



Analysis of the Fama-French Three-Factor Model on Stock Returns in LQ45 During 2020-2024 and the Moderating Role of Good Corporate Governance (GCG)

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ARTICLE INFO

Article History

Received : 24.06.2026
Revised : 23.07.2026
Accepted : 28.07.2026

Article Type :
Research Article



ABSTRACT

Indonesian stock investment has attracted growing public attention in recent years, though returns remain acutely susceptible to instability driven by conditions like the pandemic, economic revival, and global uncertainties, which reinforces the necessity of identifying the risk factors that shape return patterns. This study evaluates the roles of Market Risk Premium, Small Minus Big, and High Minus Low within the Fama-French Three-Factor model as they pertain to returns for LQ-45 stocks listed on the Indonesia Stock Exchange across the 2020–2024 period, while additionally scrutinising Good Corporate Governance as a moderating variable. Employing a quantitative causal approach, this research draws on secondary data sourced from financial reports, equity prices, and other records. The population encompasses all LQ-45 firms, with a purposive sampling method applied to satisfy predetermined criteria. Data handling includes descriptive statistics, selection tests for panel data regression, classical assumption checks, and application of the Random Effect Model. Findings indicate that MRP and HML produce significant effects on stock returns, but SMB does not. GCG exerts a significant influence as well and moderates the relationships of MRP, SMB, and HML with returns, suggesting that superior governance reinforces the connection between Fama-French factors and performance outcomes. This work contributes to asset pricing discourse within developing economies and offers practical guidance for investors, management, and policymakers in formulating investment and governance strategies.

Keywords: Good Corporate Governance, High Minus Low, LQ-45, Market Risk Premium, Fama-French Three-Factor

1. INTRODUCTION

Public interest in investment continues to grow in line with increasing financial literacy and understanding of the capital markets. Investment is the act of allocating capital to various financial instruments or real assets with the aim of generating future returns. Among the various investment instruments, shares are among the most popular as they offer the potential for relatively high returns, albeit accompanied by a high level of risk. Therefore, investors need to strike a balance between risk and return when making investment decisions, including by utilising historical data to project future returns (Muharom et al., 2025). A clear indicator of this rising investment enthusiasm appears in the swelling investor registry of the Indonesian capital market, where KSEI figures record an ascent from 3,880,753 active accounts in 2020 to 14,871,639 in 2024 (KSEI, 2024). This increase indicates growing public participation in the capital market, driven by expectations regarding investment returns.

In investment theory, returns are the key indicator that investors always focus on. However, actual returns often differ from expectations as they are influenced by various market risk factors. Data on the returns of the IHSG LQ-45 index for the period 2020–2024 show significant fluctuations due to various global economic conditions, ranging from the COVID-19 pandemic, economic recovery, rises in global interest rates, to geopolitical uncertainty. The deliberate selection of this period for the current study arises from its representation of a highly turbulent economic phase, during which capital market unpredictability and

shifting risk exposures could feasibly modulate the connections among Fama-French variables, GCG, and equity returns.

When making investment decisions, investors generally consider the relationship between risk and return, whereby higher risk is expected to yield higher returns (Sunarsih & Sholihati, 2023). Therefore, an understanding of the factors influencing returns is crucial for both individual and institutional investors. Investment analysis relies not only on a company's fundamental factors but also on asset pricing models used to explain returns.

One widely used model is the Capital Asset Pricing Model (CAPM), developed by Sharpe, Lintner and Mossin in the 1960s. The CAPM explains that share returns are influenced by systematic risk, which is measured by beta (Sharpe, 1964). However, various studies have shown that the CAPM has limitations in explaining variations in share returns, particularly regarding anomalies such as the size effect and the value effect, which cannot be explained by the model (Majka, 2024).

The CAPM's inadequacies prompted the formulation of the Fama-French Three-Factor Model, which supplements the market risk premium with SMB and HML components, and this specification has demonstrated greater efficacy than CAPM in elucidating fluctuations in equity returns (Fama & French, 1993). Subsequently, this model was expanded into the FF5F by adding the profitability (RMW) and investment (CMA) factors, and into the FF6F by including the momentum factor.

Nevertheless, the application of the Fama-French model in emerging markets such as Indonesia still yields inconsistent results. Characteristics of emerging markets, such as low liquidity, high volatility and differences in ownership structures, lead to differing results compared to developed markets (Achola & Muri, 2016). Several studies have also shown that not all Fama-French factors have a stable influence in the Indonesian market (Claesson, 2021).

In addition to market risk, size and value factors, Good Corporate Governance (GCG) is also thought to play a role in influencing share returns. GCG is a corporate governance system that encompasses the principles of transparency, accountability, responsibility, independence and fairness. The effective implementation of GCG can enhance investor confidence and impact a company's share performance (Widyaningrum et al., 2023). However, research findings regarding the influence of GCG on share returns remain inconsistent, suggesting the possibility of moderating variables in this relationship.

Given these considerations, the present research is designed to evaluate the effects of MRP, SMB, and HML upon equity returns and to test GCG's moderating function within the LQ-45 index across the specified timeframe, with expected outcomes offering both scholarly additions to asset pricing discourse and actionable insights for market participants and policy makers.

2. LITERATURE REVIEW

2.1. Theoretical and Conceptual Framework

The conceptual framework of this study was developed to analyze the effect of the FF3F model on share returns, with corporate governance (CG) acting as a moderating variable. This framework is based on the integration of Asset Pricing Theory, as represented by the FF3F model, with Agency Theory and Signalling Theory, which underpin the role of CG.

The FF3F model argues that stock returns are determined not only by market risk, as in the CAPM, but also by two additional systematic risks: firm size, proxied by the SMB (Small Minus Big) factor, and firm value, proxied by the HML (High Minus Low) factor, in addition to the market risk factor itself (Market Excess Return/MRP) (Sadiq et al., 2020). These three factors have been shown, both theoretically and empirically, to have a significant influence on share returns, with MRP and HML having a positive effect, whilst SMB reflects the risk premium for small-cap shares.

In the context of the Indonesian capital market, which has unique characteristics, the effectiveness of these FF3F factors is not thought to operate directly but is influenced by contingency factors such as the quality of corporate governance. Corporate Governance (CG) is positioned as a moderating variable capable of altering the strength or even the direction of the relationship between the FF3F factors and share returns.

Through the lens of Agency Theory, GCG functions as a control mechanism that reduces information asymmetry and agency costs, thereby influencing investors' perceptions of a share's risk. Meanwhile, Signalling Theory views GCG as a credible signal sent by the company to the market regarding the quality of management and the company's sustainability.

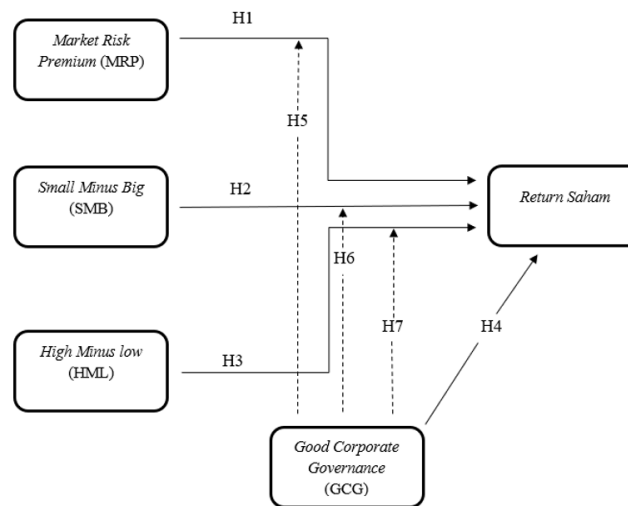


Figure 1. Conceptual Framework of the Study

Source: Adapted by the author (2026)

2.2. The Effect of the Market Risk Premium (MRP) on Stock Returns in the Fama-French Three-Factor Model

Market risk is the risk arising from changes in overall market conditions, which is unavoidable; in the CAPM model, it is represented by systematic risk (beta), which is positively correlated with stock returns. Market excess return, representing the gap between market and risk-free returns, serves as the beta proxy in this research and captures macroeconomic conditions, with steady inflation, interest rates, and political environments fostering firm profitability and share price appreciation, while volatility in these factors amplifies the risks confronted by investors (Muharom et al., 2025).

Market excess return also represents the market risk premium, which is the additional return investors receive for the risk they assume. The higher the risk premium, the higher the expected stock excess return (Aprillia et al., 2021). Thus, an increasing risk premium reflects higher investment risk and will drive an increase in a company's stock returns (Maulana & Lestari, 2025). In line with this, Putra et al. (2019) found that market excess return influences share returns within the Fama-French Three-Factor Model, thereby forming the basis for the formulation of the research hypotheses.

H1: Market excess return has a positive effect on share returns

2.3. The Effect of Small Minus Big (SMB) on Share Returns in the Fama-French Three-Factor Model

SMB is a variable in the Fama-French Three-Factor (FF3F) model that represents the difference in returns between small-cap and large-cap shares. Fama and French (1993) stated that firm size influences share returns, whereby small firms tend to have higher revenue growth but are accompanied by greater risk and volatility compared to larger, more stable firms. This situation makes small-cap share returns more volatile; consequently, SMB is generally positively correlated with share returns.

Firm size is also a key factor in investment decisions as it relates to business risk, which is reflected in a company's market value. Large-cap firms tend to demonstrate greater resilience during crises and thus offer lower returns, whilst small-cap firms are more sensitive to changes in business conditions—a phenomenon known as the 'size effect' (Muharom et al., 2025). Based on this explanation and the findings of previous research, the following hypothesis is formulated.

H2: Small Minus Big (SMB) influences share returns

2.4. The Effect of High Minus Low (HML) on Share Returns in the Fama-French Three-Factor Model

Companies with a high book-to-market ratio (where the share price is relatively low compared to book value) generally have lower profits and are potentially undervalued; consequently, they carry higher risk and investors demand a higher expected return. Conversely, a low book-to-market ratio tends to be associated with companies that have more stable and higher profit performance (Maulana et al., 2025). Furthermore, shares with a high book-to-market ratio are also frequently linked to greater losses compared to companies with a low ratio (Arifah & Fitria, 2023).

Fama and French (1993) explain that companies with a high book-to-market ratio have lower profitability and tend to be in a state of financial distress, which triggers an overreaction in the market. This situation allows for a price correction towards its fair value, thereby potentially increasing returns as investors respond to this price adjustment. Based on these theories and findings, the research hypothesis can be formulated as follows:

H3: High Minus Low (HML) has a positive effect on share returns

2.5. The Effect of Good Corporate Governance (GCG) on Share Returns

Having analyzed the systematic factors in the FF3F Model (MRP, SMB, and HML), this study then emphasises the role of GCG as a key variable influencing company performance. From the perspective of Agency Theory, GCG functions as an internal mechanism to minimise conflicts between owners (principals) and management (agents) and to reduce agency costs. Strong GCG practices, such as transparency, accountability and independence, can enhance the confidence of investors and stakeholders.

This increased confidence, as explained by Signalling Theory, serves as a positive signal reflecting sound corporate fundamentals, effective risk management and sustainable long-term prospects. These conditions encourage a positive investor response, which ultimately boosts share prices and returns. This is consistent with Shu and Hu (2022), who demonstrated that companies with good governance (high CGI) have a higher market value and provide better investment signals and potential returns. These findings are reinforced by Yudaruddin et al. (2025), who state that GCG acts as a mechanism to protect shareholder value, particularly during periods of extreme volatility. Based on these theories and research findings, the following research hypothesis is formulated:

H4: Good Corporate Governance (GCG) has a positive effect on share returns

2.6. The Effect of the Market Risk Premium (MRP) on the Fama-French Three-Factor Model (FF3FM) and Share Returns, with GCG as a Moderating Variable

Research on the Fama-French Three-Factor Model (FF3F) has been extensive, but studies examining the moderating role of Good Corporate Governance (GCG) remain limited. Companies with sound GCG practices tend to exhibit higher levels of transparency and better quality of information disclosure, thereby reducing information asymmetry and corporate risk. Bui and Krajcsák (2023) demonstrate that the aspects of GCG with the most direct influence on share returns are transparency and the quality of information disclosure. The FF3F model itself assumes that the market assesses risk homogeneously; however, information asymmetry can influence this assessment process and can be minimised through GCG. Consequently, GCG not only has a direct effect on share returns (H4) but also acts as a moderating variable in the relationship between the FF3F systematic risk factors (MRP, SMB, HML) and share returns.

Strong GCG acts as a supervisory mechanism that reduces excessive risk-taking by management and enhances the stability of corporate decision-making, thereby influencing the sensitivity of shares to market movements. This means that GCG has the potential to weaken the relationship between the Market Risk Premium (MRP) and share returns. However, Foye and Valentinčič (2020) emphasize that sensitivity to market movements remains a fundamental determinant of share returns. Furthermore, Bagaswara and Wati (2020) demonstrate that GCG is capable of significantly moderating the influence of fundamental and external factors, including the influence of the Market Risk Premium (MRP), on share returns.

H5: GCG mediates the relationship between the Market Excess Return (MRP) and share returns

2.7. The Effect of Small Minus Big (SMB) on the Fama-French Three-Factor Model (FF3FM) and Share Returns, with Corporate Governance (CG) as a Moderating Variable

Research conducted by Agustin et al. (2022) shows that the larger the company's size or market capitalisation, the higher the returns; conversely, the smaller the company's size or market capitalisation, the lower the share returns. Shares in small-cap companies are often considered riskier due to a lack of liquidity or information asymmetry. Good corporate governance (CG) in small companies reduces these agency and information risks, leading investors to demand a lower risk premium. CG acts as a moderator of the size effect, which is expected to weaken the relationship between the SMB effect and returns. Research conducted by Selfiani and Yunita (2021) states that company size has a positive effect on share returns, and CG strengthens this relationship. The implementation of good corporate governance sends a positive signal to investors that transparently managed companies are capable of increasing share price appreciation. Manurung (2022) demonstrate the mechanism by which GCG mitigates a decline in public trust. When large companies fail to implement GCG, the impact on share returns can be negative.

H6: GCG influences the relationship between Small Minus Big (SMB) and share returns

2.8. The Effect of High Minus Low (HML) on the Fama-French Three-Factor Model (FF3FM) and Share Returns, with GCG as a Moderating Variable

The value factor (HML) identifies shares with high book-to-market ratios that are potentially undervalued. In companies with poor GCG, these high ratios may be viewed as a signal of distress or accounting manipulation. However, good CG enhances the credibility of financial statements, reassuring investors that a high HML value reflects genuine intrinsic value. CG acts here as an enhancer, which is expected to strengthen the relationship between HML and returns. Mans-Kemp et al. (2017) demonstrated that the interaction between the risk factor (HML) and governance quality can generate abnormal returns. GCG helps investors distinguish between genuinely undervalued 'value' companies and those that are undervalued due to governance issues (value traps). Based on this moderating role, the fifth hypothesis is formulated as follows:

H7: GCG moderates the relationship between High Minus Low (HML) and share returns

3. RESEARCH METHODS

3.1. Unit of Analysis, Population and Sample

A quantitative causal methodology is applied in this study to assess how the FF3F components, specifically MRP, SMB, and HML, affect equity returns with GCG serving as moderator, and the analysis focuses on LQ45-listed companies on the IDX as its unit of observation. The study population comprises all 69 companies that have been constituents of the LQ45 index during the period 2020–2024. The selection of the LQ45 was based on high liquidity, large market capitalization, and relatively good quality of financial reporting and GCG disclosure. Purposive sampling was employed with specified criteria, resulting in a final sample of 25 firms and 125 balanced panel data points spanning the five-year period.

3.2. Data Collection Methodology

Secondary data were obtained for this study from Indonesia Stock Exchange records and official company portals, including financial statements, annual reports, monthly equity prices, the IHSG, and risk-free proxies such as SBI or sovereign bond yields, over an observation window from 2020 to 2024.

3.3. Variable Operationalisation

Excess returns serve as the dependent variable in this research, with MRP, SMB, and HML constituting the three independent Fama-French factors, and GCG functions as the moderator, measured through a disclosure index based on corporate annual reports following KNKG or ASEAN Corporate Governance Scorecard criteria.

3.4. Data Analysis Techniques

Microsoft Excel 365 and Stata 13 were employed for data processing, and analysis included descriptive statistics alongside panel regression approaches (PLS, FEM, REM) with model selection via Chow, Hausman,

and Lagrange Multiplier tests. Subsequent classical assumption checks addressed normality, multicollinearity, heteroscedasticity, and autocorrelation, followed by F-tests, t-tests, and R^2 for hypothesis evaluation, and two panel models, one excluding and one including GCG interactions, were estimated to ascertain the moderating effect upon risk factor impacts on returns.

4. RESULTS AND DISCUSSION

4.1. Research Results

4.1.1. Descriptive Statistics

The research targets listed entities with uninterrupted inclusion in the IDX LQ45 index across the 2020–2024 period, and the subsequent table displays the analytical results from 125 observations (N=125).

Table 1. Descriptive Statistical Test Results

Variables	N	Mean	Median.	Max.	Min.	Std. Dev.	Skewness	Kurtosis
Return Stock	125	0.1657	0.0690	7.8460	-0.5630	0.7628	8.3360*	80.7675*
MRP	125	-0.0014	0.0000	0.0050	-0.0090	0.0043	0.1006	-1.2033
SMB	125	-0.0179	-0.0100	0.0000	-0.0450	0.0167	-0.5806	-1.2410
HML	125	0.0116	-0.0030	0.0550	-0.0110	0.0241	0.9300	-0.6623
GCG	125	24.784	25.000	25.000	18.000	0.8761	-5.2032*	31.2938*

*: Identifying outliers that are statistically significant in terms of distribution

Based on Table 1, the stock return variable has a mean of 0.1657 and a median of 0.0690, indicating an asymmetric distribution with a right-skewness (skewness = 8.3360). The kurtosis value of 80.7675 indicates a leptokurtic distribution, suggesting a relatively high probability of extreme returns occurring. The maximum return of 7.8460 was recorded by BBRI in 2020. Furthermore, using the Interquartile Range (IQR) method, seven outlier observations were identified that require careful consideration when interpreting the estimation results.

4.1.2. Model Selection Test

Table 2. Model Selection Test Results

Test	Comparison	Probability	Conclusion
Chow test	CEM vs FEM	0.0531 > 0.05	CEM is better than FEM
Hausman test	FEM vs REM	0.02315 < 0.05	FEM is better than REM
LM (Breusch–Pagan) test	REM vs CEM	0.0474 < 0.05	REM is better than CEM
Selected Model: Random Effects Model (REM)			

The Chow test result ($p = 0.0531$) is only marginally above the conventional 0.05 significance threshold, indicating a borderline outcome between the Common Effects Model (CEM) and the Fixed Effects Model (FEM). Although this result formally favours the CEM at the 5 percent level, the closeness of the probability value to the threshold suggests that the choice between CEM and FEM at this stage should be interpreted with some caution, as a marginally different sample composition or specification could plausibly reverse this conclusion. Nonetheless, since the subsequent Hausman test and LM test jointly point towards the Random Effects Model (REM) as the preferred specification, the borderline nature of the Chow test result does not affect the final model selection used in this study.

Overall, all the classical assumption tests carried out, the normality test, the multicollinearity test, the heteroscedasticity test and the autocorrelation test yielded satisfactory results and met all the necessary requirements for the validity of the panel data regression model. With all these classical assumptions met, the parameter estimates produced by the Random Effects Model in this study are Best Linear Unbiased Estimators (BLUE) in accordance with the Gauss-Markov theorem; consequently, the results of the hypothesis testing to be carried out in the following section can be relied upon.

4.1.3. Test of Classical Assumptions

Table 3. Classical Assumptions Test Results

Test	Method	Prob/ Value	Conclusion
Normality	Skewness - Kurtosis	0.4732	Normal
Multicollinearity	VIF	Mean VIF = 1.08	Free from multicollinearity
Heteroscedasticity	Uji Absolut Residual	0.8605	Homoscedasticity
Autocorrelation	Wooldridge Test	0.6622	Free from autocorrelation

4.1.4. Estimation Results from the Random Effects Model

All requisite model selection and classical assumption tests having been fulfilled, the Random Effects Model with GLS estimation was applied to assess the influence of FF3F factors (MRP, SMB, HML), GCG, and the interactive terms between these factors and GCG on returns of LQ-45 firms across 2020–2024, and the estimated equation follows.

$$Return = \alpha + \beta_1 MRP + \beta_2 SMB + \beta_3 HML + \beta_4 GCG + \beta_5 (MRP \times GCG) + \beta_6 (SMB \times GCG) + \beta_7 (HML \times GCG) + \varepsilon$$

Table 4. Estimation Results for the Random Effects Model

Variables	Coefficient	Std. Error	z	P> z	Conclusion
MRP (t_mrp)	2.7169	1.1881	2.29	0.022	Significant
SMB (t_smb)	0.2842	0.2977	0.95	0.340	Not significant
HML (t_hml)	2.2591	0.9472	2.39	0.017	Significant
GCG (t_gcg)	0.6006	0.1194	5.03	0.000	Significant
MRP×GCG (t_mrp×gcg)	-1.6527	0.2296	-7.20	0.000	Significant
SMB×GCG (t_smb×gcg)	-5.8234	0.9764	-5.96	0.000	Significant
HML×GCG (t_hml×gcg)	1.5420	0.2511	6.14	0.000	Significant
Constanta	-0.0656	0.0513	-1.28	0.201	Not significant
R-squared Within = 0.5757 Between = 0.6488 Overall = 0.5847 Wald chi2(7) = 164.70 Prob > chi2 = 0.0000					

As shown in Table 4, the REM estimation proves highly significant overall (Wald $\chi^2=164.70$, $p=0.0000$), and the coefficient of determination at 0.5847 suggests the model accounts for 58.47% of return variability, leaving 41.53% to other influences, with the within- R^2 of 0.5757 and between- R^2 of 0.6488 attesting to reliable explanatory performance along both temporal and cross-sectional axes.

Of the seven independent variables tested, six showed a statistically significant effect, namely MRP, HML, GCG, MRP×GCG, SMB×GCG, and HML×GCG. One variable, namely SMB, was not significant, with a probability value of 0.340, which is greater than the significance level of 0.05. These results provide a comprehensive picture of the role of each risk factor and the moderating effect of GCG in determining share returns in the Indonesian LQ-45 index.

4.1.5. Hypothesis Testing

Table 5. Hypothesis Test Results

H	Variables	Coefficient	P> z	Direction	Decision
H1	MRP → Return	2.7169	0.022	+	Accepted
H2	SMB → Return	0.2842	0.340	+	Rejected
H3	HML → Return	2.2591	0.017	+	Accepted
H4	GCG → Return	0.6006	0.000	+	Accepted
H5	MRP×GCG → Return	-1.6527	0.000	-	Accepted
H6	SMB×GCG → Return	-5.8234	0.000	-	Accepted
H7	HML×GCG → Return	1.5420	0.000	+	Accepted

Positive and significant impacts on LQ-45 stock returns are observed for MRP, HML, and GCG across the 2020–2024 period, supporting H1, H3, and H4 and suggesting that elevated risk premiums, pronounced value effects, and superior governance practices boost share performance. In contrast, SMB yields a positive but non-significant coefficient, resulting in H2 rejection and revealing that the size factor holds limited explanatory power for returns within this index.

Good Corporate Governance is shown to moderate the relationships between Fama-French factors and returns, as the negative significant interactions of $MRP \times GCG$ and $SMB \times GCG$ suggest governance reduces responsiveness to risk premium and size, while the positive significant $HML \times GCG$ term reveals governance enhances the value effect, with all three moderation hypotheses (H5, H6, H7) accepted, confirming governance quality as a key determinant of factor-return linkages.

4.2. Discussion

4.2.1. MRP Disclosure Has a Significant Impact on Share Returns

A significant effect of MRP upon share returns is revealed by the regression results, corroborating the theoretical predictions of the CAPM (Lintner, 1965; Sharpe, 1964) and the Fama-French model, wherein market risk is identified as the principal determinant of stock performance. Within this theoretical framework, investors willing to bear higher market risk will receive compensation in the form of higher returns. The MRP factor reflects compensation for the undiversified risk inherent in overall market movements, which, in the context of this study, is proxied by the difference between the return on the Composite Stock Price Index (IHSG) and the risk-free rate.

The results of this study are consistent with the findings of Guillen (2025), who analyzed equity portfolios in the US market using the Fama-French Three-Factor Model and found that the market risk premium (Mkt-RF) factor was dominant and significant throughout the entire study period. Similarly, Rohuma (2022), in his study of the Bursa Malaysia, found that the market risk factor consistently exhibited a positive and significant influence on the returns of both conventional and Sharia-compliant equity portfolios, confirming that the relationship between systematic market risk and returns holds universally across various Southeast Asian capital markets. In the context of the Indonesian capital market, Muharom et al. (2025), who studied LQ-45 companies over the period 2019–2022, also found that the MRP factor had a positive and significant effect on share excess returns. A similar study by Maulana and Lestari (2025) on MNC36 companies also confirmed that market risk has a significant positive impact, meaning that an increase in market risk is followed by an increase in excess returns. The consistency of these findings across various Indonesian share indices reinforces the conclusion that the positive relationship between MRP and returns is an inherent characteristic of the Indonesian capital market.

From the perspective of macroeconomic conditions during the 2020–2024 study period, the significance of MRP in explaining stock returns becomes even more relevant given the major shocks experienced by the Indonesian capital market. In 2020, the COVID-19 pandemic caused extremely high market volatility, with the IHSG experiencing a sharp decline of up to –45 per cent in March 2020 before gradually recovering. The recovery period from 2021 to 2023 was characterised by significant inflows of foreign capital and rising commodity prices, which drove an increase in the overall market risk premium. These conditions made the MRP the primary determinant of stock return variations during the study period, and the findings of this research provide strong empirical evidence supporting the relevance of the Fama-French Three-Factor Model in the Indonesian capital market.

4.2.2. SMB Disclosure Has No Significant Impact on Share Returns

The non-significant results for SMB in this study are not surprising given the fundamental characteristics of the LQ-45 index. By definition, this index comprises the 45 most liquid shares on the Indonesia Stock Exchange, almost all of which are large-cap companies. Given the dominance of large-cap companies in this index, the variation between small-cap and large-cap portfolios which form the basis for calculating the SMB factor is very limited, meaning that this factor loses its explanatory power in the context of the LQ-45.

This finding is consistent with the results of a study by Agustin et al. (2022), who examined service sector companies in the IDX 80 index during the COVID-19 pandemic and found that the SMB factor had no significant influence on share returns. Similarly, Astuti (2022) also found that the SMB factor had no significant effect on share returns in the basic materials sector on the IDX. Both studies interpreted these results as a reflection of the index's characteristics, which are dominated by blue-chip shares, meaning that the size premium does not materialize significantly.

From a broader academic perspective, several international studies have also reported inconsistencies in the SMB effect across various markets. Guillen (2025), in his study of the US market, found that the SMB coefficient was negatively correlated and insignificant for certain portfolio specifications. Anuno et al. (2023),

in their study in Timor-Leste, also found that the SMB coefficient was negative and significant which contrary to the original theoretical prediction suggesting that the size effect may vary substantially depending on the characteristics of the market under investigation.

Theoretically, the non-significance of the SMB can be explained by the argument that the size risk premium predicted by Fama and French (1993) arises because small firms have higher operational risk, liquidity risk and bankruptcy risk. In the context of the LQ-45, all constituent companies have met the high-liquidity criteria set by the Indonesia Stock Exchange (IDX), meaning that the differences in risk profiles between small-cap and large-cap firms within this index are not as pronounced as assumed in the original theory. This finding actually reinforces the unique characteristics of the LQ-45 index and makes an important empirical contribution to understanding the applicability of the Fama-French Three-Factor Model in the Indonesian capital market.

4.2.3. HML Disclosures Have a Significant Impact on Share Returns

These findings are consistent with the theoretical argument put forward by Fama and French (1993) that companies with high book-to-market ratios which are generally categorised as value stocks tend to generate higher returns as compensation for greater risk. Value shares with a market price that is low relative to their book value often reflect companies facing difficulties or perceived by the market as high-risk, leading investors to demand an additional risk premium. When a company's condition improves or a price correction occurs, these shares have the potential to deliver significantly higher returns compared to growth shares.

This finding is supported by research by Hidayat et al. (2023), who studied ILQ-45 companies over the 2017–2020 period and found that the HML factor had a positive effect on stock returns. The study interpreted these results as evidence that investors in the Indonesian capital market assign a higher premium to shares with a high book-to-market ratio, consistent with theoretical predictions. Similarly, Silfia and Husodo (2024), who studied the capital markets of Indonesia, Hong Kong and Singapore, found that the HML factor has a significant influence on portfolio excess returns, with varying explanatory power across markets.

In the context of the 2020–2024 study period, which spanned the COVID-19 pandemic and economic recovery, the significance of the HML factor can be linked to a significant sector rotation in the Indonesian capital market. During the post-pandemic recovery period, value shares from the commodities, banking and basic industries sectors which have high book-to-market ratios experienced sharper price increases compared to growth shares from the technology and consumer sectors. This rotation reinforced the value premium during that period and established HML as a relevant factor in explaining return differences among LQ-45 companies.

Furthermore, the significant results for HML in this study also provide empirical support for the theory that the Indonesian capital market, although classified as an emerging market, has internalised the value premium as a risk component that requires compensation. This is consistent with the findings of Mosoeu and Kodongo (2022), which show that the premiums in the Fama-French model are relevant in emerging markets, albeit with a different intensity compared to developed markets. These findings have important practical implications for investors and portfolio managers in Indonesia to consider book-to-market characteristics in the stock selection process in order to optimise risk-adjusted returns.

4.2.4. GCG Disclosure Has a Significant Impact on Share Returns

These results can be explained through two theoretical frameworks that form the basis of this study. Firstly, from the perspective of Agency Theory (Jensen & Meckling, 1976), GCG functions as a mechanism to minimise conflicts of interest between owners (principals) and management (agents) and to reduce agency costs. When agency costs are reduced, more value can be created and distributed to shareholders in the form of higher returns. Secondly, from the perspective of Signalling Theory (Spence, 1973), sound GCG practices serve as a credible signal to the market regarding the quality of management, the company's integrity, and its sustainable long-term prospects. These positive signals foster investor confidence, which is ultimately reflected in higher share prices and returns.

These findings are consistent with the research by Bui and Krajcsak (2024), who studied 302 companies on the Hanoi Stock Exchange in Vietnam and found that the aspects of CG that most directly influence share returns are transparency and the quality of information disclosure. The study confirms that companies with a high Corporate Governance Index (CGI) score tend to have a higher market value. Similarly, Hsu and Liao

(2022), who studied companies on the NYSE and NASDAQ, found that good corporate governance proved capable of mitigating the negative impact of the pandemic on share price volatility, which indirectly supports the stability of share returns.

In the Indonesian context, Yударuddin et al. (2025) found that good corporate governance can act as a defence mechanism that protects shareholder value during periods of extreme volatility, such as that experienced during the COVID-19 pandemic. These findings are highly relevant to the 2020–2024 study period, which spans the pandemic and the post-pandemic recovery, during which the quality of corporate governance served as a significant differentiating factor between companies that were able to maintain their performance and those that were not. Uddin et al. (2021) also found that strong corporate governance significantly reduced stock market volatility during the COVID-19 crisis, with a stronger effect in emerging markets, including Indonesia.

The average CG score of 24.784 out of a maximum of 25 in this study's sample indicates that LQ-45 companies generally have very good governance practices. This is consistent with the requirements of the Indonesia Stock Exchange (BEI) and the Financial Services Authority (OJK), which mandate that large-cap companies meet high standards of disclosure and governance. Although the variation in GCG scores within the sample is relatively limited (standard deviation of 0.876), the test results show that even small differences in the quality of corporate governance can still lead to significant differences in share returns, underscoring the importance of a sustained commitment to improving GCG practices.

4.2.5. MRP Disclosure Has a Significant Positive Effect on Share Returns, Moderated by GCG

From a theoretical perspective, these results can be explained by the argument that companies with strong GCG have more effective oversight structures, which lead management to act more conservatively and avoid excessive risk-taking. Darmadi (2023) states that companies with good GCG tend to be more transparent and less likely to undertake high-risk projects, making their returns slightly less sensitive to broad market volatility compared to companies with poor GCG. In other words, GCG acts as a stabiliser that reduces a share's effective beta, meaning that the market risk premium demanded by investors is lower for shares with good corporate governance.

The implications of these findings are highly significant in the context of the turbulent 2020–2024 period. Lee and Koh (2024), in their research, found that the moderating value of GCG actually becomes stronger during periods of crisis and high uncertainty. Companies with strong governance are perceived by investors as having better risk management, more transparent structures, and greater resilience in facing shocks. As a result, the systematic market risk associated with holding such shares is reduced, meaning that the return premium demanded by investors for market risk also becomes lower.

Bagaswara and Wati (2020), in their study on the influence of internal and external factors on share returns, moderated by corporate governance (CG), also found that CG can moderate fundamental and external factors including the Market Risk Premium (MRP) with a significant effect. This study confirms that the interaction between governance quality and sensitivity to market risk is an important dimension that needs to be considered in the analysis of asset pricing in the Indonesian capital market.

In practical terms, these findings have important implications for investors in formulating portfolio strategies. In volatile market conditions with a high market risk premium, investors who select shares with high GCG scores effectively gain protection against excessive volatility, albeit at the cost of slightly lower returns compared to shares with low GCG scores during market booms. This trade-off between returns and risk protection is consistent with the principles of prudent portfolio management and provides a strong foundation for governance-based investing strategies in Indonesia.

4.2.6. SMB Disclosure Has a Significant Positive Impact on the Returns of Shares with Moderate GCG

Within a theoretical framework, the SMB factor carries a positive premium because shares in small companies are considered riskier due to a lack of liquidity, higher information asymmetry, and vulnerability to business failure. However, when small companies implement good GCG, these risks can be significantly minimised. Greater transparency reduces information asymmetry, stronger accountability reduces the risk of opportunistic behaviour by management, and board independence provides effective oversight against excessive risk-taking.

Lee and Koh (2024) explain that, in the context of the COVID-19 pandemic, GCG plays a role in strengthening corporate resilience, thereby reducing the size-related risk premium demanded by investors. Small companies with strong corporate governance are perceived by investors as having better risk management and greater resilience, thereby significantly reducing the discount typically applied to small-cap firms. Sacristán-Navarro et al. (2025) also found in their study of family-owned firms in emerging markets that investment in sound CG mechanisms acts as a substitute for firm size, instilling confidence in investors and reducing the information discount typically applied to small-cap stocks, thereby weakening the explanatory power of the SMB factor.

Selfiani and Yunita (2021) also found in his research that firm size has a positive effect on share returns and that GCG strengthens this relationship. The implementation of good corporate governance sends a positive signal to investors that transparently managed companies are capable of increasing share price appreciation regardless of their size. These findings are relevant in the context of the LQ-45 index, which, although dominated by large-caps, exhibits sufficient size variation to identify the moderating effect of CG on the relationship between SMB and share returns.

The magnitude of the SMB×CG interaction coefficient, at -5.8234 which is the highest value among all interaction variables indicates that CG's moderating effect on the relationship between SMB and returns has the greatest economic impact. This can be interpreted to mean that, within the context of the LQ-45, differences in corporate governance quality between companies have highly significant implications for how investors assess and compensate for size risk. This finding provides a strong argument for smaller companies within the index to prioritise improving the quality of their corporate governance as a strategy to reduce the cost of capital and enhance the attractiveness of their shares in the eyes of institutional investors.

4.2.7. HML disclosure has a significant positive effect on share returns, moderated by GCG

The positive direction of the coefficient in the HML×GCG interaction is highly significant from the perspective of Signalling Theory. The HML factor identifies shares with high book-to-market ratios that are potentially undervalued. However, a high book value can be a double-edged sword: on the one hand, it may reflect true intrinsic value; on the other, it may signal financial difficulties or questionable financial reporting quality. Good corporate governance acts as a credibility enhancer, helping investors distinguish between genuinely undervalued companies with high intrinsic value and those that are cheaply priced due to fundamental issues or poor governance.

Good corporate governance can act as a credibility enhancer that helps investors distinguish between companies that are genuinely undervalued and those that are cheaply priced due to underlying fundamental or governance problems. This logic is consistent with governance-signalling studies in emerging markets, which show that a given financial signal (such as high leverage or a high book-to-market ratio) can be interpreted either as a sign of management confidence or as a sign of distress, depending on the strength of the firm's governance and growth context (see, for example, findings on the moderating role of firm-level context in governance-leverage-return relationships in ASEAN non-financial firms). Extending this logic to the HML factor, this study proposes that in firms with stronger GCG, the market is more likely to interpret a high book-to-market ratio as a reflection of true intrinsic value rather than as a distress signal. Investors may consequently become more confident and willing to pay a premium for such shares, strengthening the positive relationship between HML and stock returns.

Mans-Kemp et al. (2017), in a study in South Africa, demonstrated that the interaction between value risk factors (HML) and governance quality can generate significant abnormal returns. They emphasised that corporate governance helps investors distinguish between genuinely undervalued companies and those that are undervalued due to governance issues (value traps), meaning that a value investing strategy combined with selection based on corporate governance quality can yield superior risk-adjusted returns.

These findings have highly significant strategic implications for portfolio managers and institutional investors in Indonesia. Companies with high book-to-market ratios that also have high CG scores represent optimal investment opportunities: high potential returns from a value premium that are simultaneously protected by good corporate governance. The combination of these two factors, value and corporate governance creates a synergy that exceeds the contribution of each factor individually. In the context of the development of the Indonesian capital market, which continues to drive improvements in corporate

governance standards through OJK regulations and the ASEAN Corporate Governance Scorecard guidelines, these findings provide strong empirical justification that investment in improving corporate governance not only benefits companies internally but also directly enhances value for shareholders by strengthening the link between value and share returns.

5. CONCLUSION

The effects of MRP, SMB, HML, and GCG moderation on LQ-45 returns across 2020–2024 are examined here, revealing significant positive coefficients for MRP, HML, and GCG, non-significance for SMB, and moderating roles whereby GCG weakens MRP and SMB effects but strengthens HML's influence, with the model's 58.47% explanatory power affirming the FF3F framework's relevance and GCG's dual function as direct predictor and relational moderator. Based on these findings, investors are advised to consider the MRP and HML factors, as well as the quality of CG, when making investment decisions through the application of governance-based investing strategies. Companies need to continuously improve the quality of their corporate governance by strengthening the principles of transparency, accountability, responsibility, independence, and fairness in order to enhance investor confidence and corporate value. Meanwhile, the Financial Services Authority (OJK) and the Indonesia Stock Exchange (BEI) need to strengthen regulations and disclosures regarding corporate governance, develop governance-based indices, and provide standardized data infrastructure for the Fama-French factors to support the development of asset pricing models that are more accurate and relevant to the characteristics of the Indonesian capital market.

For future researchers, this study recommends two directions for further investigation. First, given that the non-significant result for SMB in this study is attributed to the LQ-45 index being dominated by large-cap, highly liquid companies, future studies could extend the analysis to non-LQ45 firms or a broader segment of the Indonesia Stock Exchange, where greater variation in firm size may allow the size effect to emerge more clearly. Second, future research could extend the model beyond the Fama-French Three-Factor framework used in this study to the Fama-French Five-Factor (FF5F) model, which incorporates the profitability (RMW) and investment (CMA) factors, or the Fama-French Six-Factor (FF6F) model, which additionally includes the momentum factor, in order to provide a more comprehensive explanation of share returns in the Indonesian capital market and to examine whether the moderating role of GCG identified in this study holds across these expanded specifications.

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