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Macro Herding Behavior and Its Implications in Tehran Stock Exchange: An Analysis of Extreme Market Conditions

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Abstract

Herd behavior, the tendency of individuals to mimic the actions of a larger group, significantly impacts capital markets by influencing stock prices, market liquidity, and overall market stability. This phenomenon has garnered significant attention in financial studies due to its implications for both institutional and individual investors, contributing to increased market volatility and potential crashes. Various methodologies have been developed to assess herd behavior, revealing its presence across diverse market conditions, including periods of

high distress and volatility. This study examines macro herding in the Tehran Stock Exchange from March 2016 to February 2024, using weekly asset returns to measure herd behavior among listed companies. For the first time in Iran, we employ the TV method to calculate herding. The TV method offers two primary advantages: it is adept at identifying macro herding because it captures the collective trading direction of investors, and it operates independently of asset pricing models, minimizing biases associated with those models. Focusing on the collective trading direction, we aim to detect significant deviations in stock price movements indicative of herd behavior. Our findings indicate that herd behavior is more pronounced during extreme market conditions, both positive and negative, with a particularly notable increase during periods of negative market returns. This study provides insights into the dynamics of investor behavior in the Tehran Stock Exchange, highlighting the importance of monitoring such behavior to mitigate its potential adverse effects on market stability.

Keywords: Herd Behavior, Herding, Herding Asymmetry, Extreme Market Conditions

Introduction

Herd behavior, characterized by individuals' propensity to follow a larger group's actions, has garnered substantial attention within academic and financial circles due to its significant implications on capital markets. This behavior can profoundly influence various market outcomes, including alterations in stock prices, liquidity fluctuations, and the occurrence of market crashes, as highlighted by Burnnermeier (2001). These dynamics underscore the necessity of understanding the underpinnings of herd behavior, especially as it can lead to irrational market movements that diverge from fundamental values, often resulting in the formation of bubbles and subsequent crashes.

The relevance of herd behavior in contemporary financial analysis has been increasingly recognized. Recent studies, such as those by Alamsyah et al. (2023), emphasize its critical role in shaping market dynamics. Scholars like Deng et al. (2019) have meticulously observed and documented instances of herd behavior across various market contexts, demonstrating its pervasive nature. This phenomenon is particularly evident among both institutional and individual investors, a fact underscored by Spyrou et al. (2013). The widespread prevalence of herd behavior suggests that it is a fundamental component of market behavior, contributing to periods of instability and the oscillations frequently observed in financial markets.

Welch (2000) aptly acknowledges that while herd behavior is often presumed to be pervasive, the empirical evidence available is surprisingly scattered. This observation points to the complexity inherent in studying herd behavior, which involves identifying instances of herding and understanding the mechanisms driving this behavior.

Moreover, the presence of herd behavior in financial markets has been documented across different countries and in different market conditions. Studies suggest that herd behavior is prevalent in the BRIC nations and Turkey, particularly during economic crises (Yasir & Önder, 2023). The global equity markets, including those affected by events such as the Eurozone crisis, the Chinese market crash, Brexit, and the COVID-19 pandemic, also exhibit clear manifestations of herd behavior (Hasan et al., 2023). In Asian markets, evidence of herd behavior has been found in Taiwan, Indonesia, and Vietnam, while it is comparatively weaker in India, Pakistan, and Sri Lanka (Chathurika & Tennekoon, 2022). In the context of the Iranian market, studies by Nazari et al. (1401), Rostami et al. (1401), and Salimi et al. (1400) have confirmed the existence of herd behavior in the Tehran Stock Exchange, highlighting its impact on market volatility and stock returns.

This study aims to delve into the phenomenon of macro herding within the Tehran Stock Exchange by examining its manifestations under different market conditions, including positive, negative, and extreme scenarios characterized by exceptionally high positive and negative returns. Additionally, the concept of herding asymmetry, which refers to the differing extents of herding behavior under various market conditions, will be scrutinized to shed light on its implications and intricacies within the financial markets. Through this comprehensive analysis, the study seeks to contribute to the broader understanding of herd behavior and its critical role in shaping market dynamics.

Literature Review

The phenomenon of herd behavior in financial markets has been the subject of extensive research, with scholars investigating various facets and implications of this behavior. Devenow and Welch (1996) posit that a coordination mechanism among investors is deemed an essential prerequisite for herd behavior within financial markets. This phenomenon is often characterized by widespread agreements among investors, typically based on various signals, including but not limited to price changes. Moreover, herd behavior can manifest through the capability of investors to directly observe and emulate the decisions made by their peers in the market.

Conversely, some empirical studies define herd behavior in a narrower sense, focusing solely on the concept of simultaneous trading. For instance, Lakonishok et al. (1992) suggest that herd behavior can be understood as the phenomenon of investors engaging in trading activities simultaneously. Similarly, Froot et al. (1992) argue that herd behavior can be observed when investors trade in a manner that resembles the actions of informed investors. Cheng and Khorana (2000) highlight the significance of mimicking the trading behaviors of other investors as a critical aspect of herd behavior within financial markets.

Herd behavior exerts a considerable influence on market liquidity, playing a crucial role in shaping the dynamics of financial markets. During periods characterized by market turmoil, the manifestation of herd behavior has the potential to result in the emergence of inefficient asset prices and heightened levels of volatility, thereby profoundly impacting the overall liquidity conditions within the market ecosystem, as highlighted by Choi et al. (2022). Furthermore, herd behavior is a crucial factor significantly contributing to the occurrence of market crashes, owing to its ability to amplify market fluctuations and set off cascading effects, as evidenced by research conducted by Wang et al. (2022) and Yasir et al. (2022).

The exploration of various markets, including global equity markets, the Chinese market, and the Pakistani forex market, has revealed that herd behavior tends to escalate throughout different phases of market cycles under the influence of a diverse range of factors encompassing both non-fundamental and fundamental information, as elucidated in the study by Khan and Suredh (2022). Studies have documented the presence of herd behavior in various countries across different market conditions, suggesting that instances of herd behavior are prevalent in the BRIC nations and Turkey, particularly during economic crises, as highlighted by Yasir and Önder (2023).

In Iran, notable research has been conducted on the behavior of the Tehran Stock Exchange herd. Nazari et al. (1401) investigated the presence of herd behavior using a generalized autoregressive score model and confirmed its existence. Using multivariate regression analysis, Rostami et al. (1401) concluded that herd behavior is observable in the Tehran stock market. Salimi et al. (1400) examined herd behavior at the market level. They found that during bearish market sentiment, herd behavior depends on systematic risk and is more pronounced in markets with higher nonsystematic risk. Conversely, during bullish markets, the presence of herd behavior in each stock group with different levels of nonsystematic risk is not confirmed. Using the CH model, Nazari et al. (1398) found that herd behavior significantly affects market volatility and stock

returns in the Iranian market.

Following the market bubble in the Tehran Stock Exchange in 1392 and another significant bubble during 1398-1399, there has been a notable increase in scholarly inquiry into herd behavior within the Iranian market. The substantiation of herd behavior as evidenced by previous empirical investigations (Nazari et al., 1401; Rustami et al., 1401; Jamali and Bakhtiari, 1401), along with its discernible impacts on market volatility and investment returns underscores the importance of this subject. Enhanced comprehension of herd behavior stands poised to offer substantial support to both industry practitioners and academic scholars operating within this specialized field of study.

One classification of herd behavior pertains to the differentiation between macro herding and micro herding, where macro herding involves the collective behavior exhibited by investors at the broader market level, leading to synchronized movements in stock returns, particularly evident during periods of extreme market conditions. Conversely, micro herding delves into the analysis of the conduct of individual investors within specific stock categories, as highlighted by Erdős and Várkonyi (2024).

Research has extensively examined macro herding behavior across different market conditions, including both positive and negative markets, within various financial markets. The findings of these studies indicate a more pronounced manifestation of herding behavior in markets experiencing downturns, particularly when market returns reach extreme levels (Erdős & Várkonyi, 2024). Moreover, scholarly inquiries into the Latin American Integrated Market (MILA) have identified robust herding tendencies in typical market conditions and moderate herding behaviors observed during bullish and bearish market trends (Vieito et al., 2023). Furthermore, investigations conducted in both China and Pakistan have unveiled the prevalence of herding behavior in China, contrasted with the occurrence of reverse herding phenomena in Pakistan. Notably, the intensity of herding behavior tends to escalate during pessimistic market phases, with cross-country effects playing a pivotal role in shaping the market behavior of these nations (Sheikh et al., 2023). Additionally, scholarly examinations focusing on Islamic bank equity markets have revealed diverse levels of herding across distinct market conditions and events. These investigations have underscored the general absence of herding behavior in most scenarios, except the GCC crisis of 2017, which notably triggered instances of herding in this specific market (Sugiantara, 2022).

Research on macro herding behavior in extreme market conditions has been

extensively explored across various financial markets, shedding light on the phenomenon. Existing literature suggests that the tendency towards herding among market participants becomes more conspicuous when faced with extreme market movements, particularly evident in scenarios of market downturns and pivotal market occurrences such as financial crises or political unrest (Ahmed et al., 2022). Empirical studies have pointed out that the manifestation of herding behavior varies depending on the market sentiment, exhibiting distinct patterns in bullish and bearish contexts. Specifically, B-shares tend to demonstrate herding tendencies in bullish market conditions, whereas A-shares exhibit crowd behavior during bearish scenarios (Luo & Schinckus, 2015). Interestingly, the landscape differs in the Indian equity market, where scant evidence of widespread herding behavior has been documented, even in the face of extreme market conditions. This suggests that market players in the Indian context display a nuanced approach, distinguishing between different securities, which resonates with rational asset pricing principles (Saumitra, 2012). Moreover, observations from the Indian stock market reveal that during periods characterized by drastic price fluctuations, there is a notable absence of herding behavior, signaling a more rational stance adopted by investors. This rationality can be attributed to the influence of regulatory reforms and the presence of foreign institutional investors in the market ecosystem (Garg & Gulati, 2013).

The concept of herding asymmetry, which is widely recognized in financial markets, refers to the phenomenon where investors display a propensity to imitate the behaviors of the masses more prominently during certain market circumstances. These conditions include but are not limited to bull markets, periods of extreme downturns, high levels of market volatility, and exceptional events such as the global COVID-19 pandemic (Fei & Zhang, 2023; Kumar, 2022). Such pronounced herding tendencies have been linked to heightened market volatility and consequential impacts on stock returns (Garg, 2020; Sugiantara, 2022; Bagh et al., 2023). Furthermore, the presence of information asymmetry in the market environment can serve to exacerbate the prevalence of herding behavior. This phenomenon has been exemplified in studies examining the Indonesian stock exchange dynamics and the repercussions of the Swiss Franc Unpegging event on the Indian economy. Appreciating the intricacies of herding asymmetry is paramount for investors as it furnishes valuable insights into the underlying dynamics of financial markets, aids in formulating effective risk management strategies, and sheds light on how external events can influence financial market outcomes.

In light of the substantial importance attached to herding behavior and its consequential effects on market prices, market liquidity, and market crashes, the

primary objective of this study is to meticulously explore the phenomenon of macro herding within varying market environments, encompassing both positive and negative conditions, as well as extreme market scenarios characterized by exceptionally high positive returns and profound negative returns, specifically within the context of the Tehran Stock Exchange. Furthermore, this scholarly investigation intends to thoroughly scrutinize the concept of herding asymmetry, shedding light on its implications and intricacies.

Based on the research background and the content provided, the research hypotheses are introduced as follows:

Hypothesis 1: In the Tehran Stock Exchange, herd behavior is significantly more pronounced in extreme market conditions.

Hypothesis 2: Herd behavior asymmetry is observed in the Tehran Stock Exchange.

Research Methodology

Herd behavior can be assessed using various quantitative methods. Researchers have employed different approaches to analyze market data to determine whether herd behavior and other behavioral biases among investors exist and how they impact performance.

Lakonishok et al. (1992) were part of the pioneering group of researchers who delved into the intricate realm of herd behavior. This phenomenon has captured the interest of scholars across various disciplines. Their study, which focused on 769 tax-free pension funds, employed the renowned LSV method to meticulously scrutinize and identify instances of herd behavior at the institutional level. By leveraging the portfolio data of these funds, they unveiled the underlying dynamics of herd behavior within specific subsets of industries and companies, shedding light on the collective decision-making processes that often drive market trends.

On a parallel note, Frey et al. (2007) embarked on a quest to probe the accuracy of the LSV method through the lens of Monte Carlo simulations. This powerful analytical tool enables researchers to simulate various scenarios and outcomes. Their findings revealed a crucial caveat – the LSV method yields accurate results only in the absence of herd behavior; in its presence, a noticeable downward bias emerges, casting a shadow of doubt on the method's reliability. In response to this limitation, they put forth the FHW method as a viable alternative to the LSV approach, advocating for a novel index designed to rectify the inherent bias associated with LSV calculations.

Central to their proposed methodology is the utilization of squared values instead of absolute values, a strategic maneuver aimed at mitigating the potential correlation between positive and negative herd behaviors, which could skew the analysis results. Notably, the FHW method operates under the assumption of equal probabilities for excessive buying and selling activities, both set at 50%, a simplifying assumption that facilitates the computational aspects of Monte Carlo simulations.

Delving deeper into the nuances of their model, Frey et al. (2007) meticulously examine various vital variables such as herd behavior magnitude, number of trades, and number of shares per trade, demonstrating the unbiased nature of their measurement approach and highlighting its commendable properties in terms of statistical test power and size. Nevertheless, it is imperative to underscore that the validity of their criterion hinges on a critical assumption, namely that the probabilities of buying and selling ($\pi_{b,t}$ and $\pi_{s,t}$) are equal and fixed at 50%; any deviation from this equilibrium state introduces bias into the analysis, underscoring the delicate balance required in empirical investigations of herd behavior.

This intricate issue stems from a fundamental mathematical principle elucidated by Bellando (2010), whereby the square root of the sum of squares does not equate to the sum of square root values, except in specific scenarios delineated by mathematical laws and exceptions.

Christie and Huang (1995) introduced a novel measure of herd behavior rooted in dispersion, specifically the Cross-Sectional Standard Deviation (CSSD), identified as the CH method. The primary objective of this methodology is to detect instances of herd behavior within the financial market, particularly in times of heightened market strain. Their approach hinges on the underlying premise that, contrary to the expectations set forth by rational asset pricing frameworks, herd mentality leads to a scenario where the rate of return dispersion experiences a surge at a diminishing pace or, in extreme cases, a decline. According to Christie and Huang (1995), when confronted with abnormal price fluctuations or market turmoil, the disparities in outcomes between established rational asset pricing models and the concept of herd behavior become more conspicuous. While rational asset pricing models posit that an expansion in return dispersion characterizes periods of market turbulence, the theory of herd behavior contends that such periods witness a contraction in return dispersion instead.

Grinblatt et al. (1995) presented an additional criterion for measuring herd behavior, known as GTW, which indicates whether specific stocks within a fund

exhibit herd behavior over a three-month timeframe or move in opposition to the herd. This approach involves the computation of momentum size to identify herd behavior and scrutinizes its statistical significance through t and F tests obtained from the time series methodology. According to this approach, it was deduced that the propensity of individual investment funds towards herd behavior is highly associated with the fund's performance throughout the period under investigation.

Chang et al. (2000) introduced an additional technique for analyzing the herding tendencies of market participants known as the CCK method, which is an extension of the CH method. This particular method operates under the assumption that the presence of herd behavior in the market indicates a non-linear correlation between the return on a portfolio in the market and the dispersion of individual assets. The dispersion calculation in this context involves the utilization of CSAD, derived from the conditional version of the CAPM. Building upon the groundwork laid by Christie and Huang (1995), Chang et al. (2000) expand the analysis in three significant dimensions. Firstly, they propose a novel and more robust methodology for identifying herding behavior by examining the behavior of stock returns. Through the application of non-linear regression techniques, they delve into the connection between the dispersion of stock returns (referred to as Cross-Sectional Absolute Deviation - CSAD) and the overall market return. In instances characterized by pronounced (or moderate) herding behavior, the dispersion of returns is anticipated to diminish (or escalate) as market returns increase. Secondly, the researchers investigate the manifestation of herding behavior across both developed and emerging financial markets, encompassing regions such as the United States, Hong Kong, Japan, South Korea, and Taiwan.

Another approach, known as the HS method, introduced by Hwang and Salmon (2004), has been put forward to not only identify but also to measure and evaluate the pervasive phenomenon of herding behavior towards particular segments within the market, encompassing even the market index itself. This method is critical in distinguishing herd behavior from the more common asset return movements arising from fundamental shifts. Upon thorough examination of the stock markets of the United States and South Korea, it was observed that herding behavior exhibited a level of independence from prevailing market conditions and macroeconomic factors. This independence persisted even during periods of market tranquility when investor confidence regarding the market direction was notably high. The prevalence of herding behavior directed towards the market portfolio was evident across both bullish and bearish market phases. Hwang and Salmon (2004) assert that the traditional Capital Asset Pricing Model

(CAPM) relationship loses its validity in the presence of herding behavior.

As evident, the methods introduced above operate independently of theoretical models. In the approach proposed by Tessler and Venezia (2022), which is known as method TV, herding behavior is examined under the assumption that when macro herding exists, and stocks are traded in one direction, a variable U_t is introduced for each week t. This variable represents the ratio of the number of stocks whose prices increase to the total number of stocks traded in week t.

$$U_t = \frac{n_t^{up}}{n_t} \tag{1}$$

Where n_t^{up} represents the number of stocks whose prices have increased in week t, and n_t is the total number of stocks in week t.

Then, for each trading period of T weeks, we calculate the average proportion of stock increases as follows:

$$\overline{U_t} = \frac{1}{T}\sum_{t=0-T}^{t-1} U_t, \tag{2}$$

Where $\overline{U_t}$ represents the average normal proportion of stock price increases, according to the suggestion of Tessler and Venezia (2022), significant deviations of U_t relative to $\overline{U_t}$ indicate the movement of stocks in a specific direction, indicating the presence of herd behavior in that particular week.

The method used to calculate herding behavior in this study also investigates whether these absolute deviations are due to chance or are systematic. The approach used by Venezia et al. (2011) by Tessler and Venezia (2022) is employed to examine this. They assume that the number of stocks whose prices increase in week t, under the null hypothesis of no comovement, is binomially distributed with T "trials" and "probability of success" U, where an increase in stock price is considered a "success." Therefore, $|U_t - \overline{U_t}|$ does not follow any known distribution, and they propose an approximate normal distribution of the expected absolute deviation, $E[|U_t - \overline{U_t}|]$, which is subtracted from $|U_t - \overline{U_t}|$. Thus, we arrive at the following method for calculating herding:

$$H_t = |U_t - \overline{U_t}| - E[|U_t - \overline{U_t}|] = |U_t - \overline{U_t}| - \sqrt{2\overline{U_t}(1-\overline{U_t})/(\pi T)} \tag{3}$$

According to Erdős and Várkonyi (2024), this method has two significant advantages. Firstly, it is more suitable for identifying macro herding than other models. The reason for this is that macro herding is recognized as the collective trading direction of investors. Hence, herding manifests itself in the directional movement of stock prices, which is better captured in models based on cross-sectional alignment. The second advantage of this method is its independence from asset pricing models, which reduces biases resulting from dependence on these models.

Finally, we utilized a dummy-variable regression model, specifically chosen to meet the needs of our study, to explore and evaluate the dynamics of herd behavior under conditions characterized by significant price movements and fluctuations.

$$H_t = \mu_t + \sum_{g=1}^{24} \beta_g D_{g,t} + \varepsilon_t \quad (4)$$

Where $D_{g,t}$ equals one if the market return in week t is in a g-th group based on market return sort, zero otherwise.

Data

This study delves into examining the corporations registered on the Tehran Stock Exchange within the timeframe spanning from March 2016 to February 2024. The methodology involved the utilization of weekly asset returns in order to quantify and analyze herd behavior among the listed companies. In conducting data analysis, the researchers used Python software for its computational capabilities and statistical functionalities.

Results

Continuing our analysis, we shall thoroughly investigate the phenomenon of herd behavior exhibited within varying market conditions, drawing upon the insightful research conducted by Lee (2017) and the comprehensive studies carried out by Erdős and Várkonyi (2024). These esteemed scholars have provided valuable insights and perspectives on the collective behaviors observed among market participants, shedding light on the intricate dynamics that shape decision-making processes and ultimately influence market outcomes.

Summary statistics

Over the period between March 2016 and February 2024, an extensive analysis was undertaken, encompassing a total of 362 weeks. The examination involved various stocks looked into each week, fluctuating from 289 to 475, resulting in an average of 345 stocks scrutinized weekly. The returns of the market portfolio, which was equally weighted, spanned from -23.21% to 9.267%, showcasing a wide range of performance outcomes. The market portfolio exhibited an average return of 1.7% every week, indicating the volatility and fluctuations experienced during this extensive research period.

Table 1. Descriptive statistics

Variable	*N.obs*	Mean	SD	Min	Median	Max
Number of shares	362	348	470.21	241	289	475
The return of the equally weighted market portfolio, $\bar{\gamma}$(m,t) (%)	362	0.017	362.10	-23.214	0.385	9.267
Fraction of stocks whose prices rise U_t (%)	362	51.217	14.317	2.846	39.557	93.217
The average proportion of rising stocks for each time window of T trading weeks, $\bar{U}$ (%)	362	53.287	2.314	52.396	29.364	63.548
Herding measure H_t(%)	362	9.317	9.324	-4.328	8.321	41.879
Source(s): Authors' findings						

Herd behavior under different market conditions

Continuing with our investigation, we aim to delve deeper into the phenomenon of macro herding across various market conditions. In the scope of this particular research endeavor, we have opted to adopt the methodology put forth by Lee (2017) and Erdős and Várkonyi (2024). The approach involved the segmentation of the week's being scrutinized into a total of 20 distinct segments, with the basis of demarcation being the returns observed. Subsequently, the initial (characterized by the lowest return) and the final (characterized by the highest return) returns were further subdivided into two distinct sections, identified as extreme returns, in order to facilitate a more nuanced and detailed analysis.

Each of these delineated groups underwent a meticulous calculation process, wherein the average market return and the average herding measure were computed and documented for subsequent reference and analysis, with the detailed findings being comprehensively presented in Table 2 for easy reference and comparison.

Table 2. The relationship between average weekly market return and average weekly herding measure

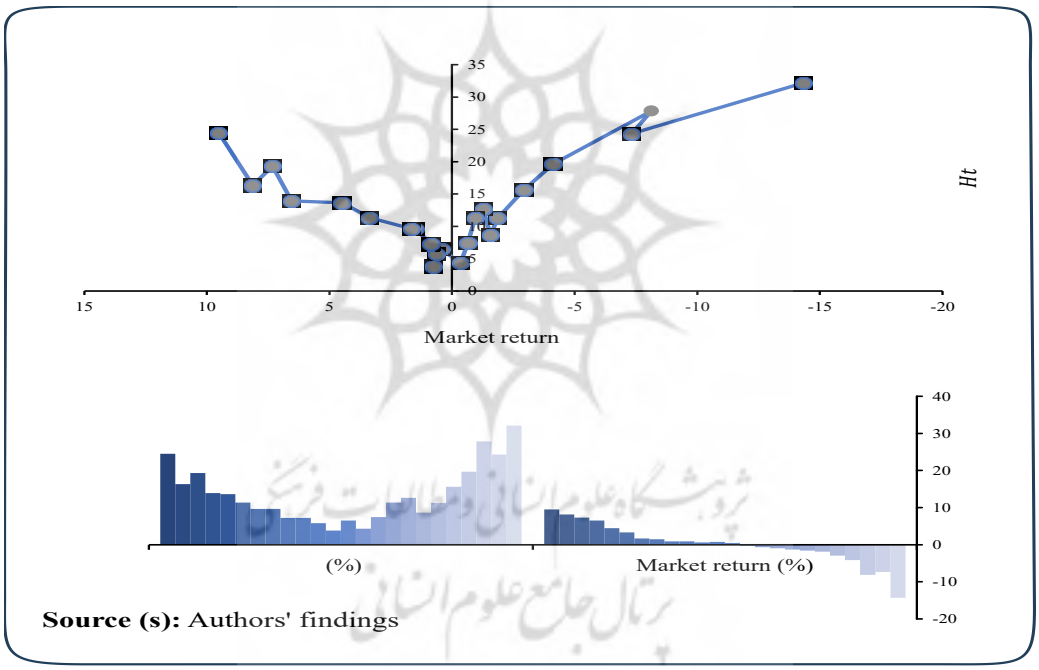
Group based on the market return	Market return (%)	H_t (%)	β_g	t-statistics
1A (0–1%)	-14.321	32.145	0.234***	7.164
1(1–5%)	-7.327	24.312	0.167***	9.348
1(0–5%)	-8.124	27.845	0.189***	12.648
2	-4.124	19.648	0.097***	6.315
3	-2.937	15.648	0.064***	5.648
4	-1.854	11.247	0.054**	2.316
5	-1.569	8.648	0.066	1.315
6	-1.278	12.648	0.074	0.798
7	-0.945	11.318	-0.083	0.648
8	-0.647	7.442	-0.046	-1.321
9	-0.348	4.318	-0.028**	0.315
10	0.437	6.487	-0.007***	-1.548
11	0.754	3.797	-0.009***	-2.648
12	0.64	5.771	-0.019***	-4.315
13	0.87	7.188	-0.026***	-4.128
14	0.864	7.248	-0.056***	-1.826
15	1.487	9.648	0.016**	-0.316
16	1.667	9.641	0.018	-2.315
17	3.347	11.315	0.021	3.648
18	4.482	13.648	0.047	2.215
19	6.546	13.942	0.031**	1.315
20(95–100%)	7.317	19.325	0.022***	2.684
20(95–99%)	8.127	16.323	0.058***	6.547
20(99–100%)	9.524	24.491	0.084***	5.648
Average	0.107833	13.50179		

Source(s). Authors' findings

Based on the outcomes delineated in the β_g column of Table 2, it is discernible that the outcomes derived from the regression model incorporating dummy variables at the percentile range of 0% to 1% manifest substantially more significant disparities than the remaining subsets. Moreover, the instances showcasing the utmost degree of collective behavioral tendencies within a herd are prominently evident during periods characterized by more adverse returns. Furthermore, upon careful examination of the data featured in the β_g column, it becomes apparent that the maximum coefficient value materializes during intervals marked by positive returns, specifically within the twentieth stratum, which boasts the most favorable returns across all intervals. This underscores the correlation between herd behavior and extreme market conditions, wherein such behavior is accentuated notably in scenarios characterized by either exceedingly

negative or positive returns. These discoveries are in harmony with the conclusions drawn from the investigation conducted by Ahmed et al. (2022), which documented instances of herd behavior within the context of extreme market circumstances observed in China and Pakistan.

Based on the findings presented in Table 2, it is evident that the intensity of herd behavior can be discerned within the lower quartile of returns, constituting the bottom 25%, while its presence is only detectable within the upper quintile, encapsulating the top 5% of returns. These outcomes serve to highlight the heightened manifestation of herd behavior under market conditions characterized by negative returns. Furthermore, it is noteworthy that herd behavior tends to be either nonexistent or imperceptible during weeks exhibiting returns surpassing the median value unless such weeks fall within the top 5% of returns or the bottom 25% of returns.



Source (s): Authors' findings

Figure 1. Graphical illustration of the relationship between average weekly market return and average herding measure

Based on the depiction provided in Figure 1, it becomes apparent that the intensity of herd behavior exhibits an elevated level during weeks characterized by markedly negative returns and during weeks marked by notably positive returns. Furthermore, an analysis of this figure also reveals the presence of asymmetry in the manifestation of herd behavior within the context of the Tehran Stock Exchange.

Discussion and Conclusion

In the present investigation, an analysis was conducted on the phenomenon of herd behavior within the Tehran Stock Exchange (TSE) across various market scenarios. The study's outcomes reveal a higher prevalence of herd behavior in instances of extreme market conditions, manifesting notably during substantial market upswings and downturns; based on this, the first hypothesis of the research is confirmed. This discovery aligns with prior research endeavors, which posit that amid periods characterized by heightened market volatility, investors have an increased propensity to emulate their peers' investment choices (Kumar, 2022). These conclusions suggest that in circumstances marked by escalated levels of uncertainty, investors tend to exhibit herd behavior as a coping mechanism in response to apprehensions surrounding potential financial losses (Aharon, 2021).

Data analysis, when conducted, also uncovers the fact that within the Tehran Stock Exchange (TSE), individuals who engage in investment activities demonstrate a more pronounced inclination towards herd behavior specifically in periods characterized by a downturn in the market. This phenomenon can be elucidated by attributing it to the heightened levels of uncertainty that investors encounter under such circumstances, prompting them to rely on the behaviors and actions of their counterparts as a strategy to manage and reduce risks effectively. In economic recessions, it is commonplace for investors to actively observe and interpret signals and conduct displayed by their fellow investors to harmonize their own decision-making processes, consequently fostering and consolidating the prevalence of herd mentality in the market. Interestingly, this particular outcome contrasts the conclusions drawn by Sugiantara (2022), yet it resonates with the research findings put forth by Yousaf et al. (2018).

The findings further exemplified that herd behavior tends to be less conspicuous in market conditions characterized by a bullish trend. In light of these findings, the study's second hypothesis is also validated. This occurrence can potentially be attributed to the heightened level of certainty and assurance that investors possess regarding their individual decisions amidst periods of escalating market prices. Within bullish markets, there is a notable inclination among individuals to place a greater degree of reliance on their personal analyses and strategic approaches, thereby diverting their focus away from collective decision-making processes. Such a trend serves to signify that in times of positive market performance, the emphasis on individualistic tendencies is more pronounced, contrasting with the shift towards a more collective mindset and herd behavior during unfavorable market conditions.

Furthermore, in scenarios characterized by negative returns, the heightened levels of stress stemming from perceived risks prompt less informed traders to exhibit a stronger inclination towards mimicking the actions of others as a means of mitigating the anxiety associated with risk exposure. Conversely, during periods marked by positive returns, investors tend to perceive lower levels of risk, consequently displaying a reduced propensity towards emulating the behaviors of their counterparts in comparison to the dynamics observed in bearish markets. Nevertheless, it is worth noting that there are instances where an inverse asymmetry in herd behavior can manifest, primarily driven by the influence of positive news disseminated within a speculative market environment (Park, 2011).

For the purpose of future academic inquiries, it is strongly advised that scholars delve into the phenomenon of herd behavior by utilizing this particular methodology within a plethora of industries operating under distinct market conditions. Furthermore, it is posited that applying this particular approach across various markets could potentially lead to a more comprehensive comprehension of herd behavior within an array of diverse contexts. Such an endeavor has the potential to offer invaluable insights into the manifestations of herd behavior within differing market environments, thereby facilitating the refinement of strategies aimed at mitigating the potentially detrimental impacts associated with such behavior.

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