

Herd Behaviour Mania in Financial Markets: Literature Review

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Abstract

Transmitting accurate and true information to stakeholders is imperative for market efficiency thereby reducing speculation in asset prices. The present paper conducts a systematic review of the extant literature in the area of herd behaviour in financial markets. We identify the research gaps that provide opportunities for future research. The scope of future studies may help in framing of new research questions and their further analysis. Herding in financial markets can be detrimental to the overall market system making it vulnerable. The existing studies on herd phenomenon have provided mixed and inconclusive results. The current review examines herding with respect to the types of market participants, metrics used, direction of market movement and the nature of the economy. It is imperative to perform a systematic review in this field as the behavioural biases have implications for market participants, regulators and academicians.

Keywords: Market Efficiency, Asset Prices, Herd Behaviour, Financial Markets, Systematic Review

JEL Classification: G140, G1, G120, G410

1. Introduction

Statman (1999) argues, people are 'normal' rather than 'rational'. Humans in general are driven by behavioural biases and these affect their decision making capacity. Men in general have an innate capacity to be influenced by others while making decisions, including investing activities. In their seminal work, Bhikchandani & Sharma (2000) have pointed out three reasons for an investor to be influenced by others actions. First, there is an innate and natural preference to confirm with others. Secondly, the incentive schemes in the financial world are such that imitation is rewarded. Thirdly, the credence of investors that others in the market possess more knowledge about the investment may lead to imitation. The motivations that induce herd behaviour according to Leibenstein (1950) are "the desire of people to purchase a commodity in order to get into the swim of things; in order to conform with the people they wish to be associated with; in order to be fashionable or stylish; or, in order to appear to be one of the boys." According to Banerjee (1992), herd behaviour is when people follow the crowd ignoring their personal information that might be suggesting something else.

Bhikchandani, Hirshleifer and Welch (1992) put forward, that for investors, herding is the obvious intent to imitate other investors' behaviour. Raut & Das (2015) in their review find that the behavioural changes impact individual investor's decision making ability leading to irrational choices and thus inefficient markets. Devenow & Welch (1996) opine two polar views of herd phenomenon, namely rational and non-rational. They claim that rational herding is when incentive issues and informational difficulties shadow optimal decision making and managers herd so as to guard reputations (Scharfstein & Stein, 1990; Rajan, 1994). Non rational herding on the other hand is when the investors behave like lemmings and blindly mimic others ignoring their private information. Bhikchandani & Sharma (2000) classify herding into spurious and intentional, where the former is an efficient outcome whereas the latter results in information cascades and is a result of money managers following others for reputational reasons. Mangala & Sharma (2014) in their study, review various behavioural biases that impact the investment behaviour thereby not only influencing the current but also the future decisions.

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2. Objectives of the Review

The present review critically examines the theoretical and empirical literature available on herding in financial markets. In spite of numerous studies present, this particular review adds to the body of knowledge in two primary ways. First, the extant literature is consolidated and thematic areas are identified to review the studies with respect to the types of market participants, methodologies used, country of research and asymmetry in market movement. This categorization aids in understanding the past work on the behavioural bias with respect to the aggregate market activity as well as its various stakeholders. The second significant contribution that the present study makes is identification of existing gaps and limitations in literature along with the scope of future research. Firstly the methodologies used to measure herd behaviour are not free from assumptions that do not hold valid while working with real data. The limitations are discussed further in the paper. The studies conducted so far have been inconclusive when it comes to inferring the prevalence of herd phenomenon in financial markets. While some studies find significant evidence, others give a contrast opinion. In addition to this, little has been explored outside the gamut of equity markets. Debt and commodity markets provide lucrative ground for the study, but only a handful of studies have been conducted. Lastly, the existing studies focus on examining herd pattern in the markets individually. Investor behavioural spillover patterns have not been explored much.

In view of the above objectives, rest of the paper is organized as follows: Section 1 and 2 are introduction and objectives of the review respectively. Section 3 evaluates the studies on herd pattern among market participants and the possible intentions for herding. Section 4 evaluates the measures used to study and conclude the herd behaviour in financial market and limitations of these metrics. Most of the available literature examines herd pattern in equity markets. In Section 5, we have reviewed the studies in other types of capital markets like bond, commodity, mutual funds for the evidence of herd behaviour. Section 6 examines the studies on herding in different emerging and developed markets that are varied in terms of development and depth. Section 7 reviews the herd phenomenon under asymmetric market conditions. Section 8 concludes the

paper and discusses gaps and limitations in the existing body of knowledge along with scope of future research.

3. Herding by Different types of Market

The first context in which the literature has been classified is at the micro level of types of market participants- investors, money managers, fund managers, security analysts and newsletters. The reputational and career concerns of managers give rise to principal-agent issues and may lead to herd behaviour. Kodres & Pritsker (1995) study herding among various groups of market participants and infer that broker-dealers dealing in foreign currency and S&P 500 Index futures herd. Herding is also concluded for foreign banks, pension funds and hedge funds. Analysts performing earnings forecast also display herd behaviour in the UK markets (De Bondt & Forbes, 1999). Welch (2000) is of the opinion that security analysts herd by way of trade recommendations that have positive impact on other analysts. According to Cote & Sanders (1997) the factors that positively affect herd behaviour are concerns for reputation and consensus forecast credibility whereas ability to forecast has an inverse relationship. This is further ascertained by Trueman (1994) who finds that analysts have an incentive to bias their recommendations based on prior market expectations in order to protect reputation (Scharfstein & Stein, 1990). Graham (1999) examines herding among newsletters and finds that they herd on Value Line and around each other in order to protect their reputation. Olsen (1996) cites that human desire for conformity is the reason behind herding among earnings forecasters. Cote & Goodstein (1999) look at the ethical nature of herding behaviour and question the practice when the analyst's reputation takes precedence over 'what is right?'. According to Kim & Pantzalis (2000) analysts concentrating on diversified companies display significantly higher herding and are also penalized. Revisions that are more recent and accurate predictors of ex post returns also lead to herding. On the contrary, a study by Bernhardt, Campello & Kutsoati (2006) observes that analysts "anti herd" and focus on private information to issue contrarian trade calls. According to Rajan (1994), rational bank managers with short term horizons while setting up credit policies are also influenced by other banks. The study cites the example of the banking crisis of

the Bank of England. Prendergast (1993) argues that compensation schemes of managers may lead to information cascades and herding and conclude that it may lead to inefficiencies and more centralized decision making. Zwiebel (1995) concludes herd behaviour exists among intermediate quality managers where success rate is measured relative to others. Ashiya & Doi (2001) reason "herding leads to reduced dispersion and an increase in the mean of the distribution of expert forecasts, creating positive bias and inaccuracy in published earnings estimates." As such decrease in dispersion is viewed as lesser risk and positive bias for high future returns. Chevalier & Ellison (1999) find lesser deviation from herd behaviour for young mutual fund managers compared to older managers primarily because of career concerns that provide incentives. Conditional upon performance, inexperienced employees suffer career setbacks when wrong and that can prove to be costly making them take less risks and herd (Hong, Kubik & Solomon, 2000).

Herd behaviour has been studied with respect to the residence status of the investor. Kim & Wei (2002) conclude that resident and non resident foreign investors herd and the behaviour is more pronounced in case of individual investors compared to institutional investors. A possible explanation for the same can be the quality and timeliness of information which is readily available to institutional investors viz a viz individuals. On the other hand studies by Choe, Kho & Stulz, (1999) and Iihara, Kato & Tokunaga (2001) find evidence of significant herd pattern among institutional investors. However, they point out that institutions follow information rather than 'trend chasing'.

4. Measures and Methodologies of Herding

The extant literature to measure herd behaviour in the financial markets are put under two categories. The first method to examine herd phenomenon is at micro-participant level and the second is from the point of view of aggregate market activity using security prices and returns. For the former category, we have analyzed the most commonly used measure of Lakonishok, Shleifer & Vishny [LSV], (1992). As per the model, "herding is measured as the ratio of the number of net buyers of a particular stock relative to the total number of money managers in that stock at that time minus the adjustment factor. The adjustment factor decreases as the number of

managers that trade in that stock rises." Herding, H(i) is defined as:

$$H(i, t) = \left| \frac{B(i,t)}{(B(i,t)+S(i,t))} - p(t) \right| - AF(i, t) \quad (1)$$

Here, B(i,t) and S(i,t) is the number of money managers that buy and sell respectively stock i at time t.

$$AF(i,t) = E \left| \frac{B(i,t)}{(B(i,t)+S(i,t))} - p(t) \right| \quad (2)$$

Here, LSV (1992) defines p(t) as the expected value of the proportion of money managers buying in that quarter relative to the number active. LSV (1992) studies the investment behaviour of 341 money managers that manage 769 U.S tax exempt funds for the period 1985 to 1989 and find no significant herd behaviour. However, there is evidence of herding in small stocks but the authors justify it on account of less publically available information for them. This methodology is used by Wermers (1999) to study herding in mutual funds for the period 1975 to 1994. In spite of the popularity of the LSV (1992) measure, it suffers from the following limitations:

- 1) The LSV (1992) method examines the number of managers while ignoring the magnitude that can result in underreporting the existence of herd behaviour.
- 2) The measure does not capture whether it is the same stocks that herd over a period of time or not. As a result, the method cannot be used to identify herding in trades across time periods.

Sais (2004) studies the behaviour of institutional investors and finds the covariance of buyers of the stock in one quarter to the proportion in the previous quarter. This cross sectional correlation between the number of buyers in two simultaneous quarters helps in identification of the herd pattern. Thus, the position of each institutional investor in every asset k is found out at both, the start and end of each quarter. Buying (selling) leads to an increase (decrease) in the holding of asset. Afterwards, the portion of buyers is estimated for each stock quarter. B_{ik, t} and S_{ik, t} is the number of institutional buyers and sellers for stock k at

quarter t respectively. Thereafter a 'raw fraction of institutions buying' is defined as:

$$Raw\Delta k, t = \frac{BI_{k,t}}{BI_{k,t} + SI_{k,t}} \tag{3}$$

The equation is then standardized:

$$\Delta k, t = \frac{(Raw \Delta k, t - \overline{Raw \Delta k, t})}{\sigma(Raw \Delta k, t)} \tag{4}$$

The idea is

“if institutional investors follow each other into and out of the same securities (herd), or if individual institutional investors follow their own last quarter trades, then the fraction of institutions buying in the current quarter will be positively correlated with the fraction of institutions buying in the previous quarter” (Sias, 2004, p. 172).

The second category of methodology employs the individual stock returns viz a viz market returns to study the return dispersions to evaluate herd pattern. The return dispersion measures magnitude of closeness between stock return and the average market return. The pioneer in this measure is given by Christie & Huang (1995), called cross sectional standard deviation (CSSD):

$$CSSD_t = \sqrt{\sum_{i=1}^N \frac{(R_{i,t} - R_{m,t})^2}{N-1}} \tag{5}$$

Where, $R_{i,t}$ and $R_{m,t}$ are the return on security i and market portfolio at time t respectively and N is the number of firms in the portfolio. During times of market stress, as theorized by the rational asset pricing models, the dispersion should increase as each security has a different beta and behaves differently towards the market movements. However, if herd pattern exists, then investors suppress their own information that is private and pursue others trading decisions leading to decrease in the dispersion measure (Christie & Huang, 1995). Thus, herding exists when dispersion is zero. Hence the model empirically examines if the difference between individual security return and market return (measured by dispersion) is significantly lower than the mean during the times of market stress. Following is the equation:

$$CSSD_t = \alpha + \beta^L D_t^L + \beta^U D_t^U + \epsilon_t \tag{6}$$

Where, β^L and β^U are the coefficients of systematic risks for up and down market movements. D is the dummy variable capturing the differences in investor behaviour during extreme market movements. $D_t = 1$ if the $R_{m,t}$ is to the left of the extreme lower tail of the return distribution or right to the extreme upper tail of the distribution or $D_t = 0$ otherwise. For herd behaviour to exist, the β should be statistically significant and negative. This model suffers from the following limitations. First the model is linear, whereas during herding, the linearity between CSSD and $R_{m,t}$ does not hold true. The model is also affected by outliers and cannot be used to examine herd pattern during normal times. In view of the above limitations, Chang, Cheng & Khorana (2000) propose a cross sectional absolute deviation (CSAD) to study the dispersion. CSAD is a variant of CSSD and the relationship between CSAD and market return is used to study herd behavior. The rationale of CSAD measure is the same as CSSD explained above. However, it is better as it captures the non linearity during herding, making it more robust. This is done by addition of a non linear term of $R_{m,t}^2$ in the model. CSADt is calculated as:

$$CSAD_t = \frac{1}{N} \sum_{i=1}^N |R_{i,t} - R_{m,t}| \tag{7}$$

The regression equation is:

$$CSAD_t = \beta_0 + \beta_1 |R_{m,t}| + \beta_2 (R_{m,t}^2) + \epsilon_t \tag{8}$$

In case herd behaviour exists, the regression coefficient β_2 is significant and negative. Although theoretically sound, the model has a limitation. The independent variables may be susceptible to increased level of multicollinearity that may lead to less accurate results. To improve the power of the model, Yao, Ma & He (2013) study the Chinese A and B stock market by using the modified forms of Christie and Huang (1995) and Chang et al. (2000) model by adding an extra term of $R_{m,t}$. This decreases the multicollinearity between independent variables:

$$CSSD_t = \beta_0 + \beta_1 |R_{m,t}| + \beta_2 (R_{m,t} - R_m)^2 + \epsilon_t \tag{9}$$

R_m is the arithmetic mean of R_{mt} . To reduce the high level of serial correlation, Yao et al. (2013), add an extra 1- day lag term to the above equation:

$$CSSD_t = \beta_0 + \beta_1 |R_{mt}| + \beta_2 (R_{mt} - R_m)^2 + \beta_3 CSSD_{t-1} + \epsilon_t \tag{10}$$

Yao et al. (2013) find herding in Shanghai and Shenzhen B-share market whereas A-share market makes more rational investment choices. To make the model more powerful and robust, Filip, Pochea & Pece (2015) use (11) and find significant herd behaviour in all Central and Eastern European countries except Poland.

$$CSAD_t = \beta_0 + \beta_1 |R_{mt}| + \beta_2 (R_{mt} - R_m)^2 + \beta_3 CSAD_{t-1} + \epsilon_t \tag{11}$$

The equation (11) has an advantage over (10) as it uses CSAD instead of CSSD as a measure of dispersion and hence all limitations of CSSD model are minimized.

Another metric to capture herd phenomenon is by using beta herding (Hwang & Salmon (HS), 2007). Beta herding reflects the convergence of betas of individual stocks towards the market index. The cross-sectional beta herding in individual assets is modelled in HS as follows:

$$\frac{E_t^b r_{it}}{E_t r_{mt}} = \beta_{imt}^b = \beta_{imt} - h_{mt} (\beta_{imt} - 1) \tag{12}$$

For a security i at time t , β measures the systematic risk that has excess returns of r_{it} . r_{mt} measures the excess returns on market at time and $E_t(\cdot)$ is the conditional expectation of return. During herding, $E_t^b(r_{it})$ and β_{imt}^b are the biased conditional expectation of excess returns and systematic risks for the security. h_{mt} captures herding and the market is in equilibrium when $h_{mt}=0$. The study examines how asset prices and their expected returns i.e. $E_t(r_{mt})$ evolve when the market is in disequilibrium. The model postulates that for perfect cross sectional beta herding ($h_{mt} = 1$), $\beta_{imt}^b=1$ and the expected excess return of individual stock is the same as market return. Contrary to the results of some studies, the authors find that beta herding is more apparent in the markets of the US, UK and South Korea when there is confidence among the investors. During periods of stress, fundamentals overrule the investment decisions.

The method of estimating the regression equations as proposed by various studies has been ordinary least

squares (OLS). However, an alternate estimator is quantile regression model (QREG) (Koenker & Bassett, 1978). QREG gives a complete picture of the return distribution and plots the family of regression curves corresponding to various percentage points. Thus, it can be evaluated how herd behaviour fares for high quantiles i.e. during asymmetric market movements. QREG is a better estimator viz-a-viz OLS which is a mean based regression estimation. In addition, QREG can be used for estimation of non normal distributions also (Barnes & Hughes ,2002) making it more efficient than OLS (Buchinsky 1998). Zhou & Anderson (2013) use QREG to study herd behaviour in US equity real estate investment trust market. Vo & Phan (2016) study the Vietnam equity markets for herd behaviour for the time period 2005 to 2015 using a sample of 299 companies. Pochea, Filip & Pece (2017) study the Central and Eastern European countries using QREG (τ) estimator. Following is the equation:

$$Q\tau(\tau|X_t) = \gamma_{0\tau} + \gamma_{1\tau}R_{mt} + \gamma_{2\tau}|R_{mt}| + \gamma_{3\tau}(R_{mt} - R_m)^2 + \gamma_{4\tau}CSAD_{t-1} + \epsilon_{t\tau} \tag{13}$$

The above equation is for QREG is used for measuring the dependent variable CSADt on independent variables X_t for τ quantiles.

5. Herding in Different types of Capital Markets

Maximum research on herd behaviour concentrates on the equity market segment. In their classical work, Chang et al. (2000) find that US and Hong Kong equity markets do not show any evidence of herding while Japan has partial herding. However, they find that South Korean and Taiwanese equity markets display significant herding. The authors reason that incomplete information disclosure might be the factor responsible for herding in emerging economies. Kumar, Bharti & Bansal (2016) examine the Indian equity market using data of Nifty index and its constituent companies for the period 2008 to 2015. The study concludes no aggregate market wide herd phenomenon. Similarly, Oehler (1998) finds not much evidence of excess herding in German stock market. Filip, Pochea & Pece (2015) study the sectoral stocks of banking, financial services, construction, energy, pharma and hotels in Central and Eastern European countries and conclude that herd phenomenon is prevalent in all capital markets except Poland and the phenomenon is more pronounced

during down market. In a similar study of the Indian information technology sector stocks, Kumar & Bharti (2017) conclude no significant herding. On the other hand, Bharti & Kumar (2019) find evidence of herd pattern for the Indian banking sector stocks during bear phase. They reason that since the banking sector in India during the sample time period is in a midst of a major revamp with a burden of non performing assets, any "good news" in the market leads to scepticism and collective investor behaviour resulting in herding. Ouarda, Bouri & Bernard (2013) use the monthly frequency data and conclude that all sectors of the European market except consumer goods sector display herd behaviour. In addition, the financial crisis has had a more pronounced effect on herding in financial and technology stocks sector.

A handful of studies also focus on herding in bond and commodity markets. Oehler & Chao (2000) in their study of the German bond market construct 'bond groups' based on characteristics like interest rates, maturity, collateral and type of issuer to find the criteria that has the maximum impact on herding. They conclude that bond markets also herd, albeit the intensity is lower than stock market and nominal interest rates is the only criteria to determine excess herding. Despite the speculation that financial derivatives generate, there has only been limited research in these markets. Gleason, Lee & Mathur (2003) find no herd behaviour for commodity futures. Avery & Zemsky (1998) postulate that derivatives lead to price discovery and reveals multidimensional uncertainty that may make price bubbles and herding less pronounced. Kodres & Pritsker (1996) analyze the futures contracts of interest rates, currency and S&P 500 index to conclude no significant herd pattern.

The significance of domestic and foreign institutional investors and their impact on the behavior of financial market participants cannot be ignored. Studies on the money managers tendency to herd have been conducted and the seminal work of LSV (1992) finds weak evidence for small and large stocks to herd. Pacheco (2016) finds Portuguese mutual funds herd more than the mature markets of the UK and US. Grinblatt, Titman & Wermers (1995) also provide similar results for the US mutual funds. A possible reason for mutual fund managers to herd can be compensation schemes (Dennis & Strickland, 2002). Haigh,

Byod & Buyuksahin (2019) find some evidence of herding among hedge funds in French markets but conclude that it is not destabilizing. Gleason, Mathur & Peterson (2004) conclude that exchange traded funds on the American Stock Exchange do not herd even during extreme market movements.

6. Herding in Emerging and Developed Countries

Developed and emerging financial markets are different in terms of structure, transparency, information disclosure mechanisms, turnover and liquidity. These differences have the potential to guide the trading patterns of financial market participants. Christie & Huang (1995) infer absence of herd pattern in the US markets (Chang et al., 2000; Chiang & Zheng, 2010). In contrast, some studies witness the evidence of positive feedback trading in the US markets (Nofsinger & Sias, 1999). Chang et al. (2000) finds partial herd behavior in Japan whereas Iihara, Kato & Tokunaga (2001) find significant herd pattern. Evidence of herding in European countries is also documented by researchers. Zaharyeva (2009) finds Ukraine market to display herd pattern. Athens stock market (Caporale, Economou & Philippas, 2008) and Italian markets (Caparrelli, D'Arcangelis & Cassuto, 2004) provide evidence of significant herd phenomenon. Sardjoe (2012) concludes no herd pattern for Russian markets whereas results by Nikulina & Bouev (2018) study yields significant herd behaviour especially during down phase and report that any negative news in the market results in intentional herding. Similar results are reported by Indārs & Savin (2017) for presence of herd phenomenon during down market days on the Moscow exchange.

On the other hand, emerging economies are characterised by low degree of sophistication and liquidity that also impacts the behavioural patterns of investors. Equity markets of emerging Asian countries of South Korea and Taiwan witness herding (Chang et al., 2000). The study concludes that macroeconomic as against firm specific information has more impact on the markets of Taiwan and South Korea. Also, Demirer, Kutan & Chen (2010) find no herd behaviour in Taiwan using the Christie and Huang (1995) model, but report significant herding when the study employs the Chang et al. (2000) model. Chiang & Zheng (2010) find signs of more profound herding during bull phase for the Asian markets. Chinese A-share market

also display herd pattern (Tan, Chiang, Mason & Nelling, 2008; Chiang, Li & Tan, 2010). In contrast Yao et al. (2013) infer herd pattern in the Chinese B-share market stocks, especially during down condition. Luo & Schinckus (2015) surmise that the US markets cause spillover in the Chinese markets that display herd phenomenon. Demirer & Kutan (2006) examine the Shanghai and Shenzhen stock exchanges and report no evidence of herding. Their results agree with Chen, Rui & Xu (2003). Funds in the emerging markets also display more herding (Borensztein & Gelos, 2003). Similar results are available for Korea (Choe et al., 1999). Duasa & Kasim (2008) find herd pattern in Malaysian stock market.

7. Herd Behaviour under Asymmetrical Market Conditions

This classification examines herd behaviour under asymmetrical market movements. Research has been conducted to evaluate if the behaviour is prevalent during asymmetrical market movements of up and down. Lao & Singh (2011) report Chinese market herd more during downward phase whereas it is the opposite for India that shows herding during upswings (Prosad, Kapoor & Sengupta, 2012). On the contrary, Kumar et al. (2016) report that Indian equity markets do not show any signs of herding during asymmetrical market movements. The study explains that institutional investors with better access to research reports, constitute major proportion of participants in the Indian equity market, thereby following their private information, display reduced tendency of herd behaviour. Similar results are reported for the Korean market during crisis period (Choe et al., 1999). In contrast, Tan et al. (2008) conclude that Chinese market exhibits the herd phenomenon during rising and falling conditions. In a similar argument, Christie & Huang (1995) find that market stress aggravates herding. The study finds that increase in dispersion is more profound during up markets relative to down movement. Chang et al. (2000) argue that herding exists in the market under normal conditions, although it becomes more evident during asymmetries. Similar results are obtained by Caparrelli et al. (2004). Chiang & Zheng (2010) examine eighteen countries to conclude that with the exception of the US and Latin America, all countries, especially Asian economies display herding, during upswings. The study goes on to conclude that herd behaviour leads to contagion effect that spreads

from origin country to others. Chang et al. (2000) gather evidence that South Korea and Taiwan markets display herding during up and down conditions whereas the US, Japan and Hong Kong show no pattern. Metwally, Eldomiaty & Wahab (2016) study the Egyptian markets for the period 2007 to 2012 and conclude that herding exists during down markets and that the markets are inefficient during up and down swings. This is in contrast to results obtained by El Shiaty & Badawi (2014) who find no evidence of herd phenomenon in Egypt for the period 2006 to 2010. Fu & Lin (2010) demonstrate that herding is significantly higher during downswings. This is supported by the evidence provided by Sardjoe (2012) where Russian markets herd in the down phase rather than up. However, no evidence of herd pattern is reported during market stress or Russian financial crisis. Bowe & Domuta (2004) report that foreign traders exhibit increased herd behavior during the 1997 Asian crisis whereas domestic traders display less pronounced behaviour during and post crisis. Athens stock exchange exhibits market wide herding pattern and also during the stock market crash of 1999 (Caporale et al., 2008; Tessaromatis & Thomas, 2009). Eguiluz & Zimmermann (2000) opine that herding may account for occurrence of market crashes.

8. Conclusion, Gaps in Literature and Scope of Future Research

The present paper is a systematic review of the literature on herd phenomenon in financial markets. Our analysis is based on five categories in which all the papers are categorized, namely types of financial market participants, empirical methodologies, types of capital markets, developed and emerging economies and asymmetrical market movements. The articles reviewed in this paper suggest that the results are in contrast with each other and inconclusive. Firstly, on one hand LSV(1992), Grinblatt et al. (1995) and Christie & Huang (1995) infer limited institutional herding, there are studies by Choi & Sias(2009) that suggest significant herd behaviour among institutional investors. Similarly, results of herding by analysts and newsletters are opposite and indecisive. On one hand studies reason that analysts herd to guard their reputation (Trueman, 1994; Cote & Sanders, 1997) while others conclude anti-herding (Bernhardt et al., 2006; Pierdzioch, Rülke & Stadtmann, 2013; Pierdzioch & Rülke,

2012). Second, the metrics used to measure herd phenomenon are not devoid of limitations. This to some extent can be a possible reason for inconclusiveness of the empirical work. We discuss the LSV (1992) method and its limitations. The paper also examines the dispersion method of Christie & Huang (1995) and Chang et al. (2000) and the variations as proposed by Yao et al. (2013) and Filip et al. (2015). Third, herding literature in developed and emerging economies too has provided with contrasting results. While, Chiang et al. (2010) conclude that Chinese A-share markets exhibit herding, Yao et al. (2013) find that the Chinese B-share display the pattern especially during downward movement. Also while one set of studies conclude that herd behaviour is exhibited during asymmetrical market conditions (Metwally et al., 2016), other studies (El-Shiaty & Badawi, 2014) conclude the absence. Fourth, differentiating between spurious and intentional herd behaviour is easier said than done and accordingly it might lead to different empirical investigation of the topic. Fifth, the existing studies also do not address the issue of 'silent or passive herding'. There can be a possibility that an investor based on the private information, decides to invest in a stock but avoids it by observing others. This passive type of herding is ignored by the empirical methods which examine herd behaviour only when an investor invests. Sixth, herd behaviour has been studied with respect to each country individually. In a globalised and interconnected world, the spillover of such an investor behaviour to neighboring financial markets has not been evaluated.

The above discussion helps in identifying the scope of future research. First, this review suggests an addressal mechanism for measuring herding intensity in terms of trade volumes or any other appropriate parameter. Also, it can be examined if it is the same investors who herd repeatedly for same reasons. Furthermore, the Indian capital markets provide a lucrative ground to study the behaviour of investors. According to reports, the market capitalization of the Indian equity market is expected to touch USD 6.1 trillion by the year 2027 (Business Standard, dtd. March 12, 2018). It is therefore important to examine the behavioural biases of investors so that appropriate mechanisms can be introduced in the market making it more efficient that fosters investor confidence. Subsequently, although present, yet more research on

herding in other capital markets, for instance, commodity and debt can be undertaken for the India. Herding behaviour in one sector also has the tendency to cause contagion effect on other sectors especially when they are highly correlated. It will be interesting to examine the spillover of herd behaviour from one sector to others. In addition, passive herding, that is extremely difficult to observe and measure can be further studied and an appropriate method be devised to test it.

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