HBR Husnayain Business Review

Vol. 5, No. 1, 2025
ISSN 2477-1368 (P)
ISSN: 2829-8039 (E)
pp. 57-66

https://journal.adpebi.com/index.php/hbr

Revisiting the Fama-French Framework with Contemporary Evidence from the Indonesian Stock Exchange

Alfian Misran[1], Hamdani[2], Ibnu Sutomo[3], Amiruddin[4], Darmawati[5]
[1,2]Universitas Lambung Mangkurat, Banjarmasin, Indonesia
[3]STIE Pancasetia, Banjarmasin, Indonesia
[4,5]Universitas Hasanuddin, Makassar, Indonesia
alfian@ulm.ac.id

Received: 10 March 2025 Revised: 15 April 2025 Accepted: 30 May 2025

DOI: https://doi.org/10.54099/hbr.v5i1.1419

Abstract

This study revisits the size and value effects in emerging markets by re-examining the explanatory power of the Fama-French three-factor model in the Indonesian equity market. While previous studies have established the foundational role of firm size and book-to-market equity in developed markets, limited research has assessed their relevance in the evolving context of Indonesia's capital market. Utilizing monthly data from non-financial firms listed on the Indonesia Stock Exchange (IDX) over the period 2015–2024, this study constructs 25 value-weighted portfolios sorted independently on size and book-to-market ratios. The Fama-French three-factor model is employed to analyse the impact of market risk premium, size (SMB), and value (HML) factors on stock returns. Our empirical analysis confirms that both the size (SMB) and value (HML) factors significantly contribute to explaining cross-sectional return variation, alongside the market risk premium. Notably, the size effect remains pronounced in small-cap firms, while the value premium is evident among firms with high book-to-market ratios. These findings corroborate results from other emerging markets such as India, Egypt, and China. Additionally, recent evidence from the Indonesian market, including the impact of bid-ask spread and return risk, as well as the performance of value stocks during the COVID-19 pandemic, further supports the continued relevance of firm characteristics in explaining asset pricing dynamics. The study reinforces the applicability of the Fama-French model in the Indonesian context, highlighting the significance of size and value factors in asset pricing. These insights are pertinent for both academic researchers and practitioners developing factor-based investment strategies in emerging markets.

Keywords: Fama-French Model, Size Effect, Value Premium, Emerging Markets, Indonesia Stock Exchange, Asset Pricing, Stock Return, Factor Investing

1. INTRODUCTION

Understanding the determinants of stock returns has long been a central concern in financial economics, with particular focus on whether firm characteristics such as size and value influence return patterns across different market settings. The Capital Asset Pricing Model (CAPM), introduced by (Lintner, 1965; Mossin, 1966; Sharpe, 1964), established the foundational relationship between expected returns and market risk. However, the empirical limitations of CAPM in fully explaining cross-sectional return variations led to the development of multifactor models, most notably the Fama-French three-factor model (Fama, 1991; Fama & French, 2015). This model introduced two additional factors firm size (SMB) and book-to-market equity (HML) to capture systematic risks not accounted for by market beta alone.

While the size and value effects have been extensively documented in developed markets, their persistence in emerging markets remains an open question. Emerging markets, such as Indonesia, are characterized by distinct features including higher market volatility, lower liquidity, limited analyst coverage, and a greater proportion of retail investors. These structural difference0s can amplify mispricing,

information asymmetry, and market inefficiencies, potentially enhancing the explanatory power of size and value factors in these markets (Cheriyan & Lazar, 2019; Otaify, 2022).

Recent studies have revisited these effects in various emerging market contexts. For instance, (Zhou, 2023) demonstrated the relevance of small-cap value rotation strategies in the Chinese stock market, while (Cheriyan & Lazar, 2019) highlighted the impact of firm size on liquidity in the Indian market. In the Indonesian context, (Askotamiya & Agnes, 2023; Helmina et al., 2019) examined the performance of value stocks during the COVID-19 pandemic, revealing that high book-to-market stocks outperformed growth stocks amidst heightened market uncertainty. Meanwhile, (Rozy, 2023) found that market microstructure variables such as bid-ask spread and return risk play a significant role in shaping stock return patterns, further emphasizing the need to integrate firm-level factors into asset pricing models.

Despite these insights, a comprehensive reassessment of the size and value effects in Indonesia's evolving capital market remains limited, particularly in light of structural shifts such as increased digital trading, rising retail participation, and regulatory reforms. The present study addresses this gap by re-examining the applicability of the Fama-French three-factor model in the Indonesian equity market from 2015 to 2024. Specifically, we aim to investigate whether firm size and book-to-market equity continue to explain cross-sectional variations in stock returns, and whether the findings align with those from other emerging markets.

This study contributes to the literature in three ways. First, it updates the empirical evidence on the size and value effects using a recent and extended dataset from the Indonesia Stock Exchange (IDX). Second, it integrates contemporary studies from other emerging markets to contextualize the Indonesian findings within a broader global perspective. Third, it offers practical implications for investors and policymakers by identifying firm-level characteristics that may inform factor-based investment strategies in emerging market environments.

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature and develops the testable hypotheses. Section 3 outlines the methodology and data sources. Section 4 presents the empirical results and discussion, while Section 5 concludes the study and outlines directions for future research.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Theoretical Basis of the Fama-French Three-Factor Model

The Fama-French three-factor model was introduced to address the persistent anomalies in stock returns unexplained by the Capital Asset Pricing Model (CAPM). In addition to the market risk premium, the model incorporates two additional factors: firm size, or small minus big (SMB), and book-to-market equity, or high minus low (HML) (Fama, 1991; Fama & French, 1993). The SMB factor is designed to capture the return premium earned by small-cap stocks relative to large-cap stocks, while the HML factor reflects the premium associated with value stocks relative to growth stocks. These factors are believed to proxy for non-diversifiable risks associated with financial distress (HML) and capacity constraints (SMB), offering a more nuanced explanation of return variations (Fama & French, 1996).

Empirical validation of the model in U.S. markets has consistently demonstrated that small-cap and high book-to-market stocks systematically earn higher average returns than those predicted by the CAPM (Fama & French, 1993, 1996). While the precise economic rationale for the premiums remains a topic of debate, encompassing risk-based theories and behavioral explanations (Daniel & Titman, 1997; Lakonishok et al., 1994), the model has become widely adopted in both academic and practitioner circles.

Hypothesis 1 (H1):
Firm size is negatively associated with stock returns in Indonesia; that is, small firms earn higher average returns than large firms.

2.2. Size Premium in Developed and Emerging Markets

The size effect, first documented by (Banz, 1981), refers to the tendency for smaller firms to outperform larger firms on a risk-adjusted basis. Although the magnitude and persistence of the size premium have declined in some developed markets post-2000 (Van Dijk, 2011), emerging markets continue to exhibit stronger and more consistent size effects, attributed to less efficient information environments, lower liquidity, and higher volatility (Cheriyan & Lazar, 2019; Otaify, 2022). In the Indian stock market, for

instance, (Cheriyan & Lazar, 2019) found that firm size significantly influences liquidity commonality, reinforcing the idea that size remains a critical determinant of return variation in emerging markets.

Similarly, (Zhou, 2023) documented that a small-cap value rotation strategy yields superior returns in the Chinese stock market, underscoring the persistence of the size effect in Asia. In Indonesia, while the literature is less developed, recent findings suggest the relevance of size factors. For example, (Rozy, 2023) found that bid-ask spreads and return risks, both correlated with firm size, significantly influence stock return patterns on the Indonesia Stock Exchange (IDX).

Given Indonesia's market characteristics such as a high retail investor base, limited institutional coverage, and episodic illiquidity the persistence of the size premium is plausible and warrants further empirical investigation.

Hypothesis 2 (H2):

The size premium (SMB) significantly explains cross-sectional variations in stock returns in the Indonesian equity market.

2.3. Book-to-Market Ratio and the Value Premium

The value premium, or the superior performance of high book-to-market stocks over their growth counterparts, is one of the most robust findings in empirical asset pricing research (Fama & French, 1992, 1996). Theoretically, value stocks may carry higher risk due to financial distress (Fama & French, 1996), or may be systematically underpriced due to investor overreaction and behavioural biases (Daniel & Titman, 1997; Lakonishok et al., 1994).

In emerging markets, the HML factor often demonstrates stronger explanatory power than in developed markets, likely due to higher information asymmetry, less efficient pricing mechanisms, and lower analyst coverage (Billeter et al., 2010; Otaify, 2022; Zhou, 2023) further highlights that value strategies anchored on small-cap firms yield persistent abnormal returns in the Chinese market, while (Askotamiya & Agnes, 2023) provide recent evidence from the Indonesian Stock Exchange, showing that value stocks outperformed growth stocks during the COVID-19 pandemic.

These findings suggest that the value premium remains a relevant and actionable factor for asset pricing models in emerging market contexts like Indonesia.

Hypothesis 3 (H3):

The book-to-market factor (HML) is positively associated with stock returns in Indonesia; that is, value stocks outperform growth stocks.

2.4. Relevance of the Three-Factor Model in Indonesia

Although the Fama-French three-factor model has been validated in developed markets, its applicability in emerging markets, particularly Indonesia, requires further scrutiny. Emerging markets often feature higher volatility, limited institutional participation, and weaker regulatory frameworks, creating unique challenges for asset pricing models (Harvey, 1995; Otaify, 2022).

In the context of Indonesia, (Askotamiya & Agnes, 2023) documented the resilience of value stocks during market shocks, while (Rozy, 2023) emphasized the role of firm size in shaping return risks. (Zulvina et al., 2021) found that corporate governance and firm value in IDX-listed mining firms interact with market dynamics, highlighting the complex factors influencing asset pricing in the Indonesian market.

Despite these contributions, much of the existing research remains fragmented, lacks consistency in methodology, and often covers limited time periods. Moreover, recent developments in Indonesia's capital market such as the surge in retail investor participation, regulatory changes, and heightened volatility during global crises necessitate an updated empirical assessment of the Fama-French model's relevance in this evolving context.

Hypothesis 4 (H4):

The Fama-French three-factor model provides a better explanation of stock return variation in Indonesia compared to the CAPM.

3. METHODOLOGY

3.1. Data and Sample Selection

This study utilizes monthly stock return data and firm-specific accounting variables from non-financial firms listed on the Indonesia Stock Exchange (IDX) during the period January 2015 to December 2024. The

exclusion of financial firms aligns with established asset pricing literature, as the capital structures and regulatory frameworks of these entities may distort comparability in book-to-market calculations and market capitalization (Fama & French, 1992).

Stock return data were obtained from the official IDX database, while firm-specific variables, including total assets, shareholders' equity, and net income, were sourced from audited financial statements available on the IDX website and cross-verified with third-party databases such as Bloomberg and Yahoo Finance.

Firms with incomplete data, negative book equity, or missing observations for consecutive years were excluded to maintain consistency in the sample. The risk-free rate was proxied by the monthly one-month Bank Indonesia Certificate (SBI) rate, reflecting the prevailing short-term interest rate benchmark in Indonesia.

Following best practices in emerging market research (Cheriyan & Lazar, 2019; Otaify, 2022; Zhou, 2023), the sample includes both active and delisted firms to mitigate survivorship bias. Delisting returns, where available, were incorporated following the methodology of (Shumway, 1997), ensuring an accurate representation of investor experience.

3.2. Variable Construction

3.2.1. Market Risk Premium (Rm – Rf)

The market risk premium was calculated as the monthly return of the IDX Composite Index (IHSG) minus the risk-free rate (SBI rate). This approach follows the standard in Indonesian asset pricing research(Askotamiya & Agnes, 2023).

3.2.2. Size Factor (SMB)

The Small Minus Big (SMB) factor was constructed by sorting all eligible firms annually in June based on their market capitalization at the end of the previous December. Firms were divided into two groups: small (below median market capitalization) and big (above median). Monthly portfolio returns were then computed for each size category, and SMB was defined as the return differential between the small and big firm portfolios.

This factor captures the size effect, whereby smaller firms tend to exhibit higher average returns due to factors such as liquidity constraints, higher idiosyncratic risk, and market inefficiency (Cheriyan & Lazar, 2019; Rozy, 2023).

3.2.3. Value Factor (HML)

The High Minus Low (HML) factor was constructed by ranking firms annually by their book-to-market equity ratio and sorting them into terciles: high (value), medium, and low (growth). Monthly portfolio returns were computed, and HML was defined as the return differential between the high and low book-to-market portfolios.

This construction follows the original methodology of (Fama & French, 1993) and reflects the persistent value premium observed in emerging markets, including Indonesia (Askotamiya & Agnes, 2023; Zhou, 2023).

3.3. Portfolio Formation

To test the explanatory power of the Fama-French three-factor model, the study formed 25 value-weighted portfolios based on the intersection of size and book-to-market terciles, following a 5x5 independent sort methodology. Firms were sorted annually in June, and monthly returns were tracked from July to the following June.

Portfolios were rebalanced annually, and firms that delisted or entered bankruptcy during the year were included up to the point of exit, incorporating any delisting returns available. This approach mitigates look-ahead bias and aligns with standard portfolio formation practices in emerging market studies (Cheriyan & Lazar, 2019; Zhou, 2023).

3.4. Model Specification and Estimation

The study employed time-series regression analysis to estimate the sensitivity of each portfolio's excess return to the Fama-French factors. The model specification is as follows:

$$Rpt - Rft = \alpha_p + \beta_p\left(R_{\{mt\}} - R_{\{ft\}}\right) + s_p \cdot SMB_t + h_p \cdot HML_t + \in_{\{pt\}} \quad (1)$$

Where:

1. Rpt is the return on portfolio pp in month tt;
2. $R_{\{ft\}}$ is the risk-free rate;
3. $R_{\{mt\}}$ is the market return;
4. SMB_t and HML_t are the size and value factor returns;
5. α_p is the pricing error (Jensen's alpha);
6. β_p, s_p, and h_p are the factor loadings;
7. $\in_{\{pt\}}$ is the error term.

Regressions were estimated using Ordinary Least Squares (OLS) with Newey-West standard errors to correct for potential autocorrelation and heteroskedasticity in residuals (Newey & West, 1987). To assess the superiority of the three-factor model over CAPM, a nested model test was conducted by comparing the adjusted R^2 values and performing F-tests for model significance.

3.5. Robustness Checks

Robustness checks included:

1. Subperiod analysis (Pre-COVID: 2015–2019; Post-COVID: 2020–2024) to account for market regime changes (Askotamiya & Agnes, 2023);
2. Alternative factor constructions (equal-weighted vs. value-weighted portfolios) to test sensitivity to weighting schemes (Otaify, 2022);
3. Diagnostic tests for multicollinearity (Variance Inflation Factors, VIF < 2), autocorrelation (Durbin-Watson statistic), and model misspecification (Ramsey RESET test).
4. Out-of-sample forecasting using a rolling window approach to evaluate predictive accuracy (Zhou, 2023).

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Descriptive Statistics

Table 1 presents the descriptive statistics for the main variables employed in this study, including monthly portfolio returns, market risk premium (Rm–Rf), size factor (SMB), and value factor (HML), covering the period from 2015 to 2024. The average monthly return across the 25 portfolios ranges from 0.42% to 1.17%, with standard deviations between 4.3% and 8.1%. These figures highlight the variability inherent in the Indonesian equity market, where market volatility and liquidity constraints often drive return dispersion, particularly in small-cap and high book-to-market portfolios (Cheriyan & Lazar, 2019; Zhou, 2023).

The SMB factor exhibits a positive average monthly return of 0.39%, suggesting the presence of a size premium, while the HML factor averages 0.44%, indicating a persistent value premium in the Indonesian market. These initial patterns are consistent with findings from other emerging markets, where size and value factors remain critical in explaining return variations (Askotamiya & Agnes, 2023; Otaify, 2022). Notably, the dispersion in standard deviations ranging from 4.3% to 8.1% also underscores the heightened risk profile of small-cap and value-oriented portfolios, aligning with the theoretical expectation that higher risk is compensated by higher returns.

These descriptive statistics provide preliminary support for the hypotheses tested in this study, reinforcing the relevance of firm characteristics in shaping return patterns in the Indonesian equity market.

Table 1. Descriptive Statistics (2015–2024)

Variable	Mean	Std. Dev.	Min	Max
Monthly Portfolio Return (%)	0.79	1.27	0.42	1.17
Market Risk Premium (Rm–Rf) (%)	0.66	1.98	-4.1	6.8
SMB Factor (%)	0.39	1.69	-3.8	4.9
HML Factor (%)	0.44	1.75	-4.5	5.2

Source: IDX Database, author's calculation.

These descriptive insights serve as a foundation for the subsequent empirical analyses, where we examine the explanatory power of the Fama-French three-factor model in Indonesia and compare it with the CAPM framework.

4.2. Time-Series Regression Results

The regression analyses, based on the Fama-French three-factor model, reveal that both the SMB and HML factors significantly contribute to explaining the cross-sectional variation in returns across the 25 portfolios. On average, the adjusted R^2 for the three-factor model is 0.73, substantially higher than the 0.52 obtained under the single-factor CAPM specification, indicating superior explanatory power.

The market beta (β) is consistently positive and statistically significant across all portfolios, ranging from 0.84 to 1.28, underscoring the dominant role of market risk in return dynamics. The SMB coefficients are positive and significant in most small-cap portfolios, with the strongest effects observed in portfolios that combine small size and high book-to-market ratios, aligning with the small-cap value effect reported by (Cheriyan & Lazar, 2019; Zhou, 2023). Conversely, the SMB loadings diminish or turn negative in large-cap portfolios, reinforcing the theoretical expectations of the size effect (Fama & French, 1993).

Similarly, the HML factor is positive and significant in high book-to-market portfolios, consistent with the value premium documented in emerging markets (Askotamiya & Agnes, 2023; Otaify, 2022). The effect is particularly pronounced in the post-COVID period, where value stocks demonstrated resilience amid market uncertainty, echoing findings by (Askotamiya & Agnes, 2023).

Table 2. Summarizes the Key Regression Results for Selected Portfolios

Portfolio	Alpha (%)	Beta (Market)	SMB	HML	Adjusted R^2
Small-High B/M	0.15	1.02***	0.78***	0.70***	0.78
Small-Low B/M	0.04	1.09***	0.65***	-0.14	0.72
Big-High B/M	0.06	0.87***	-0.10	0.48***	0.65
Big-Low B/M	-0.02	0.82***	-0.23	-0.08	0.58

*Note: *** indicates statistical significance at the 1% level.*

4.3. Robustness Checks

Robustness checks confirm the stability and reliability of the Fama-French three-factor model across various model specifications, subperiods, and portfolio weighting schemes. As shown in Table 4.3, the subperiod analysis dividing the data into pre-COVID (2015–2019) and post-COVID (2020–2024) periods reveals that both the size (SMB) and value (HML) factors maintain their explanatory power, although the magnitude of these effects is slightly attenuated in the post-COVID era. This pattern may reflect heightened market uncertainty, increased volatility, and evolving regulatory landscapes in Indonesia's capital market during and after the pandemic, consistent with the findings of (Askotamiya & Agnes, 2023).

Alternative factor constructions, specifically the use of equal-weighted (EW) portfolios instead of value-weighted (VW) portfolios, yield qualitatively similar results. This indicates that the size and value effects are not artifacts of large-cap dominance in the VW method but are indeed robust features of the Indonesian equity market, as also noted by (Otaify, 2022; Zhou, 2023).

Variance inflation factors (VIF) for the regressors consistently remain below the threshold of 2.0, indicating no multicollinearity issues. Additionally, Durbin-Watson statistics across all models fall within the acceptable range (1.72–2.14), suggesting no significant autocorrelation in residuals. These diagnostic results reinforce the validity of the model estimations.

Out of sample forecasting using a rolling window approach further demonstrates the predictive superiority of the Fama-French model. The model consistently achieves lower root mean squared error (RMSE) and mean absolute error (MAE) compared to the CAPM, underscoring its enhanced forecasting capability for portfolio returns in the Indonesian market.

Table 3. Robustness Checks: Model Diagnostics and Predictive Accuracy

Robustness Check	CAPM	Fama-French Model
Average Adjusted R^2	0.52	0.73
RMSE (Out-of-Sample Forecast)	2.35	1.82
MAE (Out-of-Sample Forecast)	1.91	1.54
VIF for Regressors	–	< 2.0
Durbin-Watson Statistic	–	1.72–2.14
Equal-Weighted Factor Results Consistency	–	Similar
Subperiod Analysis (2015–2019 vs. 2020–2024)	–	Consistent (lower post-COVID magnitudes)

Source: Author's calculation based on IDX data (2015–2024)

These robustness checks provide strong empirical validation for the Fama-French three-factor model's relevance in the Indonesian equity market. They also emphasize the model's adaptability across varying market conditions, weighting schemes, and forecast horizons, confirming its robustness as a multifactor asset pricing framework for emerging markets.

4.4. Discussion

The findings of this study offer robust empirical support for the applicability of the Fama-French three-factor model in the Indonesian equity market, reinforcing the model's explanatory power in an emerging market context. By employing a comprehensive dataset spanning 2015 to 2024, this research extends prior literature that has predominantly focused on developed economies or limited timeframes within Indonesia. The persistence of the size effect, as evidenced by the positive and statistically significant SMB coefficients across the majority of small-cap portfolios, underscores the enduring relevance of firm size as a determinant of stock returns in emerging markets. This observation is consistent with prior studies in similar contexts, such as (Cheriyan & Lazar, 2019), who documented the critical role of firm size in explaining liquidity commonality and return dispersion in the Indian market, and (Zhou, 2023), who highlighted the profitability of small-cap value rotation strategies in the Chinese stock market.

The persistence of the size premium in Indonesia can be attributed to structural characteristics inherent to emerging markets: higher levels of information asymmetry, thinner trading volumes, less developed regulatory frameworks, and a retail investor base that often exhibits behavioural biases such as herding and overreaction (Otaify, 2022; Rozy, 2023). These conditions exacerbate mispricing and enhance the opportunities for size-related return differentials to emerge and persist over time. Furthermore, the magnitude of the SMB coefficients, particularly in post-COVID subperiods, suggests that small-cap stocks may serve as vehicles for higher expected returns, albeit with elevated risk profiles, a dynamic that is well-documented in global literature (Zhou, 2023).

The value premium, as reflected in the positive and significant HML coefficients, further corroborates the role of firm fundamentals in shaping stock returns. High book-to-market firms, typically characterized by financial distress, lower growth prospects, or conservative accounting practices, consistently outperform their growth counterparts, especially during periods of heightened uncertainty such as the COVID-19 pandemic (Askotamiya & Agnes, 2023). This pattern is aligned with the theoretical arguments that value stocks act as a hedge against market downturns due to their relatively stable earnings base and asset-backed valuation (Fama & French, 1996). The findings echo the conclusions of (Otaify, 2022) in the Egyptian market, where the value premium was found to be a persistent driver of stock returns, and reinforce the notion that the value effect is not merely a phenomenon of developed markets but a universal feature of asset pricing dynamics in less efficient markets.

Crucially, this study highlights the often-overlooked intersection between factor models and market microstructure characteristics. The work of (Rozy, 2023) underscores that factors such as bid-ask spreads, return volatility, and trading frictions are intrinsically linked to firm size and, by extension, the size premium. This suggests that the SMB factor may, in part, serve as a proxy for liquidity risk in markets like Indonesia, where trading costs and market depth vary considerably across firms. Such a perspective aligns with recent theoretical developments that advocate for an integrated view of asset pricing, incorporating both firm fundamentals and trading frictions(Cheriyan & Lazar, 2019).

The implications of these findings are both theoretical and practical. From a theoretical standpoint, this study affirms the global relevance of the Fama-French framework, demonstrating its robustness across diverse market settings, including an emerging market with unique institutional and behavioral

characteristics. The consistency of size and value effects in Indonesia, India, Egypt, and China suggests that these factors capture fundamental risk premia that transcend geographic boundaries, albeit with variations in magnitude and interpretation.

Practically, the results offer actionable insights for portfolio managers, institutional investors, and policymakers in Indonesia. Factor-based investment strategies that incorporate size and value considerations may yield superior risk-adjusted returns, particularly when tailored to the specific liquidity constraints and investor profiles of the Indonesian market. For instance, overweighting small-cap and high book-to-market stocks could enhance portfolio performance, albeit with careful attention to liquidity risk and potential transaction costs. Moreover, the findings underscore the need for improved market infrastructure, enhanced disclosure standards, and investor education to mitigate the risks associated with information asymmetry and behavioural biases, as highlighted by (Zulvina et al., 2021).

Nonetheless, this study acknowledges several limitations. The Fama-French model, while robust, does not explicitly account for other potentially significant factors such as momentum, profitability, and investment behaviour, which have been incorporated into extended multifactor frameworks (Fama & French, 2015). Additionally, sectoral heterogeneity and macroeconomic shocks beyond the COVID-19 period such as global commodity price fluctuations or domestic policy shifts may introduce additional dimensions of risk not captured in the current model specification.

Future research could address these limitations by integrating more granular data, such as intraday trading metrics and sector-specific factors, and by employing advanced analytical techniques such as machine learning and artificial intelligence to uncover nonlinear relationships and interaction effects among variables. Furthermore, incorporating environmental, social, and governance (ESG) factors could provide a more holistic understanding of asset pricing dynamics in Indonesia, particularly as global markets increasingly emphasize sustainability and corporate responsibility.

In sum, this study provides compelling evidence that the size and value effects long documented in developed markets are not only present but highly relevant in the Indonesian context. These insights contribute to the growing body of literature on emerging market asset pricing and underscore the importance of adapting established models to reflect the unique characteristics of each market environment.

5. CONCLUSION

This study re-examines the explanatory power of the Fama-French three-factor model in the Indonesian equity market, utilizing a comprehensive dataset spanning 2015 to 2024 and integrating insights from recent global and regional research. The empirical findings confirm the persistence of both the size (SMB) and value (HML) effects, reinforcing the model's applicability beyond developed markets. The positive and statistically significant coefficients for SMB and HML across various portfolio specifications demonstrate that firm size and book-to-market equity remain salient determinants of cross-sectional stock return variation in Indonesia, an emerging market characterized by high retail investor participation, information asymmetry, and episodic illiquidity(Cheriyan & Lazar, 2019).

The robustness of these results, as confirmed through subperiod analyses, alternative factor constructions, diagnostic tests, and out-of-sample forecasting, further validates the model's relevance in dynamic and volatile market conditions. The findings also underscore the need to consider market microstructure variables such as bid-ask spreads and return volatility as integral to understanding the size premium in emerging markets, a perspective supported by (Rozy, 2023).

Theoretically, this research contributes to the growing literature on asset pricing in emerging markets by affirming the global relevance of the Fama-French framework while highlighting market-specific nuances. The persistence of size and value effects in Indonesia aligns with evidence from other emerging economies, including India (Cheriyan & Lazar, 2019), Egypt (Otaify, 2022), and China (Zhou, 2023), suggesting that these factors capture fundamental risk premia that are shaped by liquidity constraints, informational inefficiencies, and investor behaviour.

Practically, the study offers valuable insights for investors, fund managers, and policymakers. For investors, the findings suggest that factor-based strategies incorporating size and value considerations may enhance risk-adjusted returns, especially when tailored to the liquidity and volatility characteristics of the Indonesian market. For policymakers, the results highlight the importance of improving market transparency, strengthening disclosure requirements, and supporting market infrastructure to mitigate information asymmetry and enhance price discovery.

However, the study acknowledges several limitations. The current model does not account for additional factors such as momentum, profitability, investment patterns, or macroeconomic shocks beyond the COVID-19 period (Fama & French, 2015). Additionally, sectoral dynamics, corporate governance structures, and the impact of environmental, social, and governance (ESG) factors on return patterns remain underexplored in the Indonesian context. Future research could extend the model by incorporating these dimensions, exploring non-linear interactions, and leveraging advanced analytical techniques such as machine learning for predictive modelling.

In conclusion, this study provides robust evidence that the Fama-French three-factor model remains a valid and valuable tool for understanding asset pricing in Indonesia's emerging market. The persistent size and value effects underscore the enduring importance of firm-level characteristics in shaping return dynamics, while the study's integration of contemporary data and global perspectives contributes to the broader discourse on asset pricing in less efficient markets. These findings offer both theoretical validation and practical guidance for market participants seeking to navigate the complexities of Indonesia's evolving capital market.

References

Askotamiya, C., & Agnes, K. (2023). Do Value Stock Outperform Growth Stock During Covid-19 Pandemic: Evidence From The Indonesian Stock Exchange. *Management and Sustainable Development Journal*, *5*(2), 94–109.

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics*, *9*(1), 3–18.

Billeter, M., Huang, Y. J., Moseley, H. N., Montelione, G. T., Zweckstetter, M., Westler, W. M., Bahrami, A., Eghbalnia, H. R., Markley, J. L., Delaglio, F., Cornilescu, G., Bax, A., Delaglio, F., Bax, A., Luchinat, C., Parigi, G., Pierattelli, R., Bougault, C. M., Kishore, A. I., … Montelione, G. T. (2010). *References and Notes 1*. *327*(February), 598–603.

Cheriyan, N. K., & Lazar, D. (2019). Relationship between liquidity, volatility and trading activity: An intraday analysis of Indian stock market. *International Journal of Economics and Financial Issues*, *9*(1), 17.

Daniel, K., & Titman, S. (1997). Evidence on the characteristics of cross sectional variation in stock returns. *The Journal of Finance*, *52*(1), 1–33.

Fama, E. F. (1991). Efficient Capital Markets: *Journal of Finance*, *46*(5), 383–417. https://doi.org/10.2307/2328565

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, *47*(2), 427–465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3–56.

Fama, E. F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. *The Journal of Finance*, *51*(1), 55–84.

Fama, E. F., & French, K. R. (2015). *Taxes , Financing Decisions , and Firm Value*. *53*(3), 819–843.

Harvey, C. R. (1995). Predictable risk and returns in emerging markets. *The Review of Financial Studies*, *8*(3), 773–816.

Helmina, M. R. A., Ghozali, I., Isgiyarta, J., & Sutomo, I. (2019). How does reporting technology affect firm value? *International Journal of Scientific and Technology Research*, *8*(7).

Lakonishok, J., Shleifer, A., & Vishny, R. W. (1994). Contrarian investment, extrapolation, and risk. *The*

Journal of Finance, *49*(5), 1541–1578.

Lintner, J. (1965). Security prices, risk, and maximal gains from diversification. *The Journal of Finance*, *20*(4), 587–615.

Mossin, J. (1966). Equilibrium in a capital asset market. *Econometrica: Journal of the Econometric Society*, 768–783.

Newey, W. K., & West, K. D. (1987). Hypothesis testing with efficient method of moments estimation. *International Economic Review*, 777–787.

Otaify, M. (2022). Modeling volatility of size, value and financial leverage-sorted portfolios: Evidence from Egyptian stock exchange. *Journal of Public Affairs*, *22*(2), e2369.

Rozy, M. F. (2023). *Analisis pengaruh BID-ASK Spread, market value, dan resiko return terhadap holding period saham pada sektor perbankan yang terdaftar di BEI tahun 2018-2022*. Universitas Islam Negeri Maulana Malik Ibrahim.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, *19*(3), 425–442.

Shumway, T. (1997). The delisting bias in CRSP data. *The Journal of Finance*, *52*(1), 327–340.

Van Dijk, M. P. (2011). A different development model in China's western and eastern provinces? *Modern Economy*, *2*(5), 757–768.

Zhou, Z. (2023). Research on Small-Cap Value Rotation Investment Strategy Based on" Size Effect"-Evidence from the Chinese Stock Market. *Journal of Applied Finance & Banking*, *13*(6), 89–98.

Zulvina, Y., Zulvina, D., & Zulvina, F. (2021). Peran dewan wanita pada pengungkapan anti penyuapan dan kinerja keuangan di perusahaan sektor pertambangan di BEI. *Jurnal Magister Akuntansi Trisakti Vol*, *8*(1).