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EXAMINING THE IMPACT OF MARKET RISK PREMIUM, COMPANY SCALE, AND BOOK-TO-MARKET RATIO ON STOCK RETURNS: A COMPREHENSIVE STUDY OF IDX LISTED SOE OMPANIES IN 2021

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Abstract: This research explores Fama and French's Three Factor Model (1992), which identified key determinants of corporate returns. Using factors such as rate of return of risky investment, company size, and a comparison between book and market value, the research tested the model in the Indonesian context, using companies listed on the Indonesia Stock Exchange in the year 2021. The investigation focuses specifically on state-owned enterprises (SOE) which have a strategic role in economic recovery. Employing a panel data regression analysis, the study utilizes daily closing stock prices from six portfolios, each comprising stocks from 31 state-owned enterprises. The empirical findings indicate that, individually and collectively, all three factors-market risk premium, firm size, and book-to-market ratio—exert a statistically significant positive influence on the excess returns of state-owned company stocks in the year 2021.

Keywords: Market risk premium, firm size (SMB), book-to-market-ratio (HML), Three Factor Model, State-Owned Enterprise.

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INTRODUCTION

In 2020, Indonesia faced the challenges posed by the COVID-19 pandemic, as did countries around the world. According to Junaedi and Salistia (2020), the COVID-19 pandemic impacted various sectors and led to economic growth slowdown, exacerbating the contraction in the Asian region. By the end of 2020, Indonesia experienced a contraction of -2.07%, but managed to recover and grow by 3.68% in 2021. One contributing factor to Indonesia's economic growth was the increase in realized capital investment during the fourth quarter of 2021 by 11.5% (quarter-to-quarter) and 12.5% (year-on-year). As reported by Kominfo (2021), economic growth was supported by improvements in both the real and financial sectors. Financial sector improvements were evident in the positive growth of Indonesia's stock market activity, reflected in the achievement of the Composite Stock Price Index (IHSG) reaching 6,581.48 on December 30, 2021, representing a 10.08% increase compared to December 2020, which had a value of 5,979.07. This figure also increased by 281.94 points or 4.48% from the index value in 2019, pre-pandemic. This indicates investors' expectations of economic recovery. Additionally, the rise in IHSG was accompanied by the appreciation of the rupiah's exchange rate approaching pre-pandemic levels.

With the easing of COVID-19 cases in 2021, the stock market was able to restore confidence among investors to re-enter the stock exchange. This was evidenced by the increased interest of the public in investing in Indonesia's capital market by 92.7%, rising from 3.88 million investors in December 2020 to 7.48 million investors in December

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2021, predominantly led by Millennials and Gen-Z with relatively high financial and digital literacy (Kustodian Sentral Efek Indonesia, 2021).

In Indonesia, the Composite Stock Price Index (IHSG) serves as a measure of stock market movement. While IHSG is a key consideration in investment decisions, investors need to account for other factors beyond market conditions that may affect the risk and return when selecting a listed company. Several financial theories have been proposed to explain the long-term relationship between stock return and risk.. Sharpe (1964), Lintner (1965), and Mossin (1966) predicted a relationship between market risk (β) and equilibrium expected return based on risky assets, known as the Capital Asset Pricing Model (CAPM). In 1992, Fama and French expanded the CAPM theory into the Three Factor Model, providing empirical evidence that the connection between risk and return requires broader considerations beyond market risk (β). They introduced additional factors, such as size and book-to-market ratio, both of which play a substantial role in influencing returns. According to the Fama and French model, the size factor leads to higher returns for companies with smaller market capitalizations compared to those with larger market capitalizations. Simultaneously, the factor of book-to-market ratio (B/M ratio) suggests that firms with a high B/M ratio outperform those with a low B/M ratio.
According to Sorongan (2021) in CNBC Indonesia, four out of eight companies with the highest average returns in 2021 were those that had recently undergone an Initial Public Offering (IPO) in 2021, namely PT DCI Indonesia Tbk, PT Berkah Beton Sedaya Tbk, PT Bank Aladin Syariah Tbk, and PT Damai Sejahtera Abadi Tbk. Additionally, four out of eight companies also had small market capitalization, below IDR 20 trillion, including PT Telefast Indonesia Tbk, PT Pratama Abadi Nusa Industri Tbk, and PT Digital Mediatama Maxima Tbk. If viewed from the book-to-market ratio, all companies with the highest returns had very high values.

Moreover, the Ministry of State-Owned Enterprises (SOE), under the leadership of Erick Tohir, set a target in 2020 to contribute to increasing the value of SOE for shareholders by enhancing market capitalization and strengthening their capacity through increasing the number of companies and subsidiaries going public. As of 2021, there were 35 state-owned enterprises and their subsidiaries listed on the Indonesia Stock Exchange (BEI). Furthermore, four state-owned enterprises, Telkom, BRI, BNI, and Bank Mandiri, were among the ten companies with the largest market capitalization in the Indonesian capital market. Based on BEI data, Bank Mandiri and Telkom also played a significant role as market index movers throughout 2021. With financial support from the government, state-owned enterprises have high resilience, making them attractive to investors, especially those listed as blue-chip stocks or first-tier stocks with large market capitalization.

According to Nainggolan (2020), SOE play a strategic role in the economic recovery during national development and contribute to the Indonesian capital market. This forms the basis for the researcher to analyze whether the factors of Market Risk Premium, Size, and Book-To-Market Ratio proposed in the Three Factor Model by Fama and French also influence the Stock Return of State-Owned Enterprises in 2021, considering that state-owned enterprises are perceived to have high capital resilience due to the majority of their funding coming from the government. The researcher assumes that the factors of firm size and book-to-market ratio need to be tested to determine the extent of investor response to stock returns in companies where the majority ownership is by the government (State-Owned Enterprises or SOE), which also significantly contributes to the capitalization of the Indonesian capital market.

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LITERATURE REVIEW

Investment

The capital market can be interpreted as a financing facility for both companies and governments, as well as a means for individuals and companies to invest (Otoritas Jasa Keuangan, 2016). According to Bodie, Kane, and Marcus (2014), "Investment is the current commitment of money or other resources with the hope of getting a return in the future" (p. 1). This can be understood as investors sacrificing something valuable in the present with the expectation of gaining profit in the future. Investment is commonly defined as capital allocation, encompassing fixed assets, stocks, securities, or other instruments. Stocks are a financial investment instrument representing ownership or participation in a company.

Risk

According to Bodie, Kane, and Marcus (2014), transactions in the securities market involve a trade-off between return and risk, where high-risk assets must offer a higher expected return than low-risk assets. In investment, risk is divided into two types: unsystematic risk and systematic risk. Unsystematic risk is inherent to a company and can be eliminated or reduced through stock diversification, while systematic risk or beta is related to overall market changes, unavoidable and undiversifiable, influencing return variations.

Return

Return is the level of profit that investors aim to maximize as compensation for taking risks in investments. Returns from an investment can be realized returns, the level of return that has occurred and can be calculated using past data, or expected returns, the level of return expected to be obtained in the future. Additionally, there is an additional return or Excess Return defined by Bodie, Kane, and Marcus (2014) denoting the dissimilarity between the realized return on risky assets and the realized risk-free return over a specified duration. Consequently, the Risk Premium represents the anticipated value of excess return, and the standard deviation of the excess return serves as a gauge for quantifying risk. Due to investors' proclivity to steer clear of risk, their willingness to allocate funds to stocks is contingent upon their degree of risk aversion.

Single Index Model

Well known as a simple asset pricing model, the Single index model is an analysis tool developed by William Sharpe (1963) to determine return rate influenced by systematic risk, primarily due to macroeconomic events, company-specific effects, or special effects that can be diversified in a large portfolio (Bodie *et al*., 2014). This model examines whether the price of a security varies in combination with the market index, elucidating the relationship between the return of each individual security and the return of the market index.

The model is computed through the application of regression analysis to excess return, expressed by the following formulation (Bodie *et al*., 2011):

$$R_i = \alpha_i + \beta_i R_{m+} e_i \qquad (1)$$

Multi-factor Model

According to Bodie, Kane, and Marcus (2011), premium associated with asset risk may also be influenced by associations with risk factors beyond the market, including elements such as inflation or alterations in parameters that elucidate forthcoming investment prospects. These parameters encompass interest rates, volatility, market risk premium, and beta. Consequently, this scenario gives rise to a multi-factor model.

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This model attempts to explain many factors in its calculations to elucidate market phenomena or asset prices in equilibrium by considering various systematic components of a security's risk. The multi-factor model or multi-index model can be expressed with the following formula by (Elton *et al*., 2014):

$$R_i = \alpha_i + \beta_{i(m)} I_m + \beta_{i(1)} I_1 + \beta_{i(2)} I_2 + \beta_{i(n)} In + e_i \quad (2)$$

Capital Asset Pricing Model

The capital Asset Pricing Model (CAPM) is a model that measure the relationship between expected return and risk of investing in a security. Sharpe (1964), Lintner (1965), and Mossin (1966) suggest CAPM uses linear relationship based on the sensitivity of assets to systematic risk formulated as beta (β), risk free-rate, and equity risk-premium. CAPM asserts that the cost of equity capital is solely determined by beta, which represents the sensitivity of a security or the risk associated with it.

Assessing the Capital Asset Pricing Model (CAPM) determines whether a stock is reasonably valued, taking into account the imminent risk and earning potential at a future date. On that sense, a crucial part of CAPM includes calculating the market risk premium, denoted as the difference between the anticipated return on the market portfolio (R_m) and the risk-free rate (R_f). This market risk premium aligns with the Security Market Line (SML), graphically representing the CAPM. The market risk premium broadly illustrates the additional return required by investors when placing a portfolio of risky assets in the market compared to risk-free assets or rates (Chen, 2020). CAPM posits that the risk premium associated with individual assets or portfolios is derived by multiplying the risk premium linked to the market portfolio by the beta coefficient, expressed as follows:

$$R_i = R_f + \beta_i * (R_m - R_f) \quad (3)$$

Three Factor Model by Fama and French

According to Fama and French (1992), CAPM cannot account for the effect of a company's value in their historical data. They argue that a multifactor model is required to account for the intersection of equity risk and return. Their multifactor asset pricing model incorporates two empirically significant risk factors relating to small businesses and value. The systematic factors in the Fama and French models, in addition to the market index, are firm size and book-to-market ratio (B/M Ratio). The incorporation of these additional factors is justified empirically by noting that historical average returns on small company stocks and stocks with a high book-to-market ratio (B/M) surpass the levels predicted by the Security Market Line (SML) of the CAPM. Due to the emergence of these three factors, the Fama and French model is also referred to as the Three Factor Model. The innovation in the Fama and French model, in essence, represents a method for quantifying the magnitude of the risk premium.

Firm size is measured to assess a company's ability to face crises and the likelihood of bankruptcy. Large companies are considered more resilient to crises because they are financially stable and more easily obtain external loans, reducing the likelihood of bankruptcy. In contrast, small companies tend to focus on business expansion, leading to increased retained earnings and a reduction in dividend distribution or even no dividend distribution (Fama & French, 1992). Small companies are also perceived to have a high risk of bankruptcy, leading investors to expect higher returns.

The book-to-market ratio is a measure used as an indicator to assess a company's performance through its book value compared to its market value. A smaller book-to-

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market ratio indicates a higher perceived value in the market (overvalued), while a larger ratio suggests a lower perceived value or performance in the market (undervalued). When a company values itself higher than the market price, its performance is considered inefficient and has a high risk, leading investors to expect higher returns.

Fama & French (1993) reveal that size (firm size) and value (book-to-market ratio) factors are dominant in predicting returns. The developed model is expressed in the equation as follows:

$$R_{i(t)} - R_{f(t)} = \alpha_i + b_i (R_{mt} - R_{ft}) + s_i \, SMB(t) + h_i \, HML(t) + e_i(t) \qquad (4)$$

Hypothesis

$H_0 1$: Market Risk Premium has no positive effect on SOE Company Share Returns.
$H_A 1$: Market Risk Premium has a positive effect on SOE Company Share Returns.
$H_0 2$: Firm Size has no positive effect on SOE Company Share Returns.
$H_A 2$: Firm Size has a positive effect on SOE Company Share Returns.
$H_0 3$: Book-to-Market Ratio has no positive effect on SOE Company Share Returns.
$H_A 3$: Book-to-Market Ratio has a positive effect on SOE Company Share Returns.
$H_0 4$: Market Risk Premium, Firm Size and Book-to-Market Ratio do not influence on SOE Company Share Returns.
$H_A 4$: Market Risk Premium, Firm Size and Book-to-Market Ratio influence SOE Company Share Returns.

RESEARCH METHODS

The study sought to determine whether factors such as rate of return of risky investment, company size, and a comparison between book and market value, of SOE companies listed on the Indonesia Stock Exchange in the year 2021. In this regard, the analysis employed a quantitative method utilizing secondary data. The data used were panel data consisting of daily closing stock prices in the portfolios of SOE companies from January 1, 2021, to December 31, 2021, meeting the sample criteria, with 31 SOE companies included in the study. Panel data is a hybrid of cross-sectional data represent the stock portfolio data of SOE companies, and the time series data, which cover daily stock prices from January 1, 2021 to December 31, 2021.

The quantitative analysis technique used was data processing and statistical software, specifically MS Excel and Eviews. Panel data regression was used to examine the relationships between market risk premium, firm size, and book-to-market ratio with stock returns. The analysis took three regression models into account: the CEM (common effect model), the FEM (fixed effect model), and the REM (random effect model) (REM). Various tests were also carried out, including classical assumption deviation tests and model feasibility tests, as well as examining the generated coefficient of determination, simultaneous testing, and partial testing. Classical assumption tests encompassed multicollinearity, heteroskedasticity, and autocorrelation tests to ensure data compliance with regression test requirements.

The formation of portfolios for excess return values was based on the order of company size (firm size) and company value (book-to-market ratio). To form portfolios based on firm size factor (Small Minus Big), market capitalization data as of December of the formation year was required. Concurrently, the construction of portfolios guided by the book-to-market ratio factor (High Minus Low) required access to book-to-market ratio data in June of the portfolio formation year. Furthermore, the excess return data

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ECOBISMA
(Jurnal Ekonomi, Bisnis dan Manajemen)
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utilized for analysis pertained to the duration subsequent to the establishment of the portfolio. The specific timeframe is outlined in the table presented below:

Table 1. Portfolio Forming Period

No	Portfolio Establishment Date	Reference		Regressed Stock Return Data	
		Market Capitalization	B/M Ratio	From	To
1	1 January 2021- 31 December 2021	31 December 2020	30 June 2020	1 January 2021	31 December 2021

From the 31 companies selected for the study, the author initially divided them into two size groups: small and large companies based on market capitalization ranking. To determine these two groups, the median was first set as the dividing value, and then Group B (Big) was assigned to companies above the median, while Group S (Small) was assigned to companies below the median. Once divided into the S and B groups, the companies were further sorted based on the company's value or B/M Ratio, where companies above 70% were categorized into Group H (High), those between 30% and 70% were in Group M (Medium), and those up to 30% were in Group L (Low). Based on this classification, companies that deviate between the size and value (book-to-market ratio) groups form portfolios S/L, S/M, S/H, B/L, B/M, and B/H, formatted from the 2 x 3 sequence of size and book-to-market ratio, which will be further analyzed as panel data in this study. The detailed calculations are conducted using the following formula:

SMB Portfolio (Small Minus Big)

Market Capitalization = Number of Shares Outstanding x Closing Share Price (5)

HML Portfolio (High Minus Low)

Book-to-Market Ratio = (6)

$$\frac{Book\ Value}{(Jumlah\ Saham\ Beredar\ x\ Harga\ Penutupan\ Saham)}$$

Calculation of Return for SMB and HML Portfolio

The weighted return for each of the six portfolios formed at the end of each year is calculated during the daily period following the formation of 6 (six) portfolios based on company size and book-to-market, SMB, and HML portfolio returns. The date of portfolio formation or in this research is the return from January 1, 2021 to December 31, 2021 which can be described as follows:

$$R_{SMB} = \frac{1}{3}\left(\frac{S}{L} + \frac{S}{M} + \frac{S}{H}\right) - \frac{1}{3}\left(\frac{B}{L} + \frac{B}{M} + \frac{B}{H}\right) \quad (7)$$

$$R_{HML} = \frac{1}{2}\left(\frac{S}{H} + \frac{B}{H}\right) - \frac{1}{2}\left(\frac{S}{L} + \frac{B}{L}\right) \quad (8)$$

Return

The return generated from an investment can be in the form of realized return or actual return, namely the rate of return that has occurred and can be calculated using past data with the following formula:

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$$R_{i(t)} = \frac{P(t)-P(t-1)}{P\ (t-1)} \quad (9)$$

Where:

$R_{i(t)}$: Realized return or actual daily return of stock *i* on day *t*
$P_{(t)}$: Daily closing price of share *i* on day *t*
$P_{(t\text{-}1)}$: Daily closing price of share *i* on the previous day (*t*-1)

Meanwhile, excess return is the excess return which is explained by Elton *et al*. (2014) as the difference between individual stock or portfolio returns minus the risk-free return (R_f) written as follows:

$$R_{i(t)} - R_{f(t)} \quad (10)$$

Where:

$R_{i(t)}$: Actual daily return of stock *i* on day *t*
$R_{f(t)}$: Daily risk-free return of stock *i* on day *t*

Market Return

Market returns are calculated in this study using the closing price of the Composite Stock Price Index (IHSG) and the following formulas:

$$R_{m(t)} = \frac{IHSG(t)-IHSG(t-1)}{IHSG\ (t-1)} \quad (11)$$

Where:

$R_{m(t)}$: Realized return or actual market return on day *t*
$IHSG_{(t)}$: IHSG daily closing price on day *t*
$IHSG_{(t\text{-}1)}$: IHSG daily closing price on the previous day (*t*-1)

Market Risk Premium

Based on the CAPM Theory, the market premium is a compensation for the market risk borne by investors which is calculated by assessing the difference between market return (R_m) and risk free return or risk free rate (R_f) as follows:

$$(R_m - R_f) \quad (12)$$

Where:

R_f : Risk-free rate or Risk-free rate
R_m : Expected Return of the market

Risk Free Return to Asset (R_f)

For (R_f) data, the author uses available BI rate data, namely the monthly period from January 2021 to December 2021. Because the research uses daily data, the BI Rate is adjusted to a daily period with the following calculation:

$$R_{f(t)} = \frac{SBI(t)}{365} \quad (13)$$

Panel Data Regression Test

This test adapted from the linear regression test and is based on the Ordinary Least Squares (OLS) method, which is used to test panel data. Panel data is a combination of cross-section data from multiple entities (individuals) and time series data, namely data on each entity in one period or certain time observations. The model in panel data regression uses the notation *i* which indicates the individual or entity and *t* which indicates time which forms the following equation:

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$$Y_{it} = a + b_iX_{1it} + b_2X_{2it} + b_3X_{3it} + e_{it} \quad (14)$$

Where:
Y = Return
a = constant
X_1 = Market Risk Premium
X_2 = Firm Size (SML)
X_3 = Book-to-Market ratio (HML)
b_n = regression coefficient
e = Tolerant of sampling error

Multiple estimation models are at one's disposal, such as the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Various tests, like the Chow Test, Hausman Test, and Langrange Multiplier (LM) Test, are applicable for evaluating and choosing the most suitable model or estimation technique.

RESULTS AND DISCUSSION

Chow Test Result

In this regression analysis, the researcher examines the influence of the variables Market Risk Premium (X_1), Firm Size (X_2), and Book-to-Market Ratio (X_3), both partially and simultaneously, on Return (Y). To identify the best model or panel data regression estimation technique, the Chow test was conducted, producing the following results:

Table 2. Chow's Test Result

Effects Test	Statistic	df	Prob.
Cross-section F	0.550116	(5,1467)	0.7383
Cross-section Chi-square	2.764863	5	0.7362

The probability values for the F test and the Chi-Square test, with values of 0.7383 and 0.7362, respectively, are greater than five percent based on the above table. H_0 is thus acknowledged, suggesting that the Common Effect Model outperforms the Fixed Effect Model. Thus, additional testing—more precisely, the Lagrange Multiplier (LM) test—is required to compare the Common Effect Model with the Random Effect Model..

Lagrange Multipier Test Result

Between the Random Effect Model and the Common Effect Model, the Lagrange Multiplier test is used to determine which model or estimation method is better. The test findings display the following data:

Table 3. Lagrange Multiplier Test Result

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.877137	47.76743	48.64456
	(0.3490)	(0.0000)	(0.0000)

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According to the table above, the Cross-section Breusch-Pagan value is 0.877137 with a *p*-value greater than 0.05. As a result, we accept H_0, which means that the Common Effect Model is superior to the Random Effect Model.

Common Effect Model Test Model

Based on the results of the Chow and Lagrange multiplier tests, the Common Effect Model is the best estimation for analyzing panel data in this study. Due to the issue of violating the homoscedasticity assumption, the Common Effect Model is performed with General Least Squares calculations (Cross Section Weight with White Cross Section Estimation Coefficients), making the model robust against heteroscedasticity assumption violations, with the following result:

Table 4. Common Effect Test

Variable	Coefficient	Std. Error	*t*-Statistic	Prob.
C	-0.000727	0.000434	-1.674504	0.0942
X_1	1.336228	0.062583	21.35126	0.0000
X_2	0.302216	0.056926	5.308903	0.0000
X_3	0.171341	0.014959	11.45418	0.0000
	Weighted Statistics			
R-squared	0.514706			
Adjusted R-squared	0.513717			
S.E. of regression	0.014510			
F-statistic	520.4034			
Prob(*F*-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.466661			
Sum squared resid	0.310751			

Based on the p-value or significance level of the partial *t* in the *t*-statistics column, the p-value for the independent variables Market Risk Premium (X_1), Firm Size (X_2), and Book-to-Market Ratio (X_3) is less than 5%, therefore rejecting the null hypothesis that each independent variable partially affects its dependent variable. Similarly, the p-value on the *F*-statistic is smaller than 5%, indicating that all independent variables simultaneously influence their dependent variable.

Calculating the multiple regression coefficients as shown in the table above, it reveals a constant coefficient of -0.000727. This means that when the variables Market Risk Premium (X_1), Firm Size (X_2), and Book-to-Market Ratio (X_3) are equal to zero (no change), Stock Return (Y) is -0.000727. The regression coefficient for Market Risk Premium (X_1) from the table is positive (direct) at 1.344966, indicating that if Market Risk Premium (X_1) increases by one unit, Stock Return (Y) increases by 1.336228. Additionally, the coefficient for the Firm Size variable (X_2) is positive at 0.302216, signifying that if the Firm Size (X_2) increases by one unit, Return (Y) also increases by 0.302216. Finally, the coefficient for the Book to Market Ratio variable (X_3) is positive at 0.165489, meaning that if the Book to Market Ratio (X_3) increases by one unit, Stock Return (Y) increases by 0.171341. Based on these descriptions, the following is the regression equation:

$$Y = -0{,}000727 + 1{,}366288 * X_1 + 0{,}302216 * X_2 + 0{,}171341 * X_3 \quad (15)$$

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The coefficient of determination, which is calculated to determine the accuracy in the analysis, is one of the test results observed in regression. The magnitude of the coefficient of determination R^2, is as follows:

Table 5. Coefficient of Determination Result

R-squared	0.514706	Mean dependent var	-0.000724
Adjusted R-squared	0.513717	S.D. dependent var	0.020807
S.E. of regression	0.014510	Sum squared resid	0.309903
F-statistic	520.4034	Durbin-Watson stat	1.914978
Prob(*F*-statistic)	0.000000		

According to the table above, the R-squared value is 0.514706, with an Adjusted R-Squared of 0.513717. This means that a set of independent variables can explain the dependent variable by 51.37 percent, which is greater than 0.5 and significant. As a result, the simultaneous test indicates that H_1 is accepted, which means that the variables Market Risk Premium (X_1), Firm Size (X_2), and Book to Market Ratio (X_3) have an impact on Stock Return simultaneously or collectively (Y). Furthermore, 48.53 percent (100 percent - 51.47 percent = 48.53 percent) of the dependent variable in this study is influenced by factors other than the independent variables.

Hypotesis Testing

The t-test is used to determine the significance of each independent variable's impact on its dependent variable. The sample data used is 246, and the number of research variables is 4. Thus, the significance level (α) used is 5% or 0.05. Based on the *t*-test results, the values obtained are as follows:

Table 6. Hypothesis Testing Result

Variable	Coefficient	Std. Error	*t*-Statistic	Prob.	Conclusions
C	-0.000727	0.000434	-1.674504	0.0942	
X_1	1.336228	0.062583	21.35126	0.0000	Reject H_01
X_2	0.302216	0.056926	5.308903	0.0000	Reject H_02
X_3	0.171341	0.014959	11.45418	0.0000	Reject H_03

DISCUSSION

The Effect of Market Risk Premium on the Return of State-Owned Enterprise Stocks

Based on the *t*-test results, the Market Risk Premium (X_1) variable has a partial influence on the return of state-owned enterprise stocks listed on the Indonesia Stock Exchange (BEI) in 2021. Specifically, as the Market Risk Premium (X_1) increases, the Excess Return of State-Owned Enterprise Stocks also increases. Therefore, Hypothesis H_1 can be substantiated and Hypothesis H_0 is rejected. This condition indicates that the additional return required by investors when placing a portfolio of risky assets in the market, as opposed to risk-free assets, is directly related to the additional return required by investors when placing a portfolio in state-owned enterprises compared to risk-free assets.

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Thus, when the market is in a risky condition, such as during a rise in interest rates in the COVID-19 pandemic recovery period, investing in state-owned enterprises will yield a higher rate of return than in previous conditions. This aligns with research conducted by Munawaroh & Sunarsih (2020), Komara *et al*. (2020), and Pasaribu (2010), which demonstrate that market risk premium has a positive impact on excess return in Indonesia. Additionally, research by Nartea *et al*. (2009) indicates that Market Risk Premium has a significant influence and is a dominant explanatory factor in the Fama and French Three Factor Model, serving as a reference in various studies. Furthermore, the study by Banerjee *et al*. (2018) found that risk premium has significant predictive power for stock market returns in India.

The Influence of Firm-Size on Return of State-owned Enterprises Stocks

Based on the *t*-test results, the Firm Size (X_2) variable has a partial influence on the return of state-owned enterprise stocks listed on the Indonesia Stock Exchange (BEI) in 2021. This result can be interpreted as follows: the greater the excess return of a company's stocks, the smaller the company's size. Thus, the smaller the size of state-owned enterprises (subsidiaries of state-owned enterprises) chosen by investors to invest their funds, the greater the expected additional returns as compensation for the higher associated risks. Large companies are perceived to provide less significant returns even though they have certainty in terms of return acquisition. As quoted by Sorongan (2021) in CNBC Indonesia, in 2021, the banking and infrastructure sectors were the sectors that recovered earlier than others and significantly drove the stock index in 2021. This is consistent with the majority of state-owned enterprise subsidiaries or small companies operating in the infrastructure sector. The Three Factor Model proposed by Fama & French (1993) supports the findings of this study. In addition, the research conducted by Nartea *et al*. (2009), suggesting that the returns on small businesses are higher than those of large businesses. This result is also consistent with the study carried out by Mirza and Reddy (2017).

The Influence of Book-to-Market Ratio on the Return of State-Owned Enterprise Stocks

Based on the t-test results, the Book-to-Market Ratio (X_3) variable projected into HML (high minus low) has a positive influence on the return of state-owned enterprise stocks listed on the Indonesia Stock Exchange (BEI) in 2021, either independently or partially. The higher a company's Book-to-Market Ratio, the higher the resulting return on state-owned enterprise stocks. As a result, hypothesis H1 can be confirmed and hypothesis H_0 can be rejected. This condition indicates that when investors allocate their funds to state-owned enterprises with a high B/M, they will receive higher returns to compensate for the higher risk associated with state-owned enterprises with a low B/M. This is because companies with a high B/M ratio are perceived by the market as undervalued and have higher risks. This result is supported by the research conducted by Fama & French (1993), where stocks in companies with a high book-to-market tend to have higher returns compared to stocks in companies with a low book-to-market. In other words, Book-to-Market Ratio (X_3) has a positive influence on the dependent variable Return (Y). This is also in line with the studies conducted by Nartea *et al*. (2009), Banerjee *et al*. (2018), Mirza and Reddy (2017), and Munawaroh and Sunarsih (2020). Fama and French (1992) shown that businesses with a high book-to-market ratio may be risky for investors due to their lower market value; on the other hand, businesses with a high ratio may represent inefficient market conditions.

The Influence of Market Risk Premium, Firm Size, and Book-to-Market Ratio on the Return of State-Owned Enterprise Stocks

Based on the research findings, the calculated *F*-value is greater than the tabulated *F*-value, with a calculated *F*-value of (520.4034) greater than the tabulated *F*-value (2.6419) and a significance level of 0.000, rejecting the null. This means that when investors make investments in relatively favorable market conditions or see an increase compared to previous conditions and allocate them to a portfolio of small state-owned enterprise stocks with a high B/M ratio, they receive higher returns. This means that when investors make investments in relatively favorable market conditions or see an increase compared to previous conditions and allocate them to a portfolio of small state-owned enterprise stocks with a high B/M ratio, they receive higher returns.This is consistent with the research findings presented by Karasneh and Almwalla (2011), Hardianto and Suherman (2009), and Shiddiq *et al*. (2020), stating that excess return is collectively influenced by the three Fama and French factors: market risk premium, firm size, and book-to-market ratio. Similarly, research conducted by Nartea *et al*. (2009) indicates that all three factors proposed by Fama and French (1992) collectively have an impact.

CONCLUSIONS

Based on the analysis and discussion regarding the influence of Market Risk Premium (X_1), Firm Size (X_2), and Book-to-Market Ratio (X_3) on Return (Y), it can be concluded that Market Risk Premium has a positive effect on the Excess Return of State-Owned Enterprise (SOE) stocks, meaning that the higher the market risk premium, the higher the resulting return rate. Firm Size also has a positive effect on the Excess Return of State-Owned Enterprise (SOE) stocks, indicating that smaller companies tend to provide additional returns or higher return rates compared to larger companies because of their higher inherent risk and tendency to allocate their returns as retained earnings.
The Book-to-Market Ratio has a positive effect on the Return of State-Owned Enterprise (SOE) stocks, indicating that the higher the company values its book value compared to the market, the higher the company's risk, resulting in investors receiving a higher return rate. Simultaneously, Market Risk Premium, Firm Size, and Book-to-Market Ratio all have an impact on the return of State-Owned Enterprise stocks.

RECOMMENDATION

Several limitations and shortcomings in this study are expected to serve as guidance and references for the improvement and development of future research. Regarding recommendations for companies, despite the government-dominated capital structure and listing on the Indonesia Stock Exchange, state-owned enterprises (SOE) need to maintain stock performance on the exchange and uphold financial governance to ensure that the company's size and value move in a positive direction according to the chosen strategy, maintaining the company's reputation in the eyes of the public. Additionally, this information should be considered by investors willing to take risks when choosing investments in stocks of state-owned enterprises with small market capitalization and high book-to-market ratios. For future research, increasing the amount of research data over several periods is essential to provide a more comprehensive understanding of whether the three mentioned factors indeed have a significant impact, irrespective of whether the economy is stable or not. Moreover, considering the inclusion of additional factors such as momentum, as proposed by Carhart in the Four Factor

Model, which is an extension of the Three Factor Model by Fama and French, would contribute to a more nuanced analysis.

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