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HERDING BEHAVIOR IN THE INDONESIAN ISLAMIC STOCK MARKET: AN EMPIRICAL STUDY ON THE JAKARTA ISLAMIC INDEX (JII)

ANALISIS HERDING BEHAVIOR PADA PASAR SAHAM SYARIAH INDONESIA: STUDI EMPIRIS PADA INDEKS JAKARTA ISLAMIC INDEX (JII)

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ABSTRACT

This study aims to identify the presence of herding behavior among retail investors in the Indonesian Islamic stock market, focusing on stocks listed in the Jakarta Islamic Index (JII). The research employs the Cross-Sectional Absolute Deviation (CSAD) approach using weekly secondary data from June 2015 to November 2024. A linear regression model is used to examine the influence of absolute market return and squared market return on CSAD values. The results indicate that absolute market return has a positive and significant effect, reflecting heterogeneous behavior among retail investors under moderate market conditions. However, squared market return is insignificant, providing no evidence of herding behavior in the linear model. The estimation of cubic model show that cubic market return has a positive and significant effect on CSAD, indicating a non-linear relationship between market volatility and return dispersion.
Keywords : *Herding Behavior, Retail Investors, CSAD, Islamic Stock Market, Jakarta Islamic Index*

ABSTRAK

Penelitian ini bertujuan untuk mengidentifikasi keberadaan herding behavior di antara investor ritel di pasar saham syariah Indonesia, dengan fokus pada saham-saham yang terdaftar dalam Jakarta Islamic Index (JII). Penelitian ini menggunakan pendekatan Cross-Sectional Absolute Deviation (CSAD) dengan data sekunder mingguan dari Juni 2015 hingga November 2024. Model regresi linier digunakan untuk menguji pengaruh absolute market return dan squared market return terhadap nilai CSAD. Hasil penelitian menunjukkan bahwa absolute market return memiliki pengaruh positif dan signifikan, yang mencerminkan perilaku heterogen di antara investor ritel dalam kondisi pasar yang moderat. Namun, squared market return tidak signifikan, sehingga tidak memberikan bukti adanya herding behavior dalam model linier. Estimasi model kubik menunjukkan bahwa cubic market return memiliki pengaruh positif dan signifikan terhadap CSAD, yang mengindikasikan adanya hubungan non-linear antara volatilitas pasar dan dispersi return.
Kata Kunci : Herding Behavior, Investor Ritel, CSAD, Pasar Saham Syariah, Jakarta Islamic Index.

INTRODUCTION

Investment behavior is ideally grounded in rationality and objective analysis of market information. However, in practice, numerous studies have shown that investor decisions are often influenced by psychological and social factors, such as cognitive biases and social pressure (Barberis et al., 2002). One form of deviation from rational assumptions is herding behavior namely, the tendency of investors to follow the actions of the majority without conducting independent analysis (Bikhchandani et al., 2001). This phenomenon has been identified as a key contributor to excessive price volatility, market inefficiencies, and the emergence of speculative bubbles that are vulnerable to collapse in the long term.

Stavroyiannis et al. (2017) found that herding behavior drives investors to disregard fundamental information and merely follow market trends. During bullish conditions, stock prices tend to rise far above their intrinsic values, while during market corrections, prices may plummet drastically. Panjaitan et al. (2020) also demonstrated that herding behavior can accelerate the transmission of negative sentiment and exacerbate market instability during crises.

In the context of Islamic stock markets, herding behavior presents a unique complexity. Islamic principles such as the prohibition of riba (usury), gharar (uncertainty), and maysir (speculation) provide a normative framework that is expected to promote more ethical and cautious investment behavior (Judijanto et al., 2025). However, research shows that investors in Islamic capital markets still exhibit herding tendencies, particularly during periods of market volatility or limited information (Mohy et al., 2021). This is further compounded by the limited availability of instruments, which leads to higher portfolio concentration compared to conventional markets (Stavroyiannis et al., 2017b).

Investment decisions are often influenced by emotions, cognitive biases, and information constraints, resulting in deviations from classical economic rationality (Khairunnisa et al., 2023; Syukur et al., 2025). One of the foundational theories in behavioural finance is Prospect Theory, introduced by Kahneman et al. (1979), which emphasizes that individuals exhibit loss aversion that is, the tendency to respond more strongly to losses than to equivalent gains. Moreover, investors tend to evaluate outcomes relative to a reference point (reference dependence), which distorts their risk perceptions (Dolder et al., 2024; Sugianto et al., 2024).

Cognitive biases such as overconfidence and availability bias also contribute to irrational investment decisions. Overconfidence bias leads investors to overestimate their ability to predict market movements, while availability bias causes them to rely on the most easily recalled information rather than the most relevant (Aqham et al., 2024; Marciano et al., 2025). Under conditions of uncertainty, these biases increase the tendency of investors to seek social validation and ultimately engage in herding behaviour following the majority without independent analysis (Bikhchandani et al., 2001).

Social and religious aspects also play an important role. For example, during the month of Ramadan, collective optimism may encourage Muslim investors to invest simultaneously without conducting fundamental analysis (Gavriilidis et al., 2015). Other studies also reveal that market optimism in GCC countries reinforces herding behavior among Islamic investors (Chaffai et al., 2018).

Moreover, Islamic financial literacy significantly influences investment decisions. Investors with strong understanding of Islamic financial principles tend to behave more rationally, whereas those with limited literacy are more susceptible to mass psychological pressures and social media influence (Hidayat et al., 2024). This study also highlights that Islamic investors are more affected by loss aversion during market downturns, which may trigger irrational mass sell-offs.

Herding behavior in Islamic capital markets presents ambivalent consequences. On the one hand, such behavior can increase liquidity during bullish periods. On the other hand, it can lead to extreme price fluctuations and heightened speculative risk, ultimately eroding investor confidence in the Islamic capital market (Sabir, 2019). If left unchecked, this condition could hinder the overall growth of the Islamic financial sector.

This study specifically focuses on the analysis of herding behavior within Indonesia's Islamic stock market, particularly among stocks listed in the Jakarta Islamic Index (JII). The approach employed is the Cross-Sectional Absolute Deviation (CSAD) method

developed by Chang et al. (2000), aimed at empirically measuring the collective behavioral dynamics of Islamic investors in response to market changes. The primary focus is on retail investors, given that trading activity in Indonesia's Islamic stock market is predominantly driven by individual investors (Yahya et al., 2020).

In this context, heterogeneity refers to variations in risk perception, reactions to information, and tendencies toward psychological biases such as overconfidence, representativeness, and most notably, herding (Saadaoui et al., 2022). Therefore, the entire analysis in this study is directed at understanding the patterns and conditions that trigger herding behavior among Islamic retail investors.

Conceptually, herding behaviour is defined as the tendency of investors to follow dominant market decisions without evaluating the available information (Patwarani et al., 2023). In times of crisis or extreme uncertainty, such homogeneous behaviour becomes more prominent and can lead to deviations of market prices from their fundamental values (Loang, 2025). This behaviour contradicts the efficient market hypothesis and increases both volatility and systemic risk (Stavroyiannis et al., 2017a).

The behavioral finance framework applied in this study draws upon two key foundations. First is prospect theory by Kahneman et al. (1979), which demonstrates that investors are more sensitive to potential losses than to equivalent gains, making them prone to emotional decision-making. Second is the experimental approach of (Smith, 1982), which provides empirical evidence that human behavioral biases often lead to market inefficiencies. By integrating these perspectives within the context of the Islamic stock market, this study aims to offer both theoretical and empirical contributions to the understanding of Muslim investor behavior in Indonesia.

This study explicitly focuses on Islamic retail investors in the Indonesian stock market, particularly those investing in stocks listed in the Jakarta Islamic Index (JII). This group of investors tends to be more susceptible to informal sources of information (social media, online communities), is more sentiment-driven, and exhibits higher herding tendencies during volatile market conditions (Hidayat et al., 2024). In this context, herding behavior is reactive and emotional, in contrast to institutional investors who may engage in herding strategically (Mnif, 2019).

Based on the conceptual framework outlined above, this study develops the hypothesis that herding behavior can be detected through a negative relationship between squared market return and CSAD values. By focusing on Islamic retail investors, the CSAD approach is expected to reveal the dynamics of behavioral homogeneity in Indonesia's Islamic stock market, shaped by psychological biases, social pressures, and liquidity constraints

RESEARCH METHODS

This research was conducted quantitatively with the aim of identifying the presence of herding behavior among retail investors in the Indonesian Islamic stock market, focusing on stocks listed in the Jakarta Islamic Index (JII). This study utilizes secondary data in the form of daily closing prices of stocks listed in the Jakarta Islamic Index (JII), obtained from the Indonesia Stock Exchange (IDX) and other recognized online financial data providers. The observation period spans from June 2015 to November 2024, aligned with the availability of stable and sufficient data

for analyzing long-term investor behavior.

To examine the presence of herding behavior, this study adopts the Cross-Sectional Absolute Deviation (CSAD) approach developed by Chang et al. (2000). This approach is considered more effective than earlier methods such as the Cross-Sectional Standard Deviation (CSSD), as it is less sensitive to outliers and better captures non-linear patterns in market behavior (Stavroyiannis et al., 2017b).

The baseline CSAD model employed in this study is specified as follows:

$CSAD_t = \alpha + \gamma_1 |R_{m,t}| + \gamma_2 R_{m,t}^2 + \varepsilon_t$

In this model, $CSAD_t$ represents the average absolute deviation of individual stock returns from the market return in week *t*. The variable $|R_{m,t}|$ reflects the magnitude of market fluctuations regardless of direction, while $R_{m,t}^2$ captures the potential non-linear relationship. The coefficient γ2 is the primary focus for detecting herding behaviour, where a negative and statistically significant value indicates the presence of herding. The model is estimated using the Ordinary Least Squares (OLS) method. CSAD serves as the dependent variable in this study and is used to measure the absolute average deviation between individual stock returns and the market return. It is calculated as:

$$CSAD_t = \frac{1}{N}\sum_{i=1}^{N}\left|R_{i,t} - R_{m,t}\right|$$

where $CSAD_t$ is the weekly absolute deviation in week *t*, $R_{i,t}$ is the weekly return of stock *i*, $R_{m,t}$ is the weekly market return, and *N* is the number of actively traded stocks in the JII during that week. A low CSAD value during periods of high market return suggests that individual returns converge, which is indicative of herding behaviour.

The market return is calculated as the arithmetic average of all individual stock returns in the Jakarta Islamic Index (JII) for week *t*. Individual returns are computed using the formula:

$$R_{m,t} = \frac{1}{N}\sum_{i=1}^{N} R_{i,t}$$

Aggregate market return serves as the basis for constructing the two independent variables: absolute market return and squared market return.

Absolute market return variable represents the absolute value of the weekly market return and is used to capture the linear relationship between market fluctuations and individual stock return dispersion. Higher values indicate greater market pressure in a given week, regardless of whether the market is rising or falling.

Squared market return is used to detect the potential non-linear relationship between market movements and return dispersion. It captures extreme changes in the market. The coefficient γ2 of this variable serves as the key indicator for identifying herding behaviour.

RESULT AND DISCUSSIONS

The analysis begins by examining the statistical characteristics of the key variables used in the model, namely the Cross-Sectional Absolute Deviation (CSAD), weekly aggregate market return ($R_{m,t}$), absolute market return ($|R_{m,t}|$), and squared market return ($R_{m,t}^2$). Descriptive statistics provide an initial overview of the data distribution used in this study, including the range, degree of fluctuation, and potential presence of outliers.

Table 1. Respondents Profile

Variabel	Mean	Std	Min	Max
CSAD	0.0350	0.0116	0.01363	0.10715
$\|Rm,t\|$	0.0197	0.0208	0.00003	0.19421
Rm,t^2	0.0008	0.0026	0.000000001	0.03772

The following figures illustrate the weekly movements of Cross-Sectional Absolute Deviation (CSAD) and absolute market return (CSAR or $|R_{m,t}|$) during the observation period from June 2015 to November 2024.

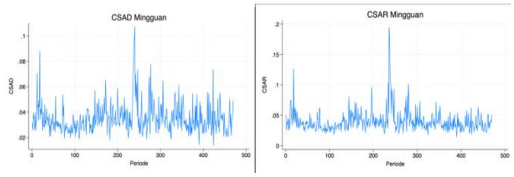

Figure 1. Weekly Movement CSAD and CSAR

Based on Figure 1, the CSAD values exhibit a fluctuating pattern throughout the observation period, ranging approximately from 0.02 to above 0.10. Several notable peaks occur around week 60, week 200, and week 290, indicating spikes in the heterogeneity of individual stock return behaviour relative to the aggregate market return. Meanwhile, Figure 2 illustrates the movement of CSAR (weekly absolute market return), with the highest spike occurring around week 200, exceeding 0.20. This sharp increase in CSAR represents a highly volatile market condition, typically resulting from market shocks or significant macroeconomic events.

Based on the diagnostic tests presented earlier, two key assumption violations were identified autocorrelation and heteroskedasticity. To address these issues and preserve the validity of the model, this study employs a Fixed Effects panel regression model with clustered robust standard errors at the individual stock level (30 clusters). This approach is widely recommended in the literature as one of the most effective correction methods in panel data models when residuals exhibit temporal dependence and non-constant variance. The regression results after applying these corrections are presented in Table 2 below :

Table 2. The regression results after correction

Variable	Coef	T stat	P > |t|
$\|Rm,t\|$	0.099	13.60	0.000
Rm,t^2	-0.006	-0.16	0.872
_cons	0.031	191.13	0.000

The results in Table 4.2 show that the variable $|R_{m,t}|$ has a coefficient of 0.0991, with a t-statistic of 13.60 and a p-value of 0.000, indicating a statistically significant positive relationship between the weekly absolute market return and CSAD. This finding suggests that during periods of moderate market movements, the heterogeneity in retail investor behaviour increases supporting the initial hypothesis that investor responses become more diverse when market volatility rises moderately.

In contrast, the variable $R_{m,t}^2$ has a negative coefficient of -0.0069, but it is statistically insignificant (p-value = 0.872). This indicates insufficient evidence to confirm the presence of collective herding behaviour during extreme market conditions, at least within the linear model specification. These results highlight the need for further testing using a more advanced non-linear model, including a RESET test and the introduction of a cubic term, which will be discussed in the next section.

To identify the presence of herding behavior under bullish market conditions, a panel regression model was estimated using only observations from weeks in which the weekly market return (WEEKLYRETURN) was positive. The model applies the Fixed Effects approach with robust standard errors clustered at the individual stock level, in order to maintain consistent estimates, given the earlier findings of classical assumption violations.

Table 3. Regression Results During Market Upturns (WEEKLYRETURN > 0)

Variable	Coef	T stat	P > |t|
|Rm,t|	0.079	10.27	0.000
Rm,t²	0.105	2.92	0.003
_cons	0.315	128.32	0.000

The regression results indicate that the variable $|R_{m,t}|$ has a coefficient of 0.0798, with a t-statistic of 10.27 and a p-value of 0.000, indicating statistical significance at the 1% confidence level. This finding suggests that during bullish market conditions, there is an increase in the dispersion of individual stock returns relative to the aggregate market return. In other words, retail investors demonstrate heterogeneous behaviour when the market is strengthening. This reflects that investors do not simply follow market trends, but instead respond individually according to their own expectations.

Meanwhile, the variable $R_{m,t}^2$ also shows a positive coefficient of 0.1055, which is statistically significant (p-value = 0.003). Theoretically, if herding behaviour were to occur during extreme market conditions (including bullish markets), this coefficient would be expected to be negative and significant (Chang et al., 2000). Therefore, this result indicates an absence of herding behaviour in rising markets—on the contrary, it suggests an increase in behavioural divergence among investors in response to market dynamics. Overall, these findings support (Stavroyiannis et al., 2017b), who argue that in bullish market conditions, Islamic stock markets tend to exhibit anti-herding behaviour, where investors are more likely to act independently rather than follow the majority.

To analyze retail investor behaviour during bearish market conditions, a panel regression was conducted on a subset of the data where weekly market returns (WEEKLYRETURN) were negative. The objective of this analysis is to determine whether there are significant changes in the pattern of return dispersion across stocks, potentially reflecting collective herding behaviour during periods of market stress

Table 4. Regression Results During Market Downturns (WEEKLYRETURN < 0)

Variable	Coeff	T stat	P > |t|
|Rm,t|	0.103	18.82	0.000
Rm,t²	-0.044	-2.44	0.015
_cons	0.031	151.46	0.000

The regression results indicate that the variable $|R_{m,t}|$ has a coefficient of 0.0798, with a t-statistic of 10.27 and a p-value of 0.000, indicating statistical significance at the 1% confidence level. This finding suggests that during bullish market conditions, there is an increase in the dispersion of individual stock returns relative to the aggregate market return. In other words, retail investors demonstrate heterogeneous behaviour when the market is strengthening. This reflects that investors do not simply follow market trends, but instead respond individually according to their own expectations.

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To assess whether the initial regression model was correctly specified in its functional form, the study employs

the Regression Specification Error Test (RESET). This test aims to detect potential functional form misspecifications, particularly the presence of higher-order non-linear relationships not captured by the linear or quadratic models. The test is conducted using the OLS approach with robust standard errors, as the software package used does not support RESET testing directly for fixed effects panel regressions. The RESET test result shows an F-statistic of 32.50 with a probability value (Prob > F) of 0.0000, indicating a statistically significant model misspecification. In other words, the linear and quadratic specifications are insufficient to fully capture the complexity of the relationship between market returns and stock return dispersion (CSAD). Therefore, model improvement is required through the inclusion of a higher-order non-linear term specifically, the cubic market return variable ($R_{m,t}^3$).

Table 5. RESET Test Results from OLS Regression with Robust Standard Errors

F (3, 14094)	32.50
Prob > F	0.0000

Following the RESET test results, the model was refined by incorporating a cubic term ($R_{m,t}^3$) into the panel regression specification. Table 5 shows that all variables in the refined model are statistically significant. The variable $|R_{m,t}|$ maintains a positive and significant coefficient of 0.0884**,** with a t-statistic of 21.08 and a p-value of 0.0000, reaffirming that absolute market return contributes to the increase in return dispersion among stocks, reflecting heterogeneity in investor behaviour.

The variable $R_{m,t}^2$, which was previously insignificant in the baseline model, now becomes significantly positive **(**coefficient: 0.0509**,** p = 0.027**)**, indicating that the relationship between squared return and CSAD is also statistically valid within the cubic specification.

Table 6. Refined Model Results with Cubic Term ($R_{m,t}^3$)

Variable	Coef	T-statistic	P > |t|
|Rm,t|	0.088	21.08	0.0000
Rm,t^2	0.050	2.32	0.027
$market^3$	0.087	4.08	0.000
_cons	0.031	270.01	0.000

To further examine the behavior of return dispersion under varying market conditions, this study applies quantile regression to the CSAD model. Unlike OLS regression, which focuses on the conditional mean of the dependent variable, quantile regression allows analysis across different points (quantiles) of the distribution. This provides a more comprehensive understanding of how herding behavior varies under different levels of return dispersion.

Table 7. Quantile Regression Results

Quantile		Coef	Std. Err	T Stat	P value
Q10	α	0.022	0.000	208.75	0
	γ_1	0.055	0.002	22.17	0
	γ_2	-0.004	0.008	-0.52	0.606
Q20	α	0.024	0.000	199.69	0
	γ_1	0.065	0.003	23.04	0
	γ_2	-0.016	0.009	-1.75	0.08
Q30	α	0. 026	0.000	192.74	0
	γ_1	0.066	0.003	20.63	0
	γ_2	-0.014	0.010	-1.32	0.186
Q40	α	0.029	0.000	230.24	0
	γ_1	0.053	0.003	18.12	0
	γ_2	0.099	0.010	10.3	0
Q50	α	0.030	0.000	229.11	0
	γ_1	0.058	0.003	18.78	0
	γ_2	0.125	0.010	12.3	0
Q60	α	0.325	0.000	219.88	0
	γ_1	0.050	0.003	14.46	0
	γ_2	0.236	0.011	20.69	0
Q70	α	0.034	0.000	201.48	0
	γ_1	0.056	0.004	14.06	0
	γ_2	0.292	0.013	22.16	0
Q80	α	0.037	0.000	152.94	0
	γ_1	0.077	0.006	13.54	0
	γ_2	0.296	0.019	15.75	0
Q90	α	0.042	0.000	110.44	0
	γ_1	0.129	0.009	14.32	0
	γ_2	0.164	0.030	5.54	0

The quantile regression analysis in this study offers deeper insights into the heterogeneity of retail investor behaviour across different levels of stock return dispersion. The estimation results show that the coefficient γ1 (absolute market return) is consistently positive and statistically significant across all quantiles (Q10 to Q90). This finding indicates that as market return fluctuations increase, the dispersion of individual returns from the market average also rises, reflecting higher heterogeneity in retail investor behaviour. This result is consistent with the theory proposed by Chang et al. (2000), which posits that market volatility leads to increasingly diverse investor responses due to differences in risk perception, investment horizons, and reactions to information.

Meanwhile, the coefficient γ2 (squared market return) shows mixed results across quantiles. In the lower quantiles (Q10–Q30), γ2\gamma_2γ2 is negative but statistically insignificant, indicating no evidence of herding behaviour under stable market conditions. However, starting from the mid quantiles (Q40) to the upper quantiles (Q90), the coefficient becomes positive and significant, suggesting a convergence in investor behaviour during periods of higher volatility. In other words, retail investors are more likely to exhibit herding behaviour during uncertain or stressful market phases. This aligns with the findings of Stavroyiannis and Babalos (2017), who argue that herding tends to emerge in unstable or shock-driven market environments.

Overall, the quantile regression results confirm that retail investor behaviour in the Indonesian Islamic stock market is dynamic and highly dependent on market conditions. While absolute market return consistently influences return dispersion, the impact of squared market return is more contextual becoming significant only at mid to upper quantiles. These findings are important for policymakers and market participants seeking to understand the conditions under which herding behaviour may arise, thereby informing more adaptive monitoring and risk mitigation strategies in the Islamic capital market of Indonesia.

CONSLUSION

This study aims to detect the presence of herding behaviour in the Indonesian Islamic stock market, focusing on stocks listed in the Jakarta Islamic Index (JII). The methodology employed includes the Cross-Sectional Absolute Deviation (CSAD) approach, Fixed Effects panel regression, RESET testing, the inclusion of a cubic component ($R_{m,t}^3$), and quantile regression to capture the dynamics of retail investor behaviour under various market conditions.

The results indicate that absolute market return ($|R_{m,t}|$) consistently has a positive and significant effect on CSAD, suggesting that retail investors display heterogeneous behaviour, particularly during moderate market movements. On the other hand, squared market return ($R_{m,t}^2$) is insignificant in the initial linear model, providing no strong evidence of aggregate herding behaviour. However, the RESET test results reveal model misspecification, prompting the inclusion of a cubic term ($R_{m,t}^3$) to account for higher-order non-linear relationships. The results show that the cubic term is significantly positive, confirming that retail investor behaviour is complex and non-linear, especially under extreme market conditions.

Furthermore, the quantile regression results reinforce these findings by showing that the squared

market return (γ2) is insignificant at lower quantiles (stable market conditions) but becomes significantly positive at mid to upper quantiles (volatile market conditions), indicating that herding behaviour is more likely to occur during market stress. Hence, retail investor behaviour in the Indonesian Islamic stock market is dynamic, market-dependent, and cannot be fully explained by conventional linear models.

The implications of these findings are important for various stakeholders. For investors, understanding the contextual nature of herding patterns can help avoid irrational collective decision-making, particularly during unstable market conditions. For capital market regulators, a responsive monitoring system is needed to detect and mitigate collective retail investor behaviour that could trigger systemic instability. For academics, this study contributes to the Islamic behavioural finance literature by applying a more comprehensive approach, including model specification testing and distributional (quantile) analysis.

Nevertheless, this study has limitations. It uses weekly data and focuses on a single index (JII), which may not fully represent the entire Indonesian Islamic capital market. In addition, the time-invariant nature of the model limits its ability to capture time-varying behavioural dynamics.

For future research, it is recommended to use daily or intraday data to gain a deeper understanding of short-term investor behaviour. Future studies could also expand the scope to include other Islamic indices (such as the ISSI) and integrate external variables such as sentiment indices, trading volume, and macroeconomic factors to enrich the modelling of herding behaviour in Indonesia's Islamic capital market.

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