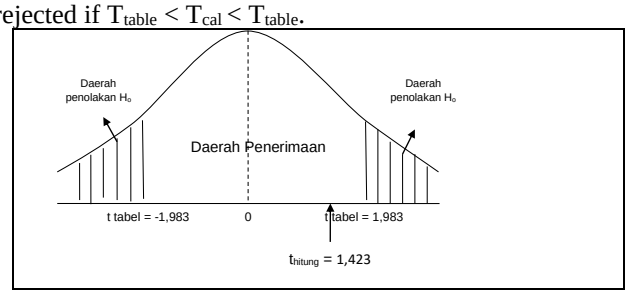

Fig.9. The Curve of Partial Hypothesis on DER Effect on Share Prices

Given that T_{cal} (1,423) < T_{table} (1,983), H_1 is rejected in favor of H_0. The partial effect of DER is not significant on share prices, accordingly.

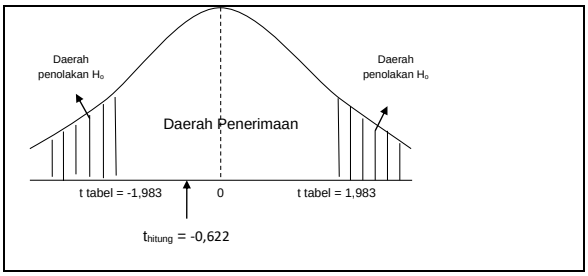

Fig.10. The Curve of Partial Hypothesis Test on DAR Effect on Share Prices

Given that T_{cal} (-0,622) > T_{table} (-1,983), H_1 is rejected in favor of H_0. The partial effect of DAR is not significant on share prices, accordingly.

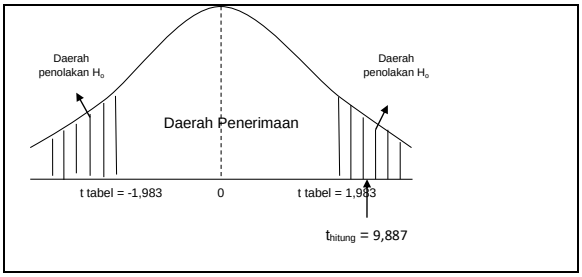

Fig.11. The Curve of Partial Hypothesis Test on Profitability Effect on Share Prices

Given that T_{cal} (9,887) < T_{table} (1,721), H_0 is rejected in favor of H_1. The partial effect of profitability is, hence, significant on share prices.

6. Discussion and implications

Analysis of Direct Effect and Indirect Effect

In the model at hand, the relationship between each of the free variables and the bound variable can be statistically identified and specified in terms of direct and/or indirect impacts.

Table 11: The Result of Estimated Direct Effect and Indirect Effect

Variable	Path coefficient	Direct effect	Indirect effect trough:			Indirect effect	Total Effect
			X1	X2	Y		
X1	0.112	1.3	-	-0.2	-1.8	-2.1	-0.8
X2	-0.048	0.2	-0.2	-	0.5	0.2	0.5
Y	0.712	50.7	-1.8	0.5	-	-1.4	49.3
Total Effect							49.0

- DER does not have a significant effect on share prices, as shown in T-test, with a total effect of 0,8%, decomposed into a direct effect (1,3%) and an indirect effect (-2,1%).
- DAR does not have a significant effect on share prices, as shown in T-test, with a total effect of 0,5%, with a direct effect and an indirect effect both standing at 0,2%.
- Profitability, however, is statistically significant on share prices, as shown in T-test, with a total effect of 49,3%, decomposed into a direct effect (50,7%) and an indirect effect (-1,4%).

Therefore, the sum that makes up the total simultaneous effect of DER, DAR and profitability on share prices is 49,0%. The remaining 51,0% constitutes the effect of other variables unknown or unaccounted for

Decomposition of DER and DAR on Share Prices through Profitability

Decomposition refers to a model that identifies causal effects between variables, be it direct or indirect effect, in path analysis framework. Non-causal relations or correlational relations among exogenous variables are not included in the calculation (Riduwan, 2008:151; Markus & Huber 2014).

Based on the result of the prior analysis of sub-structure 2, the overall causal and non-causal relationship is described in the following figure:

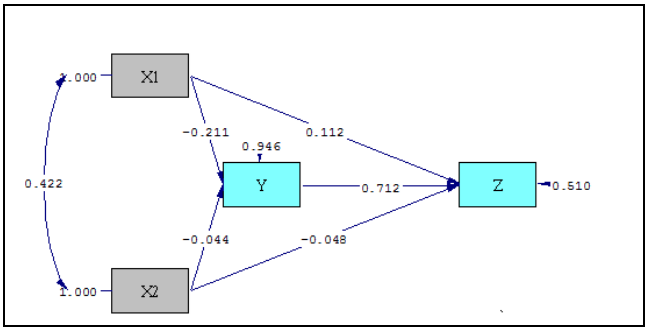

Fig.12. Decomposition of DER dan DAR on Share Prices through Profitability

The decomposition into direct effect and indirect effect between variables is as follows:

The effect of X_1 on Z through Y $= \rho_{YX1} \times \rho_{ZY} \times 100\%$
$= -0,211 \times 0,712 \times 100\%$
$= -15,0\%$

The effect of X_2 on Z through Y $= \rho_{YX2} \times \rho_{ZY} \times 100\%$
$= -0,044 \times 0,712 \times 100\%$
$= -3,1\%$

The above calculation shows that the effect of DER and DAR on share prices through profitability is -15% and -3,1%, respectively.

7. Conclusion

We have discussed efforts to model the effect of capital structure on profitability and share prices of banks listed on IDX. Here are the conclusions:

1. Capital structure does not significantly affect its share prices with a total effect of 5,4%, and is, therefore, irrelevant to a company's share prices. The remaining 94,6% remains unaccounted for.
2. Profitability significantly affects share prices with a total effect of 49,3%, decomposed into a direct effect (50,7%) and an indirect effect (-1,4%).
3. The effect of DER and DAR on share prices through profitability is -15% and -3,1%, respectively.

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