

THE IMPACT OF FIRM GROWTH, PROFITABILITY, AND FIRM AGE ON DEBT POLICY USING FIRM SIZE AS MODERATOR VARIABLE

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Submitted: 19-12-2022, Revised: 14-02-2023, Accepted: 20-03-2023

ABSTRACT

The focus of this study is to determine the impact of firm growth, profitability, and firm age on debt policy of manufacturing companies listed on the Indonesia Stock Exchange during the period 2018-2020, using firm size as moderator variable. Purposive sampling method was used for samples selection, and there were 39 firms that met the requirements. Research data are processed using EViews 9 application, with the help of Microsoft Excel 2010 using Moderated regression analysis techniques. The study showed that firm growth, and firm age has a positive impact on debt policy. While, profitability has a negative impact on debt policy. The impact of firm growth, profitability, and firm age on debt policy cannot be moderated by the firm size.

Keywords: *Firm Growth, Profitability, Firm Age, Firm Size, Debt Policy*

1. INTRODUCTION

Working capital required by Indonesian firms to overcome several business constraints, including product promotion, loan repayment, and wage payment. There are forms of working capital, namely debt and equity [1]. Debt benefits from tax deductions, whereas equity benefits from having lesser risk than debt from internal resources. Firm sustainability can be seen in how managers determine the firm's financial policies in the form of an optimal proportion of debt [2].

Differences of opinion between management and shareholders on the firm's funding activities give rise to conflicts of interest. Due to the benefits of debt as a tax deduction, shareholders prefer debt as a source of corporate funding. In contrast to management who believes debt funding carries larger risk than internal resources [3]. Determination of firm financial policy is influenced by factors such as firm growth, profitability, and firm age.

The study attempts to provide answers of the following points based on the scenario previously described: (1) Does firm growth significantly impact debt policy? (2) Does profitability significantly impact debt policy? (3) Does firm age significantly impact debt policy? (4) Does firm size moderate the effect of firm growth on debt policy? (5) Does firm size moderate the effect of profitability on debt policy? (6) Does firm size moderate the effect of firm age on debt policy?

2. THEORETICAL REVIEW

Agency Theory

Agency theory is a theory that defines the relationship between managers who act as agents, and shareholders as owners of the firm [4]. Managers will be given authority by the firm

owner to run the firm business in the interest and prosperity of the owner. Conflict of interest can happen between the owner and manager, which results in agency costs [5].

Pecking-Order Theory

Pecking-Order theory is a theory of firm financing decisions where the financing will use internal funds, followed by external financing when internal funds are not sufficient [1]. A firm that has sufficient profits or funds will use fewer external funds than firms with minus profits, according to the facts in the industry regarding firm financing decisions [6].

Trade-Off Theory

Trade-Off Theory states that there must be a balance between the benefits of tax protection and the costs of bankruptcy to achieve an optimal financing structure [7]. The Trade-Off Theory assumes that information obtained by investors and managers is symmetrical [1].

3. LITERATURE REVIEW

Firm Growth and Debt Policy

Firm growth represents the current period business development in comparison to the prior period [8]. High income companies are said to have experienced significant growth [9]. Pecking order theory predicts that firms in the high growth stage will increase their debt financing rather than equity over time assuming a fixed level of profitability [7]. Firms with high growth tend to rely more on debt for external funds because the costs of issuing shares are higher than the costs of issuing debt securities [1]. Wahyudin and Salsabila [16], Angeline and Wijaya [18], Putra and Ramadhani [4], Wibowo and Lusy [9] conducted study that supports pecking order theory and shows firm growth has a positive impact on debt policy. Study with the results of company growth having a negative impact on debt policy, namely Nugraha dkk. [13]. Furthermore, there is Viriya and Suryaningsih [19] study with the results of firm growth has an insignificant impact on debt policy.

Profitability and Debt Policy

Profitability is defined as the relationship between revenues and expenses incurred during production activities performed with firm assets [6]. Profitability also defined as the level of operational efficiency in the usage of owned assets as well as the firm ability to generate profits [10]. Firms with high returns tend to use less external financing because they already have sufficient internal funds to finance the business, which is consistent with the pecking order theory [1]. The trade off theory predicts that profitable firms should have a lot of debt with the assumption of good management of tax benefits and bankruptcy costs [7]. Wahyudin and Salsabila [16], Putra and Ramadhani [4], Gharaibeh and Al-Tahat [20], Wibowo and Lusy (2021) conducted studies that supports pecking order theory and shows profitability has a negative impact on debt policy. However, there are studies with contradictory results, namely Khan dkk. [9], Jaworski dan Santos [21].

Firm Age and Debt Policy

In the capital structure model, firm age is a measure of the firm reputation [11]. Firm age is determined by the number of years since it was founded. Firms that have been established

and running for a long time are more likely to obtain debt financing than firms that have not been established for a long time and do not have a reputation yet [15]. Consistent with the trade-off theory, which predicts a positive relationship between firm age and debt policy. Lin et al. [11] study shows that supports trade-off theory and shows firm age has a negative impact on debt policy. A well-established company has a reputation, experience, and enough cash flow to avoid relying on outside financing.

Firm Growth and Debt Policy with Firm Size as Moderating Variable

Large corporations will have a large number of assets and will be able to use the income generated to fund the firm business compared to smaller firms that will use debt financing because of the lack of internal funding [16]. Wahyudin and Salsabila [16] conducted study that shows firm size can moderate the effect of firm growth on debt policy.

Profitability and Debt Policy with Firm Size as Moderating Variable

The greater the firm size, the higher the income that can be acquired from the assets owned. Debt financing will be lowered because internal funds will be sufficient to fund the firm operations [3]. Wahyudin and Salsabila [16], Alamsyair and Sambuaga [22] have found that firm size can moderate the effect of profitability on debt policy. Suherman, Purnamasari, and Mardiyati [3] conducted studies that yielded contradictory results.

Firm Age and Debt Policy with Firm Size as Moderating Variable

Large firms will find it easier to obtain debt facilities from creditors than small firms [17]. There may be a negative relationship between firm age and debt policy because firms with a good reputation and at the mature stage of the product life cycle obtain stock financing that is more cost-effective [15]. There is no evidence that firm size can mitigate the impact of firm age on debt policy.

4. RESEARCH HYPOTHESIS

Firm growth is a description of the firm development, and is a basis for managers to decide financial policy of the firm. Growing firms who usually have insufficient funds tend to use debt as an external fund because the costs of issuing shares are higher than the costs of issuing debt securities. Following pecking order theory that predicts growing firms will increase their debt financing rather than equity over time assuming a fixed level of profitability. Ha₁: Firm growth has a positive and significant impact on debt policy.

Profitability is the firm capability to earn income using its assets within a specific period of time efficiently. Managers use profitability as a basis to decide financial policy of the firm, where high returns firms already have sufficient internal funds to finance the business and tend to use less external financing, following the pecking order theory. Ha₂: Profitability has a negative and significant impact on debt policy.

Firm age is the number of years from when the company was founded until the current year. Firm age is a basis for managers to decide financial policy of the firm, where firms that have been established and running for a long time are more likely to obtain debt financing, following the trade-off theory. Ha₃: Firm age has a positive and significant impact on debt policy.

Growing firms who usually have insufficient funds tend to use debt as an external fund because the costs of issuing shares are higher than the costs of issuing debt securities. If firm size is included in the relationship between firm growth and debt policy, a large firm who has large assets that can generate sufficient profit to finance the business will use internal fund rather than external fund. Ha₄: Firm size has the ability to moderate the impact of firm growth on debt policy.

High returns firms who already have sufficient internal funds to finance the business tend to use less external financing. If firm size is included in the relationship between profitability and debt policy, a large firm will find it easier to obtain debt financing because of the reputation that has been known in the debt market. Large firms prefer using debt financing even though they already have sufficient internal funds to finance the business. Ha₅: Firm size has the ability to moderate the impact of profitability on debt policy.

Firms that have been established and running for a long time are more likely to obtain debt financing than firms that have not been established for a long time and do not have a reputation yet. If firm size is included in the relationship between firm age and debt policy, a large firm will find it easier to obtain debt financing because creditors will choose financial stable, high market knowledge, and high credibility firms. Ha₆: Firm size has the ability to moderate the impact of firm age on debt policy.

Based on the hypothesis of the study, research model can be described as below:

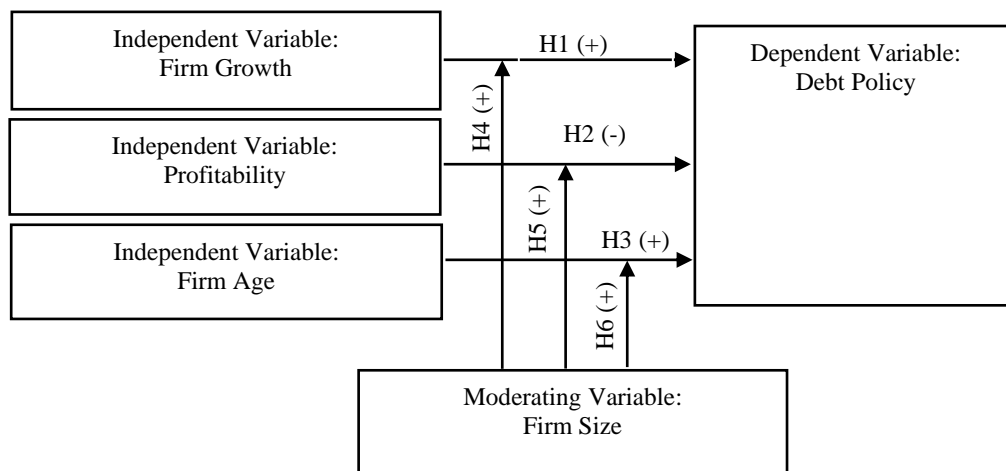


Figure 1. Research Model

5. METHODS

The method used in this study is a quantitative approach, with secondary data gathered from the Indonesia Stock Exchange official website, the firm official website, and Invesnesia. Purposive sampling was used to select research subjects from manufacturing firms listed on the IDX between 2018 and 2020, with the following criteria: 1) Manufacturing firms that are consistently listed on the Indonesia Stock Exchange during the 2018-2020 period, 2) Manufacturing firms that present financial statements ending December 31 during the 2018-2020 period, 3) Manufacturing firms that do not experience delisting or potential delisting during the 2018-2020 period, 4) Manufacturing firms that present financial statements in

Rupiah during the 2018-2020 period, 5) Manufacturing firms that consistently earn profit during the 2018-2020 period, 6) Manufacturing firms that consistently experience asset growth during the 2018-2020 period.

Operationalization of variable and measurement of the study can be described as below:

Table 1. Operationalization of Variable and Measurement

Variable	Measurement	Scale	Sources
Dependent Variable			
Debt Policy	DAR = Total Debt / Total Asset	Ratio	[13]
Independent Variable			
Firm Growth	GROWTH = (Total Asset _t -Total Asset _{t-1}) / Total Asset _{t-1}	Ratio	[18]
Profitability	ROA = Net Income / Total Asset	Ratio	[6]
Firm Age	AGE = Observation Year – Year of Incorporation	Ratio	[23]
Moderator Variable			
Firm Size	SIZE = Ln. Total Asset	Ratio	[3]

6. RESULTS AND CONCLUSION

The descriptive statistical test, classical assumption test and regression model test were performed prior to the hypothesis test. The results of descriptive statistical test can be seen below:

Table 2. Results of Descriptive Statistical Test

	<i>DAR</i>	<i>GROWTH</i>	<i>ROA</i>	<i>AGE</i>	<i>SIZE</i>
<i>Mean</i>	0.327581	0.140561	0.104145	39.57422	28.37065
<i>Median</i>	0.327389	0.090651	0.080281	39.00822	28.30923
<i>Maximum</i>	0.707244	1.676057	1.559505	104.0000	32.27145
<i>Minimum</i>	0.066532	0.002391	0.000123	9.334247	25.95468
<i>Std. Dev.</i>	0.145482	0.183392	0.155206	17.57263	1.381141
<i>Observations</i>	117	117	117	117	117

The classical assumption test consists of the Multicollinearity Test and the Heteroscedasticity Test. The correlation coefficient value of each independent variable in the study was examined by the multicollinearity test. The correlation coefficient of all independent variables in the multiple regression model is less than 0.85, implying that the regression model is free of multicollinearity. A heteroscedasticity test was performed to determine the variance disparity of the residual values in all observations in the regression model, and the study used the Glejser test. The heteroscedasticity test shows that all independent variables have a probability value larger than 0.05, implying that there is no heteroscedasticity in the data.

The Chow test, Hausman test, and Lagrange multiplier test were used to test the regression model. The Chow test of the first regression equation (without moderation) and the second regression equation (with moderation) shows that the probability value of the Cross-Section F

Chi-Square is less than 0.05, indicating the Fixed Effect Model (FEM) is chosen. The Hausman test shows that the probability value of the Cross-section Random for the first regression equation is greater than 0.05, therefore Random Effect Model (REM) is chosen. The probability value of the Cross-section Random for the second regression equation is less than 0.05, therefore Fixed Effect Model (FEM) is still chosen. The lagrange multiplier test for the first regression equationshows that the probability value of Both Square is less than 0.05, indicating the Random Effect Model (REM) is still chosen. As a result, the first regression equation used the Random Effect Model (REM) model in this study. The second regression equation used the Fixed Effect Model (FEM) model in this study.

T-test is carried out after all classical assumption tests meet the requirement, the results can be seen below:

Table 3. Results of Regression Analysis Without Moderation Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.214648	0.052315	4.103006	0.0001
X1_FIRM GROWTH	0.141235	0.029001	4.870014	0.0000
X2_PROFITABILITY	-0.109165	0.036093	-3.024531	0.0031
X3_FIRM AGE	0.002639	0.001195	2.208758	0.0292

Based on the results of regression analysis without moderation variable in table 2 above, the regression equation obtained is as follows:

$$DAR = 0,214648 + 0,141325GROWTH - 0,0109165ROA + 0,002639AGE + e$$

The outcomes are as follows after the application of Firm Size as a moderator:

Table 4. Results of Regression Analysis with Moderation Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8.042772	1.701979	-4.725542	0.0000
X1_FIRM GROWTH	0.342362	0.362738	0.943828	0.3485
X2_PROFITABILITY	-1.235665	1.457804	-0.847621	0.3995
X3_FIRM AGE	-0.081455	0.036004	-2.262389	0.0267
Z_FIRM SIZE	0.341367	0.066385	5.142234	0.0000
X1*Z_FIRM GROWTH*FIRM SIZE	-0.013090	0.011881	-1.101791	0.2743
X2*PROFITABILITY_FIRM GROWTH*FIRM SIZE	0.039048	0.049607	0.787157	0.4338
X3*Z_FIRM AGE*FIRM SIZE	0.001708	0.001181	1.446404	0.1525

Based on the results of regression analysis with moderation variable in Table 3 above, the regression equation obtained is as follows:

$$\text{DAR} = -8.042772 + 0.342362 \text{ GROWTH} - 1.235665 \text{ ROA} - 0.081455 \text{ AGE} + 0.341367 \text{ SIZE} - 0.013090 \text{ GROWTH} * \text{SIZE} + 0.039048 \text{ ROA} * \text{SIZE} + 0.001708 \text{ AGE} * \text{SIZE} + e$$

Based on the regression results, firm growth has a positive ($\beta = 0.141$) and significant ($\text{sig.} = 0.000$) impact on debt policy. To put it in perspective, growing firms tend to use external funds in the form of debt. Profitability has a negative ($\beta = -0.011$) and significant ($\text{sig.} = 0.003$) impact on debt policy, indicating that firms with high profits generally use internal funds generated from operational activities to finance their needs. Firm age has a positive ($\beta = 0.003$) and significant ($\text{sig.} = 0.029$) impact on debt policy. It implies that long-established and active market firms generally have a good reputation with investors, allowing them to obtain debt funding more easily.

The variable interaction of firm growth and firm size on the second regression equation (with moderation) has a negative ($\beta = -0.013$) and insignificant ($\text{sig.} = 0.274$) impact on debt policy. The variable interaction of profitability and firm size has a positive ($\beta = 0.039$) and insignificant ($\text{sig.} = 0.434$) impact on debt policy. The variable interaction of firm age and firm size has a positive ($\beta = 0.002$) and insignificant ($\text{sig.} = 0.153$) impact on debt policy. As a result, firm size cannot moderate the effect of firm growth, profitability, and firm age on debt policy.

To determine the percentage of debt policy variation that could be explained by independent variables in the study, a determinant test (R) was carried out. Before being moderated by firm size, Adjusted R-Square has a value of 0.222. Firm growth, profitability, and firm age could explain 22.2% of debt policy variation for the first regression analysis. After being moderated, it has a value of 0.939. After being moderated by firm size, independent variable such as firm growth, profitability, and firm age could explain 93.9% of debt policy variation for the second regression analysis.

To determine if all of independent variables have significant impact to estimate dependent variable, a simultaneous test (the F-test) was carried out. Before being moderated by firm size, F-statistic probability has a value of 0.000001, while after being moderated, it has a value of 0.000000. It is evident that the independent variable affects the dependent variable simultaneously.

7. DISCUSSION AND LIMITATIONS

According to the study results, the growth rate of the firm has an impact on debt policy decisions. Firms in growth are more likely to use external funds in the form of debt because internal funds are insufficient, and because the cost of issuing debt securities is lower than the cost of issuing shares for the first time. The larger the firm cannot guarantee that the firm will also grow, resulting in the firm's growth variable having no significant effect on debt policy despite being moderated by firm size. Profitability has an impact on the firm's debt policy decisions, as firms with high profits tend to use internal funds generated by operational activities to finance firm needs. The internal funds generated are sufficient to fund the activities of a profitable firm. The larger the firm cannot guarantee that the firm's profitability will be higher as well, resulting in the profitability variable not having a significant effect on debt policy despite being moderated by firm size. Firm age impacts firm debt policy decisions, as firm that have been around for a long time and operate in the market tend to have their own reputation in the minds of investors, as well as more assets that can be used as collateral, making debt financing easier to obtain. The larger the firm cannot guarantee that it

has been around for a long time, resulting in the firm age variable has no significant effect on debt policy, despite being moderated by firm size.

The study has several limitations, including the use of only four independent variables and one moderating variable in the research model. Firm growth, profitability, firm age as independent variables and firm size as a moderating variable. Outside of this research model, other variables such as managerial ownership, institutional ownership, free cash flow, dividends, asset structure, liquidity, business risk, efficiency, and tangibility might explain the firm debt policy decisions. The research period of three years is relatively short, and subsequent research can use a longer study period to ensure more accurate study results. Furthermore, because the study only examines manufacturing companies, the findings can only be applied to listed firms.

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