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CRISIS-INDUCED HERDING AND ABNORMAL RETURNS: EVIDENCE FROM 13 SHOCK EVENTS ACROSS NINE IDX SECTORS (1997–2025)

Abstract

This study aims to examine whether herding behavior intensifies during shock events and whether such crisis-induced herding leads to abnormal returns across nine IDX sectors over the 1997–2025 period. The study employs a quantitative event study approach using daily stock return data from 13 major global and domestic shock events representing nine industrial sectors listed on the Indonesia Stock Exchange. Herding behavior is measured using the cross-sectional absolute deviation model, while its effect on abnormal returns is analyzed through time series regressions incorporating interaction terms between herding indicators and shock event dummies, controlling for firm size, SMB, and HML factors. The results show strong asymmetry across market conditions and sectors. During bearish market phases, herding intensifies significantly in the agriculture, finance, and property real estate construction sectors and is associated with positive short-term abnormal returns, indicating crisis-driven market inefficiency. In contrast, during bullish market phases, most sectors exhibit anti-herding behavior, reflected in greater return dispersion and more selective investor decision making. The interaction between herding behavior and shock events is positive and statistically significant in most sectors, with the strongest effects observed during the 1997–1998 Asian Financial Crisis, the 2008 Global Financial Crisis, and the 2020 COVID-19 pandemic. Overall, the findings indicate that the Indonesian capital market remains in a transitional stage toward full efficiency, where psychological factors and information asymmetry continue to influence price formation during periods of extreme uncertainty.

Keywords herding, shocks, crises, inefficiency, returns, Indonesia

JEL Classification G01, G14, G41

INTRODUCTION

Financial markets are repeatedly exposed to extreme economic and financial shock events that challenge the core assumptions of rationality and efficiency in traditional financial theory. Such events, characterized by high uncertainty, sudden information shocks, and systemic risk, often trigger sharp price movements and return anomalies that cannot be fully explained by equilibrium-based models such as the Efficient Market Hypothesis (EMH) and the Capital Asset Pricing Model (CAPM). Empirical observations during major crises consistently reveal excessive market reactions and coordinated trading behavior that deviate from rational expectations.

This discrepancy between theoretical predictions and observed market outcomes represents a fundamental scientific problem in financial economics. While conventional models assume that irrational behavior is temporary and quickly corrected through arbitrage, real-world markets frequently exhibit persistent anomalies during periods of extreme stress. These anomalies suggest that, under conditions of heightened uncertainty and information asymmetry, investors may abandon independent decision making and respond collectively, leading to systematic inefficiencies in price formation.

The problem is particularly pronounced in emerging markets, where structural characteristics such as lower market depth, greater reliance on public information, and stronger sensitivity to global shocks can amplify non-rational responses. As financial shocks become more frequent and globally transmitted, understanding why traditional models fail to capture market behavior during extreme events remains a critical challenge. Addressing this problem is essential for improving the theoretical understanding of market dynamics under stress and for explaining the persistence of abnormal returns and inefficiencies during periods of extreme uncertainty.

1. LITERATURE REVIEW AND HYPOTHESIS

The phenomenon of herding behavior in financial markets represents a critical challenge to the fundamental assumptions of traditional financial theory, particularly during periods of extreme market stress triggered by shock events. Understanding this behavioral pattern requires an examination of both rational market frameworks and the psychological mechanisms that cause investors to deviate from rational decision making when markets are exposed to high-impact shocks.

Herding behavior constitutes a prominent manifestation of behavioral bias, defined as the tendency of investors to follow the actions of others rather than rely on independent judgment based on private information. This behavior directly contradicts the Efficient Market Hypothesis, which assumes that investors act independently and rationally. When herding dominates trading activity, investors mimic collective behavior instead of processing information atomistically, leading to correlated decision making and weakening market efficiency (Bikhchandani & Sharma, 2000; Viscusi et al., 2011). Such behavior has been associated with stock market inefficiency, particularly when information becomes unclear and investors rely on pre-established consensus rather than fundamentals (Javaira & Hassan, 2015; Clements et al., 2017).

Empirical evidence suggests that herding behavior differs substantially across market conditions and market types. Under normal conditions, herding is often weak or absent in developed markets. Studies report no evidence of herding in the US and Hong Kong stock markets and only partial evidence in Japan, indicating that herding is not a universal phenomenon in efficient markets during stable periods (Chang et al., 2000). In contrast,

emerging markets exhibit stronger and more persistent herding behavior, largely due to higher information asymmetry and limited market depth (Chiang & Zheng, 2010). Individual investors in such markets tend to rely heavily on public information and market sentiment, leading to collective behavior influenced by attention-grabbing events (Fernández et al., 2011; Christoffersen & Stæhr, 2019; Spyrou, 2013). Demographic factors further shape herding tendencies, with evidence showing stronger herding behavior among female investors (Salem, 2019).

The relationship between herding behavior and crisis periods has been widely documented across various shock events. Herding intensifies significantly during global financial crises, when uncertainty and volatility rise sharply (Economou et al., 2011). Similar patterns emerged during the COVID-19 pandemic, where investors exhibited coordinated responses to health-related uncertainty by delaying or withdrawing investments (Méndez & Arias, 2021). Increased uncertainty and information asymmetry serve as key mechanisms linking crisis conditions to herding behavior, with empirical studies showing that herding becomes intense under extreme market stress regardless of market direction (Babalos & Stavroyiannis, 2015; BenMabrouk, 2018; Economou et al., 2018; Gowri & Ram, 2019).

In contrast, herding behavior tends to be limited under normal market environments. Empirical findings using dispersion-based methods reveal insignificant herding coefficients under normal and asymmetric scenarios, suggesting that herding is not a persistent feature of financial markets (Shrotryia & Kalra, 2020). Evidence further shows no herding during market upturns or downturns and during periods of high or low volatility, although herding may emerge under specific conditions such as low trading volume (Javaira &

Hassan, 2015). These findings reinforce the view that herding behavior arises selectively in response to heightened uncertainty, information scarcity, and coordinated reactions to extreme events.

Market integration provides an additional explanation for the transmission of herding behavior during shock events. Empirical studies document increased integration of the Indonesian stock market with regional and global markets during major crises. During the 1997–1998 Asian financial crisis, the Indonesian market became integrated with ASEAN, US, and Japanese markets (Adnan, 2023). Correlation increased significantly following the September 11, 2001, terrorist attacks (Kuper & Lestano, 2007), while the SARS pandemic in 2004 intensified cointegration and dynamic co-movements (Bhuyan et al., 2010). Similar patterns of increased integration were observed during the 2008 global financial crisis and China's Black Monday event in 2015 (Bhowmik et al., 2022). During the COVID-19 pandemic, the Indonesian, Asian, and global stock markets exhibited strong dynamic integration, indicating that herding behavior spreads through contagion mechanisms rather than remaining confined to individual markets (Guru & Yadav, 2023).

From a behavioral finance perspective, the relationship between shock events and herding behavior can be explained through representativeness bias and related cognitive shortcuts. Investors often rely on stereotypical thinking, overconfidence, and past experiences when making decisions under uncertainty, leading to systematic judgment errors (Zahera & Bansal, 2018). Decision making based on analogies rather than objective analysis can result in suboptimal investment outcomes (Shefrin, 2005). During shock events, deteriorating information quality and rising uncertainty intensify reliance on such heuristics, creating self-reinforcing dynamics in which initial trading pressure triggers broader collective responses that amplify market movements beyond fundamental values.

The Indonesian stock market provides a particularly relevant setting for examining herding behavior during shock events, given its emerging market characteristics, documented information asymmetry, and increasing integration with re-

gional and global markets. Empirical evidence shows a clear and consistent negative impact of the September 11 terrorist attacks on Indonesia's industrial sector and market indices (Ramiah & Graham, 2013). During the global financial crisis, Indonesian stock markets experienced negative average daily returns across sectors, suggesting coordinated responses to external shocks and reinforcing the role of herding behavior in shaping market dynamics during shock events.

Prior empirical studies document that herding behavior tends to intensify during periods of heightened uncertainty, particularly in emerging markets characterized by information asymmetry and limited market depth. Previous research also shows that extreme economic events may weaken market efficiency by amplifying collective investor behavior, thereby generating abnormal returns. However, the empirical evidence remains mixed with respect to the persistence, sectoral heterogeneity, and market-state asymmetry of herding effects during crisis periods, especially in the context of long-horizon and multi-event analyses in emerging stock markets. Based on the preceding literature, this study aims to examine whether herding behavior intensifies during shock events and whether such crisis-induced herding leads to abnormal returns across nine IDX sectors over the 1997–2025 period.

Therefore, to empirically examine the effect of herding behavior on abnormal returns during market shock events, the following hypothesis is formulated:

H1: Higher herding causes abnormal returns in shock events in the Indonesian stock market.

2. METHODOLOGY

This study employs a quantitative event study framework to examine herding behavior and its impact on abnormal returns during extreme shock events in the Indonesian stock market. The research procedure is conducted in a logical and sequential manner.

First, major global and domestic shock events occurring between 1997 and 2025 are identified.

The final sample consists of 13 extreme events, including the Asian Financial Crisis, the Global Financial Crisis, the COVID-19 pandemic, and other systemic events that generated heightened market uncertainty.

Second, daily stock price data are collected for all actively traded firms listed on the Indonesia Stock Exchange (IDX) over the same period. Firms are classified into nine industrial sectors based on the JASICA classification. The data used are secondary and publicly available, obtained from the Indonesia Stock Exchange, Yahoo Finance, the Indonesia Capital Market Institute, and Bank Indonesia. The dataset includes daily stock returns, market index returns, trading volume, and relevant macroeconomic indicators.

Third, herding behavior is measured using the Cross-Sectional Absolute Deviation (CSAD) model proposed by Chang et al. (2000), which captures the nonlinear relationship between market returns and return dispersion. The baseline herding model is specified as follows:

$$CSAD_t = \alpha_0 + \alpha_1 |R_{m,t}| + \alpha_2 R_{m,t}^2 + e_t, \quad (1)$$

where $CSAD_t$ represents the cross-sectional absolute deviation of individual stock returns from the market return at time t , and $R_{m,t}$ denotes the market return. A negative and statistically significant coefficient α_2 indicates the presence of herding behavior. To capture asymmetry across market conditions and shock periods, the model is extended by incorporating dummy variables for bullish and bearish markets as well as shock events.

Fourth, the effect of herding behavior on abnormal returns during shock events is examined using the following time series regression model:

$$\begin{aligned} \pi_t = & \beta_0 + \beta_1 D_t^U + \beta_2 D_t^L + \beta_3 Shocks_t \\ & + \sum_{i=4}^9 \beta_i^9 [D_t^U + D_t^L] [Shocks] + \beta_5 SMB_t \quad (2) \\ & + \beta_6 HML_t + \beta_7 SIZE_t + e_t, \end{aligned}$$

where π_t denotes abnormal returns at time t , D_t^U and D_t^L are dummy variables representing bullish and bearish market conditions, respectively, and $Shocks_t$ is a dummy variable indicating shock event periods. The interaction terms cap-

ture whether shock events amplify the effect of market conditions on abnormal returns. Control variables include firm size (SIZE) and common risk factors (SMB and HML).

Finally, all models are estimated using time series regression techniques. Standard diagnostic tests are conducted to assess normality, autocorrelation, multicollinearity, and heteroskedasticity. Robustness is evaluated through sub-sample analyses across individual shock events and industrial sectors to ensure the consistency of the results.

3. RESULTS

This section presents the empirical results on herding behavior in the Indonesian capital market and its interaction with shock events over the 1997–2025 period. The analysis covers nine industrial sectors classified according to the JASICA framework and evaluates how herding behavior under upward market conditions (D^U) and downward market conditions (D^L) is influenced by shock events and how it affects market performance in terms of abnormal returns.

Descriptive analysis shows that average herding indicators (D^U and D^L) across all sectors remain relatively low, ranging between 0.01 and 0.04 during normal market conditions. This indicates that collective investor behavior is not particularly prominent in stable periods. However, during shock periods, there is a significant increase in cross-sectional deviation across sectors, particularly during the 1997–1998 Asian Financial Crisis, the 2008 Global Financial Crisis, and the COVID-19 pandemic in 2020.

For example, in the property and building construction sector, D^U increased from 0.02 to 0.05, while in the financial sector it rose from 0.01 to 0.02. Conversely, D^L exhibited a relatively stronger surge when markets were under severe pressure, especially during the 2008 crisis and the COVID-19 pandemic, indicating coordinated panic selling among investors.

Table 1 presents the regression results for the full sample across nine IDX sectors. The results indicate that D^U is negatively correlated with abnor-

Table 1. Results of the hypothesis test for the entire sample

Variables	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9
D^U	1.18** (0.14)	4.08** (0.23)	5.25** (1.11)	5.76** (0.38)	0.87 (0.12)	5.90 (0.26)	3.51 (0.19)	0.62** (0.13)	3.89 (0.21)
D^L	-5.37** (0.30)	-4.64** (0.23)	-1.08* (0.51)	-5.52** (0.39)	-4.83** (0.26)	-7.29** (0.28)	-4.92** (0.29)	-3.85** (0.31)	-4.42** (0.21)
Shocks	2.73** (0.51)	-0.69 (0.72)	-6.94* (2.94)	1.21 (0.77)	-0.36 (0.73)	2.39** (0.64)	-0.18 (0.85)	1.25* (0.53)	0.88* (0.48)
Shock* D^U	5.51** (0.40)	0.71* (0.38)	-0.58 (1.91)	-4.61** (0.57)	4.86** (0.35)	-1.26** (0.43)	1.70** (0.42)	4.27** (0.41)	(0.45) (0.32)
Shock* D^L	-1.40** (0.50)	0.57 (0.35)	-1.76 (1.67)	-3.53** (0.66)	-0.64 (0.41)	2.40 (0.46)	-0.42 (0.47)	-1.03* (0.49)	0.22 (0.34)
Size	-0.03* (0.02)	0.013 (0.01)	0.012 (0.06)	-0.00 (0.02)	0.02 (0.01)	0.01 (0.01)	-0.03* (0.01)	-0.02 (0.02)	0.01 (0.01)
SMB	-0.22** (0.02)	0.00 (0.01)	0.17 (0.12)	0.05 (0.04)	0.01 (0.01)	-0.17** (0.02)	-0.12** (0.02)	0.11 (0.02)	-0.05** (0.02)
HML	0.09** (0.01)	0.05 (0.01)	0.14 (0.04)	0.14 (0.01)	0.05 (0.01)	0.06 (0.01)	0.07 (0.01)	0.10 (0.01)	0.06** (0.01)
Intercept	-3.06** (0.57)	-2.52** (0.49)	-2.36 (3.16)	-1.68* (1.00)	-1.89** (0.73)	-3.74** (0.53)	-1.11* (0.63)	-0.97* (0.55)	-1.92** (0.49)
$F(12,5594)$	136.02	119.57	13.01	78.97	95.61	169.41	104.72	68.14	130.68
Adjusted R-squared	0.225	0.202	0.026	0.145	0.168	0.265	0.182	0.126	0.220

Note: Sector 1 (agriculture), sector 2 (basic and chemical industries), sector 3 (consumer goods industries), sector 4 (finance), sector 5 (infrastructure, utilities and transportation), sector 6 (mining), sector 7 (miscellaneous industries), sector 8 (property, real estate and building construction), and sector 9 (trade, services and investment).

mal returns, while D^L shows a positive correlation, particularly during shock event periods. This suggests that during strong market conditions, imitative buying suppresses price efficiency as investors respond similarly to market signals without fully considering fundamentals. Conversely, during sharp market declines, investors tend to imitate selling decisions, which is often followed by price reversals that generate positive abnormal returns.

The regression results reinforce these correlation patterns. The D^U coefficient shows a significant negative effect on abnormal returns in six sectors, particularly in the financial, mining, and basic industry sectors. In contrast, D^L exhibits a positive direction with moderate significance in almost all sectors. These findings indicate that collective investor behavior has a dual nature: it is destructive during periods of market euphoria but adaptive during crisis phases.

When the interaction variable between herding behavior and shock events is included, the results become statistically stronger. The herding \times shock interaction term shows a positive and significant effect on abnormal returns in most sectors, espe-

cially during the events of 1997–1998, 2008, and 2020. This provides direct empirical support for the study's hypothesis that higher herding during shock events leads to abnormal returns in the Indonesian capital market.

Sub-sample analysis reveals substantial sectoral heterogeneity in herding behavior across individual shock events. The agricultural sector is relatively crisis-resistant but still exhibits moderate herding during major events. During the Russia–Ukraine invasion, bullish herding intensifies as investors treat agricultural stocks as safe assets amid commodity inflation. Trading halts generate defensive herding patterns, reinforcing the sector's buffer role during uncertainty.

In the basic and chemical industries, extreme herding occurs during the Asian Financial Crisis and the Global Financial Crisis due to rupiah depreciation and reliance on imported raw materials. Herding weakens during events such as Fukushima 2011 and the 2014 Oil Crisis, but resurges during China's Black Monday and COVID-19. The last two events (2022 and 2025) show moderation, reflecting increased investor adaptation and market maturity.

The consumer goods sector shows symmetric herding during major crises, especially during 2008 and 2020, reflecting panic related to domestic consumption shocks and supply chain disruptions. Post-pandemic periods show gradual moderation, although herding remains visible during subsequent geopolitical shocks.

In the financial sector, strong and asymmetric crisis-induced herding is observed. During the 1997 Asian Monetary Crisis, D^U is positive and significant, while D^L is strongly negative, reflecting collective panic driven by exchange rate volatility and banking failures. Similar patterns re-emerge during the 2008 Global Financial Crisis and the COVID-19 pandemic, where extreme D^U and D^L values indicate systemic panic. In contrast, the Dot-Com Crash of 2000 elicited weaker and insignificant herding responses, suggesting more rational investor behavior toward technology-driven global shocks.

The infrastructure, utilities, and transportation sector displays moderate herding, mainly during downturns associated with logistics disruptions. Long-term government-backed projects reduce panic persistence, particularly during domestic shocks.

The mining sector exhibits strong herding during periods of commodity price collapse, particularly during the Asian Financial Crisis and the Global Financial Crisis. The 2014 Oil Crisis represents a turning point, where contrarian herding emerges. COVID-19 again triggered extreme panic herding, while post-2020 events indicate partial stabilization.

The miscellaneous industry sector shows fluctuating herding patterns, with extreme values during major systemic crises and more controlled responses during later events, indicating increas-

Table 2. Sub-sample herding results by sector and crisis events

Sector	Crisis Event	D^U	D^L
Agriculture	Asian Financial Crisis (1997)	-1.42	11.83**
	COVID-19 Pandemic (2020)	9.77*	-8.90*
	Russia-Ukraine War (2022)	11.42**	10.35**
	Trading Halt	7.18*	6.92*
Basic & Chemical Industries	Asian Financial Crisis (1997)	11.93**	-14.71**
	Dot-Com Crash (2000)	4.22	n.s.
	September 11 Attacks (2001)	n.s.	8.00**
	SARS Outbreak (2002)	n.s.	9.11**
	Global Financial Crisis (2008)	12.64**	-13.12**
	European Debt Crisis (2009)	n.s.	-10.20**
	China Black Monday (2015)	n.s.	-8.42*
	COVID-19 Pandemic (2020)	13.90**	-15.31**
	Russia-Ukraine War (2022)	5.67	-9.35**
	Trading Halt	4.15	-7.83*
Consumer Goods Industries	Asian Financial Crisis (1997)	10.25**	-9.95**
	Global Financial Crisis (2008)	11.40**	-12.11**
	Fukushima / Oil Crisis (2014)	8.43*	n.s.
	COVID-19 Pandemic (2020)	13.12**	-15.89**
Finance	Asian Financial Crisis (1997)	10.45**	-14.12**
	Dot-Com Crash (2000)	6.98	n.s.
	September 11 Attacks (2001)	n.s.	9.00**
	Global Financial Crisis (2008)	11.78**	-13.43**
	European Debt Crisis (2009)	n.s.	-8.32**
	China Black Monday (2015)	n.s.	10.82**
	Brexit Referendum (2016)	-4.91*	n.s.
	COVID-19 Pandemic (2020)	12.91**	-15.61**
	Russia-Ukraine War (2022)	6.32	9.84**
Infrastructure, Utilities & Transportation	Asian Financial Crisis (1997)	-7.08**	8.40**
	COVID-19 Pandemic (2020)	10.61**	-11.93**
	Russia-Ukraine War (2022)	4.83	-7.25*
	Trading Halt	5.92	-6.48*

Table 2 (cont.). Sub-sample herding results by sector and crisis events

Sector	Crisis Event	D^U	D^L
Mining	Asian Financial Crisis (1997)	10.25**	-9.69**
	Global Financial Crisis (2008)	n.s.	-12.88**
	European Debt Crisis (2009)	n.s.	-9.88**
	Fukushima Disaster (2011)	8.94*	n.s.
	Oil Price Crisis (2014)	-7.55**	10.21**
	COVID-19 Pandemic (2020)	11.10**	-14.22**
	Russia-Ukraine War (2022)	n.s.	9.30**
Miscellaneous Industries	Asian Financial Crisis (1997-1998)	9.87**	10.02**
	September 11 Attacks (2001)	6.78*	-7.23*
	SARS Outbreak (2002)	n.s.	-6.95*
	Global Financial Crisis (2008)	11.45**	-14.32**
	European Debt Crisis (2009)	n.s.	-10.87**
	COVID-19 Pandemic (2020)	12.78**	-15.64**
	Russia-Ukraine War (2022)	7.92*	-8.67*
Property, Real Estate & Building Construction	Black Swan Tuesday (2025)	6.35*	-6.89*
	Asian Financial Crisis (1997-1998)	10.45-11.93**	-14.71**
	Global Financial Crisis (2008)	12.90**	-13.89**
	COVID-19 Pandemic (2020)	14.22**	-16.30**
	Russia-Ukraine War (2022)	8.92*	-10.15**
Trade, Services & Investment	Trading Halt	7.60*	-8.45*
	Asian Financial Crisis (1997)	10.25**	-9.69**
	COVID-19 Pandemic (2020)	13.33**	-15.12**
	Russia-Ukraine War (2022)	8.67*	-9.23**
	Trading Halt	7.45*	10.02**

ing investor ability to distinguish systemic from sector-specific shocks.

The property and building construction sector records the highest herding intensity across all sectors. Extreme D^U and D^L values during 1997-1998, 2008, and COVID-19 reflect collapsing asset values, rising interest rates, and capital outflows. Later events show reduced but still significant herding, indicating collective behavioral learning.

The trade, services, and investment sector demonstrates strong herding during global crises, especially COVID-19, driven by retail investor dominance and global supply chain uncertainty. Post-2022 behavior becomes more selective, reflecting improved risk differentiation and structural transformation toward digital services.

Table 3 summarizes the results across nine sectors and thirteen shock events. Overall, D^U has a significant negative effect on abnormal returns in 78% of sectors during expansion periods, while D^L has a significant positive effect in 82% of sectors during crisis periods. The interaction between herding behavior and shock events is significant

in almost all sectors, with the strongest effects observed during 1997, 2008, and 2020. The financial, property, and consumer goods sectors are the most sensitive to shock events, while agriculture and infrastructure are relatively stable.

These findings confirm that the Indonesian capital market remains in a behavioral transition stage toward efficiency. The sharp increase in herding behavior during shock events highlights the persistent role of collective psychology and information asymmetry in price formation within emerging markets.

4. DISCUSSION

This study documents an asymmetric and sector-dependent pattern of herding behavior in the Indonesian stock market during shock events. In bearish market conditions, significant herding is observed in the agriculture, finance, and property real estate construction sectors, as reflected by negative and statistically significant coefficients. This indicates that investors in these sectors tend to move collectively during market stress, generat-

Table 3. Summary of results

Events	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9
Full Period	D ^u [+] D ^l [-]	D ^u [+]		D ^u [-] D ^l [-]	D ^u [+]	D ^u [-] D ^l [+]	D ^u [+]	D ^u [+] D ^l [-]	
Asian Financial Crisis	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^l [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]
Dot-Com Crash	D ^u [-] D ^l [+]		D ^u [-] D ^l [+]	D ^u [-] D ^l [+]	D ^u [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]	D ^u [+] D ^l [-]	D ^u [-] D ^l [+]
War on Terror	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [-]	D ^u [-] D ^l [+]	D ^l [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]	D ^u [-] D ^l [+]
SARS 2002	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+]	D ^u [+]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]		D ^u [+] D ^l [-]
Global Financial Crisis	D ^u [+]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+]	D ^u [+] D ^l [-]
European Sovereign Debt Crisis	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^l [-]	D ^u [+] D ^l [-]
Fukushima Nuclear Disaster	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]
Crude Oil Crisis	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]
Black Monday China	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]
Brexit Decision	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^l [+]	D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]
COVID-19	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]
Russian–Ukrainian invasion	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]
Trading Halt	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]	D ^u [+] D ^l [-]

ing positive abnormal returns and signaling temporary deviations from fundamental values.

This evidence is consistent with the findings of Chiang and Zheng (2010), who report stronger herding behavior in Asian and emerging markets during crisis periods, but contrasts with Chang et al. (2000), who find little evidence of herding in developed markets such as the United States and Hong Kong. The divergence reinforces the argument that emerging markets, including Indonesia, are more vulnerable to behavioral convergence due to higher information asymmetry, greater retail investor participation, and less dominant institutional monitoring.

From an investment management perspective, the association between bearish herding and abnormal returns suggests that crisis periods may create short-term mispricing opportunities, particularly in sectors that are systemically important or closely linked to macroeconomic fundamentals. This supports the overshooting mechanism described by Tsuchiya (2021), whereby co-

ordinated trading during crises leads to excessive price adjustments followed by partial corrections.

In contrast, during bullish market conditions, most sectors exhibit anti-herding behavior, reflected in greater return dispersion and more heterogeneous investor decisions. This pattern is consistent with evidence reported by Javaira and Hassan (2015) and Shrotryia and Kalra (2020), who show that herding is not persistent and tends to weaken outside periods of heightened uncertainty. For portfolio managers, this regime is more conducive to active stock selection and sector rotation, as dispersion increases and firm-specific information becomes more relevant.

An important exception is observed in the financial and mining sectors, which continue to display herding behavior even during bullish markets. This can be explained by their strong sensitivity to macroeconomic variables such as interest rates, exchange rates, and global commodity cycles. Positive macroeconomic signals during

recovery phases tend to be interpreted uniformly by investors, resulting in synchronized buying behavior. Similar sector-specific persistence of herding has been documented in recent crisis-related studies (Bhowmik et al., 2022; Alexakis et al., 2023).

The asymmetric nature of herding across market states is also consistent with prospect theory. As suggested by Kahneman and Tversky (1979), investors react more strongly to potential losses than to equivalent gains. During bearish conditions, loss aversion and heightened uncertainty encourage investors to follow the crowd, whereas during bullish periods, reduced fear allows more differentiated strategies to emerge.

From a risk management and crisis timing perspective, the strong interaction between herding measures and shock events indicates that disper-

sion-based indicators can function as early warning signals of behavioral regime shifts. Sharp increases in bearish herding coincide with periods of elevated market vulnerability, during which correlations rise endogenously and diversification benefits diminish. Ignoring such behavioral convergence may lead portfolio managers to underestimate downside risk during crises.

Overall, these findings suggest that the Indonesian stock market exhibits episodic inefficiency during shock events. Herding behavior intensifies under stress, distorts price formation, and generates abnormal returns, while recovery phases restore heterogeneity and dispersion. This regime-dependent behavior highlights the importance of incorporating behavioral indicators into portfolio allocation, sector rotation, and crisis monitoring frameworks, particularly in emerging markets.

CONCLUSION

This study examined whether herding behavior intensifies during shock events and whether such crisis-induced herding leads to abnormal returns across nine IDX sectors over the 1997–2025 period. Understanding herding behavior during periods of extreme uncertainty is important because coordinated investor actions may distort market efficiency and create temporary mispricing.

The empirical results indicate that herding behavior in the Indonesian capital market is asymmetric and context dependent, varying across market conditions and industrial sectors. During bearish market phases associated with major shock events, herding behavior intensifies significantly in several sectors and is accompanied by positive abnormal returns, suggesting that crisis-driven trading pressure temporarily weakens price efficiency. In contrast, most sectors display anti-herding behavior during bullish market conditions, reflected in increased return dispersion and more differentiated investment decisions.

Overall, the findings suggest that herding behavior in the Indonesian stock market is not a uniform or permanent phenomenon, but rather a conditional response shaped by market states, sectoral characteristics, and psychological factors. The stronger herding observed during bearish periods supports the prediction of prospect theory that investors react more intensely to potential losses than to equivalent gains. The significant interaction between herding behavior and shock events further indicates that extreme events create environments in which informational efficiency deteriorates and collective sentiment plays a dominant role in price formation.

This study contributes to understanding behavioral dynamics in emerging markets by demonstrating that crisis-induced herding has implications for abnormal returns and market efficiency at the sector level. Future research could explore the role of investor composition, trading volume, or high-frequency data in shaping herding behavior during crises, as well as comparative analyses across markets to better understand the persistence of herding under extreme uncertainty.

AUTHOR CONTRIBUTIONS

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