



Moderating Effect of Foreign Capital Flow on Investor Sentiment and Stock Returns in ASEAN

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Abstract

Background: ASEAN capital markets exhibit persistent return volatility that is inconsistent with macroeconomic fundamentals, suggesting the influence of behavioral and structural factors beyond the Efficient Market Hypothesis (EMH).

Objective: This study examines the direct effect of investor sentiment on stock returns across six ASEAN economies and tests the moderating role of foreign capital flows in this relationship.

Methods: Using quarterly panel data from 2003 to 2024 (N = 504) covering Indonesia, Malaysia, Singapore, Thailand, the Philippines, and Vietnam, this study employs moderated regression analysis within a fixed effects model (FEM). Investor sentiment is proxied by the Consumer Confidence Index (CCI), stock returns are measured using national composite indices, and foreign capital flows are operationalized through Foreign Direct Investment (FDI). The Hausman test confirmed FEM as the appropriate estimator.

Results: Investor sentiment exerts a positive and significant effect on stock returns ($\beta = 0.187$, $p < 0.05$). Although FDI alone does not significantly predict returns ($p = 0.177$), the interaction term $CCI \times FDI$ is highly significant ($\beta = 0.115$, $p < 0.01$), confirming a catalytic moderating effect.

Conclusion: Foreign capital inflows amplify the sentiment–return relationship in ASEAN markets. These findings offer critical insights for policymakers and portfolio managers regarding behavioral market dynamics and capital flow surveillance in emerging economies.

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INTRODUCTION

Over the past two decades, ASEAN (Association of Southeast Asian Nations) has emerged as one of the world's most dynamic economic regions. Its capital markets—spanning the Indonesia Stock Exchange (IDX), Bursa Malaysia, the Singapore Exchange (SGX), the Stock Exchange of Thailand (SET), the Philippine Stock Exchange (PSE), and the Ho Chi Minh Stock Exchange (HOSE)—have undergone significant structural development and regional integration. Despite this progress, a persistent paradox characterizes ASEAN equity markets: stock returns frequently exhibit excessive volatility that cannot be adequately explained by macroeconomic fundamentals alone (Baker & Wurgler, 2006; Fama, 1970). This divergence between observed market behavior and rational pricing theory suggests the influence of psychological and structural determinants that standard models fail to fully capture.

The Efficient Market Hypothesis (EMH) posits that asset prices fully reflect all available information at any given time (Fama, 1970). However, empirical evidence from ASEAN markets consistently challenges this assumption, as prices deviate systematically from fundamental values, driven in part by investor sentiment—the collective psychological disposition of market participants (Danila et al., 2021; Maurya et al., 2026). De Long (1990) demonstrated that noise traders create systematic mispricings that rational arbitrageurs cannot fully correct, while Kahneman (2013) established the cognitive foundations of decision-making under uncertainty. In developing markets with high retail investor participation and maturing institutions, behavioral dynamics are particularly pronounced (Banyan, 2022; Tan et al., 2024).

Although the literature extensively documents the direct relationship between investor sentiment and stock returns Baker (2006) and Stambaugh (2012), a critical structural dimension remains underexplored: whether and how foreign capital flows moderate this relationship. Prior studies have treated investor sentiment and foreign direct investment (FDI) as independent determinants of returns, leaving a significant gap regarding their joint interactive effects in ASEAN markets (Garg et al., 2026; Yi et al., 2019).

Recent empirical work highlights the role of external capital in shaping domestic market dynamics Phan (2015), yet no prior study has formally tested FDI as a moderating variable in the sentiment–return nexus using longitudinal panel data for ASEAN-6 economies. This study addresses this gap by developing an integrated moderation model. The dependent variable is stock return, measured through national composite stock price indices. Investor sentiment, as the independent variable, is proxied by the Consumer Confidence Index (CCI), a standardized measure of aggregate market psychology. Foreign capital flow, as the moderating variable, is operationalized through net quarterly FDI inflows in USD million. This study proposes the following hypotheses: H1—investor sentiment positively affects stock returns; and H2—FDI positively moderates the relationship between investor sentiment and stock returns.

The importance of this issue is reinforced by evidence that sentiment and foreign participation are not separate market forces. French and Li (2017), using Thailand, documented a close connection among sentiment, foreign equity flows, and returns, indicating that cross-border investor activity may change the way domestic psychological signals are incorporated into prices. This ASEAN-specific evidence is particularly relevant because Thailand shares with the other markets in this study a high degree of exposure to regional portfolio reallocations and global risk-on/risk-off cycles. In the Philippines, Atento (2025) similarly emphasized the relevance of investor sentiment for interpreting valuation and market-efficiency conditions among listed firms. Together, these studies suggest that the behavioral component of returns should be examined alongside the intensity of foreign participation rather than as an isolated pricing anomaly.

Recent work further shows that the sentiment–return relationship is embedded in a broader macro-financial environment. Pranata and Jamaludin (2026) link geopolitical risk, market sentiment, and energy dependence across ASEAN stock markets, highlighting how external shocks can strengthen or weaken behavioral responses. Yudaruddin et al. (2026) show that government responses during the COVID-19 period affected market reactions to dividend announcements in ASEAN-5, demonstrating that policy and crisis conditions can reshape the interpretation of corporate information. Syahputri et al. (2025) likewise show that institutional and cultural context matters for the relationship between ESG reporting and market capitalization in Asia. These findings support a regional framework in which sentiment, external capital, institutional context, and market outcomes interact dynamically.

Accordingly, the novelty of the present study is not the proposition that sentiment affects stock returns by itself, but the explicit test of foreign capital flow as a structural moderator of that relationship across a balanced ASEAN-6 panel. This distinction is important because a statistically weak direct effect of FDI does not imply that foreign capital is economically irrelevant. A moderator can materially alter the slope linking sentiment to returns even when its standalone coefficient is insignificant. By estimating the $CCI \times FDI$ interaction, this study therefore evaluates whether foreign capital changes the market transmission mechanism through which optimism and pessimism are reflected in equity prices.

LITERATURE REVIEW

Investor Sentiment and Stock Returns. The behavioral finance literature extensively documents the relationship between investor sentiment and asset pricing. Baker and Wurgler (2006) demonstrated that high-sentiment periods predict lower future returns for speculative stocks, establishing a direct causal link between psychology and prices. De Long (1990) showed that noise trader risk—arising from sentiment-driven mispricing—persists even in the presence of rational arbitrageurs because the risk of further mispricing deters correction. In emerging markets, Ghumro (2024) confirmed that sentiment significantly predicts stock returns, with stronger asymmetric effects during economic downturns. Stambaugh (2012) further showed that sentiment effects are stronger for assets that are difficult to short-sell, a characteristic of many ASEAN securities given their limited short-selling infrastructure.

Foreign Capital Flows and Market Dynamics. Foreign direct investment (FDI) plays a multifaceted role beyond direct economic growth. FDI signals external market confidence, enhances market liquidity, and may influence domestic investor behavior. Identified FDI as a significant determinant of stock returns in Vietnam (Ngo et al., 2020; Nguyen et al., 2024). Phan (2015) showed that foreign capital flows contain predictive information for returns beyond domestic fundamentals. Investor sentiment is partially transmitted across markets through international capital channels, suggesting that FDI may condition the magnitude of domestic sentiment effects (Liu et al., 2023). The ASEAN Investment Report (2023) documents record-level FDI inflows into ASEAN, reflecting deepening global market integration.

Research Hypotheses. Based on the foregoing theoretical and empirical review, two hypotheses are proposed: H1: Investor sentiment, proxied by the Consumer Confidence Index (CCI), has a positive and significant direct effect on stock returns in ASEAN-6 markets, grounded in behavioral finance theory (Baker & Wurgler, 2006; De Long et al., 1990). H2: Foreign capital flow, proxied by FDI, positively moderates the relationship between investor sentiment and stock returns, grounded in the structural amplification mechanism whereby higher FDI creates deeper markets in which domestic sentiment is transmitted more strongly into prices (Shiller, 2017).

Investor Sentiment, Volatility, and Market Efficiency. Evidence from developing markets consistently indicates that sentiment affects not only average returns but also the volatility and efficiency of price formation. Ph and Rishad (2020) provide empirical evidence from India that investor sentiment is associated with stock-market volatility, which implies that shifts in collective expectations can affect both the direction and dispersion of returns. Pham (2024) extends this perspective by showing that investor sentiment can moderate the stock market–economic growth nexus in developing countries. In the Philippine setting, Atento (2025) connects valuation metrics, market efficiency, and investor sentiment, reinforcing the proposition that sentiment contains information about deviations from purely fundamental pricing. These findings are directly relevant to ASEAN because several regional exchanges combine growing institutional participation with a still-substantial retail investor base.

Capital Flows as a Conditioning Mechanism. The strongest empirical precedent for the moderation argument comes from studies that explicitly connect flows, sentiment, and market outcomes. French and Li (2017) show that foreign equity flows and sentiment jointly matter for Thai stock returns, indicating that external participation can transmit or magnify behavioral signals. Kustina et al. (2024) find that foreign portfolio investment moderates the effects of exchange-rate volatility and investor sentiment on country-index crash risk, suggesting that foreign capital can change the risk consequences of domestic market psychology. Sachaphimukh (2025) similarly analyzes how investor-sentiment regimes moderate the influence of different flow types on capital-structure decisions in Thailand. Although the dependent variables differ, these studies converge on a common mechanism: the effect of one financial driver depends on the state or intensity of another.

Comparable evidence outside ASEAN further strengthens the theoretical plausibility of a capital-flow moderator. Kinuthia et al. (2026) identify a moderating effect of capital inflows on the relationship between systematic risks and stock-return volatility among firms listed on the Nairobi Securities Exchange. Yanto and Claudia (2026) examine foreign investment and market sentiment in the Indonesian government-bond market with the exchange rate as a moderating variable, illustrating that interaction structures are also relevant in fixed-income pricing. Alfonso

et al. (2026) examine macroeconomic drivers of stock returns and the moderating role of foreign exchange in India and the Philippines, again showing that return formation is frequently conditional rather than additive. The present study transfers this conditional logic to the ASEAN-6 equity context by treating FDI as the variable that changes the sensitivity of returns to investor sentiment.

Institutional and Structural Boundary Conditions. Capital flows operate within institutional and macroeconomic environments that can reinforce or constrain their market impact. Hunjra et al. (2020) demonstrate that institutional quality can moderate a major finance–environment relationship, offering a broader methodological precedent for treating institutional structure as a conditioning factor. Yu et al. (2024) likewise find that financial-sector development moderates the economic-policy-uncertainty and resource-rents nexus in BRICS economies. In Asia, Bary and Hakim (2025) highlight how the effects of green investment on environmental outcomes depend on the surrounding economic context, while Syahputri et al. (2025) demonstrate the role of national cultural values in Asian capital-market outcomes. These studies do not test the same dependent variable as the present article, but they support the broader proposition that macro-financial relationships are contingent on structural conditions.

Crisis, Geopolitical, and Policy Context. ASEAN markets are also exposed to common external disturbances that can alter sentiment and capital allocation simultaneously. Pranata and Jamaludin (2026) show that geopolitical risk interacts with market sentiment and energy dependence in ASEAN stock markets, while Yudaruddin et al. (2026) document heterogeneous market reactions to dividend announcements under government responses to COVID-19. Such evidence suggests that the strength of the sentiment–return association is unlikely to be constant across all periods. The use of country fixed effects and the reported robustness checks excluding major crisis windows therefore provide an important safeguard against interpreting a crisis-specific pattern as a general ASEAN relationship.

Evidence Quality and Interpretation. The recent literature also illustrates why source quality must be considered when constructing a rapidly evolving evidence base. Maghdid et al. (2024) addressed a moderation framework involving political stability, policy uncertainty, governance practice, and stock-market performance, but the article has been retracted. It is therefore cited here only to document the existence of a related analytical specification and is not treated as valid empirical support for the hypotheses or conclusions of this study. This distinction helps preserve evidentiary integrity while acknowledging the broader methodological literature on interaction effects.

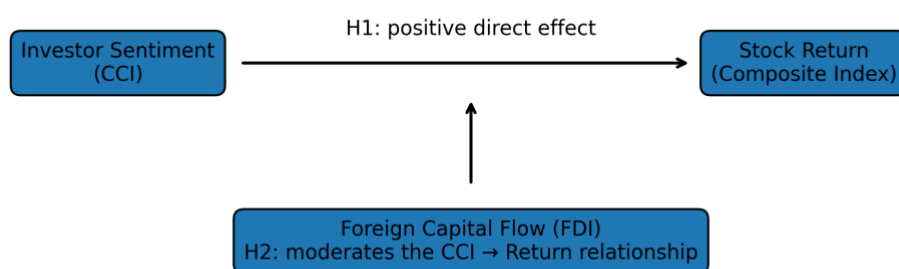


Figure 1. Conceptual framework of the proposed moderation relationship

METHOD

This study adopted a quantitative research design using balanced quarterly panel data from six ASEAN economies: Indonesia, Malaysia, Singapore, Thailand, the Philippines, and Vietnam. The observation period spanned Q1 2003 to Q4 2024, yielding 84 quarters per country and a total of 504 balanced panel observations (6 countries × 84 quarters). These markets were selected based on their financial integration, data availability, and representativeness of ASEAN's

economic diversity. The data sources included national composite stock indices obtained from the respective stock exchanges, Consumer Confidence Index (CCI) data from central banks and national statistical agencies (see Appendix A), and Foreign Direct Investment (FDI) data from the ASEAN Secretariat and the World Bank.

The three core variables were operationalized as follows: (1) Stock Return (Y), measured as the quarterly percentage change in each country's national composite index; (2) Investor Sentiment (X), measured using the Consumer Confidence Index (CCI), a standardized index with a scale of 0–200, where values above 100 indicate net optimism, obtained from national central banks and statistical agencies; and (3) Foreign Capital Flow (M), measured as net quarterly FDI inflows in USD million, obtained from the ASEAN Secretariat and the World Bank. All variables were mean-centered before the interaction term was computed to minimize multicollinearity (Hayes, 2017).

The moderation regression model was formally specified as follows: $Y_{it} = \alpha + \beta_1 CCI_{it} + \beta_2 FDI_{it} + \beta_3 (CCI_{it} \times FDI_{it}) + \mu_i + \varepsilon_{it}$, where Y_{it} represents stock return, CCI_{it} represents investor sentiment, FDI_{it} represents foreign capital flow, $CCI_{it} \times FDI_{it}$ represents the interaction term, μ_i represents country fixed effects, and ε_{it} represents the error term. The Fixed Effects Model (FEM) was selected over the Random Effects Model (REM) based on the Hausman test results ($\chi^2 = 34.12$, $p = 0.0008$). Although Panel ARDL is appropriate for examining long-run cointegration when $T > N$ ($T = 84$, $N = 6$), this study focused on short- to medium-run moderation effects; therefore, FEM with robust standard errors was considered the more suitable estimator.

Prior to estimation, several diagnostic tests were conducted, including the Hausman Specification Test, which confirmed the suitability of FEM; the Levin-Lin-Chu Panel Unit Root Test, which indicated that all variables were stationary; the Breusch-Pagan LM Test for heteroskedasticity; and the Wooldridge Test for serial correlation. Robust standard errors were applied throughout the analysis. Formal ethical approval was not required because this study used publicly available secondary data and did not involve human or animal subjects. Nevertheless, institutional ethical principles were maintained throughout the research process.

Data Architecture and Panel Construction. The unit of analysis is the country-quarter. For each of the six markets, the national composite index, CCI, and FDI series were aligned to a common quarterly calendar. The balanced structure yields 84 time observations for each country and prevents the estimator from being driven by unequal country coverage. The long observation window is particularly useful for ASEAN because it spans multiple market regimes, including the pre-Global Financial Crisis period, the 2008–2009 crisis and recovery, the expansion of regional financial integration during the 2010s, the COVID-19 shock, and the subsequent normalization period. This temporal breadth strengthens the ability of the fixed-effects specification to identify within-country variation rather than relying solely on cross-sectional differences.

Measurement Rationale. CCI is used as the sentiment proxy because it provides a repeated, publicly available measure of optimism and pessimism that can be harmonized across the six economies at quarterly frequency. Although investor-specific surveys would be more direct, they are not consistently available for the full 2003–2024 period. The use of a confidence index is therefore a pragmatic choice that prioritizes longitudinal comparability. Stock return is expressed as the quarterly percentage change in the national composite index so that differences in index levels across countries do not affect comparability. FDI is measured in net USD million because the research question concerns the intensity of foreign capital entering the domestic economy and its potential to alter the transmission of sentiment into market prices.

Moderation and Centering Procedure. The empirical focus is the coefficient on the interaction term rather than the standalone FDI coefficient. Prior to constructing $CCI \times FDI$, both constituent variables were mean-centered. Centering does not alter the substantive interaction effect, but it makes the lower-order coefficients easier to interpret and reduces nonessential collinearity between the interaction and its component terms. Under the estimated model, β_1 represents the association between CCI and returns when centered FDI is at its mean, β_2 represents the association between FDI and returns when centered CCI is at its mean, and β_3 indicates how much the CCI slope changes as FDI rises. A positive β_3 therefore represents an amplifying moderation pattern.

Estimator Choice and Robustness Logic. The Hausman statistic ($\chi^2 = 34.12$, $p = 0.0008$) indicates that unobserved country-specific effects are correlated with the regressors, favoring FEM over REM. This is economically plausible because ASEAN economies differ persistently in market depth, regulatory architecture, exchange-rate regimes, investor composition, and institutional development. Country fixed effects absorb these time-invariant differences. Robust standard errors address heteroskedasticity, while the reported Driscoll–Kraay specification provides an additional check against cross-sectional dependence. The exclusion of the 2008–2010 and 2020–2021 crisis windows serves as a sensitivity test for the possibility that the interaction is driven only by extreme episodes.

Table 1

Research Design and Measurement Architecture

Component	Operationalization	Coverage	Analytical Role
Stock Return (Y)	Quarterly % change in national composite index	ASEAN-6, 2003–2024	Dependent variable
Investor Sentiment (X)	Consumer Confidence Index (CCI)	Quarterly; harmonized country series	Main predictor
Foreign Capital Flow (M)	Net quarterly FDI inflows (USD million)	Quarterly; ASEAN Secretariat/World Bank	Moderator
Interaction	Mean-centered CCI × mean-centered FDI	504 country-quarter observations	Tests slope amplification
Estimator	Country Fixed Effects Model with robust SE	N = 504; 6 countries × 84 quarters	Controls time-invariant country heterogeneity

Table 1 summarizes the measurement and analytical architecture. Importantly, the table does not introduce new variables or observations beyond those already specified in the study; it reorganizes the design information to make the moderation logic and panel structure transparent. The common 84-quarter coverage for each country is a direct consequence of the balanced-panel design (504 observations divided across six economies).

RESULTS AND DISCUSSION

Results

Descriptive Statistics

This section presents the empirical findings from the moderated regression analysis. We begin with descriptive statistics to characterize the distribution of the core variables, followed by formal hypothesis testing using the Fixed Effects Model, and conclude with a discussion framed within behavioral finance theory and ASEAN-specific economic contexts.

Table 2 presents descriptive statistics for the three core variables across 504 quarterly observations from ASEAN-6 markets from 2003 to 2024. Skewness values close to zero and kurtosis values near 3.0 confirm approximately normal distributions suitable for regression analysis. The Pearson correlation between CCI and Stock Return is $r = 0.312$ ($p < 0.01$). Variance Inflation Factors ($VIF < 1.5$ for all predictors) confirm that there are no multicollinearity concerns.

Table 2

Descriptive Statistics of Research Variables

Variable	Mean	Std. Deviation	Minimum	Maximum
Stock Return (%)	1.89	8.52	-9.93	14.94
CCI (Index)	91.45	22.15	45.60	134.80
FDI (USD Million)	15,230.41	8,950.12	1,425.90	34,890.70

Stock returns averaged 1.89% per quarter, with a standard deviation of 8.52 percentage points and a quarterly coefficient of variation of approximately 4.5, indicating substantial

volatility relative to the mean. The minimum return of -9.93% and the maximum return of 14.94% reflect the impact of major shocks, including the Global Financial Crisis (2008–2009) and the COVID-19 pandemic (2020–2021). Investor sentiment, measured by the Consumer Confidence Index (CCI), averaged 91.45, ranging from 45.60, which indicates severe pessimism during crises, to 134.80, which reflects elevated optimism during growth episodes. These findings indicate significant psychological variability across countries and time periods. FDI inflows ranged from USD 1.43 billion to USD 34.89 billion per quarter, underscoring substantial structural variation in external capital across the panel.

Moderation regression analysis was conducted using a fixed effects model, based on the Hausman test results, to test the research hypotheses. This model was purposefully selected to reflect the unique institutional and regulatory characteristics of each ASEAN country.

Table 3

Panel Regression Results with Fixed Effects

Variable	Coefficient (β)	t-value	P-value
CCI (Investor Sentiment)	0.187	2.493	0.013
FDI (Foreign Capital Flow)	0.092	1.353	0.177
Interaction (CCI $\times$ FDI)	0.115	2.805	0.005
Constant	1.254	2.787	0.006

Hypothesis Testing

The within R^2 value of 0.284 and the F-statistic of 21.85 ($p < 0.001$) confirm the overall validity of the model. Robust standard errors are applied throughout the analysis. H1 (Investor Sentiment $\rightarrow$ Stock Returns): The CCI coefficient ($\beta = 0.187$, $t = 2.493$, $p = 0.013$) is positive and statistically significant at the 5% level. A one-unit increase in CCI is associated with a 0.187 percentage-point increase in quarterly stock returns, *ceteris paribus*. This supports H1 and is consistent with (Baker & Wurgler, 2006; Stambaugh et al., 2012). H2 (FDI as Moderator): The direct effect of FDI is not statistically significant ($\beta = 0.092$, $p = 0.177$), indicating that FDI alone is not a primary driver of stock returns. However, the interaction term CCI $\times$ FDI is highly significant ($\beta = 0.115$, $t = 2.805$, $p = 0.005$), confirming H2: FDI structurally amplifies the sentiment–return relationship. Robustness: The results remain consistent under the random-effects specification, Driscoll–Kraay standard errors, which correct for cross-sectional dependence, and the exclusion of crisis periods (2008–2010; 2020–2021), confirming the stability of the model.

Model Specification and Diagnostic Evidence. The model-selection evidence is consistent with the institutional heterogeneity of ASEAN-6. The Hausman result rejects the null that the country-specific effects are uncorrelated with the regressors, supporting fixed effects. The reported stationarity tests indicate that the modeled variables do not contain unit-root behavior that would invalidate the short- to medium-run regression interpretation. In addition, the application of robust and Driscoll–Kraay standard errors addresses two common panel-data concerns: heteroskedasticity and cross-sectional dependence. The robustness exercise that removes the 2008–2010 and 2020–2021 crisis intervals is particularly informative because it indicates that the positive interaction is not described as a result that exists only during global disruption.

Economic Interpretation of the Interaction. The positive interaction coefficient ($\beta = 0.115$, $p = 0.005$) means that the estimated marginal effect of investor sentiment on stock returns becomes stronger as FDI rises above its sample mean. Conversely, when FDI is below its mean, the sentiment slope is comparatively weaker. This is the defining implication of moderation and helps reconcile the insignificant direct FDI coefficient with the substantive importance of foreign capital. FDI does not need to raise quarterly stock returns mechanically in every period; instead, it can change the market environment in which domestic optimism or pessimism is converted into price movement. This interpretation is aligned with the flow-sentiment evidence of French and Li (2017) and with the moderating role of foreign portfolio investment identified by Kustina et al. (2024).

The coefficient pattern is also consistent with a liquidity-and-attention channel. Higher foreign capital participation can deepen market activity, broaden the investor base, and increase

the speed at which confidence-related information is reflected in prices. Under optimistic conditions, these features can reinforce buying pressure and produce stronger positive return responses. Under pessimistic conditions, the same transmission capacity may accelerate repricing. The latter implication is important for risk management because an amplifying moderator can strengthen both favorable and unfavorable sentiment effects, depending on the direction of the sentiment shock.

Table 4
Model Specification, Diagnostics, and Robustness Evidence

Assessment	Reported Evidence	Interpretation
Hausman specification test	$\chi^2 = 34.12$; $p = 0.0008$	FEM preferred to REM
Panel stationarity	Levin–Lin–Chu tests reported stationary	Supports regression in levels as specified
Heteroskedasticity	Breusch–Pagan LM assessed; robust SE applied	Inference adjusted for non-constant variance
Serial/cross-sectional dependence	Wooldridge assessed; Driscoll–Kraay robustness reported	Results checked against panel dependence
Crisis sensitivity	2008–2010 and 2020–2021 excluded in robustness test	Interaction remains stable outside major crisis windows

Table 4 consolidates the diagnostic and robustness information reported in the study. Where the manuscript reports only the qualitative outcome of a diagnostic test, no additional test statistic is invented; the table therefore distinguishes the exact Hausman statistic from the other procedures whose numerical values were not provided in the source analysis.

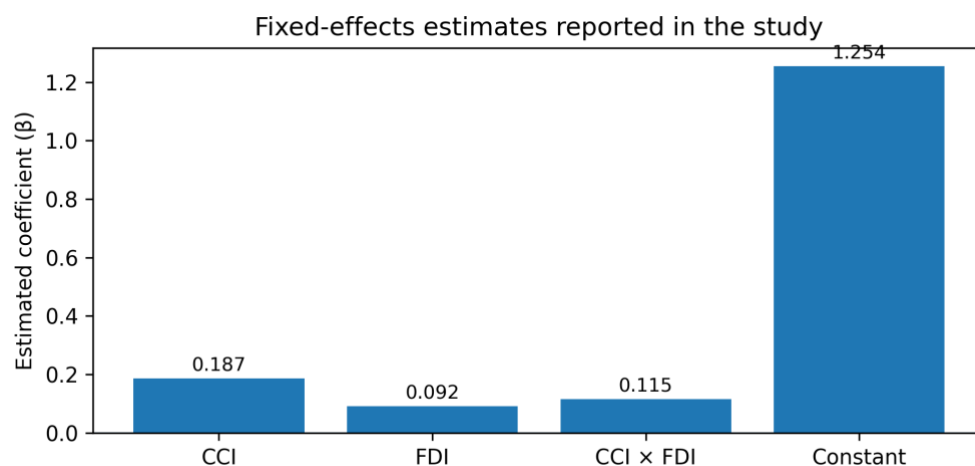


Figure 2. Estimated fixed-effects coefficients reported in the moderation model

Figure 2 visualizes the reported coefficients to clarify their relative magnitudes. The figure is descriptive rather than a substitute for statistical inference: significance is determined from the reported t- and p-values in Table 2. The key inferential result remains the positive and significant CCI × FDI coefficient, while the direct FDI coefficient is statistically insignificant.

Cross-Country Coverage and Interpretation. The balanced structure ensures that Indonesia, Malaysia, Singapore, Thailand, the Philippines, and Vietnam contribute equally to the pooled estimation: 84 quarters per country, or 16.7% of the 504 country-quarter observations each. This equality is important because it prevents a country with longer data availability from mechanically dominating the coefficient estimates. The fixed-effects estimator then identifies the relationship from within-country changes over time while absorbing stable differences among the six national market environments.

The equal observation count should not be interpreted as evidence that the six markets are homogeneous. Singapore represents a highly developed international financial center, while

Indonesia, Malaysia, Thailand, the Philippines, and Vietnam differ in market capitalization, retail participation, foreign-ownership structures, exchange-rate arrangements, and regulatory maturity. These persistent differences are precisely the type of heterogeneity that motivates country fixed effects. The model therefore asks whether changes in sentiment and FDI within a given market are systematically associated with changes in returns after controlling for each country's time-invariant characteristics.

This distinction is especially important when comparing the present results with single-country studies. French and Li (2017) provide detailed Thailand-specific evidence, Atento (2025) focuses on firms listed in the Philippines, and Yanto and Claudia (2026) examine the Indonesian government-bond market. Their designs allow richer country-specific interpretation, whereas the ASEAN-6 panel provides broader regional generalizability. The two approaches are complementary: national studies identify local mechanisms, while the present panel asks whether a common moderation pattern survives across structurally different ASEAN markets.

The regional design also provides a useful bridge to evidence from other developing markets. Ph and Rishad (2020) show that sentiment is relevant for volatility in India, Pham (2024) examines sentiment as a moderator in developing-country stock-market growth relationships, and Kinuthia et al. (2026) document a capital-inflow moderation mechanism in Kenya. The similarity of these conditional relationships across regions suggests that the ASEAN finding may reflect a more general feature of emerging-market finance: external capital does not merely add to domestic market forces but can change their transmission strength.

Nevertheless, the present aggregate panel should not be used to claim that the moderation coefficient is identical for every ASEAN country. Country-specific interaction terms or separate national regressions would be required for that conclusion. The current evidence supports an average ASEAN-6 moderation effect after controlling for country fixed effects. This interpretive boundary is important for policy use, because regulators should combine the regional result with local information on investor composition, capital-flow structure, and institutional conditions before applying it to market-specific surveillance.

Table 5
Balanced Panel Coverage Across ASEAN-6 Markets

Country	Market/Exchange in Study	Quarters	Observations	Share of Panel
Indonesia	Indonesia Stock Exchange (IDX)	84	84	16.7%
Malaysia	Bursa Malaysia	84	84	16.7%
Singapore	Singapore Exchange (SGX)	84	84	16.7%
Thailand	Stock Exchange of Thailand (SET)	84	84	16.7%
Philippines	Philippine Stock Exchange (PSE)	84	84	16.7%
Vietnam	Ho Chi Minh Stock Exchange (HOSE)	84	84	16.7%
Total	ASEAN-6	—	504	100.0%

Table 5 makes explicit the balanced contribution of each market to the panel. The observation counts are derived directly from the research design (84 quarters per country $\times$ six countries = 504 observations) and do not introduce additional raw data. The table is included to improve transparency regarding sample construction and the interpretation of the regional fixed-effects estimate.

Discussion

The empirical results provide robust support for the behavioral finance framework applied to ASEAN capital markets. The significant direct effect of CCI on stock returns ($\beta = 0.187$, $p < 0.05$) confirms that investor psychology systematically shapes equity pricing beyond what macroeconomic fundamentals alone can explain. This is consistent with Baker (2006) and De Long (1990), who demonstrated that sentiment-driven noise trading creates persistent mispricing that

rational arbitrage cannot fully correct. This finding challenges the strong-form efficient market hypothesis (EMH) in the ASEAN context and aligns with evidence from other emerging-economy studies (Ismail et al., 2024).

The key theoretical contribution lies in the confirmed moderation effect: FDI significantly amplifies the positive relationship between investor sentiment and stock returns ($\beta = 0.115$, $p < 0.01$). This indicates that foreign capital inflows alter the structural conditions under which investor psychology translates into market prices. In high-FDI environments, increased market depth, improved liquidity, and enhanced institutional presence reinforce domestic optimism, producing more pronounced and sustained price appreciation. This “catalyst effect” advances prior literature by establishing a formal moderating mechanism that links behavioral finance with international capital-flow dynamics. Tabash (2025) Demonstrated that investor sentiment is transmitted across international markets through capital channels; the present findings extend this argument by showing that FDI conditions the magnitude of sentiment’s domestic price impact in ASEAN markets.

These findings carry important implications for regional portfolio management and macroprudential policy. For ASEAN regulators, the results reveal that FDI deepens market efficiency while simultaneously increasing market sensitivity to behavioral shocks. During periods of elevated FDI, negative sentiment shocks may produce amplified market downturns, thereby heightening systemic risk. Policymakers should therefore integrate behavioral sentiment monitoring—particularly the Consumer Confidence Index—into early warning frameworks alongside traditional capital-flow surveillance. Countercyclical capital-flow management tools may help buffer against sentiment-amplified volatility cascades, particularly during global crises.

In sum, these findings demonstrate that neither domestic behavioral factors nor external capital flows can be analyzed in isolation when explaining ASEAN equity market dynamics. The integrated moderation framework developed in this study provides superior explanatory power and offers a replicable analytical model applicable to other emerging-market regions.

Comparison with Prior ASEAN Evidence. The present results closely complement the Thailand evidence of French and Li (2017), who link sentiment, foreign equity flows, and returns. Whereas that study focuses on the interaction among market sentiment and foreign equity activity in a single national market, the current analysis extends the logic to a multi-country ASEAN-6 panel and uses FDI as the foreign-capital proxy. The significant interaction therefore suggests that the relationship is not confined to a single exchange. It is also consistent with Kustina et al. (2024), who demonstrate that foreign portfolio investment changes the impact of exchange-rate volatility and investor sentiment on crash risk. Although FDI and portfolio flows differ in liquidity and investment horizon, both findings indicate that cross-border capital can function as a state variable that changes the consequence of domestic sentiment.

The result also resonates with more recent moderation-oriented studies. Kinuthia et al. (2026) find that capital inflows condition the relationship between systematic risk and stock-return volatility, while Yanto and Claudia (2026) test a conditional relationship among foreign investment, market sentiment, bond yields, and exchange rates in Indonesia. Alfonso et al. (2026) similarly emphasize moderation in the macroeconomic determinants of stock returns in India and the Philippines. Across these contexts, the common insight is that linear additive models may obscure economically meaningful dependencies. For ASEAN equity markets, the present interaction term makes this dependency explicit by showing that the return sensitivity to CCI varies with the level of foreign capital flow.

Sentiment Regimes and Nonlinear Interpretation. Sachaphimukh (2025) highlights the importance of investor-sentiment regimes when examining the effects of flow types on corporate financing decisions. This is relevant to the current findings because a positive average interaction does not imply that the slope is identical in optimistic and pessimistic regimes. The present FEM estimates an average conditional effect over the full sample. Future extensions could therefore estimate threshold, quantile, or regime-switching models to determine whether foreign capital amplifies optimism more strongly than pessimism, or whether the moderation becomes asymmetric during episodes of severe uncertainty.

Macroeconomic and Geopolitical Context. The ASEAN-wide evidence of Pranata and Jamaludin (2026) indicates that geopolitical risk, sentiment, and energy dependence are jointly

relevant for stock-market outcomes. This suggests that the CCI–FDI interaction should be interpreted within a macro-financial environment rather than as a closed behavioral mechanism. For example, a deterioration in global risk appetite can simultaneously depress domestic confidence and redirect foreign investment, producing a compound effect on returns. The COVID-19 findings of Yударuddin et al. (2026) further show that policy responses can alter market reactions to firm-level information. The stability of the current moderation result after excluding major crisis periods is therefore useful because it reduces the likelihood that the estimated catalyst effect is solely a crisis artifact.

Institutional Interpretation. The strength of a moderation mechanism can also depend on the institutional environment in which it operates. Hunjra et al. (2020) show in another domain that institutional quality materially conditions finance-related relationships, while Yu et al. (2024) demonstrate a moderating role for financial-sector development under economic-policy uncertainty. Within ASEAN, differences in disclosure standards, investor protection, financial depth, and capital-account openness may therefore affect how efficiently foreign investment translates sentiment into prices. Syahputri et al. (2025) add an Asian perspective by demonstrating that national cultural values can shape the relationship between corporate reporting and market capitalization. These contextual factors are absorbed only partially by country fixed effects and deserve explicit treatment in future multilevel or interaction models.

Implications for Sustainable and Strategic Capital Allocation. Although the core study concerns equity returns rather than environmental outcomes, the regional investment literature increasingly emphasizes the composition and quality of capital. Bary and Hakim (2025) distinguish between pollution-haven and pollution-halo interpretations of green investment in Asia, underscoring that the effects of external investment depend on where and how capital is deployed. For policymakers, this suggests that monitoring aggregate FDI is useful but incomplete. Sectoral composition, investment horizon, and investor type may determine whether foreign capital stabilizes price discovery or amplifies sentiment-driven volatility. A natural extension would separate greenfield FDI, mergers and acquisitions, portfolio equity, and debt flows.

Market Efficiency and Growth Implications. The positive CCI coefficient is compatible with evidence from India that sentiment is associated with stock-market volatility (Ph & Rishad, 2020) and with Pham's (2024) argument that investor sentiment conditions the stock market–economic growth relationship in developing economies. Atento (2025) likewise places sentiment alongside valuation and market-efficiency metrics in the Philippine Stock Exchange. Taken together, these studies imply that behavioral indicators can provide economically useful information even in increasingly sophisticated markets. The implication is not that fundamentals cease to matter, but that the speed and intensity with which fundamentals are priced can depend on investor psychology and the structure of external capital participation.

Research Integrity and Boundary of Evidence. One cited recent moderation study by Maghddid et al. (2024) has been retracted and is therefore not used to support any empirical claim in this article. Its presence in the references is explicitly contextual rather than evidentiary. This distinction is important because the rapid growth of cross-country finance research increases the risk of incorporating withdrawn findings into cumulative arguments. The principal support for the present moderation interpretation instead rests on non-retracted studies such as French and Li (2017), Kustina et al. (2024), Sachaphimukh (2025), Kinuthia et al. (2026), and the study's own panel estimates.

Portfolio-Management Implications. For institutional investors, the interaction effect suggests that sentiment indicators should be interpreted jointly with the foreign-capital environment. A rise in CCI during a period of elevated FDI may carry different return implications from the same rise in CCI when foreign inflows are weak. This does not transform CCI or FDI into standalone trading signals; rather, it supports their use in scenario construction, stress testing, and tactical risk assessment. Portfolio managers operating across ASEAN can therefore monitor whether positive or negative confidence shocks occur in a market environment characterized by unusually strong external capital participation.

Macroprudential Implications. For regulators, the principal message is that foreign capital can alter the sensitivity of domestic markets to behavioral conditions even when its direct return coefficient is insignificant. Surveillance systems that monitor capital flows without investor

confidence may therefore miss an important transmission channel. A practical early-warning framework could place sentiment indicators, FDI trends, exchange-rate movements, and market volatility on the same dashboard. This interpretation is compatible with Kustina et al. (2024), who emphasize conditional relationships involving foreign portfolio investment, exchange-rate volatility, and sentiment, and with Pranata and Jamaludin (2026), who show that geopolitical conditions can interact with market sentiment in ASEAN.

Regional Integration Implications. ASEAN financial integration increases the relevance of cross-border transmission because shocks can propagate through investor reallocations, common global factors, and shared changes in risk appetite. French and Li (2017) demonstrate this linkage in Thailand through foreign equity flows and sentiment, while Liu et al. (2023) show that sentiment itself can display international contagion. The current findings add that the level of foreign capital may shape how strongly domestic sentiment becomes embedded in returns. Regional policymakers should therefore consider not only the volume of cross-border investment but also the behavioral state of receiving markets when evaluating financial-stability risks.

Research Agenda. The moderation framework can be extended by replacing aggregate FDI with more granular capital-flow categories and by estimating heterogeneous effects across countries, market regimes, and crisis states. A panel-threshold or quantile approach could test whether the interaction is stronger in the upper or lower tails of the return distribution, while a regime-switching design could directly connect the analysis with sentiment-state evidence such as Sachaphimukh (2025). Additional moderators—including institutional quality, financial-sector development, cultural values, and exchange-rate conditions—could be integrated sequentially rather than simultaneously to avoid overparameterization and preserve interpretability in a six-country panel.

Table 6

Summary of Tested Relationships

Relationship	Result	Theoretical Significance
Sentiment → Returns	Positive & Significant	Supports Behavioral Finance Theory
FDI → Returns	Not Significant (Directly)	FDI is not a primary driver on its own
Sentiment × FDI	Positive & Significant	FDI acts as a powerful moderator

Table 7

Selected Recent Evidence Supporting the Conditional Market Framework

Study	Context	Key relevance to this study
French & Li (2017)	Thailand stock market	Links sentiment, foreign equity flows, and returns; direct ASEAN precedent
Ph & Rishad (2020)	India	Shows sentiment is associated with stock-market volatility
Kustina et al. (2024)	Country-index crash risk	Foreign portfolio investment moderates sentiment-related market risk
Pham (2024)	Developing countries	Investor sentiment operates as a moderator in the stock market-growth nexus
Sachaphimukh (2025)	Thailand	Highlights the importance of sentiment regimes and flow types
Pranata & Jamaludin (2026)	ASEAN stock markets	Connects geopolitical risk, sentiment, and energy dependence
Kinuthia et al. (2026)	Kenya	Capital inflows moderate the systematic-risk/return-volatility relationship
Yanto & Claudia (2026)	Indonesia bond market	Tests foreign investment and sentiment in a moderated macro-

Study	Context	Key relevance to this study
Alfonso et al. (2026)	India and Philippines	financial model Uses a moderating variable in explaining macroeconomic drivers of stock returns

Table 7 positions the present results within recent empirical work without treating studies from different asset classes or regions as directly equivalent. The strongest contextual comparisons are the ASEAN and Thailand studies, while evidence from India, Kenya, and cross-country developing-market research is used to support the broader plausibility of conditional and moderating mechanisms. This synthesis also clarifies why the study's contribution is best framed as an ASEAN-6 test of foreign-capital amplification rather than as a claim that the same moderator has already been established identically in prior literature.

CONCLUSION

This study concludes that foreign direct investment (FDI) plays a significant moderating role in strengthening the relationship between investor sentiment and stock returns across ASEAN-6 economies. The findings demonstrate that investor sentiment positively influences stock returns, while higher levels of foreign capital inflows enhance the transmission of investor confidence into market performance. These results indicate that stock market dynamics in emerging economies cannot be fully explained by behavioral factors or capital flows independently, but rather through their interaction within an integrated framework. The study highlights the importance of considering both domestic investor psychology and external financial conditions in understanding market movements. For policymakers and investors, the combination of sentiment indicators and foreign capital flow dynamics provides valuable insight for assessing market vulnerability, managing volatility risks, and supporting more effective financial market monitoring. Future research is encouraged to examine more specific types of capital flows, utilize higher-frequency sentiment measures, and incorporate additional institutional and market-related factors to further explain the complexity of stock return behavior across emerging economies.

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AUTHOR CONTRIBUTION STATEMENT

The authors contributed as follows: conceptualization and theoretical framework (H.A.S., N.); data collection and panel data preparation (T.H., Y.S.); econometric modeling and statistical analysis (H.A.S., T.H.); manuscript writing and revision (all authors). The author has read and approved the final version of this manuscript, All authors have read and approved the final version of this manuscript for submission to INKUBIS: Jurnal Ekonomi dan Bisnis.

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