

Research Article

The Effect of Financial Ratios on Dividend Policy with Sales Growth as a Moderating Variable in Technology Sector Companies Listed on the Indonesia Stock Exchange (2019–2023)

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Abstract: This study presents the development of the Rembulan E-Learning platform using Moodle as the primary Learning Management System (LMS) for SMK Negeri 1 Pandeglang. The development aims to provide a structured, accessible, and interactive digital learning environment that can effectively support teaching and learning activities in vocational education. The research applies the Waterfall development model, which consists of requirement analysis, system design, implementation, testing, and deployment stages carried out sequentially. Data collection methods include direct observation of learning activities, interviews with teachers to identify instructional and technological needs, and documentation review related to curriculum and learning administration. Based on the analysis, the system was designed to accommodate features such as digital classrooms, learning modules, assignments, discussion forums, quizzes, and student performance monitoring to support both teachers and students. System testing was conducted using Black-box Testing to ensure functional reliability, followed by limited user trials involving teachers and students to evaluate usability and effectiveness. The results indicate that the Rembulan E-Learning platform functions properly, is easy to use, and successfully supports various learning activities. This study contributes to the implementation of Moodle-based LMS development in vocational schools and provides practical guidance for improving digital learning quality, supporting blended learning practices, and encouraging sustainable integration of educational technology in secondary education.

Keywords: Dividend Policy; Leverage; Liquidity; Profitability; Sales Growth.

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1. Introduction

Dividend policy remains a crucial financial decision that reflects management's strategy in balancing shareholders' expectations and the company's long-term growth objectives. The determination of dividend payments is not merely influenced by the level of profits earned, but also by a firm's overall financial condition, investment opportunities, and risk considerations (Sartono, 2010). In emerging markets such as Indonesia, dividend policy becomes increasingly complex due to market volatility, capital constraints, and sectoral differences, particularly in the rapidly growing technology sector.

Technology companies are generally characterized by high growth potential, intensive capital requirements, and a strong reliance on internal financing to support innovation and business expansion. Consequently, these firms tend to adopt conservative dividend policies, prioritizing retained earnings over dividend distribution (Rozeff, 1982; Mehta, 2012). This condition implies that traditional determinants of dividend policy, such as profitability, may not always play a dominant role, especially when firms focus on long-term value creation rather than short-term shareholder returns.

Profitability, commonly measured by Return on Assets (ROA), has long been considered a primary determinant of dividend policy. Firms with higher profitability are theoretically more capable of distributing dividends to shareholders (Baker et al., 2019). However,

empirical evidence shows mixed results. Several studies indicate that profitability does not necessarily translate into higher dividend payouts, particularly in growth-oriented firms that prefer to reinvest profits to sustain competitiveness (Hermanto & Fitriadi, 2022; Yunita & Ekadjaja, 2020). This phenomenon is especially relevant for technology companies, where earnings are often allocated to research and development and market expansion.

Liquidity is another important factor influencing dividend policy, as it reflects a company's ability to meet short-term obligations, including dividend payments. Firms with strong liquidity positions tend to have greater flexibility in distributing dividends without jeopardizing operational stability (Kasmir, 2013). Prior studies confirm that liquidity, proxied by the Current Ratio (CR), has a significant positive effect on dividend policy, suggesting that cash availability plays a critical role in dividend decisions (Bawamenewi & Afriyeni, 2019; Pamungkas et al., 2017).

Leverage, measured by the Debt to Equity Ratio (DER), also affects dividend policy decisions. Highly leveraged firms often face contractual constraints and higher financial risk, leading management to limit dividend payments in order to prioritize debt obligations (Horne & Wachowicz, 2005). Empirical findings demonstrate that leverage significantly influences dividend policy, indicating that firms with higher debt levels tend to adopt more restrictive dividend strategies (Hashemi & Zahra, 2012; Hong Vo & Nguyen, 2014).

In addition to these financial factors, sales growth plays a strategic role in shaping dividend policy, particularly as a moderating variable. Sales growth reflects a firm's expansion capability and future prospects, which may alter the relationship between financial performance and dividend decisions (Husnan, 2001). Firms experiencing high sales growth are more likely to retain earnings to finance expansion, thereby strengthening the influence of liquidity and leverage on dividend policy while weakening the role of profitability (Marietta & Sampurno, 2013; Hutagalung & Setiawati, 2017).

Given the unique characteristics of technology sector companies and the inconsistent findings in prior studies, further empirical investigation is required. This study aims to analyze the effect of profitability, liquidity, and leverage on dividend policy, with sales growth as a moderating variable, in technology sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period. The findings are expected to contribute to the literature on dividend policy by providing sector-specific insights and supporting more informed financial decision-making for managers and investors.

2. Preliminaries or Related Work or Literature Review

Signaling Theory and Dividend Policy

According to Brigham and Houston, signaling theory explains that corporate actions provide signals about management's expectations regarding a company's future performance. Jogiyanto (2000) states that information released by firms is highly valuable for investors in making investment decisions. Dividend announcements are considered important signals because they reflect management's confidence in future earnings. Companies that report increasing profits tend to send positive signals to the market through dividend distribution. Jogiyanto (2010) further explains that positive signals can lead to favorable investor responses, such as increases in stock prices.

Profitability and Dividend Policy

Kasmir (2013) defines profitability as a firm's ability to generate earnings through its assets and operations. Profitability ratios are used to measure management effectiveness and operational efficiency. Dividends are distributed from net income, meaning profitability is theoretically linked to dividend payments. Ang (1997) explains that higher earnings per share usually allow firms to increase dividend per share. However, in certain industries, profitable firms may prefer to retain earnings to support future growth rather than distribute dividends.

Liquidity and Dividend Policy

Liquidity refers to a company's ability to meet short-term obligations, as explained by Kasmir (2013). Firms with high liquidity are generally better positioned to distribute dividends because they have sufficient cash availability. Hery (2016) emphasizes that liquidity analysis helps assess a firm's capacity to settle short-term liabilities on time. Dividend payments require adequate cash, making liquidity a crucial factor in dividend policy decisions. Low liquidity may limit dividend distribution even when companies generate profits.

Leverage and Dividend Policy

Sjahrial and Purba (2013) describe leverage as a firm's ability to meet long-term obligations if liquidation occurs. Kasmir (2008) states that excessive debt can increase

financial risk and limit dividend payments. Companies with high leverage often prioritize debt repayment over dividend distribution. Credit agreements may also restrict dividend payments to protect creditors' interests. Therefore, leverage plays a significant role in influencing dividend policy decisions.

Sales Growth as a Moderating Variable

Sales growth represents the increase in company sales over time and reflects business expansion (Hidayat, 2018). Mahdiana and Amin (2020) state that sales growth is important in managing working capital and operational sustainability. Firms with high sales growth often require substantial internal funds to support expansion. Hans Hananto et al. (2017) explain that growing firms tend to use external financing, including debt, to support growth. Consequently, sales growth can moderate the relationship between financial ratios and dividend policy by influencing management's decision to retain or distribute earnings.

3. Proposed Method

Research Design

This study adopts a causal-comparative research design aimed at examining cause-and-effect relationships between financial ratios and dividend policy. According to Erlina (2008), causal research seeks to test hypotheses and explain phenomena by analyzing relationships among variables. This design is appropriate for identifying whether profitability, liquidity, and leverage influence dividend policy, as well as assessing the moderating role of sales growth. The study focuses on technology sector companies listed on the Indonesia Stock Exchange (IDX). A quantitative approach is employed to ensure objective measurement and statistical testing.

Research Site, Period, and Data Sources

The research was conducted using secondary data obtained from the official website of the Indonesia Stock Exchange (www.idx.co.id). The observation period covers five years, from 2019 to 2023. Financial statement data, including audited annual reports, were collected for technology sector companies listed during the study period. The use of IDX data ensures data reliability and consistency. This time frame allows for panel data analysis by combining cross-sectional and time-series observations.

Variables and Operational Definitions

This study involves three independent variables: profitability (X1), liquidity (X2), and leverage (X3). The dependent variable is dividend policy (Y), measured using the Dividend Payout Ratio (DPR), while sales growth (Z) acts as a moderating variable. Profitability is measured by Return on Assets (ROA), liquidity by Cash Ratio (CR), and leverage by Debt to Equity Ratio (DER). Sales growth is calculated based on year-to-year changes in total sales, following Perdana (2017). All variables are measured using ratio scales to allow meaningful quantitative analysis.

Population, Sample, and Data Collection Method

The population consists of all technology sector companies listed on the Indonesia Stock Exchange during 2019–2023, totaling 34 firms or 170 firm-year observations (Erlina, 2008). The sampling method used is purposive sampling, based on criteria such as availability of complete audited financial statements and dividend distribution during the study period. Based on these criteria, 65 firm-year observations were selected as the final sample. Data were collected through documentation techniques by reviewing annual reports published on the IDX website. This method ensures accuracy and relevance of the collected data.

Data Analysis Techniques

Data analysis includes descriptive statistics, classical assumption tests, panel data regression, and hypothesis testing. Descriptive statistics provide an overview of data distribution, while classical assumption tests include normality, multicollinearity, heteroscedasticity, and autocorrelation tests (Ghozali, 2016). Panel data regression is applied using common effect, fixed effect, and random effect models, with model selection determined through Chow and Hausman tests. Hypothesis testing is conducted using the coefficient of determination (R^2), t-tests, and residual tests to examine the moderating effect of sales growth. These analytical procedures ensure robust and reliable research findings.

4. Results and Discussion

Classical Assumption Test

Normality Test

The normality test is conducted to determine whether the analyzed data are normally distributed. This test aims to examine whether, in the regression model, the disturbance or residual variables follow a normal distribution. One method used to detect whether residual values are normally distributed is the Kolmogorov–Smirnov test (K–S test). The hypotheses applied are that the residual data are not normally distributed (H_0) and that the residual data are normally distributed (H_a). The research data are considered to be normally distributed or to have passed the normality test if the Asymp. Sig. (2-tailed) value of the residual variable is greater than 0.05. Conversely, if the Asymp. Sig. (2-tailed) value of the residual variable is less than 0.05, the data are not normally distributed or do not meet the normality assumption (Ghozali, 2011). The test results are presented as follows:

Table 1. Results of the Normality Test.

One-Sample Kolmogorov-Smirnov Test		
Unstandardized Residual		
N	65	
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.04278176
Most Extreme Differences	Absolute	.091
	Positive	.079
	Negative	-.091
Test Statistic		.091
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Based on the results of the normality test using the Kolmogorov–Smirnov test in Table he data show a normal distribution. The SPSS output indicates that the K–S value for the unstandardized residual is 0.200, or the Asymp. Sig. (2-tailed) value is above $\alpha = 0.05$. This means that the data are normally distributed; therefore, H_0 is rejected and H_a is accepted.

Multicollinearity Test

The multicollinearity test aims to examine whether the regression model shows any correlation among the independent variables. A good regression model should not exhibit correlations between independent variables. Multicollinearity can be identified by examining the tolerance value and the Variance Inflation Factor (VIF). Tolerance measures the variability of a selected independent variable that is not explained by other independent variables; thus, a low tolerance value corresponds to a high VIF value, since $VIF = 1/\text{tolerance}$. The data are considered free from multicollinearity problems if the tolerance value is ≥ 0.10 or the VIF value is ≤ 10 (Ghozali, 2011).

Table 2. Results of the Multicollinearity Test.

Model		Coefficients ^a						Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients		Toler	ance		
		B	Std. Error	Beta	t	Sig.			
1	(Constant)	-.027	.017		-1.547	.137			
	ROA	.120	.103	.169	1.162	.258	.840	1.190	
	CR	.060	.030	.314	1.998	.059	.720	1.389	
	DER	.065	.021	.469	3.066	.006	.758	1.318	
	SalesGrow th	-.067	.036	-.252	-1.847	.079	.955	1.047	

a. Dependent Variable: DPR

Based on Table the calculation results of the tolerance values indicate that none of the independent variables has a tolerance value below 0.10, which means there is no correlation among the independent variables. The calculation results of the Variance Inflation Factor (VIF) also show that no variable has a VIF value greater than 10. Therefore, it can be

concluded that the regression model in this study does not suffer from multicollinearity and is appropriate for use.

Autocorrelation Test

The autocorrelation test aims to determine whether, in a linear regression model, there is a correlation between the disturbance term in period t and the error term in period $t-1$ (the previous period). The guidelines for decision-making regarding the presence or absence of autocorrelation are as follows:

- A Durbin–Watson (D–W) value below -2 indicates positive autocorrelation.
- A D–W value between -2 and $+2$ indicates no autocorrelation.
- A D–W value above $+2$ indicates negative autocorrelation.

Table 3. Results of the Autocorrelation Test.

Model	Model Summary ^b			Std. Error of the Estimate	Durbin-Watson
	R	R Square	Adjusted R Square		
1	.792 ^a	.627	.556	.04667873	1.699

a. Predictors: (Constant), SalesGrowth, DER, ROA, CR
b. Dependent Variable: DPR

Source : SPSS 2025

The results of the autocorrelation test show that the Durbin–Watson (DW) value is 1.699. According to the criteria of the autocorrelation test, a Durbin–Watson value in this study that lies between -2 and $+2$ indicates that there is no autocorrelation.

Heteroscedasticity Test

The heteroscedasticity test aims to examine whether, in a regression model, there is inequality of variance of the residuals from one observation to another. The test is conducted using the Glejser test by regressing the independent variables on the absolute value of the residuals. If the independent variables are statistically significant in affecting the dependent variable, this indicates the presence of heteroscedasticity. The criterion commonly used to determine whether heteroscedasticity occurs among the observed data can be explained using the significance coefficient. The significance coefficient must be compared with the predetermined significance level ($\alpha = 5\%$). If the significance coefficient (probability value) is greater than the specified significance level, it can be concluded that heteroscedasticity does not occur (Ghozali, 2011). The test results can be seen in the following table:

Table 4. Results of the Autocorrelation Test.

Model	Coefficients ^a					
	Unstandardized Coefficients		Std. Coefficients	t	Sig.	
	B	Error				
1	(Constant)	.038	.010		3.718	.001
	ROA	.018	.061	.064	.295	.771
	CR	-.027	.018	-.361	-1.542	.138
	DER	.021	.012	.395	1.730	.098
	SalesGrowth	-.006	.021	-.057	-.281	.782

a. Dependent Variable: ABS_RES

Based on the Glejser test that has been conducted, the significance values obtained are 0.771, 0.138, 0.098, and 0.782. These significance results indicate that none of the independent variables statistically and significantly affects the dependent variable, namely ABS_RES. This can be seen from the significance probabilities, which are above the 5% confidence level. Therefore, it can be concluded that the regression model does not contain heteroscedasticity; thus, H_0 is accepted and H_a is rejected (there is no heteroscedasticity, or the data are homoscedastic).

Hypothesis Testing

Coefficient of Determination Test

The coefficient of determination (R^2) essentially measures how far the model's ability is to explain the variation in the dependent variable. Its value ranges from 0 to 1. A small R^2 value indicates that the ability of the independent variables to explain the variation in the dependent variable is very limited, whereas a large R^2 value (close to 1) indicates a strong ability of the independent variables to explain the variation in the dependent variable. The R^2 value can be seen in Table.

Table 5. Results of the Coefficient of Determination Test (R^2).

Model	R	Model Summary			Std. Error of the Estimate
		R Square	Adjusted R Square		
1	.792 ^a	.627	.556		.04667873

a. Predictors: (Constant), SalesGrowth, DER, ROA, CR

Based on Table 5.6, the Adjusted R Square (Adjusted R^2) value is 0.556, which means that 0.556 or 55.6% of the independent variables are able to explain the Dividend Payout Ratio (DPR). Meanwhile, the remaining variation is influenced or explained by other variables that are not included in the research model.

Partial Significance Test (t-test)

The t-statistical test shows how far the influence of one independent variable is in explaining the variation of the dependent variable (Ghozali, 2011). The test is conducted using a significance level of 0.06 ($\alpha = 6\%$). The acceptance or rejection of the hypothesis is based on the following criteria:

- 1) If the significance value of the t-statistic is > 0.06 , then H1 is rejected. This means that an independent variable individually has no effect on the dependent variable.
- 2) If the significance value of the t-statistic is < 0.06 , then H1 is accepted. This means that an independent variable individually has an effect on the dependent variable.

Table 6. Results of the t-test.

Model		Coefficients ^a		Standardized Coefficients	t	Sig.
		Unstandardized Coefficients	B			
1	(Constant)	-.027	.017		-1.547	.137
	ROA	.120	.103	.169	1.162	.258
	CR	.060	.030	.314	1.998	.059
	DER	.065	.021	.469	3.066	.006

a. Dependent Variable: DPR

Based on Table the conclusions regarding the partial hypothesis testing of each independent variable are as follows:

The significance value of ROA is $0.258 > 0.06$, which means that ROA does not have a significant effect on DPR. The positive coefficient indicates a positive relationship between ROA and DPR. Therefore, H1 cannot be accepted, meaning that ROA has a positive but insignificant effect on DPR at the 6% significance level ($\alpha = 6\%$).

The significance value of CR is $0.059 < 0.06$, which means that CR has a significant effect on DPR. The positive coefficient indicates a positive relationship between CR and DPR. Therefore, H2 is accepted, meaning that CR has a positive and significant effect on DPR at the 6% significance level ($\alpha = 6\%$).

The significance value of DER is $0.006 < 0.06$, which means that DER has a significant effect on DPR. The positive coefficient indicates a positive relationship between DER and DPR. Therefore, H3 is accepted, meaning that DER has a positive and significant effect on DPR at the 6% significance level ($\alpha = 6\%$).

5. Conclusions

Based on the results of the study, it can be concluded that dividend policy in technology sector companies listed on the Indonesia Stock Exchange during the 2019–2023 period is influenced by specific financial conditions of the firms. Profitability, measured by Return on Assets (ROA), does not have a significant effect on dividend policy. This indicates that the level of profit generated by technology companies is not the primary basis for dividend distribution decisions, as these firms tend to retain earnings to support business expansion and long-term investment.

Liquidity, proxied by the Current Ratio (CR), has a significant influence on dividend policy. Companies with higher liquidity levels are better positioned to meet their short-term obligations, including dividend payments to shareholders. Adequate cash availability provides management with greater flexibility in determining dividend policies without disrupting operational activities. In addition, leverage, measured by the Debt to Equity Ratio (DER),

also significantly affects dividend policy, suggesting that the extent of debt utilization plays an important role in shaping dividend distribution decisions.

Sales growth as a moderating variable shows varying effects across the examined relationships. Sales growth does not moderate the relationship between profitability and dividend policy, indicating that changes in sales performance do not strengthen or weaken the impact of profitability on dividend decisions. However, sales growth is able to moderate the influence of liquidity and leverage on dividend policy. This finding implies that higher sales growth can strengthen the role of a company's financial condition, particularly its liquidity and capital structure, in determining dividend policy decisions.

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