

Do payout, leverage, and size move stock prices? Panel evidence from LQ45 firms using first differences

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ABSTRACT

Stock prices in emerging markets are shaped by firm fundamentals, capital structure, and payout policy, yet evidence from Indonesia's LQ45 blue-chip index remains inconclusive. This study examines the partial and simultaneous effects of the dividend payout ratio (DPR), the long-term debt to equity ratio (LTDER), and firm size on the stock prices of LQ45-listed companies on the Indonesia Stock Exchange during 2021–2024. Drawing on Agency Theory and signaling theory, it analyzes a balanced panel of annual financial-report data for 18 companies selected through purposive sampling, using multiple linear regression. Because the initial model estimated in levels showed serial correlation in the residuals, the final model was estimated in first differences, which satisfied the classical assumption tests, and the conclusions were checked with alternative panel specifications. The results show that none of the three variables has a significant effect on changes in stock prices, either partially or simultaneously. The significant effects of LTDER and firm size in the levels model do not survive the correction for autocorrelation and appear to reflect persistent differences between firms rather than within-firm effects. The study contributes panel evidence from a highly liquid emerging-market segment and shows that ignoring serial correlation in short panels can overstate statistical significance. For practice, investors should not rely on year-to-year changes in payout, leverage, or firm size alone to anticipate price movements; future research should use longer periods, wider samples, and dedicated panel estimators.

Keywords: dividend payout ratio; long-term debt to equity ratio; firm size; stock price; LQ45; Indonesia Stock Exchange

JEL Classification: G12; G14

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1. Introduction

Stock markets serve as critical mechanisms for capital allocation in both developed and emerging economies. In Indonesia, the stock market has grown

substantially over the past two decades, with the Indonesia Stock Exchange (IDX) emerging as one of Southeast Asia's most active equity markets. Stock prices, the fundamental output of this market, reflect

the collective valuation of firm performance, growth prospects, and risk perceptions by market participants. Understanding the determinants of stock price variation is therefore of central importance to investors, corporate managers, and policymakers alike.

Among the various firm-level fundamentals that theory suggests should influence stock prices, dividend payout policy, capital structure, and firm size occupy a particularly prominent position. Dividend Payout Ratio (DPR) represents the proportion of earnings distributed to shareholders, and under Signaling Theory (Spence, 1973), higher dividends may convey positive signals about a firm's future earnings to information-asymmetric markets. The Long-Term Debt to Equity Ratio (LTDER) measures the extent to which a firm finances its operations through long-term borrowing relative to equity, and under Agency Theory (Jensen and Meckling, 1976), excessive leverage may exacerbate principal-agent conflicts and increase financial risk, potentially depressing stock prices. Firm size, measured by the natural logarithm of total assets, is widely recognized as a proxy for operational stability, market visibility, and access to external financing, all of which are expected to exert a positive influence on equity valuation.

Despite a substantial body of literature examining these relationships, findings remain mixed and context-dependent. Studies conducted in Indonesian capital markets, including those by Suqron (2021), Pardosi (2021), and Arianti and Handayani (2022), have produced conflicting results regarding the direction and significance of DPR, LTDER, and Firm Size on stock prices. The wider Indonesian literature relating stock prices to fundamentals and policy variables such as dividend policy, capital structure, and firm size is large (Angelina and Salim, 2021; Sinaga and Munthe, 2023; Susanti et al., 2025). This empirical ambiguity is

particularly pronounced in the LQ45 context, a blue-chip index comprising the 45 most liquid and fundamentally sound stocks listed on the IDX. The LQ45 index is widely regarded as a bellwether of Indonesian market conditions, yet systematic panel evidence from this specific market segment across the post-pandemic recovery period of 2021–2024 remains limited.

This study addresses this gap by examining the simultaneous and partial effects of DPR, LTDER, and Firm Size on the stock prices of LQ45-listed companies over the 2021–2024 period. The study contributes to the literature in three ways: (1) it provides updated panel evidence from a high-liquidity Indonesian equity segment during the post-COVID recovery era; (2) it examines the joint explanatory power of payout policy, capital structure, and firm scale within a unified model; and (3) it offers practical implications grounded in Agency Theory and Signaling Theory for investors operating in Indonesian capital markets. The study also addresses serial correlation in the panel by estimating the final model in first differences.

2. Literature review

Agency Theory

Agency Theory, pioneered by Jensen and Meckling (1976), describes the relationship between principals (shareholders) and agents (managers), where conflicts of interest arise from information asymmetry and divergent objectives. Within this framework, dividend policy and capital structure decisions serve as mechanisms to mitigate agency costs. Specifically, dividend payments reduce the free cash flow available for managerial opportunism (Jensen, 1986), while the use of debt introduces monitoring discipline from creditors. However, excessive long-term debt increases bankruptcy risk and financial distress costs, which may erode

firm value and depress stock prices. Eisenhardt (1989) further established that the resolution of these principal-agent problems through appropriate contract design directly influences firm performance and, by extension, equity valuation.

Signaling theory

Signaling Theory, introduced by Spence (1973) and subsequently developed in the context of financial markets by Ross (1977) and Miller and Rock (1985), posits that firms use observable actions to convey private information to external investors who operate under information asymmetry. Dividend announcements, in particular, are widely interpreted as signals of management's confidence in the firm's future cash flows (Bhattacharya, 1979). Similarly, capital structure choices signal the quality and risk profile of a firm. In the context of this study, DPR serves as a dividend signal, LTDER signals the firm's risk-leverage profile, and Firm Size proxies the credibility and stability signal to the market. Higher-quality signals from larger firms with stable payout histories are expected to translate into higher stock prices.

Dividend Payout Ratio (DPR) and Stock Prices

The relationship between DPR and stock prices is theoretically grounded in both Signaling Theory and the dividend irrelevance theorem of Miller and Modigliani (1961). Under perfect capital markets, dividend policy should not affect firm value. However, in markets characterized by information asymmetry and agency costs, such as Indonesia's emerging market, dividend payments may serve as credible signals of firm health, potentially driving stock price increases (Bhattacharya, 1979; Lintner, 1956). Empirically, Nanda and Djawoto (2021) and Rosnaeni et al. (2024), Raspati and

Welas (2021), and Bagaskara and Rohmadi (2023) found no significant relationship. Other Indonesian studies have likewise examined the link between dividend policy and stock prices (Angelina and Salim, 2021; Anggeraini and Triana, 2023), and in other markets payout policy has been related to ESG performance and audit quality (Zahid et al., 2023). This mixed evidence motivates the following hypothesis:

H1: Dividend Payout Ratio (DPR) has a significant positive effect on stock prices of LQ45-listed companies.

Long-Term Debt to Equity Ratio (LTDER) and Stock Prices

LTDER measures the proportion of long-term debt relative to shareholders' equity, providing an indicator of a firm's long-term financial leverage. Under Agency Theory, high LTDER implies greater financial obligations and increased bankruptcy risk, which should reduce investor confidence and depress stock prices. Additionally, high interest burdens associated with elevated long-term debt reduce net income, further undermining equity valuation. Capital structure theory starts from the irrelevance proposition (Modigliani and Miller, 1958), which was later corrected for corporate income taxes (Modigliani and Miller, 1963), and empirical work links leverage choices to firm characteristics (Titman and Wessels, 1988); debt maturity has also been studied in relation to financial reporting quality and investment efficiency (Wirdanadia et al., 2024). Suqron (2021) and Natalie and Lisiantara (2022) found a significant negative relationship between LTDER and stock prices, supporting this prediction. A single-firm study of a textile manufacturer likewise examined LTDER together with profitability ratios in explaining stock prices (Maryati et al., 2024). Conversely, Pardosi (2021) and Syaputra et al. (2026) found that LTDER has no significant independent effect on stock prices. Given

the theoretical and empirical weight of the negative relationship, the following directional hypothesis is proposed:

H2: Long-Term Debt to Equity Ratio (LTDER) has a significant negative effect on stock prices of LQ45-listed companies.

Firm Size and Stock Prices

Firm size is widely established in the finance literature as a positive determinant of equity valuation (Banz, 1981; Fama and French, 1992). Larger firms typically exhibit greater earnings stability, lower information asymmetry, and broader investor recognition, all of which reduce the required return on equity and support higher stock prices. In the Indonesian context, Arianti and Handayani (2022), Putra and Susila (2024), and Hidayatullah

and Anggraeni (2023) consistently found a positive and significant effect of Firm Size on stock prices. Firm size has also been examined as a determinant of stock prices among LQ45 firms (Saputri and Rahayu, 2022) and of stock price volatility (Khairunisa and Nazir, 2022). Based on this theoretical foundation and empirical consensus, the following hypothesis is proposed:

H3: Firm Size has a significant positive effect on stock prices of LQ45-listed companies.

Figure 1 illustrates the proposed conceptual framework, depicting the hypothesized relationships between the three independent variables and the dependent variable.

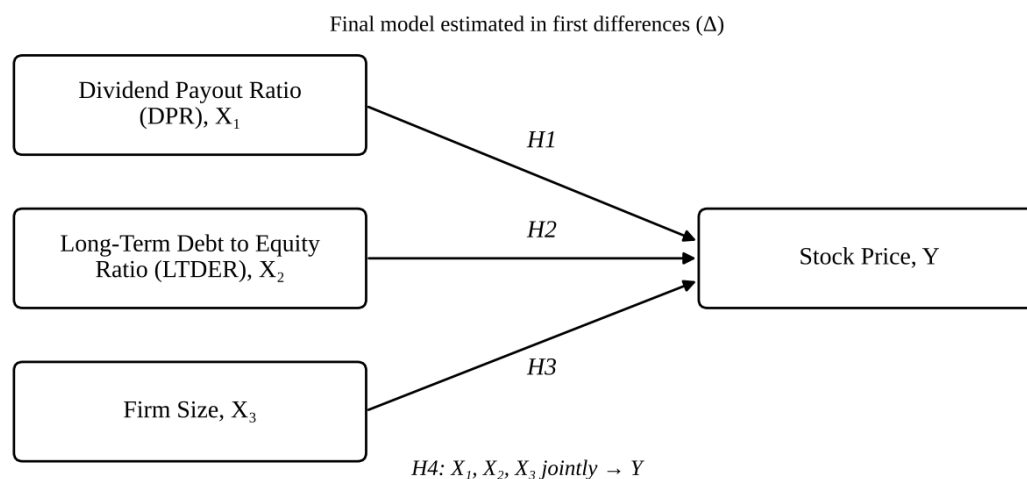


Figure 1. Conceptual framework

3. Research method

Research design and data

This study employs a quantitative research design using secondary data from the annual financial reports of companies listed in the LQ45 index on the Indonesia Stock Exchange (IDX) for the period 2021–2024. The LQ45 index comprises the 45 most liquid and fundamentally sound stocks on the IDX, providing an appropriate sample for examining the

relationship between firm-level fundamentals and market valuation in the Indonesian context. Secondary data were collected from the IDX official website (www.idx.co.id) and company annual reports published on respective corporate websites.

Sample selection

A purposive sampling method was applied with the following criteria: (1)

companies continuously listed in the LQ45 index from 2021 through 2024 without interruption; (2) companies reporting financial statements denominated in Indonesian Rupiah (IDR); and (3) companies consistently distributing cash dividends to shareholders throughout the entire study period 2021–2024.

Application of these criteria yielded a final sample of 18 companies, observed over four consecutive years, producing a balanced panel dataset of $N = 72$ firm-year observations. The panel structure of the data is explicitly acknowledged in the analysis.

Table 1. Sample companies

No.	Company Name	Stock Code	Sector
1	PT Aneka Tambang Tbk	ANTM	Mining
2	PT Astra International Tbk	ASII	Automotive
3	PT Bank Central Asia Tbk	BBCA	Banking
4	PT Bank Negara Indonesia (Persero) Tbk	BBNI	Banking
5	PT Bank Rakyat Indonesia (Persero) Tbk	BBRI	Banking
6	PT Bank Mandiri (Persero) Tbk	BMRI	Banking
7	PT Charoen Pokphand Indonesia Tbk	CPIN	Agribusiness
8	PT XL Axiata Tbk	EXCL	Telecommunications
9	PT Indofood CBP Sukses Makmur Tbk	ICBP	Food & Beverage
10	PT Indofood Sukses Makmur Tbk	INDF	Food & Beverage
11	PT Indocement Tungal Prakarsa Tbk	INTP	Basic Materials
12	PT Kalbe Farma Tbk	KLBF	Healthcare
13	PT Bukit Asam Tbk	PTBA	Mining
14	PT Semen Indonesia (Persero) Tbk	SMGR	Basic Materials
15	PT Telkom Indonesia (Persero) Tbk	TLKM	Telecommunications
16	PT Sarana Menara Nusantara Tbk	TOWR	Telecommunications
17	PT United Tractors Tbk	UNTR	Heavy Equipment
18	PT Unilever Indonesia Tbk	UNVR	Consumer Goods

Source: IDX, processed by the authors, (2026).

Variable measurement

This study involves one dependent variable (stock price) and three independent variables. All continuous variables were transformed using natural

logarithms ($\ln$) to normalize distributional skewness and reduce heteroscedasticity, consistent with standard practice in empirical finance research.

Table 2. Operational definition of variables

No.	Variable	Definition	Measurement Formula	Scale
1	Stock Price (Y)	The market price per share of a publicly listed company at a given point in time, reflecting collective investor valuation (Azzahra et al., 2023).	LN_Stock Price = Ln (Closing Price)	Ratio
2	Dividend Payout Ratio (X1)	The percentage of net earnings distributed to shareholders as cash dividends, reflecting dividend payout policy (Siswanti, 2024).	DPR = Total Dividends / Total Net Income LN_DPR = Ln (DPR)	Ratio
3	Long-Term Debt to Equity Ratio (X2)	The ratio of total long-term debt to total shareholders' equity, measuring long-term financial leverage and capital structure risk (Pardosi, 2021).	LTDER = Total Long-Term Debt / Total Equity LN_LTDER = Ln (LTDER)	Ratio
4	Firm Size (X3)	The overall scale of a company as proxied by total assets, reflecting operational capacity, investor visibility, and market credibility (Melinda and Dewi, 2023).	Firm Size = Ln (Total Assets)	Ratio

Source: Compiled by the authors from cited literature, (2026).

Model specification

The study employs multiple linear regression analysis on panel (pooled cross-sectional time-series) data. The baseline model, estimated in levels, is specified as follows:

$$LN_Stock_Price_{it} = \alpha + \beta_1 LN_DPR_{it} + \beta_2 LN_LTDER_{it} + \beta_3 LN_Firm_Size_{it} + \varepsilon_{it}$$

Where: i denotes the company, t denotes the year, α is the intercept, β_1 – β_3 are the slope coefficients, and ε_{it} is the error term. Analysis was performed using Jamovi statistical software.

Diagnostic tests on the baseline model showed positive serial correlation in the residuals. Because the panel is balanced and short ($T = 4$) and the price level of each firm is highly persistent across years, the final model is estimated in first differences, $\Delta X_{it} = X_{it} - X_{i,t-1}$ for every variable, which removes time-invariant

firm characteristics and the persistence in price levels. The final model is:

$$\Delta LN_Stock_Price_{it} = \alpha + \beta_1 \Delta LN_DPR_{it} + \beta_2 \Delta LN_LTDER_{it} + \beta_3 \Delta LN_Firm_Size_{it} + \varepsilon_{it}$$

The first observation (2021) of each firm is lost through differencing, leaving $N = 54$ ($18 \text{ firms} \times 3 \text{ annual changes}$). Supplementary robustness estimates (firm-clustered standard errors, a fixed-effects model, and a lagged dependent variable specification) were computed in Python (statsmodels and linearmodels) to compare with the Jamovi results.

Classical assumption tests

Prior to regression estimation, four classical assumption tests were conducted to validate the OLS model: (1) Normality, Shapiro-Wilk test on model residuals; (2) Multicollinearity, Variance Inflation Factor (VIF) and Tolerance statistics; (3)

Heteroscedasticity, Breusch-Pagan test on the residuals; and (4) Autocorrelation, Durbin-Watson (DW) statistic, supplemented by the Breusch-Godfrey test (first order). The tests were first applied to the baseline levels model, in which autocorrelation was detected, and then repeated for the final first-difference model; report the results for the final model and, for autocorrelation, also for the

baseline model. Hypothesis testing employed the t-test (partial effects), F-test (simultaneous effects), and the coefficient of determination (R^2).

4. Result and discussion

Descriptive statistics

Table 3 presents the descriptive statistics for all variables across the 72 firm-year observations.

Table 3. Descriptive statistics (N = 72)

Variable	N	Mean	Median	SD	Min	Max
LN_DPR (X1)	72	-0.696	-0.743	0.818	-2.60	2.77
LN_LTDER (X2)	72	-1.479	-1.588	0.975	-3.64	-0.14
LN_Firm_Size (X3)	72	3.482	3.473	0.049	3.37	3.57
LN_Stock_Price (Y)	72	8.446	8.560	0.776	6.48	10.20

The LN_DPR variable has a mean of -0.696 and a standard deviation of 0.818, reflecting moderate variation in dividend payout policies across LQ45 companies. LN_LTDER has a mean of -1.479, indicating that most sampled companies maintain relatively low levels of long-term leverage. LN_Firm_Size exhibits a narrow range (3.37–3.57) and low standard deviation (0.049), suggesting that LQ45 companies are relatively homogeneous in scale, consistent with the index's selection criterion of large-capitalization firms. LN_Stock_Price shows the widest dispersion (range: 6.48–10.20; SD = 0.776), reflecting the diversity of market valuations across companies and years. Because the final model is estimated in first differences, the descriptive statistics of the differenced variables (N = 54) are: Δ LN_DPR mean 0.060 (SD 0.598), Δ LN_LTDER mean 0.019 (SD 0.356), Δ LN_Firm_Size mean 0.0004 (SD 0.009),

and Δ LN_Stock_Price mean -0.074 (SD 0.235). The very small variation in the annual change of firm size (SD = 0.009) is relevant for interpreting the results in Section 4.5.3.

Classical assumption tests

Normality test

Table 4. Shapiro-Wilk normality test on model residuals (first-difference model)

Statistic (W)	p-value
0.964	0.102

The Shapiro-Wilk test on the residuals of the first-difference model yields $W = 0.964$ and $p = 0.102$, above the 0.05 significance threshold. This indicates that the model residuals are normally distributed, satisfying the normality assumption required for valid OLS inference.

Multicollinearity test

Table 5. Multicollinearity test (VIF and tolerance), first-difference model

Variable	VIF	Tolerance
$\Delta \text{LN_DPR}$ (X1)	1.01	0.993
$\Delta \text{LN_LTDER}$ (X2)	2.41	0.415
$\Delta \text{LN_Firm_Size}$ (X3)	2.40	0.417

All VIF values are below the threshold of 10 (range: 1.01–2.41), and all tolerance values exceed 0.10 (range: 0.415–0.993), indicating the absence of problematic multicollinearity among the independent variables.

Heteroscedasticity test

The Breusch-Pagan test on the first-difference model yields $LM = 1.104$ ($p =$

0.776), so the null hypothesis of homoscedastic residuals is not rejected. The model therefore satisfies the homoscedasticity assumption, and the ordinary standard errors are used for inference. (This test was computed outside Jamovi, with Python statsmodels.)

Autocorrelation test and correction

Table 6. Durbin-Watson autocorrelation test: baseline levels model vs. first-difference model

Autocorrelation (model)	DW Statistic	p-value
0.651 (baseline, levels, $N = 72$)	0.689	< 0.001
−0.186 (first differences, $N = 54$)	2.26	0.340

The baseline levels model yields a Durbin-Watson statistic of 0.689 ($p < 0.001$), which falls in the positive autocorrelation region ($DW < dL \approx 1.50$), and the Breusch-Godfrey test confirms serial correlation ($LM = 30.82$, $p < 0.001$). The standard errors of this model are therefore understated, and its t-statistics and F-statistic cannot be used for hypothesis testing. The result is consistent with the panel nature of the data: the stock price of a firm is highly persistent across years, so residuals are strongly correlated within firms. To correct this, the model was re-estimated in first differences (Section 3.4). In the first-difference model the Durbin-Watson statistic is 2.26 ($p =$

0.340; residual autocorrelation = −0.186). With approximate critical values $dL \approx 1.48$ and $dU \approx 1.64$ for $n = 54$ and three regressors, $dU < DW < 4 - dU$ (2.36), so the null hypothesis of no autocorrelation is not rejected. The Breusch-Godfrey test ($LM = 2.44$, $p = 0.119$) and a Wooldridge-type test on the differenced residuals (first-order coefficient = −0.165, $p = 0.239$) give the same conclusion. The final model therefore satisfies the no-autocorrelation assumption, and the hypothesis tests in Section 4.4 are based on it. The cost of the correction is the loss of 18 observations (the 2021 values) and of the between-firm variation in the data; only within-firm changes are explained.

Multiple linear regression results

Table 7. First-difference regression results (dependent variable: ΔLN_Stock_Price)

Predictor	Estimate (β)	SE	95% CI Lower	95% CI Upper	t-statistic	p-value
Intercept	-0.0711	0.0329	-0.1370	-0.0050	-2.162	0.035
ΔLN_DPR (X1)	-0.0263	0.0550	-0.1370	0.0841	-0.479	0.634
ΔLN_LTDER (X2)	-0.0822	0.1428	-0.3690	0.2046	-0.576	0.567
ΔLN_Firm_Size (X3)	1.2552	5.4778	-9.7470	12.2577	0.229	0.820

The estimated first-difference regression equation is:

$$\Delta LN_Stock_Price = -0.071 - 0.026(\Delta LN_DPR) - 0.082(\Delta LN_LTDER) + 1.255(\Delta LN_Firm_Size)$$

The intercept of -0.071 ($p = 0.035$) indicates that, with all predictors unchanged, the log stock price of the sampled companies fell on average by about 7% per year over 2022–2024. The coefficient for ΔLN_DPR is -0.026 and statistically insignificant ($p = 0.634$), suggesting that changes in dividend payout intensity do not significantly predict changes in stock price. The coefficient for ΔLN_LTDER is -0.082 ($p = 0.567$): the sign is negative as theory predicts, but it cannot be distinguished from zero. The coefficient for ΔLN_Firm_Size is 1.255 ($p = 0.820$), also statistically insignificant. Consequently, none of the three predictors explains annual changes in stock prices in this sample.

Hypothesis testing

Partial tests (t-test)

H1: Dividend Payout Ratio (DPR): The t-statistic for ΔLN_DPR is -0.479 (p

= 0.634 > 0.05). H1 is rejected. DPR does not have a significant effect on stock prices in LQ45-listed companies. The negative sign of the coefficient ($\beta = -0.026$), though insignificant, may reflect investors' preference for retained earnings as a signal of reinvestment potential rather than cash distribution, but this interpretation is not supported statistically.

H2: Long-Term Debt to Equity Ratio (LTDER): The t-statistic for ΔLN_LTDER is -0.576 ($p = 0.567 > 0.05$). H2 is rejected. LTDER does not have a significant effect on stock prices. The negative sign is in line with the Agency Theory prediction that higher long-term leverage increases financial risk, but the effect is not statistically distinguishable from zero in the first-difference model.

H3: Firm Size: The t-statistic for ΔLN_Firm_Size is 0.229 ($p = 0.820 > 0.05$). H3 is rejected. Firm Size does not have a significant effect on stock prices. Annual changes in firm size are very small ($SD = 0.009$), so the data contain little within-firm variation with which to detect an effect.

Simultaneous test (F-test)

Table 8. Model fit and overall F-test (first-difference model)

Model	R ²	Adj. R ²	F	df1 / df2	p-value
1	0.033	-0.025	0.566	3 / 50	0.640

Note: $N = 54$ first-difference observations (18 firms $\times$ 3 annual changes)

Source: Jamovi output

The omnibus F-test yields $F(3, 50) = 0.566$, $p = 0.640$, below the critical value ($F = 2.79$ at $\alpha = 0.05$). The three independent variables, DPR, LTDER, and Firm Size, therefore do not jointly explain variation in stock price changes, and H4 (simultaneous significant effect) is rejected. The R^2 of 0.033 indicates that the model accounts for only about 3.3% of the variance in annual log stock price changes, and the negative adjusted R^2 of -0.025 shows that the predictors add essentially no explanatory power. The R^2 of the first-difference model is not comparable with the R^2 of the levels model (0.290), because the latter largely reflected persistent differences between firms. The remaining variance reflects macroeconomic factors (interest rates, inflation, exchange rates), market sentiment, industry-specific dynamics, and other firm-level variables not included in this model.

Robustness checks

Three alternative treatments of serial correlation were estimated to check that the conclusion does not depend on a single method. (1) Pooled OLS in levels with standard errors clustered by firm keeps the coefficients of the baseline model but corrects the standard errors: DPR ($p = 0.287$) and LTDER ($p = 0.093$) are not significant at 5%, while Firm Size remains significant ($\beta = 11.937$, $p = 0.004$). (2) A fixed-effects model with firm-clustered standard errors, which controls for all time-invariant firm characteristics, yields no significant effect for DPR ($p = 0.480$), LTDER ($p = 0.773$), or Firm Size ($p = 0.404$). (3) A model with the lagged stock price as an additional regressor, with firm-clustered standard errors, gives DPR ($p = 0.240$), LTDER ($p = 0.289$), and Firm Size ($p = 0.062$), all not significant at 5%. Thus the effect of DPR is never significant and the effect of LTDER is significant only in the uncorrected baseline model. Firm Size is significant only when the levels model is kept, and its coefficient is unstable across

specifications (11.9 in levels versus 1.3 to 2.8 in the models that control for firm differences). The first-difference results are therefore the most defensible, and the evidence for a firm size effect is weak.

Discussion of findings

Effect of DPR on stock prices

The finding that DPR does not significantly affect stock prices ($\beta = -0.026$, $p = 0.634$) is inconsistent with the classical Signaling Theory prediction that dividend announcements convey positive information about firm profitability (Bhattacharya, 1979; Lintner, 1956). The result is the same in the baseline model ($p = 0.382$) and in every specification of Section 4.4.3, so it is robust to the treatment of autocorrelation. Several explanations may account for this null finding in the LQ45 context. First, LQ45 companies are large, well-established blue-chip firms with high analyst coverage and information transparency, which may reduce the informational content of dividend signals, a finding consistent with the dividend irrelevance proposition in informationally efficient market segments (Miller and Modigliani, 1961). Second, some of the fastest-growing LQ45 companies (particularly in banking and technology) may actively retain earnings for reinvestment, and investors may interpret low DPR as a positive growth signal rather than a negative yield signal. These explanations align with Karmawan and Dewi (2025), Raspati and Welas (2021), and Bagaskara and Rohmadi (2023), all of whom report non-significant DPR effects on stock prices in Indonesian markets.

Effect of LTDER on stock prices

The effect of LTDER on stock prices is not significant once autocorrelation is corrected ($\beta = -0.082$, $p = 0.567$). The significant negative coefficient of the baseline levels model ($\beta = -0.430$, $p < 0.001$) does not survive the correction: its

p-value rises to 0.093 with firm-clustered standard errors and to 0.773 in the fixed-effects model. This pattern suggests that the baseline result reflected persistent differences between firms, such as sector and capital structure, rather than an effect of changes in leverage on stock prices within firms. The negative sign remains in line with the Agency Theory prediction that excessive long-term leverage amplifies financial distress risk, but the data do not provide statistical support for it. The finding is consistent with Pardosi (2021) and Syaputra et al. (2026), who found no significant independent effect of LTDER on stock prices, and differs from Suqron (2021), Natalie and Lisiantara (2022), whose significant results may likewise be sensitive to the treatment of serial correlation or to differences in sample and period.

Effect of firm size on stock prices

Firm Size does not significantly affect annual changes in stock prices ($\beta = 1.255$, $p = 0.820$). The strong positive effect of the baseline levels model ($\beta = 11.937$, $p < 0.001$) is therefore not supported once autocorrelation is corrected. The established literature, in which Banz (1981) showed that firm size is a significant cross-sectional determinant of equity returns and Fama and French (1992) incorporated size as a core factor, concerns differences between firms at a point in time, and the baseline levels result fits that cross-sectional pattern. The first-difference model instead asks whether growth in a firm's assets is followed by a change in its stock price, and in the LQ45 sample the annual change in firm size is very small ($SD = 0.009$), leaving little variation to identify an effect. Firm Size remains significant only in the levels model with firm-clustered standard errors ($p = 0.004$) and is borderline in the lagged dependent variable model ($p = 0.062$), so a size effect cannot be ruled out, but it is not robust. The results differ from Arianti and

Handayani (2022), Putra and Susila (2024), Hidayatullah and Anggraeni (2023), whose findings are based on levels, and the coefficient of the levels model should not be read as an elasticity of stock price with respect to asset size.

5. Conclusion

This study examined the partial and simultaneous effects of the Dividend Payout Ratio (DPR), Long-Term Debt to Equity Ratio (LTDER), and Firm Size on the stock prices of 18 LQ45-listed companies over 2021–2024. Because the baseline levels model showed significant positive autocorrelation ($DW = 0.689$), the final model was estimated in first differences ($N = 54$), which removed the autocorrelation ($DW = 2.26$, $p = 0.340$). In this model, none of the three variables significantly affects stock price changes (DPR: $\beta = -0.026$, $p = 0.634$; LTDER: $\beta = -0.082$, $p = 0.567$; Firm Size: $\beta = 1.255$, $p = 0.820$), and they do not jointly explain stock price changes ($F(3, 50) = 0.566$, $p = 0.640$; adjusted $R^2 = -0.025$), so H1–H4 are rejected. The significant effects of LTDER and Firm Size in the levels model do not survive the correction and appear to reflect persistent differences between firms. Theoretically, the results provide no statistical support for the Agency Theory prediction for LTDER or the Signaling Theory prediction for Firm Size in explaining annual price changes, and they are consistent with the dividend irrelevance view for DPR in the transparent LQ45 segment; they also show that, in short panels with persistent price levels, uncorrected pooled regressions can overstate statistical significance.

Practically, investors should not rely on year-to-year changes in DPR, LTDER, or firm size alone to anticipate short-term price movements, managers should not expect immediate price effects from changes in leverage or payout, and researchers using Indonesian panel data should test and correct serial correlation

before drawing inference. These conclusions are limited by the short period and small sample (18 firms; $N = 54$ after differencing), which lowers statistical power, by first differencing, which discards between-firm variation, by the very small annual changes in firm size, and by Jamovi's limited support for panel models. Future research should use longer periods and wider samples, apply panel estimators (fixed or random effects with a Hausman test, Prais-Winsten or Driscoll-Kraay standard errors, or dynamic panels) in Stata, R, or EViews, and add profitability (ROE, ROA), price-earnings ratio, macroeconomic, and market-level variables to improve explanatory power.

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