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Does Herding Exist? Evidence from Pakistan's Stock Exchange

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Abstract

Herding transpires when an investor imitates the decision of other stockholders or shadow market consensus (Rizzi, 2008). The Chartered Financial Analyst Institute affirms "Herding Behavior Bias" as the principal presumption influencing the investor's decision. (Kunte, S.2015). Herding behavior contradicts the validity of an Efficient Market Hypothesis (Famma and Franch, 1970). The investigation of herd behavior in the Pakistan stock market is indispensable as the inconsistent behavior of stockholders stems from the inefficient assets pricing and resource misallocation. The study's result affirms the existence of herd behavior in the stock exchange of Pakistan and contradicts rational assets pricing model and stock price efficiency theory

Key Words: Herding Behavior, Stock Exchange, Investment Decision, Efficient Market, Asset Pricing.

JEL Classification: R53, G41.

Introduction

The term herding behavior, interpreted by a British surgeon (Trotter, W. 1914), in his article, is the behavior of investors as a group to follow other investors having high status. Herd behavior expresses the collective actions of individuals without a unified intention. Elsewise, the herd performs as an entity, rousing together, but its function materializes from the un-synchronized actions of self-serving entities (Hamilton, W. D. 1971). Herding exists when "everyone doing what everyone else is doing even when their private information suggests doing something else" (Banerjee 1992). Herding activities were revealed in the late 1990s as a scheme of private investors and entrepreneurs who were agitatedly capitalizing handsome money into internet-associated companies. The reason behind it was to force investors to invest their capital in doubtful speculation (Phung, A. 2015).

Christie and Hung (1995) reveals that in normal market conditions, the efficient market hypothesis can exist. The investor takes investment decisions based on available information but in extreme conditions the investor mimics the decision of other investors.

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The incidence of herd actions challenges the legitimacy of an Efficient Market Theory. The theory asserts that the investor is rational and the market is efficient (Famma and Franch, 1992). It is the herding behavior that shifts the stock price from its fundamental value i.e. under-value trade or over-value trade. The mispricing of stock causes significant risk for stock market stability and for efficiency. (Tan, L. et al, 2008)

A literature review has identified several causes of investor herding behavior which directly affect the stock market and indirectly the growth of the economy. Herding behavior can cause notable information loss, inferior information collection, and incapacitated decision making. Herding behavior creates mispricing and short-run stock price bubbles which ultimately leads to market crash. The presence of herding behavior leads to more volatile asset prices, which creates difficulty in forecasting. Herding behavior also challenges fundamental financial theory.

Keeping in view the above observations, this paper has analyzed the market behavior for the existence of herd behavior in the Pakistan Stock Exchange. This paper has analyzed the herd behavior of investors in the Automobile and Oil & Gas sectors of KSE. It has evaluated herding behavior in returns at the individual firm level and the sectoral level. The other important aspect is the differentiation of intentional herding and spurious herding on the basis of high and low market capitalization. (Shiaty, D. et. al (2014), Ayan, K. (2011), Blasco and Ferreruela, (2008)).

Herding behavior is a natural human phenomena and it is difficult to completely terminate it but it can be decreased by adopting different approaches. This study is of significant worth;

- For the particular stockholders, in capturing rational investment decisions.
- For the public policy analyst, to identify the investor's decision and thus provide training & identify ways of information access for rational decision making.
- For the financial analyst, by providing a path for prediction of future market trends as well as accurate market information to the investors.
- For the researcher, in identifying avenues for further researchers.

Model and Empirical Specification

This paper used two different models for the assessment of herding behavior at sectoral level and firm level. The purpose of investigating it with two methods is to accurately evaluate the presence of herd behavior in the stock market. The details of the two models exercised for herding behavior measurement are given below.

The first model developed by Christie and Huang (1995), is the Cross Section Standard Deviation (CSSD) approach. This model is based on the concept of herd behavior i.e. investors are more expected to shadow the financial venture of another investor instead of their own choices. If the Low dispersion statistics evidence the presence of herding behavior and higher dispersion then this supports the nonoccurrence of herding.

$$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t \quad (1)$$

In order to measure the extreme price movement condition, 5% in the upper and lower tail of the market return distribution were taken. One of the advantages for dummies i.e.. D^L_t and D^U_t, is to measure the extreme market moment. D^L_t is lower tail dummy variable and D^U_t is the upper tail dummy. From the result, if the statistical coefficient of B^L and B^U is significant: with negative value it will show the incidence of herding.

Another method of analysis was developed by Chang. et al (2000). He further explained the study of Christie and Huang, and used Cross Section Absolute Deviation (CSAD) instead of cross-section standard deviation. He argues that herding behavior will be detected by observing the degree of scatter among individual stock returns and the market returns. Herding behavior exists if aggregate market returns are non-linear and increase at a decreasing rate. The results of the two models are compared for better understanding and applicability of the two modes of analysis.

$$CSAD_t = \alpha + \gamma_1 \left| R_{m,t} \right| + \gamma_2 (R_{m,t})^2 + \varepsilon_t \quad (2)$$

Cross-sectional absolute deviation (CSAD) of market return at time t. $R_{i,t}$ is the observed stock return of company i at time t. $R_{m,t}$ is the average return of N number of stock return at time t. N is the number of stock in the market portfolio. For the coefficient, in linear terms, the absolute value is used.γ_1 and γ_2 represent the linear and non-linear association between CSAD and market return. Negative γ_1 shows the indication of herding. If γ_1 is positive and γ_2 is negative, then it means that CSAD is accumulating at a declining rate with the market return that indicates herding. However, if γ_2 is positive then it means that no herding exists. Besides finding the herding behavior at the firm and sector level the comparison between these two models ensured the appropriateness of the two models.

Data and Empirical Results

The data set of this paper covered an important sector of the Pakistan economy i.e. the Oil and Gas and Automobile sectors. The Oil and Gas sector in Pakistan has witnessed substantial development in terms of oil exploration, industrial production and meeting energy demands, over the past decades. Furthermore, the automobile sector is linked with the oil & gas sector. The automobile sector signifies transportation and mobility. It is an industry interlinked with numerous other sectors like steel and vending (Ravi Magazine, 2015).

The data set in this study has covered the weekly data from 1st January 2005 to 31st December 2014, of all companies included in the Oil & Gas sector and Automobile sector, listed at Karachi stock exchange. The sample taken includes twenty-eight firms. The data of market closing price and stock closing price are collected from KSE and business recorder sites.

The theory of the efficient market hypothesis is empirically tested in this research paper. The analysis is further divided into the firm level and the overall sector level analysis.

Firm-Level analysis

Sector level analysis

Firm-Level Analysis

This section explains the individual firm level analysis for each and every firm of the two sample sectors. The analysis was further subdivided on the basis of the high and low market capitalization of the firms of the two sample sectors and for the detection of intentional and spurious herding behavior.

Intentional Herding Behavior in High Market Capitalization Firms

This section has explained the intentional herding behavior at the individual firm-level in the two sectors under the study i.e. firms of the oil & gas sector and automobile sector of KSE. The regression results for the detection of intentional herding at a high market capitalization of Oil & Gas sector are given in Table I below. The methods of cross-section standard deviation (CSSD) and cross-section absolute deviation (CSAD) were used here. The significant negative β^U coefficient of cross-section standard deviation (CSSD) analysis showed presences of intentional herding in Pakistan Petroleum Limited (PPL) when the market is high. Whereas evidence of intentional herd behavior was found missing in all large market firms.

Table 1. Herding Behavior in Oil & Gas High Market Capitalization Firm

$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t$			$CSAD_t = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 (R_{m,t})^2 + \varepsilon_t$			
Name of the firm	**α**	**β^L**	**β^U**	**α**	**Υ_1**	**Υ_2**
OGDCL	-0.000621 (-0.867851)	0.006589 (1.481613)	0.005021** (2.202565)	-0.000267 (-0.488778)	0.041065** (1.922165)	-0.21079*** (-2.498347)
PPL	0.000102 (0.085668)	0.008491** (1.710036)	-0.01463*** (-2.606080)	0.000131 (0.155876)	-0.049248 (-1.491594)	0.81874*** (6.279045)
Pakistan State Oil Co-Ltd	0.04998*** (34.00120)	0.003341** (2.106867)	0.000596 (0.332255)	-0.000617 (-1.139483)	0.049670** (2.342067)	-0.42341*** (-5.055397)
BYCO Petroleum Ltd	0.01889*** (20.35584)	0.003744 (0.964726)	0.01249*** (2.840716)	0.001370 (1.570216)	- 0.09119*** (-2.669091)	0.238879* (1.771066)

Note: t-Ratios in parentheses. * P < 0.10 , ** P < 0.05, ***P < 0.01

The regression result of cross-section absolute deviation (CSAD) showed that the coefficient Υ_2 for Oil & Gas Development Company Limited (OGDCL), Pakistan State Oil Co-Ltd, were negative and significant values. It gives rise to the evidence of intentional herding in nonlinear form. The results do not support herding behavior in remaining high capitalized firms. The positive and significant values of coefficients represent that the dispersion increases with the increase in stock market returns. These results are in accordance with the Asset Pricing Model. It clarifies that distinct securities fluctuate to market returns, as such the level of dispersion widens in the period of market stress. Elsewise, herding leads to a decrease in the individual firm`s returns as explained by Christie and Huang (1995).

Table 2. Herding Behavior in Automobile High Market Capitalization Firm

$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t$				$CSAD_t = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 (R_{m,t})^2 + \varepsilon_t$		
Name of the firm	**α**	**β^L**	**β^U**	**α**	**Υ_1**	**Υ_2**
Atlas Honda Ltd	0.07819*** (35.05376)	0.000791 (0.331725)	0.01276*** (4.697384)	0.03278*** (33.72835)	0.028396** (1.989909)	-0.153004 (-1.209162)
Dewan Farooq Motor Ltd	0.097700** (16.38200)	0.006106 (0.886554)	0.02955*** (3.754678)	0.03983*** (14.84238)	0.092985* (1.709518)	-0.323376 (-0.695978)
Honda Atlas Car Ltd	0.07659*** (32.21530)	0.003269 (1.259514)	0.002846 (0.966046)	0.03173*** (31.59272)	0.006313 (0.416477)	-0.150143 (-1.114486)
Indus Motor Ltd	0.07039*** (31.71350)	0.002081 (0.897523)	0.00989*** (3.729291)	0.02949*** (31.36762)	0.016171 (1.175603)	-0.186721 (-1.528618)
Pak Suzuki	0.07048*** (32.10309)	0.000959 (0.417361)	0.00674*** (2.572447)	0.02908*** (31.15500)	0.000432 (0.031930)	-0.092624 (-0.770084)
General Tyre & Rubber Co of Pakistan Ltd	0.06224*** (33.91104)	0.003362 (1.574707)	0.00743*** (3.053283)	0.02532*** (30.68839)	0.007639 (0.453601)	0.090834 (0.632432)
Dewan Automotive	0.15121*** (28.25317)	0.000267 (0.034160)	0.012780 (1.432196)	0.06381*** (25.94463)	-0.061641 (-1.006145)	0.936556* (1.792626)

*Note: t-Ratios in parentheses. * P < 0.10 , ** P < 0.05, ***P < 0.01*

Table II below has depicted the herding behavior of the firms of the Automobile sector in high market capitalization firms. The coefficient of the CSSDt model was positively significant, which did not detect any herding behavior in the Automobile sector high market capitalization firms. The coefficient of CSADt model Υ_1 and Υ_2 has shown positive and negative non-significant results. This empirically explained the non-occurrence of herding anomaly in high capitalized firms in the Pakistan Automobile sector.

Spurious Herding Behavior in Low Market Capitalization Firms

This section has analyzed the individual firm-level returns of low market capitalization. The detection of spurious herding behavior is estimated by using the two methods mentioned above i.e. CSSD and CSAD. As distinguished by Blasco and Ferreruela (2008) the data of familiar stock can be used to detect herding behavior. The Table III below is depicting the spurious herding behavior results in the low market capitalized firms in Oil & Gas sector.

Table 3. Herding Behavior in Oil & Gas Low Market Capitalization Firm

	$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t$			$CSAD_t = \alpha + \gamma_1 \left\| R_{m,t} \right\| + \gamma_2 (R_{m,t})^2 + \varepsilon_t$		
Name of the firm	α	β^L	β^U	α	Υ_1	Υ_2
Pakistan Oilfield	0.00464*** (13.69157)	0.001198 (1.002655)	0.000351 (0.332713)	0.000596* (1.578567)	-0.032349** (-2.180717)	0.134925** (2.300776)
Mari Petroleum Co-Ltd	0.00543*** (10.25312)	-0.000676 (-0.350618)	-0.001865 (-1.095591)	0.00479*** (8.167723)	-0.020699 (-1.022859)	0.104529 (1.308268)
Attock Refinery Ltd	0.05805*** (34.41253)	0.002008 (1.076493)	-0.001260 (-0.595681)	0.024900** (32.22781)	0.003514 (0.354119)	0.001736 (0.044297)
Pakistan Refinery Ltd	0.01329*** (12.14854)	0.000587 (0.177338)	0.002830 (0.756629)	-8.25E-05 (-0.160865)	0.004234 (0.210420)	-0.003071 (-0.038708)
Shell Pakistan Ltd	0.05652*** (32.79034)	-0.001470 (-0.803437)	0.002665 (1.291863)	-0.000119 (-0.266991)	0.013774 (0.788124)	-.17302*** (-2.484589)
National Refinery Ltd	0.05469*** (41.55021)	-0.000461 (-0.391030)	0.001942 (1.453727)	9.09E-06 (0.025398)	0.000228 (0.016238)	-0.010542 (-0.190629)

*Note: t-Ratios in parentheses. * P < 0.10 , ** P < 0.05, ***P < 0.01*

The coefficients $\beta^L$and β^U of the $CSSD_t$ model have positive and non-significant values. The regression results of cross-section standard deviation do not show evidence for herding behavior in Oil & Gas sector in low market capitalized firms. The regression result of cross-section absolute deviation (CSAD), the coefficient γ_2 for Shell Pakistan Ltd, has a significant negative value which means that dispersion between stock return and market return nonlinear i.e. decreased with expansion in market returns. It means that spurious herding is present in Shell Pakistan Ltd.

Table IV below detected the spurious herding behavior for low market capitalization firms in the Automobile sector. The coefficient of CSSD model, β^L for Agriatos Industries Ltd has a significantly negative value at 5% which indicates the existence of spurious herding when the market is down. The coefficients $\beta^L$and β^U of $CSSD_t$ for remaining low market capitalization firms of the automobile sector have significant positive values. The regression results of cross-section absolute deviation (CSAD), also did not show proof of herd behavior in the sample firm.

Table 4. Herding Behavior in Automobile Low Market Capitalization Firm

	$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t$			$CSAD_t = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 (R_{m,t})^2 + \varepsilon_t$		
Name of the firm	**α**	**β^L**	**β^U**	**α**	**Υ_1**	**Υ_2**
Gandhara Industory Ltd	0.06651*** (33.50196)	-0.000162 (-0.071543)	0.001241 (0.480581)	0.02259*** (29.71565)	0.019576 (1.346083)	-0.142796 (-1.150160)
Ghandhara Nissan Ltd	0.06742*** (34.55314)	0.002450 (-0.594820)	-0.001212 (1.054918)	0.02369*** (32.45906)	-0.020355* (-1.558142)	0.141998 (1.272261)
Ghani Auto Industries Ltd	0.07439*** (32.97158)	-0.000992 (-0.415618)	0.00795*** (2.913080)	0.02594*** (29.94657)	-0.004953 (-0.322195)	0.201880* (1.540772)
Al-Ghazi Tractor Ltd	0.04459*** (35.24211)	0.001132 (0.981427)	0.001412 (1.067287)	0.01531*** (33.28649)	-0.007783 (-1.061155)	0.140722** (2.248156)
Hino Pak Motor Ltd	0.03653*** (13.12454)	0.000507 (0.179494)	-0.000770 (-0.238694)	0.00246*** (6.958339)	0.025351* (1.514675)	-0.153890 (-1.071168)
Millat Tractor Ltd	0.04425*** (29.90307)	0.00452*** (2.961847)	0.003748** (2.170792)	0.01522*** (27.79082)	-0.000178 (-0.018130)	0.090133 (1.077569)
Agriatos Industries Ltd	0.04119*** (33.19775)	-0.00013*** (2.882161)	0.004274 (-0.103818)	0.01391*** (30.30997)	0.014690* (1.762765)	-0.079879 (-1.122225)
Atlas Battery Ltd	0.04929*** (32.93746)	-0.000725 (-0.490776)	0.001536 (0.909380)	0.01707*** (30.03806)	-0.004829 (-0.505475)	0.016852 (0.207039)
Baluchistan Wheels Ltd	0.04755*** (35.14437)	-0.000164 (-0.113167)	0.003477** (2.093081)	0.01618*** (31.55037)	0.006337 (0.676760)	-0.007644 (-0.095697)
Bela Automotive Engineering	0.08819*** (25.85458)	0.004502 (1.140266)	0.006691 (1.488668)	0.03095*** (25.73364)	0.031162* (1.642819)	-0.117022 (-0.693547)
Exide Pakistan Ltd	0.04926*** (33.77726)	0.002892 (0.651260)	0.001202* (1.790288)	0.01679*** (30.70638)	0.001040 (0.100121)	0.045939 (0.517865)

*Note: t-Ratios in parentheses. * P < 0.10 , ** P < 0.05, ***P < 0.01*

The results of firm level, high market capitalization, showed that intentional herding behavior was present in Pakistan petroleum Ltd of oil & gas sector but did not show any herding behavior in the high market capitalization firms of the Automobile sector. The results of the Cross Section Absolute Deviation (CSAD) model showed significant evidence of herding behavior in the Oil & Gas Development Company Limited, Pakistan State Oil Co-Ltd and did not show any indication of herd behavior in the Automobile sector. Study results showed more significant evidence of herding behavior in high market capitalization firms than in the low market capitalized firms. The significant results of herd behavior in the oil & gas sector were due to the presence of high oil prices and it has impacted the shares prices of oil & gas sector.

The regression results of the Cross Section Standard Deviation (CSSD) model for the firm level of low market capitalization firms showed that spurious herding behavior was present in Agriatos Industries Ltd of Automobile sector. The Cross Section Absolute Deviation (CSAD) model showed the evidence of herding behavior in Shell Pakistan Ltd

in the Oil & Gas sector. The individual firm level analysis results of the two models did not show significant evidence of herding behavior. Demirer, R. et al. (2006) in their paper have suggested that herding behavior was more likely in a group of stocks as compared to an individual stock.

Sector level Analysis

Previous studies had mostly detected herding behavior at the sectoral level or market level. They suggested that herding behavior is more preferable in a group if it is sufficiently homogeneous (Bikhchandani and Sharma, 2000). It is because every investor faces similar investment decision problems and uncertainty. They observe each other and act in a herd. That is the reason for carrying out the herding behavior detection analysis at the group level in the two sample sectors. This analysis is subdivided on the basis of high market and low market capitalization of the two sample sectors for the detection of intentional and spurious herding behavior. Table V below shows the regression result for a group of high market capitalization firms to detect intentional herding behavior in the sample sector.

Table 5. Regression Results of a Group of High Market Capitalization Firm of Oil & Gas Sector

	$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t$				$CSADt = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 (R_{m,t})^2 + \varepsilon t$		
	α	β^L	β^U		α	γ_1	γ_2
$CSSD_t$	-0.000151 (-0.571208)	0.004170*** (2.876937)	-0.002444* (-1.649301)	$CSAD_t$	-0.000263 (-1.029002)	-0.002665 (-0.265283)	0.280180*** (7.026075)
R^2	0.249540			R^2	0.413063		
F (Prob)	52.09427*** (0.000000)			F (Prob)	110.2557*** (0.000000)		
Regression results of a group of high market capitalization firm of automobile sector							
$CSSD_t$	0.090139*** (13.53095)	0.098783*** (4.957970)	0.013096 (0.575100)	$CSAD_t$	0.002006 (0.481148)	0.144203 (0.643128)	-4.903871*** (-2.551060)
R^2	0.450780			R^2	0.042539		
F (Prob)	138.1619*** (0.000000)			F (Prob)	7.478892*** (0.000066)		

Note: t-Ratios in parentheses. * P < 0.10 , ** P < 0.05, ***P < 0.01

Cross-section standard deviation did not show significant results of herding behavior in both the groups of high market capitalization firms of the sample sectors. In the second mode of analysis i.e. Cross-section absolute deviation results have shown a significant level of herding behavior in the group of high market capitalization firms of the Automobile sector whereas it did not detect supported herding behavior in a group of high market capitalization firms of the Oil &Gas sector.

Table 6. Regression Results of a Group of Low Market Capitalization Firm of Oil & Gas Sector

	$CSSD_t = \alpha + \beta^L D^L_t + \beta^U D^U + \varepsilon_t$				$CSADt = \alpha + \gamma_1 \lvert R_{m,t} \rvert + \gamma_2 (R_{m,t})^2 + \varepsilon t$		
	α	β^L	β^U		α	γ_1	γ_2
$CSSD_t$	0.068202*** (12.32057)	0.109132*** (6.346482)	0.052098*** (2.599346)	**CSADt**	0.006902** (2.163196)	-0.193049* (-1.690339)	1.539654*** (-4.736561)
R^2	0.116386			$\mathbf{R^2}$	0.203572		

F	20.67934***			F	40.04498***		
(Prob)	(0.000000)			(Prob)	(0.000000)		
Regression results of a group of low market capitalization firms of automobile sector							
b	0.073930***	0.080187***	-0.018542	CSADt	0.003881*	-0.044695	-2.608751**
	(15.05797)	(5.927031)	(-1.202577)		(1.567808)	(-0.336599)	(-2.290648)
R^2	0.489177			R^2	0.071865		
F	161.2005***			F	13.03399***		
(Prob)	(0.000000)			(Prob)	(0.000000)		

*Note: t-Ratios in parentheses. * P < 0.10, ** P < 0.05, ***P < 0.01*

Table VI above showed the result for the detection of spurious herding behavior in a group of low market capitalization firms in the sample sector. The results of cross-section absolute deviation showed a significant indication of herd behavior in both groups of high market capitalization firms of the sample sectors.

In an examination of herding behavior in sector level in the sample sector, the results of cross section standard deviation did not indicate evidence of intentional herding and spurious herding in both the groups of high market capitalized firms and the low market capitalized firms of the sample sector. The cross-section absolute deviation model results indicate that intentional herding behavior exists in a group of high market capitalization firms of the automobile sector and spurious herding behavior in both the group of low market capitalization firms of the oil & gas sector and automobile sector. The result for herding behavior on the sector level is more significant as compared to the individual firm level. In examining herd behavior at sector level the result of cross section absolute deviation showed substantial indication of herd behavior in a group of high market capitalization firms and a group of low market capitalization firms in the sample sectors. Herd behavior was more prevalent in formal investors as compared to individual investors, because formal investors have more ample evidence about stocks trading than individual investors (Latief and Dr. Zulfiqar, 2014). Boyer et al, (2006) explained that emergent stock markets indicate herding during high volatility periods.

Summary and Conclusion

This research paper has investigated intentional and spurious herding behavior in Oil & Gas and Automobile sectors of KSE, during the period from 01st January 2005 to 31st December 2014. The firm level and sectoral level analyses have been carried out by the Christie and Huang (1995) and Chang et al (2000) model The underlying assumption of the paper was that investors ignore their own informal info and shadow the market behavior under normal market conditions and periods of market stress. In order to differentiate intentional herding behavior from spurious herding behavior, the firms of each sector are divided into two groups i.e. high market capitalization firms and low market capitalization firms. (Blasco and Ferreruela, 2008).

The research paper results indicated that intentional and spurious herding was present in the Oil & Gas sector at the individual firm level as well as in sector level. These results did not support a rational asset pricing model and stock price efficiency. In other words, the investor who has invested in the sample sectors were momentous investor, taking the investment decision on the base of their past experience. The results of this study were in line with the previous study of Malike, S. et al (2014), which showed evidence of herd behavior in KSE, analyzing the sectoral level returns.

The significant results proved that the cross section absolute deviation model is more appropriate than a cross section standard deviation model to detect herding behavior. The paper results showed that both types of herding i.e. intentional and spurious herding were detected in the sample sectors. The important reasons behind it were the unavailability of ample market information and investors' irrational behavior towards invest decisions. Other reasons as identified by Christie and Huang, (1995) comprise the presence of high volatility in the stock prices which increases the risk in new investment that might lead the investor to follow the herd. Thus herding behavior moves the stock prices away from their fundamental value and investors might end up trading by undervaluing or overvaluing stocks. The mispricing of stock causes a significant threat to the stock market stability, productivity, and efficiency. The previous study of Tan, L. et al, (2008) is also in support of this study analysis and conclusions.

This study had also faced certain limitations. This paper had analyzed only two sectors of the KSE index which does not represent the whole market, so conclusions and recommendations cannot be generalized for the whole economy. Additional research arenas for investigating herding behavior might include, increase sample firms, increased time periods, future predictive analysis or by including more sample sectors that represent the entire market.

In view of the above discussion, analysis, and conclusions, the following recommendation is proposed to save guard the investor’s interest in their investment decisions:

- Herding behavior could be avoided if every investor is equipped with a comprehensive knowledge of finance.
- Before carrying out investment in a specific sector necessary financial calculations should be done i.e. Total capital invested, Returns to asset ratio, Debt to equity ratio, etc.
- Investors must carry on fundamental analysis of the firms, from their financial statements to judge the financial health of the investment decision.
- In order to enhance the know-how of small investors, free financial investment training, seminars and workshops are organized.
- Stricter investment rules and regulations should be enforced so that small investors could be protected from speculative trading.

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