
Firm Size Moderate Relationship Between Capital Structure and Profitability with Dividend Policy: An Empirical Evidence from Indonesian Data

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Abstract: This study aims to determine effect of capital structure and profitability on dividend policy by including firm size as a moderating variable. The samples in this study were 26 companies from 65 Basic Industrial and Chemical Manufacturing Sector Companies listed on the Indonesia Stock Exchange in 2011-2019, which were determined by purposive technique. The results showed that firm size is a variable that determines the strengthening and weakening of the relationship of capital structure with dividend policy also between profitability with dividend policy. Increasing firm size or increasing company assets do not provide incentives to increase the level of company profitability as measured by return on equity. Likewise, an increase in company assets does not provide incentives to increase dividend ratios, as an estimate of an increase in company income due to increased production capacity and company sales capacity. The larger firm size provides an incentive to increase the debt ratio because of the increasing need for funding to increase its investment in long-term assets. An increase in company size is also an indication for an increase in dividend ratios due to the estimated increase in company profits due to increased company revenue. Therefore, the determinants of capital structure and dividend policy in emerging markets such as the Indonesian market share the same set of suggested factors with the developed markets.

Keywords: Firm Size, Capital Structure, Profitability, Dividend Policy

1. Introduction

The basic chemical industry sector is part of the sector on the Indonesia Stock Exchange which has high demand by investors and has great potential to continue to develop in Indonesia. The Basic Chemical Industry Sector can be called as a mother of industry; everything produced by this sector can be used as raw material for other industries. However, nowadays, this sector facing serious problems related to its dividend policy, which is experiencing a declining trend. Trend in the dividend ratio in the basic and chemical industry sectors was decline from 38.53% in 2013 to only 23.99% in 2019. The negative impact of reducing the dividend ratio will certainly be responded negatively by investors, because they consider the sector has a bad prospect as refer to the signaling theory.

Research has been devoted to investigate influence of capital structure on dividend ratio; however, previous studies

were reported mixed results. For example, previous studies provide evidence that an increase in capital structure has an impact on decreasing the dividend ratio, researcher [1-3]. While Puspita [4], reported that increase or decrease in capital structure does not have any impact on the dividend ratio. Previous studies also link dividend policy with profitability; however, the results seem to be conflicting. One study reported that increased profitability has an impact on increasing dividend ratios, Suharli [5]. While, other study found different results which is emphasized that increasing profitability has the effect of reducing the dividend ratio, Dewi [6]. Then, another study found non association between profitability on the dividend ratio, Yanti [7]. The differences of research results related to the effect of capital structure and profitability on dividend policy, give an indication that capital structure and profitability do not seem to be directly related to dividend policy.

Previous studies provide guidance on variables that can

strengthen or weaken the relationship between capital structure and profitability with dividend policy, Sunarya [8] reported that firm size is not able to strengthen and weaken the effect of profitability and capital structure on dividend policy. While, Musiega, et al. [9] showed the link between firm size as moderator of profitability with dividend policy. Therefore, this study aims to determine effect of capital structure and profitability on dividend policy by including firm size as a moderating variable.

2. Theory and Empirical Hypotheses

The discussion focuses upon agency theory, signaling theory, pecking order theory and, dividend policy, capital structure, profitability, and size firm.

2.1. Signaling Theory

Signaling theory emphasizes the importance of information released by companies on investment decisions for parties outside the company, Bhattacharya [10]. Management will pay a dividend to give a signal about the company's success in recording profits, Suharli [5].

2.2. Agency Theory

Previous study describe the relationship between ownership separation and company control, Sulistyowati, et al. [2]. The existence of the separation, will cause a conflict of interest between the shareholders with the managers.

2.3. Pecking Order Theory

Pecking order theory explains the preference for using corporate funding sources that prioritize internal funding sources, Maidah [11]. If the use of internal funds is insufficient, the second alternative is to use external funds that originate from debt, and then issue ordinary shares as the last alternative.

2.4. Dividend Policy

Dividend policy is a decision to divide the profits earned by the company to shareholders as dividends or will hold in the form of retained earnings to be used as investment financing in the future, Mulyawan [12]. According to Musthikawati [13], there are various dividend policies, namely cash dividends, property dividends, script dividends, liquidating dividends, and stock dividends.

2.5. Capital Structure

Capital structure is a company's financial proportions, which is between owned capital sourced from long term liabilities and shareholders' equity which is the source of financing for a company that can be measured using leverage ratio, Nuswandari [14]. In practice, there are several types of debt ratio, namely debt to equity ratio, long term debt ratio, time interest earned ratio, and fixed charge coverage, Kasmir [15].

2.6. Profitability

Profitability defines as the ability of companies to earn profits in relation to sales, total assets, as well as their own capital, Sartono [16]. While other states "measurement of profitability is related to sales volume, total assets, and own capital", Syamsuddin [17].

2.7. Firms Size

Firms size is seen from the size of the equity, the value of the company, or the results of the total value of the assets of a company, Riyanto [18]. Determining the size of the company is the natural log of total assets, Sudarsi [19].

3. The Interrelationship Between Capital Structure and Dividend Policy

Previous study stated that capital structure has a negative influence on dividend policy, Jensen and Solberg [20]. The use of too high debt will cause a decrease in dividends due to most of the profits will be allocated as a reserve for debt repayment. Previous study suggested that a negative relationship between capital structure and dividend policy due to debt used as a way to reduce agency conflict, Dewi [6]. Companies that have debts will be forced to spend cash available in the company to pay debt interest and pay off debt before distributing dividend policies. The relationship of the model structure with dividend policy is empirically presented by Dewi [6], which proves that the capital structure that is dominated by high debt causes the low initiation of dividends distributed to shareholders. The greater the company's dependence on debt, the more intensive supervision by providers and creditors on management performance, thereby reducing the potential for agency problems between managers and shareholders. Several studies reported that in order to reduce agency problems, some company funds had to be given up to pay installment and debt interest, so there is a tendency to reduce its priority to increase the dividend ratio, researcher [6, 21, 22].

This study formulated our research hypothesis that higher capital structure would be affected to the smaller dividend ratio.

4. The Interrelationship Between Profitability on Dividend Policy

Signaling theory in Weston and Copeland (1997) emphasized that the level of corporate profits is a basic element of dividend policy so that the analysis of financial ratios affects the dividend policy. Dividends are used by managers to give signals about the prospects for the company's performance, therefore an increase or decrease in dividends considered to have a load of information about the positive or negative prospects of the company's performance, Dewi [6]. While Abbas, et al. [23] explained that stable companies have orderly and increasing profits tend to pay

high dividends to their shareholders because of the signal effect.

The relationship between profitability and dividend policy is empirically proven that dividends will be distributed to shareholders if the company earns profits so that company profits will greatly affect the level of dividend payments, Idawati and Sudiartha [24]. The results of the study were supported by researchers [23, 25, 26], which basically proves that the more profitable, the company then encourages an increase in the dividend ratio.

This study formulated our research hypothesis that a higher profitability would impact on higher the dividend ratio.

5. The Interrelationship Between Capital Structure, Firm Size and Dividend Policy

Firms with larger sizes have greater trust in getting sources of funds, so that it will be easier to get credit from outside parties, Sjahrijal [27]. Therefore, the bigger firm size has a positive signal for creditors to provide loans that would be have a positive influence on capital structure. Empirical studies found that bigger companies tend to have higher debt levels compared to smaller companies, where the level of bankruptcy is lower than smaller companies, researchers [8, 11, 28-30].

Firm size reinforces the dividend policy based on Agency Theory. Firm size plays a significant role in explaining dividend payout ratios, Dewi [6]. Big firm size tends to be more mature and have easier access to the capital market that could reduce their dependence on internal funding, thus companies will provide high dividend payments. It was supported by previous study conducted by Khoiro and Handayani [26], which provides evidence that firm size has a significant and positive influence on policy. Another study prove that large companies can finance their investments easily through the capital market because of the small amount of asymmetric information that occurs, Hadianto [31]. Investors can get more information from large companies when compared to small companies. In other words, the larger the size of the company, the lower the cost of issuing equity, Hadianto [31]. Other empirical research shows that firm size weakens the relationship of capital structure with dividend policy, researchers [32-34], which basically proves that a larger firm size presents a relatively low cost of issuing equity in the capital market and a lower level of information asymmetry, so using equity is more likely than debt.

Firm size declines the dividend policy based on signaling theory that large companies with high growth rates require more funds for investment activities, so that funds obtained from retained earnings are not paid as dividends, Damayanti and Achyani [35]. A relevant opinion was expressed by Fachrudin et al. [36] that large companies prefer to maintain their money to maintain internal financing by avoiding external financing. Empirically, a greater the size of a

company, the lower the dividend distributed, Nurhayati [37]. The bigger the company, the greater the shock of the global crisis felt, the heavier the burden borne so that the company will reduce the proportion of dividends distributed to shareholders. The relevant results were stated that a greater company tends to reduce the dividend distribution ratio, researchers [2, 35].

We formulated our research hypothesis that firm size moderates the relationship of capital structure with dividend policy.

6. The Interrelationship Between Profitability, Firm Size and Dividend Policy

Large firms' size has relatively more stable and more capable of generating profits compared to small companies, Glancey [38]. Large companies have higher profitability than small companies because large companies have positive cash flow and have good prospects for a long period of time, are more stable and are more capable of generating profits than small companies. Empirically, firm size that strengthens profitability was stated by Margaretha and Adriani [39], which proves that company size has a positive and significant effect on profitability. The same result was stated by Nursandari [40] which proves that large companies have higher profitability than small companies. Some subsequent research whose results are also relevant are, Rifai et al. [41].

The size of the company weakens the profitability stated by Putra and Badjra [42], that growth in the use of assets will increase the profitability of the company, but when it comes to a certain threshold size may be a negative signal, because the greater the size of a company requires greater costs to carry out operational activities so will reduce the profitability of the company. Relevant research results presented by Kouser et al. [43] which proves that when the size of a small company growth will be faster so that the profits generated will be even greater. Some subsequent studies which were also appropriate were stated by researchers [44, 45] which proved that the greater the size of the company had the effect of reducing the company's profitability. The size of the company weakens the dividend policy explained by Damayanti and Achyani [35], that large companies with high growth rates require more funds for investment activities, so that funds obtained from retained earnings are not paid as dividends. Empirically relevant results were stated by Zhang and Fu [46] which proves that large companies prefer to maintain internal financing by avoiding external financing. Conversely, smaller companies that are riskier, must have a high payment ratio to attract investors to buy their shares. This result is supported by Fachrudin et al. [36] who proves that the greater the size of the company has an impact on reducing its dividend policy.

This study formulated our research hypothesis that firm size moderates the relationship of profitability with dividend policy.

Table 1. Dividend policy model, dependent variable: dividend payout ratio.

Independent variables	B (SE)	t	p-value
ROE	-0.079 (0.168)	-0.468	0.643
DAR	8.856 (2.828)	3.132	0.004
TA	-0.585 (0.217)	-2.694	0.012
DAR x TA	-0.570 (-0.570)	-3.277	0.003

Note: DAR: debt to total asset ratio; ROE: return on equity ratio; DPR: dividend payout ratio; TA: total assets.

7. Data and Methods

The samples in this study were 26 companies from 65 Basic Industrial and Chemical Manufacturing Sector Companies that were listed on the Indonesia Stock Exchange in 2011-2019, which were determined by purposive technique.

The observed variables include capital structure and profitability as independent variables. Each is measured by the debt to total asset ratio (DAR), which is the ratio between total liability and total assets (TA), Muliadi and Fahmi [47]. Return on equity ratio (ROE), which is the ratio of net income to total equity, Sartono [16]. As the dependent variable is the dividend policy, which is measured by the dividend payout ratio (DPR), which is the ratio between dividends per share and earnings per share, Harmono [48]. While the moderating variable is the firm size measured by ln total assets (TA), Riyanto [18].

Data were analysis using a goodness of fit model using the Lasik assumption test include a normality test; multicollinearity test; heteroscedasticity test; autocorrelation test; and linearity test. The multicollinearity test uses the parameters of tolerance and VIF to ensure there is no significant relationship between independent variables, resulting in tolerance values for TA, DAR, and ROE and each of them is 0.809; 0.781; and 0.789 is greater than 0.1. Meanwhile, the VIF values for TA, DAR, and ROE, each at 1.236; 1,281; and 1,268 lowers than 10. Taking into account the value of tolerance and the value of VIF, then there is no symptom of multicollinearity among fellow independent variables in the regression model. Heteroscedasticity test using the Gejler parameter produced sig values for TA, DAR, and ROE each of 0.101; .891; and 0.769 is greater than the value of alpha (α) = 0.05 so that there are no symptoms of heteroscedasticity in the regression model, but homoscedasticity.

Path analysis to test direct and indirect relationships, moderating regression analysis (MRA), and hypothesis testing. The regression equation for the effect of profitability on dividend policy is moderated by firm size, as follows:

$$\text{DPR}=3,589- 0,079\text{LnROE}+ e \quad (1)$$

$$\text{DPR}=3,494-0,004\text{LnTA}+ e \quad (2)$$

$$\text{DPR}=10,575- 2,643\text{LnROE}-0,403\text{LnTA}+0,148Z +e \quad (3)$$

The regression equation for the effect of capital structure on dividend policy is moderated by firm size, as follows:

$$\text{DPR} = 3,071-0,326\text{DAR} + e \quad (4)$$

$$\text{DPR} = -3,390 + 0,143\text{LnTA} + e \quad (5)$$

$$\text{DPR} = 12,706 + 8,856\text{DAR}-0,585\text{LnTA}-0,570Z + e \quad (6)$$

8. The Determinants of Capital Structure and Dividend Policy: Empirical Evidence

The mean values of the variables observed in the study for DAR, ROE, DPR and TA are respectively -1.0925; 2,1828; 3.4267; and 16.0464. While the maximum value of the ratio for each is -0.42; 3.17; 6.02; and 18.45. While the minimum ratio for each is -2.66; -1,90; 1.43; and 12.87.

The results of the firm size moderation test use the dividend policy interaction parameter as an independent variable with the firm size as a moderating variable, producing a significant value of the effect of firm size on the capital structure of 0.037 significant at alpha (α) = 0.05. Likewise, for the effect of interaction variables on 0.003 significant at alpha (α) = 0.05.

The results are in accordance with Sjahrijal [27] explaining that companies with larger sizes have greater trust in getting funding sources, so that it will be easier to get credit from outside parties. The results are also in accordance with Agency Theory, Vogt (1994) in Dewi [6], that large companies tend to be more mature and have easier access to the capital market as an incentive to reduce dependence on internal funding, so companies will provide high dividend payments. The results imply that there is a tendency for company size to be a variable that determines both strengthening and weakening the relationship of capital structure as measured by debt ratio and dividend policy as measured by dividend payout ratio. The larger firm size provides an incentive to increase the debt ratio because of the increasing need for funding to increase its investment in long-term assets. An increase in company size is also an indication for an increase in dividend ratios due to the estimated increase in company profits due to increased company revenue.

The results of the firm size moderation test use the profitability interaction parameter as an independent variable with the company size as a moderating variable, resulting in a significant value of the effect of the level of profitability on dividend policy of 0.969 is not significant at alpha (α) = 0.05. Similarly, the effect of the interaction variable (Z1) on dividend policy of 0.578 is not significant at alpha (α) = 0.05.

The results are not in accordance with, reseachers [38, 49], explaining that companies with large size are relatively more stable and more capable of generating profits compared to small companies. The results are also not relevant to Putra and Badjra [42] that growth in the use of assets will increase company profitability, but when it comes to a certain threshold size it might be a negative signal, because the larger the size of a company requires the greater costs to carry out its operational activities so will reduce the

profitability of the company.

This study implies a tendency for companies in the basic and chemical sectors; firm size as measured by total assets is not a determining factor of profitability and dividend policy. Increasing firm size or increasing company assets do not provide incentives to increase the level of company profitability as measured by return on equity. Likewise, an increase in company assets does not provide incentives to increase dividend ratios, as an estimate of an increase in company income due to increased production capacity and company sales capacity.

9. Conclusions

The current paper investigates determinants of the effect of capital structure and profitability on dividend policy by including firm size as a moderating variable. By incorporating 234 firm-year observations, this study finds that firm size can have both roles as a strengthening or weakening factor in the relationship between capital structure and dividend policy. However, this study cannot find that firm size determines on the relationship between profitability and dividend policy. This study interpreted that the bigger the firm size, the stronger relationship between capital structure and dividend policy. On the other hand, the larger firm size does not have the role to strengthen the relationship between profitability and dividend policy.

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