


Firm value and its antecedents: testing the interaction effect of dividend policy

Jonassen Phengdrawan¹, Maria Christiana Iman Kalis², Wendy³, Ana Fitriana⁴, Efa Irdhayanti⁵
^{1,2,3,4,5}Faculty of Economics and Business, Universitas Tanjungpura, Indonesia

Article Info	ABSTRACT
Keywords: Firm Value Capital Structure Profitability Firm Size Dividend Policy	The firm value represents investors' expectations of management's success in managing the firm, thereby enhancing the prosperity of investors. Firm value is crucial as it can shape perspectives and influence investor decision-making when investing in a firm. This research questions the effect of capital structure, profitability, and firm size on firm value in firms listed on the HIDIV20 index. This research also tests the dividend policy variable as a moderator. The research population includes firms listed on the HIDIV20 index of Bursa Efek Indonesia during 2018-2022. The sampling process is conducted through purposive sampling. Data analysis uses Moderate Regression Analysis (MRA) with panel data. The outcomes of the research reveal that capital structure and profitability have a positive impact on firm value, whereas firm size has a negative impact on firm value. Furthermore, dividend policy can moderate and strengthen the aftermath of profitability on firm value. This interaction effect is not observed in the outcome of capital structure and firm size on firm value.
This is an open access article under the CC BY-NC license 	Corresponding Author: Jonassen Phengdrawan Faculty of Economics and Business, Universitas Tanjungpura, Indonesia Jpheng22@gmail.com

INTRODUCTION

In an era of intensifying industrial competition, companies aim to optimise returns for their investors. A key component of achieving this goal involves the maximisation of firm value. Firm value serves as a parameter of a firm's performance and stock prices, thereby exerting a profound impact on investor sentiments toward the firm. Consequently, investors anticipate that corporate managers will implement policies capable of augmenting firm value [1].

Investors' perceptions of a firm are mirrored in the price at which potential investors are willing to purchase the firm's shares, a metric referred to as firm value. The firm's value is calculated by multiplying the number of shares in circulation by the stock price. Thus, when the stock price rises, the firm's overall value tends to increase, whereas a drop in the stock price results in a depletion in the firm's value. Firm value can significantly influence investors' perceptions of the firm's quality [2]. Market indicators meticulously sculpt firm value, bearing the effect of critical factors such as capital structure, profitability, firm size, and dividend policy [3].

Capital structure constitutes a segment of the financial performance framework that mirrors the total foreign capital liabilities and the equity amount on the balance sheet [4], [5]. An ideal capital structure can signify the firm's competence to enhance overall firm value. The augmentation of corporate value can materialise through the reduction of agency costs or through tax savings resulting from interest payments made by the firm [3]. There is a contradiction in the research carried out by [6]–[8], which indicates that capital structure positively affects the firm's value. Meanwhile, research which was performed by [1], [4] shows a negative impact on the firm's value.

Profitability is characterised as the capacity of a firm to generate profits and serves as a metric for assessing the effectiveness of the firm's asset utilisation and operational efficiency [9], [10]. The greater the firm's profit ratio, the more wealthy it can be. Therefore, profitability is a highly sought-after aspect that investors take into consideration when making investment decisions [11]. There is a contradiction in the research carried out by [11]–[13] indicates that profitability has a positive impact on the firm's value. However, research which was performed by [14] exhibits a negative influence on the firm's value.

The size of a firm can be utilised as an indicator to gauge its economic scale and dominance within the market. A robust market presence often bestows substantial bargaining power in competitive markets, rendering it one of the variables that can exert an impact on a firm's value [15]. Implicitly, the size of a firm can be approximated through its sales volume and total assets. There is a contradiction in the research carried out by [8], [16]–[18] indicates that firm size has a positive impact on the firm's value. However, research which was performed by [15], [19] shows a negative impact on the firm's value.

Another factor that exerts a substantial influence is its dividend policy. Dividend policy becomes of paramount importance as it can impact stock prices, financial structure, liquidity position, firm growth, and corporate financing flows, thus offering insights into the firm's performance [2]. Dividend policy can be shaped by various determinants, including the requirement for funds to fulfil debt obligations, the firm's liquidity stance, earnings stability, asset expansion pace, corporate governance, and legal regulations [20], [21]. Hence, dividend policy can emerge as a pivotal factor influencing a firm's value and serve as a consideration for investors seeking dividend returns in their investment decisions. Consequently, in this research, dividend policy is utilised as a moderation. This research is anticipated to provide a valuable reference for investors, guiding people to make knowledgeable investing decisions by better comprehending the factors that affect a firm's value. Additionally, it can offer valuable guidance to corporate managers, helping them make more strategic and efficient decisions regarding business strategies and financial policies.

Literature Review

Firm Value

The firm's value is an inseparable component of its journey from inception. Every aspect of performance achievements, decision-making processes, management, and prospects of the firm are reflected in its inherent value, and assessments of this value are made through both internal and external perspectives. Managers and owners must share

aligned goals to enhance the firm's value, possess the ability to make intelligent financial decisions, and implement high-quality corporate governance practices to achieve optimal firm value and enhance investor welfare [22]. The welfare of both investors and the firm is depicted through stock prices and may function as a mirror of financial and asset management investment decisions. A rise in stock prices demonstrates the market's belief in the firm's bright forthcoming prospects [14].

Investors perceive an increase in firm value as an accomplishment that ultimately results in the augmentation of the firm's value due to heightened investor interest in allocating their capital to the firm [23]. Investors tend to buy shares of a firm with bright prospects. Consequently, the high demand for shares drives up the stock price as investors assign a high value to the firm [24]. The significance of firm value is paramount, as higher firm value aligns with the firm's investor prosperity. It is the aspiration of the firm's owners, as it contributes to the welfare of shareholders [25]. The valuation of the firm is determined by the price-book value ratio [26], [27].

$$\text{Price Book Value (PBV)} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

The valuation of a firm can be quantified through the PBV ratio, as PBV delineates the relationship between stock price and per-share book value. The price Book Value ratio signals the extent to which the market stock price aligns with the firm's asset value as recorded in its financial statements.

Capital Structure

Capital structure can be identified as the proportion of long-term debt and equity. Long-term debt constitutes a form of extended financing with a maturity period exceeding one year, while equity represents the enduring funds furnished by the firm's investors through various share types, including preferred and common shares [26], [28].

The ultimate aim of a corporation in the long term is to maximise its worth by efficiently reducing the expenses associated with acquiring capital. A critical duty of corporate leadership lies in strategically optimising the firm's financing mix. This financing blend, known as the capital structure, signifies the division between debt and equity financing within the firm. The capital structure assumes a crucial role in augmenting the firm's operational efficiency and overall effectiveness [29].

The research findings from [6] have revealed compelling evidence indicating a significantly positive outcome of capital structure on firm value. This suggests that when a firm increases its debt, investors perceive it as a favourable signal that the firm intends to enhance its productivity and potentially boost firm profits. Consequently, stock prices and firm value grow, thereby attracting a larger pool of investors.

The assessment of capital structure can be accomplished through the utilisation of the Debt-to-Equity Ratio. That yields an understanding of the firm's financial performance in effectively managing its combined debt and equity. When a firm judiciously employs

debt, it can potentially heighten the level of risk for investors due to increased exposure to income fluctuations [4], [30].

$$\text{Debt to Equity Ratio (DER)} = \frac{\text{Total Debt}}{\text{Total Equity}} \times 100\%$$

Profitability

Profitability represents the outcome of a firm's management decisions and a series of policies. [31]. Profitability can also be interpreted as a firm's capacity to generate net profit during a specific period. Profitability is one factor that can entice investors to acquire the firm's shares. Consequently, management has to possess the capability to elevate the firm's profitability to augment its value [16], [19].

A firm with the capability to consistently produce substantial and stable profits becomes an attractive prospect for investors. This is because investors inherently benefit from the firm's substantial profit margins. The firm's adeptness at profit generation also reflects the quality of its management performance, consequently fostering investor trust. Ultimately, this trust is pivotal in elevating the firm's stock price [32].

[12] Discovering that profit increases are indicative of the firm's strong performance, this becomes a positive signal for investors to acquire shares, eventually leading to increased stock prices and firm value. These findings are further substantiated by research done by [10] which discovered that profitability has an immense and positive impact. High levels of profitability and their increases serve as bright prospects for the firm, providing a positive outlook for investors to have confidence in and invest in the firm.

profitability is quantified through the utilisation of Return On Equity (ROE). ROE, defined as the ratio of post-tax net income to equity, serves as a measure to evaluate the management's competence in generating overall profits. A higher ROE ratio signifies enhanced or effective firm performance, with an associated increase in equity value. This elevation in ROE underscores the firm's capability to generate net income that can be correlated with dividend disbursements [27].

$$\text{Return On Equity (ROE)} = \frac{\text{Net Income}}{\text{Total Equity}} \times 100\%$$

Firm Size

Firm size is commonly construed as the firm scale, which could be observed or measured through various indicators such as total asset value, capital turnover, employee count, market dominance, added value magnitude, tax payments, investments, production facilities, network extent, and production output [2], [33]. The size of a firm can serve as a potential catalyst for agency conflicts, as managers are frequently seen as more inclined to act opportunistically when dealing with larger corporate assets. To address this potential conflict, it is anticipated that firms should take proactive measures, including increased investor ownership, to mitigate conflicting interests and potential agency costs [34].

The analysis performed by [17] reveals that firm size can have a beneficial influence. This is because larger firms have greater capacity, making it easier for investors to inject funds into firm operations. Investors also take into account the firm's size when making investments, as larger firms are perceived to perform better and have a well-established track record.

The continuously increasing firm size indicates that the firm is undergoing growth, resulting in positive feedback from investors and an augmentation of the firm's value. A larger firm size makes it increasingly convenient for the firm to secure internal and external financing. Larger firms are assumed to exhibit relatively greater sensitivity and wealth transfer than smaller firms. Therefore, firm size can reflect the size or quantity of a firm's assets and can influence the firm's value [8], [35]. The natural logarithm of the firm's total assets is used in this research to calculate the firm size [26], [36].

Size = The natural logarithm of Total Assets

Dividend Policy

Dividend policy involves the decision-making process regarding the allocation of profits, determining the portion to be distributed to firm investors as dividends, and how much should be retained for reinvestment within the firm, typically decided during General Meetings of Shareholders [37], [38].

Firms should distribute dividends that rightfully belong to their investors, as the firm should share its profits with its shareholders. Dividend payments serve as a means of providing information to potential investors before making investment decisions [7].

[23] research has identified that dividend policy serves a dual role: it amplifies and moderates the result of capital structure on a firm's value. This is primarily due to a high Debt-to-Equity Ratio, that empowers the firm to generate significant profits, leading to higher retained earnings available for distribution as dividends to investors. Furthermore, [2] also discovered that the influence of profitability can be moderated and strengthened by dividend policy. This is because companies that can generate higher profits can distribute more dividends to investors. This reflects positively on the firm's prospects, indicating strong performance and a commitment to shareholders. [18] The research findings indicate that dividend policy can serve as a moderating factor, Intensifying the influence of firm size, these are caused by dividend policy in determining the portion of profits allocated to shareholders. An appropriate dividend policy instils investor confidence by assuring them of future profitability and success should they decide to invest in the firm. The greater the dividends provided, provided they are in harmony with the firm's investment prospects, the better the potential for the value of the firm to rise.

The Dividend Payout Ratio can be used in this research to quantify dividend policy as it can effectively portray managerial opportunistic conduct by assessing the percentage of profits designated for distribution to company investors as dividends versus the portion earmarked for reinvestment within the firm [2], [39].

$$\text{Dividend Payout Ratio (DPR)} = \frac{\text{Dividends per share}}{\text{Earnings per share}}$$

Conceptual framework

On the basis of the previous description, the following research framework could be designed:

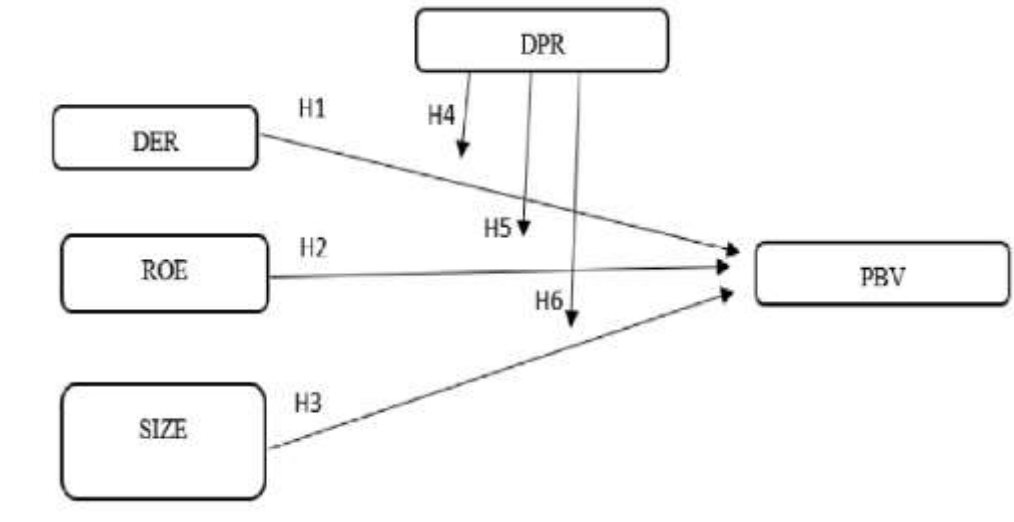


Figure 1 Research Framework

Research Hypotesis

Based on the theories and findings from previous research as outlined, the research hypothesis can be formulated as follows:

1. DER has a positive impact on PBV
2. ROE has a positive impact on PBV
3. SIZE has a positive impact on PBV
4. DPR can moderate and strengthen the influence of DER on PBV
5. DPR can moderate and strengthen the influence of ROE on PBV
6. DPR can moderate and strengthen the influence of SIZE on PBV

METHOD

Types of Research

The research fits within the general category of quantitative associative research. Quantitative associative research aims to determine how two or more variables are related [40]. The choice of this research method is based on its ability to generate numerical data, which can be statistically analysed using variables to explore relationships.

Location and Time of Research

The population of this research is firms listed in the HIDIV20 from Bursa Efek Indonesia. Data collection for this study is secondary data spanned five years, from 2018 to 2022. The source of data was collected from www.idx.co.id.

Sampling Technique

The sampling process is conducted through purposive sampling with the criteria of companies that distributed dividends listed in the HIDIV20 index during 2018-2022. Based on those criteria, this resulted in a total of 100 observations.

Hypotesis Test

The research employs the Multiple Regression Analysis (MRA) as the data analysis method using panel data. Multiple Regression Analysis (MRA) establishes a relationship between two or more variables, considering the influence of interaction or moderation variables [34]. This research also incorporates moderating variables using interaction tests. The following equation represents the regression model used in the research:

Model 1:

$$PBV_{it} = \alpha + \beta_1 DER_{it} + \beta_2 ROE_{it} + \beta_3 SIZE_{it} + \epsilon_{it}$$

Model 2:

$$PBV_{it} = \alpha + \beta_4 DER_{it} + \beta_5 ROE_{it} + \beta_6 SIZE_{it} + \beta_7 DPR_{it} + \beta_8 (DER_{it} * DPR_{it}) + \beta_9 (ROE_{it} * DPR_{it}) + \beta_{10} (SIZE_{it} * DPR_{it}) + \epsilon_{it}$$

Description:

PBV _{it}	= Price to Book Value
α	= Constant Term
$\beta_1, \beta_2, \beta_3, \beta_4, \text{ etc.}$	= Regression Coefficients
DER _{it}	= Debt to Equity Ratio
ROE _{it}	= Return on Equity
SIZE _{it}	= Firm Size
DPR _{it}	= Dividend Payout Ratio
ϵ_{it}	= Error Term

RESULT AND DISCUSSION

Findings and Hypothesis Discussion

Statistical testing was conducted using Eviews software, with 100 observations on firms listed in the HIDIV20 index over 5 years from 2018 to 2022. The statistical tests were performed on two regression models. Based on the goodness-of-fit test for the model, all the model exhibits a good level of fit.

Table 1. Descriptive Statistics

x	PBV	DER	ROE	SIZE	DPR
Mean	3.34	235.76	24.64	32.19	66.43
Median	1.72	91.67	15.61	32.15	50.22
Maximum	44.85	1130.43	145.08	35.22	268.36
Minimum	0.46	4.33	0.87	28.83	6.44
Std.Dev	5.88	262.84	28.82	1.65	48.46
Observation	100	100	100	100	100

Descriptive Statistics indicate that the mean values for each variable (PBV, DER, ROE, SIZE, DPR) fall within the range of 3.34 to 235.76. The standard deviation ranges from 1.65 to 262.84. This shows that the data exhibits a significant degree of dispersion or variability.

The outcomes of the F-test indicate that in all the models, the criteria for suitability were met with a high significance level, specifically at the five percent level. Furthermore, the coefficient of determination also exhibited a significant increase in models 1 and 2.

To compare the fitness levels of fixed effects, common effects, and random effects, the outcomes of the Hausman test, Chow test, and Lagrange multiplier test were employed. According to the outcomes of these tests, the preferred research model for Model-1 is the fixed effect model, whereas, for Model-2, the random effect model is considered more suitable.

Table 2. Panel Regression Analysis

No	Variable	Model-1	Model-2
1	Constant	227.996	5.921
	Std. Error	(92.175)*	(17.393)
2	DER	0.036	0.000
	Std. Error	(0.011)*	(0.002)
3	ROE	0.130	-0.018
	Std. Error	(0.041)*	(0.025)
4	SIZE	-7.334	-0.146
	Std. Error	(2.921)*	(0.555)
5	DPR		-0.108
	Std. Error		(0.259)
6	DER*DPR		1.100
	Std. Error		(2.830)
7	ROE*DPR		0.001
	Std. Error		(0.000)*
8	SIZE*DPR		0.003
	Std. Error		(0.008)
	Chow Test	62.352*	27.972
	Hausman Test	28.594*	13.898
	LM Test	0.156	8.363*
	F-Statistic	4.837	22.796
	(Sig.)	(0.000)*	(0.000)*
	Adjusted R-Square	0.561	0.606

Note: *) sig. 5%

The statistical analysis of Model-1 was performed to determine whether the variables DER, ROE, and SIZE affected PBV. The capital structure (DER) test results align with Hypothesis H1, indicating a positive and significant effect. The particular outcome aligns with earlier research by [6] where companies with a high DER can improve their productivity, resulting in higher profits. This serves as a positive signal to investors because the firm leverages its debt for productivity and is capable of expanding its growth, ultimately raising the firm's value by attracting investor capital.

The outcomes of the statistical analysis of the second variable, profitability (ROE) confirmed hypothesis H2, demonstrating a significant positive influence. This is consistent with earlier research. [10], [12] that increasing firm profitability sends a positive signal to investors. High profitability levels indicate good firm performance in generating profits, which in turn presents a favourable outlook for investors, fostering trust and encouraging investment in the firm.

The last variable in model-1, which is the firm size (SIZE), yielded a negative impact contrary to hypothesis H3, which expected a positive relationship. These results do not correspond with the research performed by [17] that claimed that firm size elevated with firm value. A thorough review of the observational data utilised in this research allowed for a deeper investigation of this contradiction. Observations of the data revealed variance, where most companies already had significant assets, high stock prices, and limited room for firm growth. This has led to a decrease in investor interest, as companies are perceived to be too large and challenging to overgrow. Additionally, stock prices may become expensive to match the firm large size, and thus, the firm's value is considered to be already ideal concerning its stock price and size [15], [19]. This analysis is suspected to be one of the reasons for the inconsistency with previous findings, highlighting the need for a more in-depth study of this variable.

Capital structure (DER), profitability (ROE), and firm size (SIZE) independent variables collectively exert a simultaneous influence of 56.1% on firm value (PBV) in Model 1, corresponding to the Adjusted R-Square value of 0.561. The remaining influence is exerted by elements not examined in this research.

Interaction Effects

Model 2 examines the interaction effects between the moderating variable (DPR) and all independent variables. When interacting with the capital structure variable (DER), the statistical test results indicate a lack of influence on the capital structure variable (DER*DPR) and alter the relationship between DER and PBV, rendering it non-significant, thus rejecting hypothesis H4. Meanwhile, [23] found that dividend policy enhances and moderates the impact of DER on PBV, which is contrary to these findings. This discrepancy highlights inconsistencies with previous research.

Upon further examination of observational data, where companies distribute a high level of dividend policy as a percentage of their net profit, companies with a tendency towards high DER also tend to have high debt levels. This dynamic has implications for investor consideration, as companies distributing significant dividends without due regard for their high debt levels may raise concerns among investors [2]. This analysis is believed to be one of the reasons behind the inconsistencies in previous findings, underscoring the need for a more in-depth investigation.

In the subsequent interaction effect involving the moderating influence of DPR on ROE, the results diverge from hypothesis H5. The test outcomes reveal that the interaction effect of DPR strengthens the influence between ROE and PBV. The interaction test initially showed a non-significant negative relationship before being interacted with dividend policy (DPR). However, the test results indicate a significant and positive direction after the interaction with DPR. These findings align with the discoveries of [2] who also observed that DPR's interaction moderation effect enhances profitability's impact on firm value. This enhancement is attributed to increased profits, enabling companies to distribute higher dividends, thus demonstrating a bright prospect for the firm and enhancing investor confidence.

Companies that generate high profits or net income generally tend to distribute more enormous dividends to their investors. High profitability and a generous dividend policy can reflect a positive outlook for the firm, as it demonstrates strong performance and a commitment to shareholders by providing substantial dividends. This serves as a positive signal for investors, ultimately enhancing the firm's value through a rise in stock prices.

In the last variable, which is the firm size (SIZE), The interaction between dividend policy and firm size (SIZE*DPR) does not show a moderating effect, against hypothesis H6. These findings are incongruent with the outcome by [25] who posited that moderation of dividend policy enhances firm size's implication on firm value. In their finding, larger companies were indicated to have the capability to dispense more enormous dividends. Nonetheless, in this context, it appears that, in terms of dividend distribution, firm size does not influence market valuation. This suggests that dividend distribution may not be solely dependent on the size of the firm, as smaller companies may also achieve significant profitability and distribute substantial dividends [2].

In Model 2, after being moderated by dividend policy, the Adjusted R-Square value indicates 0.606, representing an increase. Per this analysis, the independent variables as a whole had a 60.6% influence on firm value, with the remaining 37.4% being influenced by factors that were excluded in this study. This indicates that the cumulative effect of independent variables on firm value can be both strengthened and moderated by dividend policy.

The results of Model 2 reveal that DPR can serve as a moderator in elucidating the influence of ROE on PBV within the HIDIV20 index. In this scenario, the interaction effects observed suggest a pure moderator. No significant influence is observed in the interaction tests involving the DPR and its impact on DER and SIZE concerning PBV. This analysis indicates that DPR might only have the potential to function as a homogenising moderator for the DER and SIZE variables.

Empirical findings from the regression results of Model Two further substantiate the argument. Model Two's outcomes reveal that the moderating variable DPR fails to exert a significant influence on firm value independently. However, when interacting with profitability (ROE), the results indicate that the significance level of ROE*DPR is notably positive at the 5% confidence level. The outcomes derived from Model Two, indicating that the moderating variable DPR lacks significant effects on firm value when considered individually, bolster this assertion. Moreover, no discernible effects exist when the DPR variable interacts with the capital structure (DER) and firm size (SIZE) factors.

These findings are consistent with the idea that DPR largely influences the connection between independent factors (ROE) and the dependent variable (PBV) by acting as a moderator. rather than serving as a predictor moderator. This underscores that the interaction effects are more of a moderating nature rather than directly influencing the dependent variable.

CONCLUSION

The conclusions from this research are as follows, based on the examination results and discussion capital structure (DER) and profitability (ROE) exhibit a substantial positive impact on firm value. However, firm size (SIZE) reveals a noteworthy negative impact on firm value within the HIDIV20 index. Furthermore, the findings of this research further demonstrate how the dividend policy (DPR) both enhances and moderates the impact of profitability (ROE) on firm value. However, this interaction effect is not observed in capital structure and firm size outcomes on a firm's value. Investors are encouraged to conduct a meticulous and comprehensive analysis of the companies they contemplate for investment. Those factors should be considered essential considerations, but not exclusive determinants in the investment decision-making process. It is hoped that the Manager can use research findings as valuable considerations.

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