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Investor's Herding: A Study of the National Stock Exchange of India

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Abstract

The aim of this paper is to study investor behaviour, specifically the herd behaviour, in the National Stock Exchange of India. The presence of herding in the Indian securities market has been tested on the daily closing prices of the companies listed on the Nifty50 during the period of 2001-2016. To analyse the data, the data have been collected from the PROWESS database. The present study has been using the methodology given by Christie & Huang (1995). As previous studies showed the presence of herding in the developing economies, the result of the present study shows no significant sign of herding during the period of market stress as a whole in the National Stock Exchange of India. The results of the study indicate the fact that Indian investors are rational, and they do not mimic the actions of others. They used their private information rather than rely on other's information.

Keywords: Herding, Nifty50, National Stock Exchange

Introduction

Nowadays, portfolio managers, brokers and academic researchers are interested in studying the behaviour of investors. Investment behaviour is an important issue to study the efficiency of the markets. The major crashes, bursts and booms are the reasons behind the irrational behaviour of the investors leading to market inefficiency. Herding is one such type of irrational behaviour which confronts the efficient market hypothesis. The efficient market hypothesis explains the rational viewpoint of investors. They assumed that investors have full information about the securities they want to invest. They are free to make a decision based on the information and earn maximum returns on their investment. On the other hand, herding refers to mimic the actions of others. Investors do not follow the market fundamentals; rather, they follow the market moves before making the investment to earn maximum return having an impression in their mind that others have better information.

The Indian stock market is well organized and regulated by SEBI (The Securities and Exchange Board of India). Corporate governance leads to greater transparency of information disclosure by the companies. So, it is expected that Indian investors are well informed, and they take rational decisions. But there are many instances of irrational behaviour in the Indian stock market, the 2008 crash being the major and recent one. As India is an open economy, foreign institutional investors and foreign stock market movements have a great impact on the Indian stock market. Various previous studies have reported many behavioural biases like loss aversion, overconfidence, optimism and herding as an important reason behind the market anomalies. Herding is considered as one of the major anomalies in emerging Asian economies like South Korea and Taiwan, which make these economies less mature and riskier than developed economies. There are a few researchers who have tried to find the presence of the herding in the Indian scenario. So, the present study tries to determine the herding in the National Stock Exchange of India.

Literature Review

From the past literature, it can be seen that several studies have been done to study the herd behaviour in stock markets. There are various studies relating to the herding in the stock markets of developed economies like the US and Europe. But very few studies have been conducted in the developing economies – particularly, for the Indian stock market. Some studies examined the herding in particular stock while some related to market-wide herding. Herding in individual stock means investors

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focused on one type of securities only and ignored the other securities of the same attributes. Bikhchandani et al. (1992), Banerjee (1992), Welch (1992), Lakonishok et al. (1992), Nosfinger & Sias (1992), Wermers (1999), Shiller & Pound (1986), Scharfstein & Stein (1990), Trueman (1994), Zweibel (1995), Brennan (1993), Roll (1992), Conlisk (1980), Pingle (1995) and Lux (1995) concluded that herding among investors is due to informational cascades, institutional investment, reputational concerns, compensation problem, psychology and interpersonal communication problems of investors. On the other hand, market-wide herding prevails in the market when investors follow the market trends and move with the actions of others. Many researchers examined the market-wide herding in different financial markets in different scenarios and found mixed results. Some researchers found positive results, i.e., they found herding in the stock markets in different phases of the market like (Chang et al., 2000; Chiang & Zheng 2010; Lindhe 2012; Prosad et al., 2012), but there are some who found negative responses (Demirer & Kutan 2010; Garg & Jindal 2014). This section has been divided into two sections which explain the positive and negative responses of herding in different countries' stock markets in different phases.

Studies Having a Positive Response

'Investors are considered to be herding if the investment decisions change in accordance with others, even when their personal information tells them to act otherwise' (Ferruz & Vergas, 2007). Christie and Huang (1995) argue that 'investors are more likely to suppress their private beliefs in favour of consensus during periods of extreme market movement'. Choe et al. (1999) find herding in the Korean stock exchange during the crisis period in 1997. Nofsinger and Sias (1999) also find herding in the US. Chang et al. (2000) examines the significant evidence of returns dispersion results in herding and also leads to conclusion that wrong decision-making causes price volatility and weakens the financial system. Kim and Nofsinger (2005) find herding in the Japanese stock market during the bullish market. Demirer and Kutan (2006) find herding in small-cap companies and in large number of the retail investors of the non-financial sector. Guo and Shih (2008) examined the herding in Taiwan stock market and found more herding in high-tech companies as compared to traditional industries. Fu and Lin (2010) find herding during the extreme down price situation. Lao and Singh (2010) find herding in Indian and Chinese markets. Jeon and Moffet (2010) report the same findings in their study of the Korean stock market. Hadiwibowo (2010) finds herding specifically during the period of financial crisis only, and not in the normal periods. Belhoula Naoui (2011) finds that all investors do not react to any new information collectively. Lee et al. (2012) find herding in the Chinese stock market. Yao et al. (2014) investigated the herding behaviour of investors in China's A and B share markets at both firm-specific and market-level data using CH and CCK models and found herding in B shares of both Shenzhen and Shanghai stock exchanges and not for A-shares. Garg and Jindal (2014) investigated the presence of herd behaviour in the Indian stock market and found that there was herding behaviour in the Indian stock market during extreme price movements and in crisis times, but not during the normal time period. Cakan and Balagyozyan (2015) study the Turkish stock exchange and find significant herding in all sectors namely finance, technology and services in highly volatile markets.

Studies Having a Negative Response

In comparison to the above studies, there are many researchers who find the negative response of herding in different stock markets. Lakonishok et al. (1992) find no evidence of herding in pension fund stocks in Indian stock market. Demirer and Kutan (2006) also find no evidence of herding in Chinese stock markets. Javed et al. (2013) find a negative response of herding in the Karachi stock market. Gleason et al. (2003) find no evidence of herding in the American stock market during extreme market fluctuations. Christie and Huang (1995) find no herding in NYSE and Amex Firms. Chang et al. (2000) find the significant positive response of herding in South Korea and Taiwan markets by developing a nonlinear model, but no evidence is found in the USA, Hong Kong and Japanese markets. Gleason et al. (2004), using the intraday data of American Stock Exchange, find no evidence of herding among the sector Exchange Traded Funds (ETFs). Henker et al. (2006) find no herding in the Australian stock market. Lakshman et al. (2011) observed that the presence of market-wide herding in Indian stock markets is not very severe. They found that Foreign Institutional Investors (FII's) do not significantly impact herding. However, Mutual Funds increase herding. They also found that Nifty returns have no impact on herding.

Prosad et al. (2012) examined the effect of herding in Indian equity market using the data of Nifty50 and found that there was no evidence of severe herding in the Indian stock market except during the bull phase. Garg and Gulati (2013) find no significant herd pattern in Indian stock markets. Saxena (2015) examined the herding behaviour in the Indian stock market, analysed the psychology of Indian retail investors and did not depict any herding bias in the Indian stock market. In view of the above studies, the present paper tries to examine the existence of herding in the National Stock Exchange of India.

Research Objective

The study aims to determine to herd in the National Stock Exchange of India.

Research Methodology

Data Collection

To achieve the above objective, data have been collected for the companies listed on the NIFTY50. The daily closing values of the companies for the period of 2001-2016 has been taken from the PROWESS database for calculating the cross-sectional standard deviation. The closing value of NIFTY50 index has also been collected from the website of the National Stock Exchange to calculate the market return. The market return further helps in calculating the dummy variables like D^U and D^L indicate the upper and lower limits of return dispersion, respectively.

Methodology

The methodology of Christie & Huang (1995) has been used for analysing the data. Christie & Huang (CH) in their study reveal that dispersion in securities return will be increasing at a decreasing rate. Sometimes, the dispersion between securities return has been decreasing instead of increasing, which shows the presence of rigorous herding in the markets. CH has used the cross-sectional standard deviation variable to test the herding behaviour in the stock market. It has been calculated as follows:

$$CSSD_t = \frac{\sum_{t=1}^{N_t}(R_{i,t} - R_{m,t})^2}{N_t - 1} \quad \ldots (1)$$

Where *Ri*, *t* is the observed stock return of firm *i* at time *t*, *Rm*, *t* is the cross-sectional average of the *N* returns in the aggregate market portfolio at time *t*, and *N* is the number of securities in the portfolio.

Chirstie and Huang (1995) used the following regression equation to detect herding during market stress:

$$CSSD_t = \alpha + \beta_1 D^L{}_t + \beta_2 D^U{}_t + e_t \quad \ldots (2)$$

Where *CSSD* is the cross-sectional standard deviation, and α coefficient shows the average dispersion of the sample excluding the regions corresponding to the dummy variables. Dummy variables in regression equation (2) have been used as explanatory variables to differentiate the periods of market stress from normal periods, taking into consideration that market stress occurred when aggregate returns lie in the upper or lower tail of return dispersion. So that, $D^L{}_t = 1$, if, on day *t Rm*, *t* lie in the lower tail of return dispersion and 0 otherwise. $D^U{}_t = 1$, if, on day *t Rm*, *t* lie in the upper tail of return dispersion and 0 otherwise. According to the model, statistically significant negative values of β_1 and β_2 in equation (2) will indicate the presence of herding. Upper and Lower limit has been determined at 95%.

Results

Descriptive Statistics

The descriptive statistics of cross-sectional standard deviation has been reported in Table 1. The average daily return of CSSD for the period 2001-2016 came to be 1.91 with a minimum of 0.45 and maximum of 7.72. The standard deviation came as 0.74 of the 3985 observations for the period of study. The series CSSD is stationary or not has been checked by applying the Unit Root Test. The negative value and significant probability of ADF statistics show the stationarity of the series CSSD.

Table 1: Descriptive Statistics of Daily CSSD (2001-2016)

	Daily CSSD (2001-2016)
Mean	1.91
Median	1.74
Maximum	7.72
Minimum	0.45
Std. Dev.	0.74
Skewness	1.89
Kurtosis	9.20
Jarque-Bera	8759.97
Probability	0.00
ADF Statistics	-8.06
Observations	3985

Note: Descriptive statistics obtained using EVIEWS 8.0.
*Significant at 5% level.

Regression Results

The regression results of daily CSSD for the period of study using the dummy variables have been reported in Table 2. The regression equation given by CH 1995 has been run using EVIEWS 8.0. to determine to herd in the National Stock Exchange of India. The positive and significant values 0.73 and 1.12 of β_1 & β_2, respectively, show the increasing trend between the securities return and defy the definition of herding given by Christie and Huang. Thus, the absence of herding has been found in the National Stock Exchange of India during the period of market stress as a whole in the study period.

Table 2: Result of Regression of Daily CSSD Using Dummy Variables (2001-2016)

$CSSD_t = \alpha + \beta_1 D^L_t + \beta_2 D^U_t + e_t$			
Daily			
Mean Equation	*Coefficients*	*t-statistics*	*Sig.*
A	1.86	161.73	0.00
β_1	0.73	10.59	0.00
β_2	1.12	14.54	0.00

Note: *Significant at 5% level.

Results obtained using EVIEWS 8.0.

Conclusion

The present study tries to determine the existence of herding in the National Stock Exchange of India during the period 2001-2016. Using the methodology of Christie & Huang (1995), regression equation has been run on the data of NIFTY50 companies during the study period. It has been found that there is absence of herding in the Indian stock market during the period of market stress as a whole. The results of the present study are in contrast to the findings of Chang et al. (2000), who found herding in the emerging economies like South Korea and Taiwan. But, the results are aligned with the results of Garg & Jindal (2014) and Saxena (2015), who also did not find herding in the Indian stock market during 2000-2012. This shows that Indian investors are better informed and they behave rationally.

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