

## Analysis of the Influence of TATO, PER, DER, Inflation, and Beta Risk on Capital Gains in Indonesian Telecommunication Companies for the Period 2020 - 2025

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**ABSTRACT:** To attract investors, the financial performance of the telecommunications sector must remain strong and stable. Controlled inflation will contribute to stable capital gains. However, capital gains in this sector remain volatile and carry systematic risk.

This study aims to examine the effect of the Total Asset Turnover (TATO) activity ratio, the market Price Earnings Ratio (PER), the Debt to Equity Ratio (DER), the macroeconomics with inflation, and beta as a risk variable on capital gains in telecommunications companies for the period 2020–2025.

This study uses panel data regression methods, the Chow test, the Hausman test, and the Lagrange Multiplier test to select an appropriate model, in addition to classical assumption tests to assess the reliability of the estimation results. The main findings indicate that the fundamental indicators TATO, DER, and PER have a significant positive effect on capital gains when tested partially. The partial test results indicate that inflation has a strong negative effect on capital gains. The partial test results indicate that beta has a positive but insignificant effect on capital gains. Simultaneously, TATO, DER, PER, inflation, and beta risk contribute significantly to capital gain with a 9% determinant coefficient.

Telecommunications sector stocks are popular due to their regular dividends. Stock prices in this sector fluctuate, making fundamental analysis crucial for monitoring price movement trends. Furthermore, asset value and stock prices can be driven by service integration, infrastructure development (such as towers and data centers for 5G), and the separation or consolidation of these assets. If inflationary pressures arise, companies will implement strategic measures including operational and network optimization, commercial optimization, financial optimization, and customer-focused strategies.

**Keywords:** Telecommunication, Inflation, Beta, DER, TATO, PER, Capital Gain.

### I. INTRODUCTION

As the main measurement of stock investment performance, capital gain receives great interest from investors and market experts. Capital gain is one of the parts that are part of the stock returns which consists of capital gains and dividend distributions [1]. External factors outside of the control of a company like macroeconomic conditions also play role in when and if capital gain is realized.

Telecommunication Sector in Indonesia is a strategic sector. It is one of the most rapid and competitive industries that exists. Telecommunications is one of the sectors that has contributed with a market cap avg. growth YTD (Oct 23) according to IDX data 2015—2024 at an average trading volume annually of 8.5%. Therefore, Stocks of this sector belong to a high beta stock category and are systematic risk, sensitive in nature.

The 2020-2025 period is a highly dynamic period, with the development of communications technologies such as 5G beginning to be implemented, and economic uncertainty and government policies impacting capital market performance. The Covid-19 pandemic has presented an opportunity for the development of the technology industry. The manufacturing, information technology, education, and healthcare industries have responded very positively to the pandemic. The need for network connectivity and fast data access has increased. This is one factor in accelerating 5G implementation in Indonesia. In 2020, the implementation of 5G in Indonesia was still in the preparation stage. The Indonesian government is structuring frequency allocations and targeting 5G implementation in several major cities. Implementing 5G, for example, through the development of supporting infrastructure such as fiber optic networks and small cells, requires significant investment. 5G implementation will increase data speeds up to 20 times compared to 4G networks. This will open up opportunities for digital transformation in various sectors, including the economy, healthcare, manufacturing, and MSMEs. Furthermore, it will also support the development of smart cities, IoT, and AI technologies [2]. The advancement of 5G technology is closely coupled with broader digital transformation.

According to Rustandi Kartawinata [3] the growth of internet access users is growing rapidly and shows a significant increase. According to Rustandi Kartawinata [4], rapid advancements in digital technology are contributing favorably to Indonesia's economic growth.

Economic growth can be substantially enhanced through foreign investment, government expenditure, and trade openness, while elevated inflation rates may lead to a moderate reduction in Indonesia's economic growth [5]. Telecommunications stocks can serve as an effective inflation hedge for investors, as telecom companies possess revenue flexibility that allows them to adjust service pricing in response to market conditions [6].

The global 5G value chain is projected to generate \$3.5 trillion in output and support 22 million jobs by 2035. This figure is greater than the value of the entire current cellular value chain. The 5G value chain will invest an average of \$200 billion annually to continuously expand and strengthen the 5G technology base in business application networks and infrastructure[7].

Covid-19 meets the criteria of a black swan event, namely a rare event that occurs suddenly and has a large and uncertain impact [8]. The stock market is a barometer of the economy, and the capital market reflects the overall economic situation of a country during the Covid-19 pandemic. With the Jakarta Composite Index (JCI) corrected by 19.37% during the year, investors have lost 1,418 trillion rupiah. During the pandemic, stock prices in the capital market experienced high volatility due to unstable supply and demand. This could be due to investors' concerns that the company will not be able to survive the pandemic, resulting in inadequate returns or even losses [9].

Global and national economic uncertainties impacting capital market performance, including the telecommunications sector, include inflationary pressures, changes in fiscal and monetary policies, and geopolitical situations that influence market sentiment and public purchasing power, which in turn impacts the consumption of telecommunications services. Furthermore, government policies related to telecommunications industry regulations, import tariffs, and stimulus and incentives for new technologies such as 5G also influence the financial performance and stock prospects of companies in this sector.

Numerous published studies have examined the influence of several independent variables on stock returns. However, research examining the variables that influence capital gains is limited. Based on the variables previously studied, the author intends to combine fundamental, macroeconomic, and market variables.

This study aims to empirically analyze the influence of fundamental indicators (DER, PER, TATO), beta risk indicators, and inflation comprehensively on capital gains of telecommunications companies in Indonesia. The period used is 2020-2025, which is the period during which the COVID-19 pandemic began in 2020 and led to the subsequent recovery years. Between 2020 and 2025, Indonesia experienced inflationary volatility. During that period, the sector experienced revenue volatility and stock price fluctuations, with various loan funding strategies. These factors will undoubtedly impact capital gains.

The research results are expected to contribute to investors in optimizing stock portfolios, company management in improving financial strategies, and regulators in understanding the factors that influence the performance of telecommunications company shares to make policies amidst the dynamics of the Indonesian economy and capital markets as well as for academics as material for developing financial studies in Indonesia.

## **II. LITERATURE REVIEW**

When a company aims to enhance its value for investors, management, and shareholders, various factors can affect stock returns and capital gains. The analysis of financial ratios, including activity, solvency, and market ratios, helps shareholders and management evaluate a company's financial performance and overall health. In this context, financial ratios can serve as key indicators for investors in predicting potential capital gains. In addition to firm-specific factors, macroeconomic conditions must also be considered, as they can influence stock returns and capital gains. Therefore, this study uses several financial indicators, namely efficiency (TATO), investment opportunities (PER), solvency (DER), inflation, and systematic risk (beta).

The findings of this study can help companies manage their market value more effectively by not only focusing on profitability but also carefully controlling their risk levels and market expectations, as indicated by PER and Beta. Additionally, these results provide guidance for responding to macroeconomic fluctuations that influence company performance. The identified indicators can also be used to detect firm growth, which signals higher stock returns and ultimately leads to increased capital gains.

### **2.1. TATO**

TATO demonstrates the intensity and effectiveness of company management in utilizing assets, both fixed and current, to support operational activities to increase sales. The faster the asset turnover to increase sales, the greater the impact on revenue. The value of the return on assets indicates the relationship between return on assets and profit growth, meaning that if the return on assets increases, profit growth also increases, and vice versa [10].

According to research results Wayan Okti et al [11] and Priantoro et al [12], TATO has a significant

positive effect on stock prices. Similarly, research results Putri and Triyonowati [13] indicate that TATO has a significant positive effect on stock returns. Research by Patin et al [14] explains the positive effect of the total asset turnover ratio (TATO) on stock returns in both the short and long term.

## **2.2. DER**

The Debt to Equity Ratio (DER) is an important financial ratio used to assess a company's capital structure and leverage level. The Debt to Equity Ratio measures the ratio between total debt and total equity [15].

Tyas Saksono et al [16] suggest that maintaining an appropriate solvency ratio is a strategic approach to enhancing firm value. A company's ability to fulfill its future financial obligations reflects its effectiveness in managing debt. This capability can generate a favorable response from the market.

The Debt to Equity Ratio (DER) serves as an indicator in financial statement analysis that reflects the level of protection available to creditors as well as the proportion of financing sourced from debt relative to shareholders' equity. It is also utilized to assess the comparison between funds provided by creditors and those contributed by the company's owners. According to Raspati and Welas [17] a higher DER indicates a greater reliance on debt as a source of financing rather than equity. A high DER may appeal to investors, as it suggests that the company is likely engaged in large-scale projects requiring substantial capital. Such conditions can open up opportunities for higher returns for both the firm and its investors. Consequently, a high DER reflects the company's preference for debt as a long-term financing strategy over equity. When the financed projects demonstrate strong prospects, this can serve as a positive signal that encourages investors to invest.

A high Debt-to-Equity Ratio (DER) indicates a company's greater reliance on debt to finance its expansion, which increases financial risk and can influence investor interest as well as the firm's stock value [18]. Ardila and Abubakar [19] found that capital structure, profitability, and company growth have a positive and significant effect on capital gains. Since capital structure is often represented by DER, a higher DER is associated with higher capital gains.

## **2.3. PER**

PER is a valuation metric that compares a company's market price per share with its earnings per share (EPS). It reflects the multiple of earnings that investors are willing to pay for one share of stock. This ratio assists investors in determining whether a stock is relatively undervalued or overvalued based on its earnings [20]. Additionally, PER can represent historical valuation levels and serve as an indicator for evaluating a company's future stock valuation prospects.

Asmedi and Sulaeman [20] state that the influence of the Price Earning Ratio (PER) on firm value is very strong. PER is considered a reliable indicator for predicting future stock returns; therefore, it is viewed as having a positive and significant effect. A higher PER reflects a higher price per share, indicating strong firm value, and such stocks are often categorized as blue-chip stocks in the capital market. Furthermore, Siska et al [21] explain that a higher PER indicates that a company has strong growth potential, leading the market to expect increased earnings in the future. Their findings reveal that PER has a positive and significant effect on stock prices. Similarly, Mahardika [22] finds that PER has a positive and significant impact on stock returns. This suggests that an increase in PER is associated with higher stock returns in this sector. It also implies that companies with higher PER are more attractive to investors, as a high PER reflects investor confidence in the company's future growth, even when such growth requires substantial expenditure financing.

## **2.4. Inflation**

Inflation is a general and sustained increase in the prices of goods and services over a period of time. A price increase in just one or two goods cannot be called inflation unless the increase spreads or results in price increases for other goods. Various obstacles often contribute to high inflation rates, including high distribution costs, low production efficiency, and expensive access to financing. Furthermore, imperfect market structures also contribute to rising prices. These obstacles ultimately impact the competitiveness of domestic products.

A study by Rante and Wakarmamu [23] shows that inflation exerts a significant positive influence on the Jakarta Composite Index (JCI). This relationship suggests that as inflation rises, firms tend to generate higher revenues and profits, which enhances their ability to distribute dividends and attracts investors pursuing capital gains. According to research by Hidayat et al [24], inflation developments have a unidirectional relationship, but their impact is insignificant on economic growth. If inflation increases, it cannot significantly boost Indonesia's economic growth.

Increased inflation can be influenced by several factors, including political stability and inflation volatility. The government has attempted to consistently implement policies to maintain low inflation, but not all institutions/agencies are capable of implementing these policies; weak institutions make it more difficult. Political and institutional factors influence inflation differently in each country. Political and institutional factors influence inflation more strongly in Indonesia compared to other Asian countries. Persistence and the output gap also drive high inflation. Due to the pattern of inflation expectations that are still dominated by past inflation (adaptive expectations), this causes inflation in Indonesia to be very persistent. The existence of global oil price

shocks, fuel price increases, depreciation and fluctuations in the rupiah exchange rate, and minimum wage increases that exceed inflation indicate the formation of inflation expectations through cost-push inflation or supply shocks. Likewise, an increase in the output gap can also encourage inflationary pressures, so that inflation will increase. In Indonesia, the impact of this increasing output gap will be higher when compared to other countries.

**2.5. Beta**

Beta ( $\beta$ ) measures a stock's systematic risk level relative to market fluctuations. According to CAPM theory, a high expected return increases systematic risk; higher risk indicates a higher beta value for a company [25]. However, several empirical studies show that beta does not always significantly impact stock returns, depending on market conditions and specific industry sectors [26]. A stock's beta reflects a stock's sensitivity or response tendency to market conditions [27]. A stock with a beta of one represents a stock that moves in line with market movements (the Jakarta Composite Index), while a stock with a beta of less than one represents a stock that moves slower than market movements. A stock with a beta of more than one indicates a company's stock price is volatile or more volatile than the market [27].

Systematic risk cannot be avoided by any company because its occurrence is external to the company's activities, while unsystematic risk can be mitigated by companies through diversification [28]. This research finding aligns with that of Ismayanti and Yusniar [29].

**2.6. Frame Of Thinking**

In light of the foregoing explanation and theoretical basis, the following framework of thought is developed in this study.

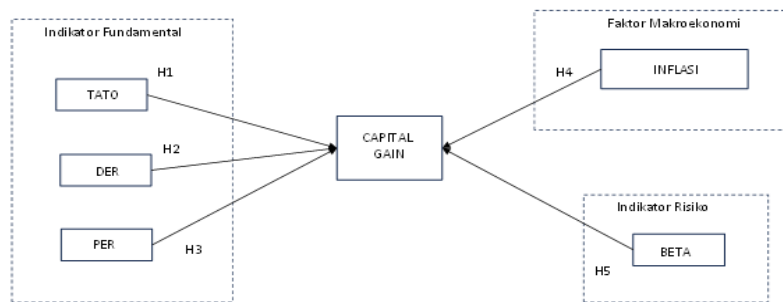


Figure 1. Frame of Thinking

**2.7. Hypotheses Development**

H1: There is a Substantial Positive Correlation Between TATO and Capital Gain

Total Asset Turnover (TATO) may have a significant positive impact on capital gains. Higher capital gains are consistent with increased returns. An increase in asset turnover leads to higher returns, which ultimately contributes to greater capital gains. These findings are consistent with the study by Layli and Firmansyah [10].

H2 :There is a Substantial Positive Correlation Between DER and Capital Gain

The Debt to Equity Ratio (DER) may have a significant influence on capital gains. A high DER reflects a company's reliance on debt or external financing within its capital structure to support growth, expansion, or restructuring. Therefore, an increase in the DER value is associated with higher capital gains.

H3: There is a Substantial Positive Correlation Between PER and Capital Gain

The Price Earnings Ratio (PER) may have a significant effect on capital gains. An increase in PER can lead to higher stock returns [30], which in turn contributes to greater capital gains.

H4: There is a Substantial Positive Correlation Between Inflation and Capital Gain

When inflation is high, prices of goods and services will be high, and profits will be depressed, so the tendency for stock returns to be low. Inflation may have a significant negative effect on capital gains. Higher inflation will trigger a decline in capital gains. This supports research conducted by Irwansyah et al [31].

H5: There is no a Substantial Positive Correlation Between Beta and Capital Gain

Beta is a systematic risk that investors can consider and that can affect capital gains. It has a positive relationship with capital gains: higher beta reflects higher risk and a greater potential for capital gains, whereas lower beta indicates lower risk and typically lower capital gains.

**III. RESEARCH METHOD**

**3.1. Research Type**

The population of this study comprises 10 telecommunications companies listed on the Indonesia Stock Exchange (IDX) during 2020–2025. The sample was determined through purposive sampling, requiring that firms be continuously listed on the IDX from 2020 to 2025 and provide complete data on TATO, PER, inflation,

beta, and capital gains for that period. In total, the dataset contains around 240 firm-quarter observations.

This research adopts a quantitative approach with descriptive and verification methods. In line with Sugiyono [32], quantitative methods are rooted in the positive paradigm and are applied to specific populations or samples using structured instruments. Data are statistically analyzed to test predetermined hypotheses and generalize findings to broader populations. The primary emphasis is on examining relationships between variables and empirically testing hypotheses developed from previous theory and evidence [33].

Panel data regression is used to evaluate how fundamental indicators, macroeconomic variables, and beta risk affect capital gains. This regression allows estimating both the magnitude and direction of each variable's influence on capital gains in telecommunications companies. Model specification and significance are assessed using the Chow, Lagrange Multiplier, and Hausman tests, while standard diagnostic checks (normality, multicollinearity, autocorrelation, and heteroscedasticity) are performed to ensure the robustness of the regression model.

### 3.2. Research Variable

#### 1. TATO

Total Asset Turn Over, shows how efficiently a company utilizes its assets to generate sales or revenue.

$$TATO = \frac{Net\ Sales}{Total\ Aset}$$

#### 2. DER

DER indicates how much of a company's funding comes from debt compared to shareholder equity.

DER is calculated using the formula:

$$DER = \frac{Total\ Liabilities}{Shareholder's\ Equity}$$

#### 3. PER

PER is used in stock price valuation, to determine whether a stock price is undervalued or overvalued.

$$PER = \frac{Market\ Price\ Per\ Share}{EPS\ (Earning\ Per\ Share)}$$

#### 4. Inflation

A general and continuous increase in the prices of goods and services over a certain period of time

#### 5. Beta

A systematic risk indicator that measures a stock's sensitivity to market movements.

$$Beta = \frac{Cov(Rs, Rm)}{Var(Rm)}$$

#### 6. Capital Gain

Profit obtained from the difference between the selling price and the purchase price of an investment asset.

$$Capital\ Gain = \frac{Current\ Prices - Original\ Prices}{Original\ Price} \times 100\%$$

## IV. RESULT

### 4.1. Statistical Result

**TABLE 1. DESCRIPTIVE STATISTICS**

	Capital Gain	TATO	DER	PER	Inflasi	Beta
Mean	1.341333	0.196567	1.810417	40.23175	2.617083	0.593528
Median	-1.200000	0.140000	0.140000	23.64500	2.365000	0.649500
Maximum	51.70000	0.570000	1.460000	204.5300	5.550000	1.657000
Minimum	-35.72000	0.015400	3.930000	-26.99000	0.570000	-0.695000
Std Dev.	22.73224	0.160349	0.160349	57.76103	1.277273	0.631656
Observation	240	240	240	240	240	240

The descriptive statistics in Table 1 show that the average debt (leverage) ratio over 2020–2025 is 1.81, which exceeds its standard deviation of 1.09, indicating that the solvency ratio is relatively concentrated around its mean. The median solvency ratio is 1.46, with a maximum of 3.93 and a minimum of 0.46; the highest ratio is observed for KBLV in the fourth quarter of 2021, while the lowest occurs for KBLV in the first quarter of 2022. The mean Total Asset Turnover (TATO) ratio during 2020–2025 is 0.20, higher than the standard deviation of 0.16, suggesting that TATO values are fairly stable around the average. The median TATO is 0.14, with values ranging from 0.02 to 0.57; the highest values are recorded by TOWR and JAST, whereas the lowest is observed for KBLV in 2025. For the Price Earnings Ratio (PER), the mean over 2020–2025 is 40.23, which is lower than its standard deviation of 57.76, indicating substantial dispersion in PER during the study period. The

median PER is 23.65, with a maximum of 204.53 and a minimum of -26.99. The highest PER values are recorded by ISAT in 2022, KBLV and BALI in 2020, JAST in 2024, and IBST throughout 2020–2023, while the lowest PER values are observed for ISAT in 2020, KBLV in 2025, LINK in 2023, and JAST during 2020–2023.

The average inflation rate for 2020–2025 is 2.62, exceeding its standard deviation of 1.28, which suggests that inflation is relatively stable and clustered around the mean. The median inflation rate is 2.37, with values ranging from 0.57 to 5.55; the peak inflation occurs in the fourth quarter of 2022, and the lowest rate is recorded in the first quarter of 2025. The mean beta over the period is 0.59, which is slightly lower than the standard deviation of 0.63, indicating considerable variability in systematic risk across firms and time. The median beta is 0.65, with a maximum of 1.66 and a minimum of -0.70. Capital gains exhibit even greater variability: the mean value is 1.34, substantially below the standard deviation of 22.73. The median capital gain is -1.20, with values ranging from -35.72 to 51.70, indicating wide fluctuations in capital gains across observations.

**4.2. Estimation Methods**

**4.2.1. Chow Test**

The Chow test, also known as the likelihood ratio test, is applied to determine whether the Fixed Effects Model (FEM) or the Common Effects Model (CEM) is more appropriate for panel data regression. The CEM assumes that coefficients remain constant across all individuals and time periods, whereas the FEM accounts for variations between entities. This test is conducted by evaluating the significance of the FEM using the F-statistic.

Redundant Fixed Effects Tests  
Equation: Untitled  
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.708238	(9,225)	0.7011
Cross-section Chi-square	6.704556	9	0.6678

Figure 2. Chow Test

Hypotheses of this Chow test are  $H_0$  : Common Effect Model and  $H_1$  : Fixed Effect Model. Since the cross-section F probability value exceeds the significance level (Prob. > 0.05), the null hypothesis is not rejected, indicating that the Common Effects Model (CEM) is appropriate.

**4.2.2. Hausman Test**

This test is applied to choose between the Random Effects Model (REM) and the Fixed Effects Model (FEM). It evaluates whether the model’s error term is correlated with one or more independent variables. The null hypothesis assumes no such correlation exists.

Hypotheses of this Hausman Test are  $H_0$ : Random Effects Model and  $H_1$ : Fixed Effects Model. If the Hausman statistic exceeds the critical value,  $H_0$  is rejected, indicating that the Fixed Effects Model is more appropriate. On the other hand, if the Hausman statistic is below the critical value, the Random Effects Model is preferred.

Correlated Random Effects - Hausman Test  
Equation: Untitled  
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	5	1.0000

Figure 3. Hausman Test

The Hausman statistical probability value is smaller than the critical value (Prob > 0.05), so the more appropriate model is the Random Effect model.

**4.2.3. Langrange Multiplier**

The Lagrange Multiplier (LM) test is employed in panel data analysis to determine whether the Common Effect Model (CEM) or the Random Effect Model (REM) is more appropriate. The decision rule is based on the probability (Chi-square) value from the LM test at the 5% significance level. If the p-value is below 0.05, the REM is preferred; if the p-value exceeds 0.05, the CEM is retained. The hypotheses for the LM test are specified as follows:  $H_0$ : the Common Effect Model is appropriate;  $H_1$ : the Random Effect Model is appropriate.

Lagrange Multiplier Tests for Random Effects  
 Null hypotheses: No effects  
 Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.564240 (0.2110)	3.595369 (0.0579)	5.159609 (0.0231)
Honda	-1.250696 (0.8945)	1.896146 (0.0290)	0.456402 (0.3241)
King-Wu	-1.250696 (0.8945)	1.896146 (0.0290)	-0.054746 (0.5218)
Standardized Honda	-0.853321 (0.8033)	2.286690 (0.0111)	-3.569626 (0.9998)
Standardized King-Wu	-0.853321 (0.8033)	2.286690 (0.0111)	-3.865553 (0.9999)
Gourieroux, et al.	--	--	3.595369 (0.0704)

Figure 4. Lagrange Multiplier Test

Breusch-Pagan  $p$ -value  $< 0.05$  (or other LM test value)  $< 0.05$ , Reject the null hypothesis ( $H_0$ ). This means that the Random Effect Model (REM) is a more appropriate model.

From the results of the Chow test, Hausman test and Lagrange Multiplier test, it can be seen that:

TABLE2. MODEL SELECTION

Pengujian	FEM	Pemilihan Model
Chow	$H_0$ : Model CEM dipilih jika prob $> 0.05$ , $H_1$ : Model FEM dipilih jika prob $< 0.05$	(0,7011 $> 0.05$ ) CEM
Hausman	$H_0$ : Model REM dipilih jika prob $> 0.05$ $H_1$ : Model FEM dipilih jika prob $< 0.05$	(1.0000 $> 0.05$ ) REM
Langrange Multiplier	$H_0$ : Model CEM dipilih jika prob $> 0.05$ $H_1$ : Model REM dipilih jika prob $< 0.05$	(0.0231 $< 0.05$ ) REM

### 4.3. Clasical Assumption Test

#### 4.3.1. Multikolinearity Test

The multicollinearity test in panel data regression is used to detect strong correlations among the independent variables. When two or more predictors are highly or linearly correlated, the information they convey overlaps, which can cause instability in the estimated coefficients, inflate standard errors, lower t-statistics, and complicate the interpretation of each variable's individual effect on the dependent variable. The results of the multicollinearity assessment are summarized as follows:

TABLE 3. MULTIKOLINEARITY TEST

	TATO	DER	PER	Inflasi	Beta
TATO	1.000000	-0.221914	-0.332096	0.009368	0.221713
DER	-0.221914	1.000000	-0.003782	-0.102420	0.224774
PER	-0.332096	-0.003782	1.000000	0.014403	-0.029534
Inflasi	0.009368	-0.102420	0.014403	1.000000	0.003235
Beta	0.221713	0.224774	-0.029534	0.003235	1.000000

Based on the test results, all variables exhibit correlation values below 0.85, indicating that the model is free from multicollinearity.

#### 4.3.2. Heterokedasticity Test

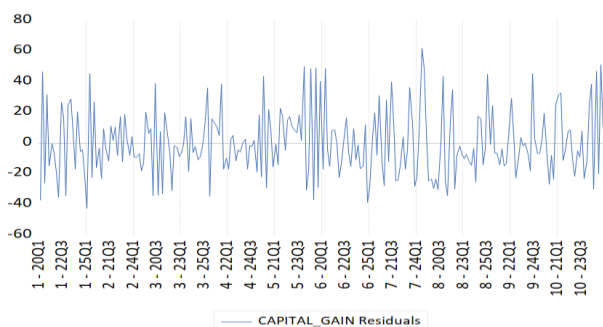


Figure 6. Residual Graphic

The plot indicates that the residuals lie within the range of -500 to 500, suggesting that the error variance is approximately constant and that there is no visible heteroscedasticity, so the model can be considered to satisfy the homoscedasticity assumption [34]. Using absolute residuals (Abs(Resid)) as an additional heteroscedasticity diagnostic, the following results are obtained:

Dependent Variable: ABS(RESID)  
 Method: Panel Least Squares  
 Date: 04/25/26 Time: 17:56  
 Sample: 2020Q1 2025Q4  
 Periods included: 24  
 Cross-sections included: 10  
 Total panel (balanced) observations: 240

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.26732	2.982876	7.800300	0.0000
TATO	-8.591983	5.829714	-1.473826	0.1419
PER	-0.022913	0.015126	-1.514773	0.1312
INFLASI	-1.924879	0.644870	-2.984908	0.0031
DER	0.683964	0.815496	0.838709	0.4025
BETA	0.313625	1.392961	0.225150	0.8221

R-squared	0.060073	Mean dependent var	17.04343
Adjusted R-squared	0.039989	S.D. dependent var	12.91950
S.E. of regression	12.65854	Akaike info criterion	7.939224
Sum squared resid	37495.87	Schwarz criterion	8.026240
Log likelihood	-946.7069	Hannan-Quinn criter.	7.974285
F-statistic	2.991078	Durbin-Watson stat	1.646756
Prob(F-statistic)	0.012270		

Figure 7. Absolut Residual Regression

The test results show that the TATO, DER, PER, and Beta variables have probability values greater than 0.05, while the Inflation variable has a probability value below 0.05, indicating the presence of heteroscedasticity. Therefore, a covariance coefficient adjustment using robust standard errors is applied to ensure valid and reliable inferences, with the following results:

Dependent Variable: CAPITAL\_GAIN  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 04/25/26 Time: 18:02  
 Sample: 2020Q1 2025Q4  
 Periods included: 24  
 Cross-sections included: 10  
 Total panel (balanced) observations: 240  
 Swamy and Arora estimator of component variances  
 Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.894440	5.350231	-1.101717	0.2717
TATO	29.05148	10.44115	2.782403	0.0058
DER	3.806868	1.450761	2.624049	0.0093
PER	0.074951	0.026312	2.848539	0.0048
INFLASI	-3.348828	1.095528	-3.056817	0.0025
BETA	0.643504	2.490623	0.258371	0.7963

Effects Specification		S.D.	Rho
Cross-section random		0.000000	0.0000
Idiosyncratic random		21.76517	1.0000

Weighted Statistics			
R-squared	0.112524	Mean dependent var	1.341333
Adjusted R-squared	0.093561	S.D. dependent var	22.73224
S.E. of regression	21.64270	Sum squared resid	109607.1
F-statistic	5.933837	Durbin-Watson stat	2.295661
Prob(F-statistic)	0.000035		

Unweighted Statistics			
R-squared	0.112524	Mean dependent var	1.341333
Sum squared resid	109607.1	Durbin-Watson stat	2.295661

Figure 8. Robust Standard Errors cross-section weight PCSE

#### 4.4. Equation Regression

$$\text{CAPITAL\_GAIN} = -5.8944395208 + 29.0514765352 \cdot \text{TATO} + 3.80686829464 \cdot \text{DER} + 0.0749508358489 \cdot \text{PER} - 3.34882785686 \cdot \text{INFLASI} + 0.643503870319 \cdot \text{BETA} + [\text{CX}=\text{R}]$$

The intercept estimate of -5.8944 indicates that, when TATO, DER, PER, inflation, and beta are all equal to zero, capital gains are expected to be approximately 5.89% below their reference level. The coefficient for TATO (29.0515) shows that, ceteris paribus, a one-unit increase in total asset turnover (net sales relative to total assets) is associated with an increase in capital gains of around 29%, underscoring the sizeable positive contribution of asset utilization efficiency to investor gains. Stated differently, TATO drives a strong and positive correlation with capital gains. The positive coefficient on DER (3.8069) suggests that a one-unit rise in leverage (total liabilities to total equity), holding other factors constant, is linked to an average 3.81% increase in capital gains, implying that higher leverage in this context is accompanied by higher capital gains. PER also enters with a positive sign: the estimated coefficient of 0.07495 indicates that an additional unit in the price-earnings ratio corresponds to a modest 0.07% increase in capital gains, all else equal, so firms with higher PER tend to experience slightly higher capital gains. By contrast, the inflation coefficient, -3.3488, implies that

a 1-percentage-point rise in inflation is associated with a decline in capital gains of about 3.35%, reflecting the detrimental effect of rising prices on capital gains. Finally, the beta coefficient of  $-0.6435$  indicates that, for a one-unit increase in beta (the covariance of the firm's stock return with the market divided by market variance), capital gains decrease by roughly 0.64% on average, suggesting that greater systematic risk is associated with lower capital gains in the sample.

**4.5. t Test**

Dependent Variable: CAPITAL\_GAIN  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 04/25/26 Time: 18:40  
 Sample: 2020Q1 2025Q4  
 Periods included: 24  
 Cross-sections included: 10  
 Total panel (balanced) observations: 240  
 Swamy and Arora estimator of component variances  
 Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.894440	5.350231	-1.101717	0.2717
TATO	29.05148	10.44115	2.782403	0.0058
DER	3.806868	1.450761	2.624049	0.0093
PER	0.074951	0.026312	2.848539	0.0048
INFLASI	-3.348828	1.095528	-3.056817	0.0025
BETA	0.643504	2.490623	0.258371	0.7963

Figure 9. t Test

The hypotheses in this study are formulated as follows. For TATO, the null hypothesis states that TATO does not have a significant effect on capital gains ( $H_{10}$ ), while the alternative hypothesis proposes that TATO has a significant effect on capital gains ( $H_{11}$ ). For DER,  $H_{20}$  posits that DER does not significantly affect capital gains, whereas  $H_{21}$  asserts that DER has a significant effect on capital gains. In the case of PER,  $H_{30}$  states that PER has no significant effect on capital gains, and  $H_{31}$  states that PER significantly affects capital gains. For inflation,  $H_{40}$  indicates that inflation does not have a significant effect on capital gains, while  $H_{41}$  indicates that inflation has a significant effect on capital gains. Finally, for beta,  $H_{50}$  specifies that beta does not significantly affect capital gains, and  $H_{51}$  specifies that beta has a significant effect on capital gains.

**T-test result**

The t-test results indicate that several independent variables have a statistically significant impact on capital gains. TATO is significant ( $t = 2.782, p = 0.0058 < 0.05$ ), supporting  $H_{11}$  and rejecting  $H_{10}$ , which shows that asset turnover significantly influences capital gains in Indonesian telecommunications firms. DER is also significant ( $t = 2.624, p = 0.0093 < 0.05$ ), so  $H_{21}$  is accepted and  $H_{20}$  is rejected, implying that leverage exerts a significant effect on capital gains. PER displays a similar pattern ( $t = 2.849, p = 0.0048 < 0.05$ ), leading to acceptance of  $H_{31}$  and rejection of  $H_{30}$ , meaning that valuation as captured by PER significantly affects capital gains. Inflation is likewise statistically significant ( $t = 3.057, p = 0.0025 < 0.05$ ), so  $H_{41}$  is accepted and  $H_{40}$  is rejected, indicating that inflation has a significant influence on capital gains in the telecommunications sector. By contrast, beta is not statistically significant ( $t = 0.258, p = 0.7963 > 0.05$ ); thus,  $H_{50}$  cannot be rejected and  $H_{51}$  is not supported, suggesting that systematic risk, as measured by beta, does not have a significant effect on capital gains in this model.

**4.6. F Test**

The F-test is used to evaluate whether the independent variables jointly have a statistically significant effect on the dependent variable. When the Prob(F-statistic) is less than 0.05, the regression model is deemed significant, indicating that the set of independent variables simultaneously influences capital gains. The joint hypotheses are formulated as follows:  $HS_0$ : TATO, DER, PER, inflation, and beta do not jointly have a significant effect on capital gains.  $HS_1$ : TATO, DER, PER, inflation, and beta jointly have a significant effect on capital gains.

Weighted Statistics			
R-squared	0.112524	Mean dependent var	1.341333
Adjusted R-squared	0.093561	S.D. dependent var	22.73224
S.E. of regression	21.64270	Sum squared resid	109607.1
F-statistic	5.933837	Durbin-Watson stat	2.295661
Prob(F-statistic)	0.000035		
Unweighted Statistics			
R-squared	0.112524	Mean dependent var	1.341333
Sum squared resid	109607.1	Durbin-Watson stat	2.295661

Figure 10. F test

The F-test results indicate that the regression model is jointly significant. The calculated F-statistic exceeds the critical value ( $5.9338 > 2.4101$ ), and the associated probability is below the 5% level ( $p = 0.000035 < 0.05$ ), leading to the rejection of  $HS_0$  and acceptance of  $HS_1$ . This implies that TATO, DER, PER, inflation, and beta collectively exert a significant influence on capital gains in Indonesia's telecommunications sector.

**Coefficient Determination**

Weighted Statistics			
R-squared	0.112524	Mean dependent var	1.341333
Adjusted R-squared	0.093561	S.D. dependent var	22.73224
S.E. of regression	21.64270	Sum squared resid	109607.1
F-statistic	5.933837	Durbin-Watson stat	2.295661
Prob(F-statistic)	0.000035		

Figure 11. Coefisien Determination

The adjusted R-squared of 0.093561 (around 9%) indicates that the independent variables TATO, DER, PER, inflation, and beta jointly account for about 9% of the variation in capital gains, with the remaining 91% explained by other factors outside the model. Prior research by Ernawati and Ismail [35], Hamzah [36], and Wahyuni and Djamaluddin [37], which examined various fundamental indicators (including profitability, liquidity, leverage, and activity) and their impact on capital gains, reported coefficients of determination of 2.3%, 4.5%, and 4.4%, respectively. Relative to those findings, the 9% adjusted R-squared obtained for the telecommunications sector in this study is higher. However, some capital gain studies have documented much stronger explanatory power; for instance, irwansyah [31] find that inflation, deposit interest rates, and exchange rates significantly influence capital gain/loss, with a coefficient of determination of 69%.

**V. DISCUSSION**

**5.1. The Influence of TATO on Capital Gain**

Conceptually, stock returns are inherently linked to capital gains, as the returns obtained by investors, either through capital gains or dividends, are commonly modeled with TATO as one of the determining variables. Increases in capital gains are in line with higher yields and rising stock prices, given that capital gains fundamentally capture changes in stock prices from one period to the next.

Empirical results show that TATO has a statistically significant positive influence on capital gains. TATO serves as a proxy for how effectively management utilizes fixed and current assets to support operations and generate sales. Higher TATO values indicate superior sales performance [10] and greater profitability from revenues [38], and increased profitability is generally associated with rising stock prices [33].

Meyyasti et al [39] report that Total Asset Turnover (TATO) is positively and significantly related to stock prices, implying that higher TATO is associated with greater firm value and capital gains. A higher TATO ratio indicates more effective use of assets to generate sales, which can strengthen investor confidence and push stock prices upward. This pattern is consistent with prior evidence from Wayan Okti et al [11], Priantoro et al [12], Putri and Triyonowati [13], and Ulil et al [40], who also observe a positive linkage between TATO and stock prices.

Total asset turnover (TATO), net income, and overall profitability are found to significantly support sales expansion [10]. Firms that are able to rotate their assets more rapidly also tend to generate higher stock returns and capital gains. Patin et al [14] empirically corroborate this pattern, showing that TATO has a positive impact on equity performance in both the short and the long horizon.

**5.2. The influence of DER on Capital Gain**

Empirical findings indicate that the Debt to Equity Ratio (DER) has a significant effect on capital gains. A higher DER reflects a greater reliance on borrowed funds to support the firm's operations [17]. An elevated DER suggests that the company's capital structure is more heavily weighted toward debt or other external financing sources, typically to pursue growth, expansion, restructuring, and similar strategic objectives [15]. Firms in a rapid growth phase generally need additional capital from outside the company.

A lower debt-to-equity ratio (DER) generally indicates a more solid and conservative capital structure. Firms with relatively low leverage are typically viewed more favorably by the market, which strengthens their perceived ability to fulfill long-term obligations. Conversely, a high DER reflects heightened exposure to financial distress or even bankruptcy when cash flows are insufficient, and in such conditions excessive leverage tends to depress stock returns [41]. Nevertheless, when debt is managed prudently and translates into higher earnings, capital gains may still increase. Investors can remain confident in firms that utilize debt effectively to finance growth and ongoing operations, enabling capital gains to rise even as the DER escalates.

Alzubi et al [18] observed that companies can expand their use of debt to secure liabilities tied to tangible assets, which in turn increases the debt-to-equity ratio and overall leverage. Raspati et al [17] argued that a relatively high DER can be interpreted positively by investors because it may indicate that the company is undertaking large, capital-intensive projects, thus opening up the possibility of increased returns for the company and its shareholders. In line with this perspective, Tyas Saksono et al [16] argued that a disciplined debt policy can generate favorable market reactions, positioning solvency measures as a key strategy for strengthening company value.

Capital gains are fundamentally linked to stock prices because they represent the change in share values over time, so movements in prices directly shape the magnitude of capital gains. Within this framework, a higher DER can not only underpin increases in stock prices, as documented by Putri Ayuni et al [42], but may also be reflected in larger capital gains. Consistent with this perspective, Ardila et al [43] find that capital structure, profitability, and growth jointly have a significant positive effect on capital gains, with capital structure measured by DER, indicating that greater leverage can coincide with higher capital gains.

### **5.3. The influence of PER on Capital Gain**

The research result indicate that the Price Earnings Ratio (PER) significantly influences capital gains. Conceptually, stock returns are inherently linked to capital gains. In empirical models, the returns obtained by investors which both in the form of capital gains and dividends, are frequently specified as a function of PER. An increase in capital gains moves in the same direction as stock returns. Ferial et al [44] exerts that PER is a positively and significantly impact on stock returns. He suggesting that a higher PER tends to coincide with higher returns and thus larger capital gains. A higher PER reflects stronger investor expectations regarding future dividend growth. It also signals investor satisfaction with the firm's earnings performance and suggests that the company places greater emphasis on dividend growth than on retaining a large share of profits.

Stock prices also have an important role in determining capital gains. Because capital gains essentially represent changes in stock prices over time, stock prices are inherently connected to capital gains. Consistently, Siska et al [21] and Munandar et al [45] also find that PER moves in the same direction as stock prices. These results are in line with Aprianti and Wahyuningsih [46], who also report a similar positive and significant link between PER and stock prices. Accordingly, an elevated PER level can contribute to higher capital gains through its impact on stock prices.

### **5.4. The influence of Inflation on Capital Gain**

When inflation is high, prices of goods and services will be high, and profits will be depressed, so the tendency for stock returns to be low. Several studies treat inflation as a macroeconomic variable that affects stock prices and returns, which are conceptually closely linked to capital gains. In this framework, the returns earned by investors, whether as capital gains or dividends, are frequently modeled with inflation as one of the key explanatory factors.

This result is consistent with the findings of Desitania [47] and Lucky et al [48], who report that inflation has a negative and statistically significant effect on stock prices, and Michelle et al [49], who find that inflation moderates a significant role in strengthening the link between DER, earnings management, and stock returns. Nonetheless, there is still variation in the direction of the significant effect, as indicated by studies from Sulastri et al [50] and Maulana et al [6] which document a significant positive effect of inflation on stock prices. Overall, inflation exerts a significant negative influence on capital gains, meaning that higher inflation is associated with lower capital gains. This conclusion is in line with the research of Irwansyah [31].

### **5.5. The influence of Beta on capital Gain**

Beta serves as a primary measure of systematic risk that influences investor decisions regarding capital gains. Conceptually, a theoretical positive relationship exists between beta and capital gains, where a higher beta indicates elevated risk and greater potential returns, whereas a lower beta signifies reduced risk and proportionally lower returns.

However, this study reveals a weak, positive, yet statistically insignificant relationship between beta and capital gains. These results deviate from established theoretical frameworks and several preceding empirical investigations. For instance Nugraha [51], Mulya [52], and Azhari [53] report a beta that is positively and significantly related to returns, while research by Hutajulu et al [54] and Pratiwi et al [55] finds a significant negative relationship. Despite these conflicting empirical precedents, the findings of this study align with Mokoginta et al [56], which similarly observed a positive but insignificant impact of beta on stock performance.

### **5.6. Telecommunication sector stock prices**

Telecommunication stocks are highly responsive to digitalization and are often sought after by investors due to their regular dividends. The financial health of this sector is measured using the ARPU metric, which reflects revenue per subscriber. Sometimes, when companies update technology, they will pass on some of the costs of the new technology to customers [57]. An increasing ARPU indicates a company's success in raising rates without losing customers. Stock price changes can be analyzed fundamentally and technically. Because stocks in this sector tend to fluctuate, technical analysis can be used to monitor whether stock prices are

trending upward or downward [58]. Integration of home and mobile internet services can reduce customer turnover. Data centers and cellular towers are the backbone of digital and wireless technology and are the foundation for the development of 5G technology. Sometimes, asset values can increase, and stock prices can be boosted through the separation or consolidation of tower and data center assets.

### **5.7. Debt Management in the Telecommunications Sector**

Debt management represents a critical consideration for investors in making investment decisions. The structuring and proportional allocation of debt both short term and long term, as well as in domestic and foreign currencies—enable firms to finance network expansion while maintaining liquidity and profitability.

Governments recognize telecommunications as a vital sector for GDP growth [59] and have implemented policies encouraging digital infrastructure development to maximize its economic impact. The industry's defining characteristic is its substantial capital requirements network deployment, spectrum licenses, and tower construction all demand significant upfront investment financed primarily through borrowed funds. Such financing strategies create balance sheets where debt obligations often exceed liquid assets, making leverage management critical to avoiding insolvency [60]. While corporate finance theory demonstrates that borrowing can increase shareholder value by reducing tax liabilities, overleveraging elevates the probability of default and compresses profit margins. Telecommunications firms must therefore calibrate their borrowing to ensure cash flows from operations remain sufficient for debt servicing [61]. Strategic oversight of capital composition balancing equity and debt proportions, becomes fundamental to long-term viability and preventing leverage ratios from reaching unsustainable level.

In managing debt, companies must also address exchange rate risk by maintaining an optimal balance between foreign currency and local currency liabilities. Additionally, careful management of debt maturity profiles helps firms avoid excessive repayment pressures, particularly during periods of high inflation and rising interest rates. Aligning debt maturities with the economic life of underlying network assets further supports sustainable financing practices. Moreover, maintaining an appropriate debt-to-equity ratio is essential to prevent disproportionate increases in leverage, especially under inflationary conditions that may erode corporate profitability.

### **5.8. Response to Inflation in the Telecommunications Sector**

Telecommunications companies implement several strategic measures to address inflationary pressures, which are relevant considerations for investors. These measures include operational and network optimization, commercial optimization, financial optimization, and customer-focused strategies.

In terms of network and operational efficiency, telecommunications firms increasingly adopt infrastructure-sharing arrangements, including site, tower, and active network sharing [62]. Industry associations such as ATSI, along with government initiatives, promote both passive infrastructure sharing (e.g., towers) and active infrastructure sharing (e.g., fiber and Radio Access Networks), particularly to support 5G deployment. Through leasing schemes, tower-sharing agreements, and managed service models, operators reduce the need for large upfront capital investments and instead incur more predictable operational expenses. Consequently, careful planning of operating expenditure (Opex) and capital expenditure (Capex) becomes critical, as these decisions directly influence cost efficiency and overall financial performance [63]. Empirical evidence indicates that the implementation of RAN-sharing arrangements can reduce both Opex and Capex by approximately 40%–60% [64].

At the same time, inflation increases the cost of network equipment, energy, and land leases, making infrastructure sharing an essential strategy for cost containment. Automation of network operations further enhances Opex efficiency [65]. In practice, firms tend to prioritize investment projects with shorter payback periods and higher Average Revenue per User (ARPU), while deprioritizing lower-return projects such as incremental coverage expansion in saturated markets. Additionally, studies show that Multi-Operator Core Network (MOCN)-based sharing contributes to economic growth and increases government fiscal revenues [66]. MOCN also enables spectrum sharing, which alleviates frequency constraints, reduces deployment costs, accelerates network expansion in underserved areas, and supports broader economic development [65]. Under inflationary conditions, telecommunications firms typically adjust pricing strategies gradually and selectively, often through bundled service offerings to maintain service quality while mitigating cost pressures.

From a financial perspective, telecommunications firms actively manage exposure to exchange rate volatility, particularly during periods of inflation. Given their reliance on imported network infrastructure, satellite services, software, and licensing often denominated in foreign currencies, these firms are highly exposed to exchange rate fluctuations [67]. To mitigate this risk, companies employ foreign exchange hedging instruments to lock in predetermined exchange rates for a portion of their foreign currency obligations, thereby reducing the impact of currency depreciation and global inflation on operational costs and financial liabilities. However, the effectiveness of hedging strategies depends on careful design and accurate expectations regarding future exchange rate movements, as poorly structured hedging positions may introduce additional financial risks [67].

### **5.9. Government policy in Telecommunications sector**

Digital transformation and the national economy are key priorities of the 2025-2029 National Medium-Term Development Plan (RPJMN)[68]. The government is targeting 100 Mbps internet speeds by 2029, reaching 99% of the population, and the completion of the Palapa Ring network. The government is also striving to ensure equitable distribution of 4G networks in the 3T (left behind, foremost, outermost) regions, with a target of 50% household broadband coverage and 32% for 5G by 2030. Furthermore, the allocation of new frequency bands, such as 2.6 GHz, and readiness to adopt Artificial Intelligence technology are also key policies.

Furthermore, the government continues to optimize non-tax state revenue (PNBP) from radio frequencies by balancing revenue targets with the health of the telecommunications industry. The government requires telecommunication companies to obtain radio station licenses and network operation permits by paying BHP fees, but implementation is adjusted to maintain a healthy industry burden.

Collaboration between Over-the-Top (OTT) service providers and telecommunications operators opens opportunities for efficiency and innovation[69]. To prevent monopolies and unfair competition, the government has established strict regulations, ranging from fair cooperation rules and personal data protection to tax collection, to safeguard digital sovereignty and consumer interests. Through this comprehensive synergy, the government hopes to stimulate national economic growth, attract domestic investment (including the requirement to locate servers in Indonesia), and create a healthy digital business climate.

## **VI. CONCLUSION**

The purpose of this study is to examine how activity, solvency, market, risk, and macroeconomic indicators can affect capital gains in the telecommunications sector. Using financial statement data from 2020–2025 and market data in the form of financial, risk, and macroeconomic ratios, the relationships between the independent and dependent variables can be identified as follows:

- a. Partially, the TATO variable has a significant positive effect on capital gains.  
A higher TATO value indicates more efficient asset utilization in generating profits and increasing asset turnover, which in turn leads to higher capital gains.
- b. Partially, the DER variable has a significant positive effect on capital gains.  
A high DER typically indicates a greater risk of bankruptcy if cash flow is inadequate; however, in this context, investors continue to trust the company's debt management and management to finance growth and operations, allowing capital gains to increase even as the DER increases.
- c. Partially, the PER variable has a significant positive effect on capital gains.  
A low PER ratio indicates that the company is not effectively generating profits, its shares are undervalued, and its capital gains are likely to deteriorate.
- d. Partially, the inflation variable has a significant negative effect on capital gains.  
High inflation signals disruptions to economic stability and pressures on higher production costs, which consequently reduce capital gains.
- e. Partially, the Beta variable has an insignificant positive effect on capital gains. Although higher beta correlates with higher risk and potential for greater capital gains, this relationship is not statistically significant in the model.
- f. Simultaneously, TATO, DER, PER, inflation, and beta all have a significant effect on capital gains, with a coefficient of determination of 9%.

This study contributes to the advancement of knowledge by identifying the determinants of capital gains in the Indonesian telecommunications sector and highlighting opportunities for future research through the addition of variables to improve model accuracy.

From a practical perspective, these findings can assist companies in assessing financial performance, managing firm value and stock prices, and responding to macroeconomic fluctuations. For investors, these results offer a foundation for making investment decisions based on fundamental and risk indicators. Therefore, it is hoped that the results of this study can support analysis, portfolio strategy formulation, and a more efficient and objective evaluation of stock prospects and risks.

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