HERDING BEHAVIOUR IN MUTUAL FUND OF PAKISTAN

By

Sultana Khanum
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Supervisor

Dr. Ahmad Fraz

MS Management Science
PIDE School of Social Science
Pakistan Institute of Development Economics, Islamabad
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Pakistan Institute of Development Economics, Islamabad

PIDE School of Social Sciences

CERTIFICATE

This is to certify that this thesis entitled: **"Herding Behaviour in Mutual Fund of Pakistan"** submitted by **Sultana Khanum** is accepted in its present form by the PIDE School of Social Sciences, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Management Sciences.

Supervisor: ___Dr. Ahmed Fraz___   Signature: _____

External Examiner: ___Dr. Arshad Hassan___   Signature: _____

Head,
PIDE School of Social Sciences: ___Dr. Hafsa Hina___   Signature: _____

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At any time if my statement is found to be incorrect even after my Graduation the university has the right to withdraw my PhD degree.

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Dedication

I am dedicating this thesis to my brother Ali Azhar for his support and guidance.

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ABSTRACT

The purpose of this study is to investigate the presence of herding behavior in Pakistan mutual fund industry. The data consists of daily net asset values from the period of 2013 to 2020. The data has obtained from Mutual Fund Association of Pakistan. Two approaches are being used in this study to identify herd formation. Christie and Huang (1995) identified a method known as cross sectional standard deviation CSSD and Chang, Cheng, and Khorana (2000) identified another approach known as cross sectional absolute deviation. The findings of this study reveal that in daily data of mutual fund there is no evidence for existence of herding behavior. Whereas monthly data confirms that herding behavior exists. This study presents an integrated model to test herd behavior in Pakistan mutual fund industry. Consideration of said behavioral effect in the decision-making process of investor will make the decision more efficient and optimal.

Keywords: financial behavior, herd behavior, mutual fund, CSSD, CSAD, market efficiency

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LIST OF ABBREVIATIONS

α   Alpha

β   Beta

CSAD Cross Sectional Absolute Deviation

CSSD Cross Sectional Standard Deviation

MF   Mutual Fund

Mufap Mutual Fund Association of Pakistan

NAV   Net Asset Value

NSE   New York Exchange

CHAPTER 1

INTRODUCTION

1.1   Introduction

Herding behavior in financial market is explained that how investors adopt the decision of their peers and follow certain actions related to their investment decision. This kind of behavior exhibits when investors ignore their own opinion and follow the group. Such kind of behavior shows the tendency that the asset prices to be correlated. Herding perpetuated by financial investors is perceived as a propelling cause of financial distress. Excessive manifestation of herding by traders is similar to putting the investors in a situation that force them to ignore fundamental information altogether, which in turn can severely destabilize markets, trigger inefficiencies, spur fragility and highly likely to bring about a litany of risk factors into play. These phenomena are not fettered by borders. In all likelihood, such behaviors may get into global markets thus by disrupting international traders in other countries leaving the investors in dire situation of crises between markets as stated by Gębka and Wohar (2013).

A. Chen, He, Liang, and Su (2020) stated that herding in financial markets is due to lack of appropriate knowledge and information about affairs of state and actions that have been incorporated in similar market conditions. Due to lack of adequate information investors are commonly busy in herding. In such situation investor believes that other have accurate information so we have to follow them. They deny and ignore their own cognition and imitate others in their decision-making process. In financial market each individual interprets information according to the group or crowd that are already existing in the market. Everyone has a unique

way of information realization and risk taking attitude as argued by Fernandez (2010).

Herding is the copying behavior of investors in the world of finance. The study conducted by Banerjee (1992) stated that people involve in herd mentality when they ignore their own thinking and beliefs and blindly follow others without any reason. Herding behavior is studied under the domain of behavioral finance. Behavioral finance plays vital role in the process of investment decision making. It provides an insight for the questions that how financial markets are inefficient. The answers to these questions are based on the human mentality. These answers are usually based on the psychology of investors. It provides a pathway for modern finance and classical finance to clarify the reasons for non-rational decision choices Bikhchandani and Sharma (2000).

There are two major types of herding rational and irrational herding. Irrational herding believe that investors follow one another blindly and forgo rational analysis. Irrational herding occurs when investors with insufficient information and inadequate risk evaluation disregard their prior beliefs and blindly follow other investors' actions. By contrast, rational herding is information-based; rational investors with similar stock preferences adopt the same response to similar information about company characteristics and fundamentals. When the herding of investors is rational in response to new information, herding moves prices toward the fundamental value of assets; price movement is not likely to reverse.

For numerous investors, MFs are the investment medium of choice. The use of these funds is considered as investment means in developing and developed nations. They have enhanced appreciation to their effectiveness in terms of

diversification and liquidity as discussed by Lavin et al. (2019) . There are huge numbers of funds accessible for investment. These funds provide a gateway for small investors to diversify their investment by trading in mutual fund market rather than investing in stocks. The choice of investment in fund is a decision that is more related to uncertainty as suggested by Tversky and Kahneman (1974). The idea behind making a decision is to choose one best alternative from all available choices. In terms of investment decision, this phenomenon can be evaluated that considering the best option that is more related to our portfolio which give us highest advantage. According to the studies of economic theories, investors take decision on the basis of rationality, and they consider and interpret the information before making a decision. This is not what we observed in real world scenario, there is a lot of information which exists in the market and it is not possible for the investors to evaluate whole information. For that reason, it is observed that decision makers use different short term tools to make a decision. In financial market a lot of information is needed to a take a decision either to invest in a stock or not. According to EMH, market is efficient and stock reflects all the available prices. If investors do not acquire the appropriate information their decision would be inefficient and irrational which leads towards investment loss. Individual decision makers don't have the access to all the information that is available in the market. There is an uncertainty in their decision due to loss of information. Similarly, institutional investors are the market players they receive all the information that prevails in the market. In this situation individual investors imitate institutional investors in their decision as stated by Qasim, Hussain, Mehboob, and Arshad (2019).

The behavior of an investor usually diverges from inductive reasoning to logical reasoning. There are certain factors that have importance in investor's decision

making that includes emotions, mental health, personality trait and fear of loss. So, investment is just not related to figures and numbers it is more related to human psychology. Individual behavior is involved in investment decision making process. Ricciardi and Baker (2014) have described different behavioral biases. The behavior of investment is based on two factors that include the investment in micro level (this is based on the decision taken by individual and a group of investors) and the other one is macro level. This includes financial market. The whole process of decision making is based on quantitative and qualitative approaches which describes that what kind of features are associated in a product or in a service. The behavior of investor is based on the emotions and mental responses. These emotions are accountable during the process of investment decision making. In real world scenario the decision and judgement of an individual investor is mostly based on the events that occurred in past, his own beliefs and his preferences. Furthermore, in order to save time they usually go for short cuts which deviates them from rationale decision making. Generally, it has been observed that if someone faces fade choices, they are most probably involved in uncertain decision Shafer, Kahnerman, Slovic, and Tversky (1984), Barber, Odean, and Zheng (2000). In reference to classical finance, it is argued that investors possess all the information that is available to them and take their decision on the basis of rationality. This is the reason that in long run investors cannot outperform the market. Moreover, in respect of behavioral view, the investors take information on the basis of their emotions and mental preferences and this effect the prices and they deviate from their fundamental values. These types of investors take decision by ignoring their own opinion and following the crowd.

1.2　Problem Statement

Most important proposition in current financial markets is that markets are "efficient". Due to presence of herding behaviour the prices of stock deviate from their fundamental value. The existence of herding behavior in financial market greatly affects investment decision. As literature confirms that there are large numbers of investors who follow others in their investment decision. Due to this irrational behavior noise trading occurs in the market which results in irrational decision and market inefficiency. This irrational behavior should be studied. So, rational investor can lead the market. This research aims to test the existence of herding behavior in mutual fund industry of Pakistan from the period of 2013 to 2020.

1.3　Research Significance

Investor decision making is one of the major concerns of individuals while investing in the market. Emotions are believed to play a significant role in decision making. The feelings and psychology have an essential role in the willpower to make sound and sage financial decisions. Pakistani society is a conglomerate of hybrid culture society which is accustomed to takes decision on the basis of mood and emotional state. While we realize that behavioral finance has very imperative role in this regard. This study helps the investors to take their decision on the basis of decision-making techniques and processes rather than following a particular group of people to rely on for decisions. The main aim of this research work is to find out the factors that are making investors to involve in herd mentality.

Literature has shed light on the significance of herding so as to understand portfolio diversification. On occasions of follow-up among investors, it might

appear a necessity to acquire more securities to attain a required level of diversification in contrast to securities for diversification when the market remains efficiently active. It appears viable for investors to pinpoint herd formation and invest in such securities which do not necessarily entail this behavior. In theory, it is akin to an empirical study that would likely contribute to the body of knowledge. Generally, this behavior tends to facilitate researchers, investors, academics, and practitioners to precisely understand the ramifications of herding on various markets and to also help forecast and appraise stock returns. In financial market psychological factors play a significant role in decision making. Investors take their decision on the basis of past preferences and emotions. Due to this behavior, they are excessively involved in herd mentality. This study will provide insight to individual as well as institutional investors to come to sound foundation to realize and materialize the factors that cause herd formation and make their investment decision on the basis of available information rather than merely following other pathways.

1.4   Research Questions

This study will undergo the following research questions:

1. Does herding behavior exist in Pakistani mutual fund industry?

2. Whether herding behavior impact the returns of mutual fund under different market conditions?

1.5   Research Objectives

The main objectives of this study are:

1. To determine the likely existence of herding behavior in Pakistani mutual fund industry.

2. To track down the out the effects of herding behavior on unit returns of mutual funds under circumstances leading to extreme market movements.

3. To overlook the presence of herding during bullish and bearish trends.

1.6   Thesis Structure

First Chapter explains introduction, problem statement, research questions, and research objectives. Second chapter comprises of literature review. Third chapter consists of data and methodology. Fourth chapter comprises of results and findings. Fifth Chapter explains conclusion, key findings and future implications.

CHAPTER 2

LITERATURE REVIEW

2.1   Introduction

Theoretical and Empirical investigation, regarding the definition of herding is generally ambiguous. This section is based on modern and classical theories. This section also incorporates different themes namely, intentional and spurious herding, herding and decision making, mutual funds, herding and financial distress and various studies on herding are quite relevant to the current study. They are elaborated in the following discussion.

2.2   Modern Finance Theory and Behavioral Finance

According to modern finance theory the information which is naturally prevailing in the market is homogenous that is available to everyone; behavioral finance suggests that information is not freely available to everyone. It has its own cost and acquisitions and have different interpretations. In such conditions this cost may provide benefits to some of the agents but not for all of them. This kind of situation creates information heterogeneity in the market. Similarly, behavioral finance admits that agents do not have all the information and causes biasness in the market which was proposed by Kahneman and Tversky (1979). These authors also put it that agents pay more attention to the information that is available to them, and which is more recent and ignoring the information they do not have. The foundation of theory in the field of finance was led by Fama (1970) and proposed the theory of Efficient Market Hypothesis. This theory describes that stock prices represent all the available information. Financial market is efficient, and no one can gain abnormal returns. Fama suggested three forms of market

efficiency weak form of efficiency which states that stock prices represent all the available information. Semi- strong form states that stock prices reflect all the past information. The third form is strong form of efficiency which states that stock prices represent all the public as well as private information Kartašova, Remeikienė, Gasparėnienė, and Venclauskienė (2014). Efficient market theory is the foundation in the field of finance. Similarly, no one can gain abnormal returns on the basis of his own interpretations because market is efficient Modern finance theory stated that economic agents are rational, and this statement is contradicted to Behavioral finance because rationality is something that varies from person to person. There are a number of ways available for people to interpret the information Alnajjar (2013).

According to field of classical finance it is believed that markets are efficient, and investors cannot outperform the market. It is essential for investors to know about his financial personality. It is important to know that why you are investing in particular stock and take certain financial decision. Behavioral finance, evolved as an alternative for traditional finance. According to this field of study the decision of investors are based on the factors that are related to their cognition and emotions like mood, level of satisfaction, goal of life, ambitiousness, happiness, fear, anger instead of considering rational approach Birău (2012). These personal beliefs are mostly embedded in herding, copying others to make their self-comfortable that they are on less risky side by following the crowd. These believes are named as problem solving method in which individuals use short ways to take financial gains which results in market volatility. Waweru, Munyoki, and Uliana (2008) have stated that these are considered as flexible techniques when dealing with large set of data. Similarly, heuristics are considered to be very useful while taking decision in short span of time. Farooq and Sajid (2015)

argued that these factors play significant role in finding investment decision. These heuristic beliefs become very popular for financial decision makers to choose among the best available alternatives, however studies show that these behaviors can lead towards poor decision making Lavin, Valle, and Magner (2019) .

Behavioral finance, evolved as an alternative for traditional finance. According to this field of study the decision of investors are based on the factors that are related to their cognition and emotions like mood, level of satisfaction, goal of life, ambitiousness, happiness, fear, anger instead of considering rational approach Birău (2012). These personal beliefs are mostly embedded in herding, copying others to make their self -comfortable that they are on less risky side by following the crowd. These believes are named as problem solving method in which individuals use short ways to take financial gains which results in market volatility .Waweru et al. (2008) stated that these are considered as flexible techniques when dealing with large set of data. Similarly, heuristics are considered to be very useful while taking decision in short span of time. Farooq and Sajid (2015) argued that these factors play significant role in finding investment decision. These heuristic beliefs become very popular for financial decision makers to choose among the best available alternatives, however studies show that these behaviors can lead towards poor decision making Lavin et al. (2019). The herding behavior in mutual funds has significant impact on stock prices. In the study it was observed that funds can over lead market during the time when they are involved in herding. The study also observed that positive results are seen when investors buy a stock and negative outcomes are observed while selling a stock Brown, Wei, and Wermers (2014).

2.3 Types of Herding

Researchers have identified various types of herding. Most important types are Intentional vs Spurious herding, Rational vs Irrational herding. These two types of herding are explained in following section.

2.3.1 Intentional vs Spurious Herding

Herding is a behaviour which leads towards bubble, crashes, bearish and bullish trends. It is one of features of human nature that we feel comfortable in following what the majority follows. Similarly in financial market people do follow herd mentality. There are two sorts of herding viz; intentional and spurious. Intentional herding rises when investors follow others intentionally, however spurious herding occurs when investment decision is taken on the basis of same information Bikhchandani and Sharma (2000).

Kremer and Nautz (2013) identified three kinds of herding which are classified as intentional, unintentional and spurious herding. According to their study unintentional herding is basic kind of herding because institutions receive same kind of private information and will evaluate the same factors. This will help them to reach on same results for each stock. Intentional herding is based on sentiments and emotions. It involves following others in order to buy and sell stock simultaneously regardless of their own beliefs about investment. That is that is reason that asset prices do not reflect the actual value and causes market inefficiency and high volatility.

So, it is observed that herding because of its bad consequences leads towards market inefficiency. Herding is an expectation due to which the process of financial decision making is badly affected. The reason behind the existence of

unintentional herding is that new investor follows other investors without knowing the real information. Spurious herding occurs when investment decision is taken on the basis of same information. Similarly, during intentional herding investors intentionally follow and copy others in their decision making and suppress their own information Caparrelli, D'Arcangelis, and Cassuto (2004).

Bikhchandani and Sharma (2000) described spurious herding as imperative outcomes of group taking almost same decision, even if they possess same piece of information without utilizing their own cognition thus face the problem of irrationality. Similarly, other authors have described intentional herding as copying others. From the literature point of view, it is suggested that spurious herding results in efficient decision making, but this is not the same case with intentional herding. It is important to know about the significant difference between these two types of herding, spurious herding is not involved in market inefficiency and thus does not affect stock prices Bikhchandani and Sharma (2000).

Christie and Huang (1995) identified two other major forms of herding rational and irrational. They explained that irrational herding is seen when people tend to follow the crowd by ignoring their own cognition even when know about the outcomes. Chang et al. (2000) argued that irrational herding is imitating and copying others. From psychological point of view cognitive psychology has its important and significant role while explaining irrational herding. The author, in his study found that herding is related to cognitive dissonance. He stated that psychological factors play a vital role in information gathering and decision making. Furthermore, cognitive dissonance is explained as a situation during which individual possess new information that is contradicted with the existing

information, but he ignores new information and make decision on the basis of previous information to avoid mislead and regret.

Irrational behaviour is intended under certain circumstances. It is more obvious during stress market movements. This study explained that during such condition investors usually try to avoid risk and follow the crowd that is already taking decision. It is situation where one becomes anxious and loss his ability to judge between right and wrong hence going with market. Similarly, Devenow and Welch (1996) described irrational herding as incompetency of managers who poorly follow their seniors without regarding rational thinking. They think that depending on others can save them for unexpected outcomes and they can maintain their reputation in the market which is not the real case. In respect of the above explanation herding can be seen as differently in terms of strategy. When an investor is making a decision that is neither rational nor irrational and it is said to be momentum-investment strategy and that is based on positive feedback mechanism. Herding is the tendency of investors and individuals to follow each other. It is a phenomenon in which investor's trade in the same direction. They try to ignore their own thoughts while making a decision related to investment. This can explain the behaviour of investors towards making a decision between two classes of stocks. That can be a good and poor stock. Investors usually buy good performing stock and sell poor performing stock. This kind of strategy is referred as herding in financial market by Nofsinger and Sias (1999). This is justified that both individual and institutional investors are taking similar decision and are moving in the same direction. These authors make their contribution to literature by identifying four major issues. First, they checked the relationship of institutional investors and returns of securities listed on NYSE. Secondly, they investigated the effect of post herding on stock returns. Thirdly, they checked the

effect of herding on return of large firms. Lastly, they checked the impact of price changes related to herding.

Y.-F. Chen and Wang (2010) define herding as the tendency of one investor to follow the actions of other investor in making a financial decision. The definition and categorization of herding is not as easy as being thought by individuals. There are a lot of factors that play significant role in defining herding behavior, which are emotions, lack of belief, anger and dissatisfaction. It mainly depends on lack of information, uncertainty in financial markets. According to the study conducted by Devenow and Welch (1996) this irrational behavior is related to the human psychology where decision makers disown their own beliefs and follow other investors blindly. Many researchers have defined herding as a psychological factor which is mostly inferred to know the condition during which investors rationally or irrationally follow the decision pattern of others in their social circle Raafat, Chater, and Frith (2009). In economic and financial decision herding and imitation could be considered as a social learning process during which people satisfy themselves by imitating others Baddeley (2010) .

It is being observed that herding in any form cause adverse effects in financial markets. According to Shleifer and Summers (1990) the presence of herding can affect stock prices adversely and prices deviate from their fundamental values which ultimately results in market inefficiency and volatility even if all investors behave rationally. Hence it is said that irrational herding occurs because of same psychological behaviour of marketers.

2.3.2 Herding and financial distress

This part of literature explains the relationship of herding with financial distress. It is observed that herding mentality and financial distress are interlinked. The movements in the prices are caused by the existence of herding. Many studies have been conducted to find out the relation between herding and distress and some are made part of study as well.

Hwang and Salmon (2004) found that herding is seen before and during crises due which the values of stocks deviate from their fundamentals. They observed South Korea and USA and claimed that herding is significant during market movements. This behaviour is explained in terms of volatility of returns and average of returns. Many studies showed that macroeconomic factors do not explain herding. Furthermore, herding was deeply studied in US markets to know rational investors are involved in it or not. There are number of studies whose findings are similar with previous work conducted by Hwang and Salmon (2004) and found existence of herding behaviour which resembles with the study conducted in 2001 and 2004 in US, UK and South Korea.

Herding behaviour was studied in Southern European countries and use individual stocks data, Economou, Kostakis, and Philippas (2011) found significant results for existence of herding in Italy and Greece. This study was further extended by Mobarek, Mollah, and Keasey (2014) in which they replaced the research methodology used by Chiang and Zheng (2010) . Their study mainly focused on herding during worse market conditions like crises. Their study included 11 European countries and came up with the findings that herding is present during financial stress and crises. This herding was more dominant in continental countries. They also argued that Germany influences other markets by showing

the presence of herding. As these authors put that herding is an imitation pattern of individual and investors to follow group of people that are already playing in the market. Herding is investigated in different market circumstances. Herding is more prominent during stress market conditions and stock returns usually deviate from their basic values. Due to which financial markets become inefficient.

Hwang and Salmon (2004) conducted studies in US, UK and South Korea to identify herding. They argued that Asian and Russian crises in 1997 and 1998 imported high effects on herding towards market returns. The outcome of herding on market return is considered for their study. They found that herding was seen during market distress. They also found that herding exist when market is quiet. During the period of financial crises herding is seen more noticeable and market returns become much weaker which confirms that at this particular period herding disappears. During the phase of crises, the values of shares play significant role as compared to size and growth. The value of share is significantly associated with herding. From this study it is inferred that herding is more evident in emerging markets as compared to developed markets. The US and UK markets show less herding than other emerging markets like South Korea.

Further in studies, Riza Demirer, Kutan, and Chen (2010) proposed that herding is more evident during extreme market conditions and investors are more likely to involve themselves in herding in order to avoid risk. The returns obtained from these would be extreme market returns. Lao and Singh (2011) conducted a study in Chinese and Indian stock market to find out the relationship between extreme market movements and normal market movements. In this literature extreme market movements means upward and downward market movements. They suggested that herding is observed when market is in stress. They supported this

idea with the behaviour of some irrational investors. These irrational investors make their decision on the basis of information that is available to them through social media channels. This study opens new doors for further discussion about herding during extreme market conditions.

Chiang and Zheng (2010) carried out a study on global markets and confessed that herding arises in one country during financial distress and also impose effects on nearby countries. This particular relationship is explained by the ability of human psychology to seek conformity and security during the period of financial uncertainty. It is believed that herding is not only present in particular stock market rather financial markets herd together due to which financial crises occurs. Billio and Caporin (2010) studied significant evidence of contagious herding in American and Asian stock market. The root cause behind this herding is institutional investors. These investors exist between emerging as well as developed markets. This kind of situation was found by Boyer (2006). They argued that extreme level of herding is observed during the period of high volatility which is caused by institutional investors. For better understanding of contagious effect, it can be studied through recent financial crises. Academic literature on herding also confirms that herding exists in different financial markets.

2.3.3   Various Studies on Herding

This section is based on various additional studies conducted to measure herd mentality. Different kinds of models are investigated under these studies. Like, Christie and Huang (1995) used CSSD to measure the mean deviation of stock return in the market. They did not find any evidence for the presence of herding in American stock market, by using this model. Chang et al. (2000) used another model that is CSAD. They focused on some developed markets and emerging

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markets like Asia to investigate herding. They deviated from the previous model and used absolute deviation in their study because standard deviation was used earlier. This was a comparison of return deviation along with market deviation. Size of difference was taken for comparison of values to imply the implications of asset pricing model Klein (2012). After the observation of absolute market deviation and absolute return deviation in South Korea and Taiwan herding was found in both markets and the results were same as reported by Christie and Huang (1995) in case of US.

A lot of research has been done to investigate the effect of herding in financial markets. They used market return dispersion when significant changes were observed Christie and Huang (1995); Chang et al. (2000).The researchers provide the argument that stock returns are seemed to be more clustered during stress period. This clustering of stock returns was the indication that there is a presence of correlation among stock return. This correlation is not dependent upon the fundamental value; it is independent of these attributes. So it can be concluded that during stress period herd is found and investor follow others belief.

Similarly it is studied that during the presence of herd formation the cross-sectional dispersion is observed to be low. In order to capture volatility in markets, trading is also investigated by researchers to study herding. The study held by Tan, Chiang, Mason, and Nelling (2008) was based on the investigation of irregular patterns in herding under certain market conditions. These conditions were named as volatility and trading volume. From their study it is observed that during boom market condition herding is found, it is argued that there would be high volatility and high trading volume. This kind of inconsistency was only observed in A share of Shanghai stock exchange because it was previously owned

by state. Most of the investor takes their decision during this period and herding was observed.

Many studies found that trading style has an impact on herding and it affects the return. Ülkü and Weber (2013) explained different trading styles which are followed by investors. These are found to be the individual investors and merchants in South Korea. The results showed that individual traders are considered as positive feedback trader in spite of the fact that their trade style shows negative correlation with market returns. The results were same for merchants as well, as they have the ability to forecast the market.

It is commonly known fact that world is like a global village. The transmission of information is very fast. Information avail by one investor is easily available to all other investors by internet or through social media. This is why it is said that globalization is another factor behind the formation of herding. Investors do have their own private information, but they follow others in their decision. Globalization is one of the main factor behind herding Calvo and Mendoza (2000). These authors also provided investigation about the importance of flow of vital information in financial market. World has become global village information is rapidly moving from one market to other market without any delay. Investors follow the information that is prevailing in the market. They follow others and cause formation of herding in financial markets.

2.4 Herding behavior and Investment Decision

In behavioral finance researchers analyzed that individual does not act rationally all the time when they are involved in decision making. The findings of these

studies play important role in security markets. The stability and development of financial markets depend upon the decision taken by investors who are daily trading in the market Babajide and Adetiloye (2012). Due to non- efficiency of financial market a field of behavioral finance evolved. On the basis of traditional and classical finance it is assumed that investors are well informed about the information and take appropriate decision. Due to the presence of psychological factors these assumptions are nullified. In finance there is not a single definition for herding. Individual follow either even if they are wrong Chaffai and Medhioub (2018) . It is found that emotions and cognitive biases Lekovic (2020) were main factors behind the irrational behavior of investors. Generally, it is assumed that investors are more attracted by their peers, family and word of mouth. They follow them and lead financial markets towards bubble and stock market crashes. There is psychological impact of herding on Islamic financial markets. For this purpose they collected a data of 410 respondents. They concluded that information availability, self- confidence and self-control have significant impact on Islamic financial market. According to the literature of sharia these factors have insignificant impact on herding. The results of significance turned into insignificance when a variable of sharia was introduced.

Wisnu wibowo (2020) studied that how behavioral biases can impact herding. These biases include (overconfidence, anchoring and illusion). This study found that behavioral biases have positive impact on herding. They argued that if an investor is confident the decision of investing in particular stock and this can positively impact his investment strategies. Similarly, Robin and Angelina (2020) investigated the impact of same behavioral biases on investment decision and found that it has positive and significant impact on investor's decision making process. They collected a data from 149 investors who belong to different

financial backgrounds. They want to check the impact of these behaviors on decision making. Data was collected from 149 investors of different backgrounds to determine the impact of behavior towards decision making. With the help of this research, it is found that human behavior and psychology impacts decision process. It should be noted that behavior tendencies can led towards financial loss. It is important for investors to know about behavior biases to avoid mistakes in making certain decision.

Arias (2020) first time studied the effect of COVID-19 on Australian stock market. They concluded that herding behavior was evident during this pandemic. Initially investors did not invested when thy face the crises. As they saw that others are investing they follow them and start to imitate the group of people. Abd Alla and Sobh (2019) investigated the effect of herding on stock return. They obtained the data of 50 listed stocks from Egyptian Stock Exchange and added additional risk factor to study the impact of herding on stock return. The results are consistent with asset pricing model and found no evidence of herd formation in this market.

Qasim et al. (2019) carried out a study in order to check herding can be affected by overconfidence of behavioral biases in making decision. The data set was based on 100 respondents. In order check the impact they used OLS technique to know the impact of overconfidence on investor's decision making. They found that in Pakistan investors decision is affected by overconfidence and behavioral biases. The results contradicted with EMH that investors follow irrational behavior. Geetha (2019) investigated two important factors that influence investor's decision making. These factors were named as herd factor and market factor. They also want to know its mediating impact on decision. The results

showed that there is positive and significant impact on decision making. The mediation impact was also positively significant. They concluded that these behavioral factors impact investment decision and that leads towards market inefficiency.

Rique, Hosein, and Arjoon (2019) studied herding behavior in the Singapore Stock Market. The data was based on stock prices 600 stocks. On the basis of volume per share the data was divided on three different set of portfolios. These stocks were taken on the basis of volumes that are traded daily. The testing measure of algorithm showed strong evidence of herding in this market. Results indicated that herding was present in each set of portfolio. This study also confirmed that herding was more prominent in stocks having higher volumes.

Risal and Khatiwada (2019) conducted a study to find out the factors influencing herd formation and investment decision. They also considered fluctuation, crashes and bubbles in Nepal Capital Market. The data was based on 407 respondents. The results suggested that decision accuracy was not seen in the market. The decision pattern of investors was affected by age, confidence and illusion. There was positive and significant relation between herd formation and decision. Jiang and Verardo (2018) also studied another factor with herding. They investigated the linkage between managerial ability and herd behavior in mutual fund industry. The author used a new level of measure to capture herding and managerial ability. He investigated the link between herding behavior and managerial ability in the mutual fund industry. After investigation they found that managerial abilities strongly affect herding behavior. These factors also impact investor's decision making process and ultimately effect stock market returns.

Yousaf, Ali, and Shah (2018) investigated the formation of herd behavior in Pakistan Stock Exchange. Their study mainly focused on the effect of Ramadan and the financial crises period. The data was based from 2004 to 2014. On the basis of daily data the results showed that there is no existence of herding when market are rising and when market as declining. The results also showed that no herding was observed during high and low volatility in the market. The existence of herding was observed during the period when trading volumes were low. On the basis of yearly data herding was observed during 2005, 2006 and 2007. Whereas, no evidence of herding in rest of the time period. During the month of Ramadan herding was also absent. In the period of financial crises (2007-2008), herding was observed in Pakistani market due information asymmetry and uncertainty in the market.

Naomi, Kiprop, and Tanui (2018) investigated the effect of herding behavior on decision in small and medium size enterprises (SMEs) in Bomet county in Kenya. For their study they used 4196 SMEs that were listed in Bomet County. From this data they used 108 as a sample to check the impact of herding on investment decision. They run simple regression analysis. Their results showed there is negative relation between herding and investment decision. The investors do not copy other in their decision. There was an insignificant relation between herding and decision making in this particular sample. They concluded that herding is not important and does not affect investor's decision making process. The findings showed that in case of SMEs herding is negatively correlated. It has no impact on the investment strategies make by these SMEs. My and Huy (2016) investigated the presence of herding in Vietnamese Stock Market. They found that information asymmetry has been observed in this market. These investors are involved in herding. They follow the group of people in their decision making process. The

asymmetric behavior of investors effected the price movements of shares in Vietnamese market. This market is immature information flow is very fast and stock prices immediately deviate from their fundamental values and hence result in formation of herding behavior. There is lack of transparency in information. Investors are irrational and made the market inefficient. In this market volatility is seemed to be high and very few trade patterns are observed. This study also found that the markets which are moving upward have shown less return dispersion as compared to downward markets.

Filip, Pochea, and Pece (2015) examined the presence of herding behavior in emerging market. They used the method CSAD proposed by Chang et al. (2000). They examined herding behavior under different market conditions. They mainly focused on the impact of financial crises in these emerging markets. Due to the presence of herding behavior markets become speculative and bubbles are created. This phenomenon explained that investors are taking similar decision due to which markets become inefficient and stock prices stray away from their original values. The major cause of speculation is the formation of herding in the market. The results of these studies showed that there is an existence of herding in the period when market is declining. The behavior of investors seemed to be changed before and after the period of crises. Herding is also seen in upward market movement as well as in downward market movement.

Hsieh (2013) investigated the presence of herding in Taiwanese stock market. His study included individual and institutional investors. They found that institutional investors are more involved in herding than individual investors. They also found that institutional investors gain profits from involving in herd behavior whereas individual investor faced loss while involving in herd behavior.

Shekhar and Prasad (2015) carried out a study to know the impact of herding behavior on investment decision and market volatility. They took Indian retail and professional investor for their study. The financial crises of 2008 not only affected the financial industry but also drastically imposed its impact on regulatory bodies and decision making authorities. This study mainly focused on the idea that how irrational decision impact the retail market in India. The professional investors are also involved in herding and take their decision on the basis of following others. This behavior badly affected their investment decision and stock returns. The decision on investment was based on the information provided by existing investors in the market. These studies found that majority of the investors are irrational. This kind of behavior is not good signal for financial market performance and stability.

Latief and Shah (2014) examined the effect of mutual fund herding on decision making and on stock returns. The study was carried in perspective of Pakistan. They took five years data from the period of 2006 to 2010 for their study. The data was based on monthly return. They found a significantly positive relationship between herding behavior and stock market returns. Messis and Zapranis (2014)stated that the examination of herding behavior is very important in financial market. Fund managers and investors are involved in decision making. Financial markets and institutions play a significant role. They aligned the follow of funds from savers to investors and make financial market smooth. To measure the presence of herding they used the method proposed by Hwang and Salmon (2004). Their results showed the existence of herd formation during the period of extreme market volatilities. They regarded herding as an additional risk factor. Hwang and Salmon (2004) were the first persons who tested the association

between market volatility and investor behavior. They argued that the presence of irrational investors make the market unstable. Froot, Scharfstein, and Stein (1992) argued that investors follow each other due to which there is an increase in market volatility.

Cipriani and Guarino (2014) examined the existence of herding behavior in New York Stock Exchange and took the data from Ashland companies listed on the NSE. They found an existence of herding during declining market conditions. Ghalandari and Ghahremanpour (2013) studied the effect of herding on investment decision in perspective of Iran. The data was collected from 275 institutional investors. The findings showed that there is significant and positive relation between investment decision and herding behavior. Furthermore, they concluded that investment performance is positively related with investment decision in Tehran Stock Exchange.

Patro and Kanagaraj (2012) studied about Indian mutual funds trading activity to investigate that Indian mutual fund managers are involved in herding. The findings of their studies were compared with previous studies carried out in emerging as well as developed markets in order to find out the level of maturity in Indian mutual funds. They found strong existence of herding in their sample. The Indian mutual fund managers are primarily involved in herding when they trade in large capital stocks and the stocks that belong to large indices. The presence of herding behavior affects selling and purchasing price of stocks. It was also observed that Indian mutual funds are involved in herd behavior when selling a stock.

Waweru et al. (2008) examined the factors that affect the investor decision making process. These factors are listed as selling of a stock, buying of a stock, time to hold a stock and volume of a stock. These factors have significant impact on investor's decision pattern. They compared their decision with other investors and follow them while ignoring their own thinking .At the end of the day they will regret on the decision they have made. Henker, Henker, and Mitsios (2006) investigated intraday investor herding behavior for the period of 2001–2002 for different emerging markets and found no evidence of herding. Chiang and Zheng (2010) examined 18 international markets including Australia for the period 1989–2009 and concluded investment decision is affected by herding. In their research herding was evident in Australian stock market. Kutan and Demirer (2006) investigated the formation of herding in Chinese Stock Market. They used individual firm data as well as stock level data. They examined that there is an upward and downward movement in return dispersion in Chinese market. Their results are consistent with asset pricing model and found no evidence for the formation of herding.

Chiang and Zheng (2010)   identified the fact that if an investor is well informed about the market conditions, he will avoid herding. Similarly, an uninformed investor will show herding because he does not possess all the information. As a result he will copy others. Chang et al. (2000) investigated the relationship between market return and stock return dispersion. They carried out a study to know about the herding behavior in developed markets. Their study also included emerging markets like South Korea and Taiwan. They found that herding is not observed in developed market such as USA and Hong Kong. Herding was observed in emerging market in this study. Wermers (1999) stated that trading activity is important in order to study herding behavior. He examined the trading

activity of funds from the period 1975 to 1994 to know whether mutual funds herd when they are involved in trading activity. The author also studied the impact of herding behavior on stock returns. In case of average stock mutual funds showed little formation of herding whereas higher formation of herding was observed during the trading of small stocks. The findings of this study were consistent with the findings of mutual fund herding during price adjustment process.

Different quantitative approach are being used by researchers to know that herding behavior affect the decision making process of pension fund managers. In Chinese market herding behavior was investigated on Shanghai and Shenzen. The results found strong evidence of herding Kutan and Demirer (2006).

2.5   Mutual Funds

In recent decades, it has been observed that MFs play an important role in financial markets. The growth of mutual fund industry has started from US, in which this industry played dramatic role in financial world. This trend vastly extended into other countries as well. With the growth in the industry investors show their interest in mutual funds and started to invest in these funds Ferreira, Keswani, Miguel, and Ramos (2013). The idea behind the investment in mutual fund is that they provide diversification opportunities for small investors. The fund is promoted by a sponser and it is run by the trust. The trust member pools the resources of individual investors and provides them benefits over the period of time. The money that is obtained by selling a fund unit is further invested by the fund manager in multiple securities depending upon the characteristics of that scheme. Anyone who is having surplus amount or having little amount can take benefits from investing into these funds. Mutual funds have their own

characteristics regarding the investment scheme. Mutual fund is providing diversification opportunities for individual investors by investing in pool of funds as studied by Chakraborty (2013). Mutual fund (MF) is the investment strategy that provides an opportunity to invest in pool of funds in order to diversify their investment as argued by Mobius (2007). MF invests in multiple assets that are associated with cash, stock, government securities, bonds .These funds allow investors to invest in multiple funds to avoid risk by diversifying the funds as discussed by Asad and Siddiqui (2019).

Mutual fund is premium gateway for individuals as well as institutions to invest in these funds to avoid the risk of investing in individual stock. These funds are the resource of benefits for individuals who are unable to invest in stock market. The securities which are being traded in the market is found by fund manager as examined by Reilly and Brown (2011). Usually, these funds are invested in combination of assets that are associated with cash, stock and underlying securities. These bonds and portfolio are combined together to form one fund. These funds provide diversified profits for fund managers. The income obtained from the investment in mutual fund is distributed among shareholders. In Pakistan mutual funds play significant role in investment. They have imparted their role in financial gains for investors. In Pakistan currently there are 210 open ended mutual funds listed in Pakistan's Mutual Fund Association. The total number of assets managed by Asset Management companies is worth of 574 billion. There is potential room for these open ended funds to grow in Pakistan as explained by Asad and Siddiqui (2019). The returns obtained from mutual funds are greater then returns obtained from investing in any other security. A significant amount of growth has seen in mutual fund industry. The investors diverted their investments

into these funds even in the phase of pandemic. A huge amount of gain has been observed from mutual funds worldwide. Mutual fund managers are responsible to gain profit by diversification of the investment and they are able to gain higher interest as compared to other sorts of investment Ms, ana, and Dr. Swati (2020).

It has been studied that MFs have imported very imperious impact in financial market and are regarded as the major investment opportunity for the small investors. The number of MFs came in the market for trading purpose and enhanced the number of stocks in the market. MFs make investment simple for small investors, who do not have sufficient information and abilities and low acceptance of risk, to invest their investments in beneficial portfolios by more qualified fund administrators. MFs provided superior benefits in terms of diversification at lesser cost and liquidity against the savings in bonds or stocks Puckett and Yan (2008). The development in mutual fund industry attracts small investors to invest in funds. The investments in MFs are considered as less risky and safe. Pakistan occupies 1.4 percent share of the world mutual fund assets Rehman and Baloch (2014).

It has been studied that in case of Pakistan this market is growing smoothly investors are confident about investing in different open ended and close ended funds. This is the best of alternative for investors. Study reveals that since last few years there is an increase in growth of mutual funds. Furthermore, the NAV show a tremendous growth of increase from 30% during the year 2008 to 2017. It can be observed from this growth rate that these funds are becoming best alternative for investment. In case of Pakistan limited amount of research has been conducted on the growth and performance of this sector as compared to other developing

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countries. Cheema (2021) studied Pakistan mutual fund market and argued that the rights of minority of investors can be protected if the established investors and mutual funds can play their role in governance. According to Kahneman and Tversky (1979), it is investigated that decision of individual is mostly based on losses and gains instead of relying on financial outcomes, they usually elaborate these gains and losses using their cognitive abilities rather than using their cognition. Phillips (1995) investigated changes in employee behavior while making a decision and concluded that the change in financial decision making and investor behavior is based on the information which they are receiving from the market. Similarly, Ippolito (1992) suggested that the selection of a particular fund relies on its past performance. Investors are interested in the funds that are showing winning performances. A lot of research has been done to know about the behavior related to investing in mutual fund scheme. Chakraborty (2013) carried out a study and took 200 mutual fund investors in nine urban and semi-urban cities of Orissa (India). On the basis of literature review, nine factors are chosen and grouped into four major components by applying Principal Component Analysis. Study revealed that the safety, past return and liquidity are the most trending factors which attract most of the investors to opt for the mutual fund schemes. In order to conduct this study parametric and non-parametric statistical methods have been used. From literature perspective this kind of study will assist in enhancing and expanding knowledge in the field of personal investment. Numerous empirical studies have documented patterns of behavior among mutual fund investors that appears irrational or suboptimal. Frazzini and Lamont (2005) studied that most of the individual investors allocate their money into different mutual funds and take their decision on the basis of past information without analyzing current market trends. They compare their gains in short run with stock earnings. Their study was also based of investment related sentiments.

They said that investing decision is related to sentiments. According to their study decision based on sentiments deviate stock prices from their initial values and hence results in low returns.

Nguyen, Shahid, and Kernohan (2018) studied the performance of mutual funds and investors' confidence in Pakistan and India .They found that there is direct relation between the performance of mutual fund and investor confidence. These investors invest in mutual due many reasons one of the major reason is diversification and the other reason is that these funds are managed by asset management companies. Mutual funds provide benefits to small level of investors who are not able to invest in major financial markets. The reason is due to lack of knowledge and adequate resources .These authors also studied the determinants of mutual fund performance. These determinants could be size of fund and its growth. Investment is a deliberate sacrifice made by an investor today, taking into account the risk involved, in order to gain better returns in the future Agyemang and Ansong (2016) .

Martin (1971) argued that there is an association between investment return and risk. If the market is providing high return there would be high risk and investment opportunities will increase. The risk is associated with return. High risk leads to high return and low risk leads to low return. Investors should be aware of the fact that risk and returns and they can avail gains if they have all the information available to them. This information can be financial and non-financial. Human behavior also plays important role in making investment decision RAHAYU, ROHMAN, and HARTO (2021). Barber and Odean (2008) stated that investors buying behavior is important while making a buying decision, investors don't buy the stocks from the list. They mostly prefer to buy the stock in

which they are personally interested. They take this decision of buying that particular stock on the basis of past performance, its return and its growth in the market. As far as the concept of behavioral finance is concern, investors buying behavior effects selling and buying at different level. Similarly, this can also impact the market returns generally and individual returns particularly Goodfellow, Bohl, and Gebka (2009) .

It has observed from many studies that when investors start following others it generates prices to deviate from fundamental values. Similarly, this kind of behaviour can either be rational (investors believe that they are using their own analytical skills) or irrational (they are following others) and causes market inefficiencies Hirshleifer and Teoh (2003). It is believed that human tend to follow others in stress situation. They think that they can avoid undesirable outcomes being part of a group. Thus, they mean to observe the decision of other and make themselves satisfy. Bikhchandani and Sharma (2000) defined herding as the intent to copy the behaviour of others due to which market becomes destabilize and volatile.

Scharfstein and Stein (1990) argued that if there is a discrepancy between publicly available information and the information possessed by the managers, they will probably follow the decision of others. Devenow and Welch (1996) presented compensation based herding and stated that if compensation of manger depends on its performance, this will distort the manager incentive and will lead to a poor portfolio, and ultimately will result in herding. The examination of herding behaviour can provide high degree of information to investors about price formation in financial markets. Chang et al. (2000) justify that herding behaviour is important in a sense that investment decisions are affected by irrational

behaviour. It is linked to market inefficiency, which is not possible to explain by Rational Asset Pricing Model, when an investor decision is based on collective information rather than on private information, it drives stock away from their fundamental values. That is why it is suggested that herding behaviour is a signal of market inefficiency. Therefore, the presence of herding behaviour in real world market is not as efficient as suggested by Rational Asset Pricing Model. A lot of research has been conducted to measure the existence of herding in developed as well as developing countries. The findings of these studies vary from country to country. Christie and Huang (1995) have confirmed that there is no evidence of herding in US market. During the period of large price movement the dispersion of securities increases instead of decreasing. Chang et al. (2000) also presented same results for US, Japan and Hong Kong market. Caparrelli et al. (2004) displayed that herding is only present during extreme market condition in Italian stocks.

Furthermore, Kutan and Demirer (2006) studied that there is an evidence of herding in Chinese stock market by applying the method proposed by Christie and Huang (1995). From literature it is investigated that there is an association between herding and financial markets and cognitive economics is the most important concept in this regard Parker and Prechter (2005). Herding is defined as following others and copying their actions in decision. In finance literature herding is explained as the tendency of investors to follow the crowd. Herding is divided into two major forms: rational herding and irrational herding. These concepts gave insight to the origin of herding behavior. These two concepts describe the origin of herd mentality Devenow and Welch (1996). The idea behind rational form is that investors are accepting other investor's opinions in order to maintain their reputation in financial markets Scharfstein and Stein (1990).

Herding mentality refers that following other without any rational reason. During the formation of herd in the market investors don't use their own intuition in decision making and simply follow and imitate others. If a group of investors are investing in stock A then all the investors will follow this behavior without thinking about the outcomes. In real world such kind of irrational decision can leads toward market inefficiency. Decision is the process during which an individual must choose the best option from available alternatives or investment options. When we compare this thing with investment it says that individual has to select the best investment option which will generate maximum benefits in future. According to the concept of economic theories market is efficient and investors are rational. They interpret all the information before making a decision that is prevailing in the market. Consequently, in real world it is not possible to evaluate all the information available in the market. That is why investors try use a short cut and get to a decision as argued by Qasim et al. (2019).

In financial market, investors evaluate their information on the basis of market. An example has been quoted in this regard that there are two types of restaurants A and B. Restaurant A is suggested by a well renowned guidebook and social media group. The author said that when we reached at the spot there are large numbers of people sitting in restaurant B. simply, we ignore the available information and follow the group of people and ate from restaurant B. This is the same case with security market investors make their buying and selling decision on the basis of other investors. The existence of herd formation is denying the EMH. According to EMH investors have all the information and take decision on the basis of available information. Herd behavior and EMH contradicts each other. In case of security market, herding investors base their investment decisions on the masses 'decisions of buying or selling stocks. In contrast, informed and

rational investors usually ignore following the flow of masses, and this makes the market efficient a study conducted by Caparrelli et al. (2004). There are certain factors investigated by researchers that can impact herd behavior of investors. These factors are overconfidence, fear of losing reputation, level of satisfaction, volume of investment and many more. If an investor is confident about his own private information, he will not rely on others. In this situation they will not involve in herding. When investors do large capital of investment, they lose their confidence that either they will receive a gain or not, so they start following others to reduce the level of risk which they assuming to bear. In this case, investors seem to be less interested in herding behaviors. When investors put a large amount of capital into their investment, they tend to follow the others' actions to reduce the risks, at least in the way they feel confident about the outcomes. Furthermore, herding preferences depend on the type of investors. It has been observed by various studies that individual investors are mostly involved in herding as compared to institutional investors.

In case of stock market the formation of herd behavior has three forms. The first type is information-based herding. This is the type of herding during which investors do herding on the basis of available information. The second type of herding is reputation based herding during which investors follow group of people to maintain their reputation in financial market. The third type is compensation based herding when large numbers of investors are involved in gaining profits from the investments. This kind of irrational behavior is responsible for high volatility and information cascade Risal and Khatiwada (2019). The existence of herding mentality in financial market causes prices to deviate from their fundamental values. This information can be important for decision and policy makers. They can identify the reasons of inefficiency and price fluctuation in the

market. In this way mispricing can be avoided. As it is discussed earlier that this behavior is against the validity of efficient market hypothesis as investors are not always rational in their investment decisions and do not reflect future prices by rationality. They always try to imitate others. In this way their decision would be rational or either irrational which depicts herding Lao and Singh (2011).

Many researchers believe to have found that herding behavior is the fundamental factor behind the creation of illusion in finance. The effect of herding is identified as the illusion to follow others in their actions Agrawal, Singhal, and Swarup (2016). Due the formation of this illusion in market investors reluctantly make their decision on the basis of others which results in uncertainty about the returns on investments. When investors ignore this behavior and take their decision independently, they will receive positive returns. This will enhance their confidence as well according to Munoz Torrecillas, Yalamova, and McKelvey (2016). This is the major behavioral biases badly effects investment decision. These phenomena gain its popularity after the existence of dotcom bubble in late 1990s. People blindly follow others and result in bursting of dotcom bubble. Majority of capital markets and individual investors follow the crowd by investing huge amount of money into internet companies without knowing about the ground realities. In this situation herding in finance is defined as the psychological tendency of investors to follow others. It is generally articulated as how individuals imitate others in their way of actions. The classical finance is based on EMH which is cornerstone in the field finance. This theory states that stock prices reflect all the available information and no one can earn abnormal profits in long run. At the mid of 1980,s this theory gave birth to behavioral finance. This theory challenged EMH and categorized herding as a behavioral bias which is related to human cognition. There are different kinds of herding which are explain as market

wide herding, institutional herding and mutual fund herding. As per market wide herding all the investors will move according to the trends in the market and will buy or sell same stock at same time. Market wide herding was observed by researchers in many emerging countries like India, Taiwan, Egypt and South Korea. Institutional herding is defined as the group of investors that follow their own trade lags. Institutional herding has two kind of impact on prices either they can deviate from their fundamental values or it can adjust prices and make the market efficient. Herding behavior is also evident in mutual funds. Fund managers are mostly involved in herding in order to protect themselves from negative outcomes. This behavior leads to major financial distress Dewan and Dharni (2019). This herd mentality leads to major financial losses and crises. From the study of Armansyah (2018) he stated that herd behavior is the only reason behind stock market crash and financial crises in Argentina (2000–2006) and Asia (1997–1998) and the dot-com crash (2008–2009).It is also studied that herding was more prominent in large capitalization shares as compared to small capitalization shares Theriou, Mlekanis, and Maditinos (2011). Herding is most evident among fund managers while purchasing a stock rather than selling a stock Patro and Kanagaraj (2012).

Herding seems to be different in bullish and bearish market because it is an imitating behaviour of investors, they usually follow others when market is rising or falling in order to save themselves from loss. Similarly herding is seeing to be different in extreme market conditions because in such situation investors become irrational and take their decision on the basis of others belief due which financial market becomes inefficient.

2.6 Hypothesis

H1: Pakistani mutual funds exhibit herd behavior.

H2: Herding behavior effects unit returns of mutual fund under extreme market movements.

H3: Evidence of herding during bullish and bearish trends.

H4: Evidence of herding during the phase of non-linearity.

CHAPTER 3

DATA AND METHODOLOGY

The study comprises the data of 40 mutual funds from 19 Asset Management Companies in Pakistan. There are total 19 asset management companies and each company has its own funds. I have chosen 40 funds on the basis of availability of data. This data consists of daily net asset values of these 40 mutual fund companies from a sample period of 2013 to 2020. The data of daily NAV is obtained from the website of Mutual Fund Association of Pakistan (Mufap).

Christie and Huang (1995) identified a method known as cross sectional standard deviation CSSD and Chang et al. (2000) identified a method known as cross sectional absolute deviation CSAD. These two techniques are basically used to measure the existence of herding behaviour among individual stock return. I have used both CSSD and CSAD to measure herding to check the robustness. CSAD is used to assess value return scattering. This study used CSSD by Christie and Huang (1995) and Chang et al. (2000) CSAD as a research methodology. Generally, in market circumstances many authors have used CSSD and CSAD to measure herding mentality. Some empirical studies show that other methods have also been used to measure herding behaviour. In different studies LSV method was used to measure herding behaviour in Turkish mutual funds. This method was proposed by Lakonishok, Shleifer, and Vishny (1992).

3.1   Methodology

The equation for the calculation of unit return on each fund is as follow:

$$R_{i,t} = \ln\left[\frac{P_t}{P_{t-1}}\right] \times 100 \qquad (3.1)$$

The above equation explains that:

Ri,t= This is the observed unit return of fund i at time t,

Pt and Pt-1= are the closing prices of individual fund return at time t and t-1,

$$R_{m,t} = \frac{\sum R_{i,t}}{N} \qquad (3.2)$$

In this given equation the term $R_{m,t}$ represents the average return of N number of funds in time t. This is calculated by taking the average of individual fund unit returns. Ri,t is the unit return of firm i at time t, and N is the total number of funds which are used in the sample.

3.2   Model Specification

This study examines the existence of herding behaviour in Pakistani mutual fund industry. Two methodologies of Christie and Huang (1995) CSSD and Chang et al. (2000) CSAD are used for analysis of data. All of the 40 mutual funds are selected on the basis of daily net asset values (NAV). This study is based on the two methodologies proposed by Christie and Huang (1995) and Chang et al. (2000). For the purpose of detecting herd behaviour Christie and Huang (1995) measured average proximity of market returns to individual asset returns by using the CSSD, which is expressed as below:

$$CSSD_t = \sqrt{\frac{\sum_{i=1}^{N}(R_{i,t}-R_{m,t})^2}{N-1}} \qquad (3.3)$$

The above equation explains that the term Rm,t is the average market return of mutual funds at time t, whereas N represents the total number of funds used in the sample. Ri, t is the individual fund return at time t. By applying the proposed model of Christie and Huang (1995) CSSD; this study examines the herd behaviour among the mutual fund industry.

Regarding the manners of CSSD returns, herding behaviour indicate contradictory forecast from the traditional asset pricing model during the period of extreme market crises. During the period of large market movements, increased dispersion is observed due to conflicting responsiveness of individual securities to market returns i.e. asset pricing model, while comparatively lower is seen as a result of herd behaviour during large market movements. Furthermore, this study will examine herding behaviour of market return by using the model suggested by Christie and Huang (1995).

$$\text{CSSD}_t = \propto + \beta_1^U D_t^U + \beta_2^L D_t^L + \varepsilon_t \qquad (3.4)$$

The above equation provide us the information that, in return distribution for the time period t, if the returns in market portfolio are placed in the extreme upper tail than $D_t^U = 1$, and if not than $D_t^U = 0$ at in return distribution for time period t, similarly if the returns in market portfolio are placed at extreme lower tail $D_t^L = 1$, and if not $D_t^L = 0$. Thus, the existence of negative and statistically significant β_1 and β_2 indicates the presence of herd behavior. Similarly, positive coefficient of β_1 and β_2 altogether forecast asset pricing model.

To measure herding behavior, Chang et al. (2000) proposed alternative methodology. Chang et al. (2000) stated that the model suggested by Christie and Huang (1995) requires knowing that what is mean by market stress or market push. Therefore they used CASD instead of CSSD. CSAD can be expressed as follow:

$$\text{CSAD}_t = \frac{1}{N} \sum_{i=1}^{N} | R_{i,t} - R_{m,t} | \qquad (3.5)$$

In the above equation the term $R_{m,t}$ is the average portfolio return of the fund at time t, signifies the market return, whereas $R_{i,t}$ represents the individual fund return at time t. To measure herding behaviour, Chang et al. (2000) CASD, demonstrates the relationship between the value return and the outright estimation of market return. The second technique depends upon the quadratic connection amongst $CSAD_{t=}$and $R_{m,t}$ identified by Chang et al. (2000) this non-linear relationship is represented as:

$$CSAD_t = \alpha + \gamma_1 | R_{m,t} | + \gamma_2 R_{m,t}^2 + \varepsilon_t \qquad (3.6)$$

According to the observation of Chang et al. (2000) this equation clarifies the presence of significantly negative non- linear coefficient of $\gamma_2$confirms that there is an existence of herding behaviour, likewise a significantly positive position of γ_2 confirms no evidence for herding. Gleason, Mathur, and Peterson (2004) argue that this non- straight part will be investigated for CSSD when herding is available during market stress. To get more comprehensive results Gleason et al. (2004) used two extra models in which they swap the dependant variables in equations (3.4) and (3.6):

$$CSAD_t = \alpha + \beta_1^U D_t^U + \beta_2^L D_t^L + \varepsilon_t \qquad (3.7)$$

$$CSSD_t = \alpha + \gamma_1 | R_{m,t} | + \gamma_2 R_{m,t}^2 + \varepsilon_t \qquad (3.8)$$

From the above equation it is observed that there is an increase in dispersion with respect to aggregate market. The aggregate market return will be higher when market is progressing and will be low when marketing is declining.

The herding regression is separately calculated for bullish and bearish market trends as. The equation can be written as:

$$CSAD_t^{Up} = \alpha + \gamma_1^{Up} | R_{m,t}^{Up} | + \gamma_2^{Up} (R_{m,t}^{Up})^2 + \varepsilon_t, \quad \text{if } R_{m,t} > 0 \qquad (3.9)$$

$$\text{CSAD}_t^{\text{Down}} = \alpha + \gamma_1^{\text{Down}} \mid R_{m,t}^{\text{Down}} \mid + \gamma_2^{\text{Down}}(R_{m,t}^{\text{Down}})^2 + \varepsilon_t, \text{ if } R_{m,t} < 0 \qquad (3.10)$$

In the above equation $R_{m,t}^{\text{UP}}$ and ($R_{m,t}^{\text{DOWN}}$) shows the equivalent market portfolio return at bullish and bearish trends. Whereas $(R_{m,t}^{\text{Up}})^2$ represents the square of equal weighted portfolio return for non-linearity in market returns. $\text{CSAD}_t^{\text{UP}}$ and $\text{CSAD}_t^{\text{DOWN}}$ at time t showing the results for rising and declining market returns

CHAPTER 4

RESULTS AND FINDINGS

4.1   Descriptive Statistics of Pakistani Mutual Fund Market

Results for Descriptive statistics of Pakistan's mutual fund industry are exhibited in Table 4.1. These findings are based on daily and monthly data which includes mean, standard deviation, min and max values estimated on the basis of CSSD and CSAD measures. This study uses daily and monthly data of 40 mutual fund companies based on net asset values. The sample was taken from the period of year 2013 to 2020.

Table 4. 1 Descriptive Statistics of Mutual Fund from 2013 to 2020

Sample	Variable	N	Mean %	Standard deviation %	Min %	Max %
Daily	$R_{m,t}$	2135	0.005	0.276	-3.484	3.654
	$CSSD_t$	2135	0.843	0.911	0.161	21.822
	$CSAD_t$	2135	0.512	0.368	0.117	6.94
Monthly	$R_{m,t}$	95	0.101	2.806	-9.583	5.916
	$CSSD_t$	95	4.042	2.530	1.533	16.32
	$CSAD_t$	95	3.028	1.757	0.992	11.98

It can be observed from the above table that the average for monthly return is greater as compared to daily. The variation increases with increase in the return interval. The magnitude of dispersion is lower for daily data. However, the estimated values show that mean and variability are higher for daily and monthly CSAD and they are lower for daily and monthly CSSD. The relation indicates and confirms the results of previous research. Their results confirmed that the

measurement of cross-sectional absolute deviation (CSAD) is less sensitive to abnormal returns which are known as outliers.

4.2 Evidence of Herding

In order to confirm the presence of herding regression analysis has been carried out. Initially cross-sectional standard deviation is measured at 5% criteria and then at 1% criteria. The rationale behind using 1% and 5% criteria is due to international standards and it is also taken on the basis of value at risk VAR .The results confirm the presence of herding in monthly data whereas no herding was observed on daily data. The purpose of using 5% and 1% criterion is to limit dummy variable. D_t^L is a dummy variable that takes the value of 1 if $R_{m,t}$ is located at lower end (5%, 1%) of the distribution of returns and 0 otherwise and D_t^U is a dummy variable that takes the value of 1 if $R_{m,t}$ is located at the upper end (5%,1%) of the distribution of returns and 0 otherwise.

4.2.1 Results; using CSSD extreme market movements

Table 4.2 exhibits the estimation of regression results for 40 mutual funds based of net asset values. Two sets of dummy variables (upper and lower) are formed that are D_t^U and D_t^L that explains the difference that occurs in the behavior of investors during extreme market movements. D_t^U will take the number 1 if the market returns will lie in the upper tail of return distribution. Similarly, D_t^L will take the value 1 if returns in market lie on extreme lower distribution. The upper tail of distribution belongs to positive movements and lower tail distribution belongs to negative movements in the market. These market movements are known as upward and downward movements. For estimations the methodologies of Christie and Huang (1995), Chang et al. (2000) and Gleason et al. (2004) are being used, for the limitation of dummy variables 5% and 1% criterion are used at 5% upper tail and 1% lower tail for the distribution of market returns. The finding

of this study is consistent with the findings of previous studies done by Chang et al. (2000). They found that there is no evidence of herding in US, Japan and Hong Kong. They found existence of herding in Taiwan and South Korea.

Table 4. 2 Panel a: Results; CSSD extreme market movements at 5% criterion

Sample	α	β_1^U	β_1^L	AdjR^2	F	Sig
Daily	0.485	0.477	2.102	0.356	591	0.00
t-stat	77.82	7.80	33.00			
p-value	0.00	0.00	0.00			
Monthly	3.684	1.564	5.239	0.211	13.59	0.00
t-stat	15.11	1.513	5.065			
p-value	0.00	0.13	0.00			

From the regression results, it is observed that coefficients provide positive and significant results. So, the rational of asset pricing model is also supported by these results. This study also provides evidence that dispersion increases with an increase in return interval. The individual returns are sensitive to market returns. However, the estimated values of coefficient for upside movement are equal to the downside movement. The results for 5% and 1 % are providing significant outcomes for daily data, whereas herd formation is observed in monthly results.

Panel b: Results; CSSD extreme market movements at 1% criterion

Sample	A	β_1^U	β_1^L	AdjR^2	F	Sig
Daily	0.83	1.301	4.689	0.277	408	0.00
t-stat	46.22	7.83	27.57			
p-value	0.00	0.00	0.00			
Monthly	3.039	0.012	-1.007	-0.018	0.159	0.852
t-stat	16.52	0.006	-0.565			
p-value	0.00	0.01	0.03			

The findings of monthly results are negative and significant which is providing evidence for the formation of herding. These results are supporting the findings of Christie and Huang (1995) which argued that in the presence of herding individual return dispersion decreases from market return. These findings are also supporting

the results provided by Tan et al. (2008) whether they found herding in Chinese A and B share securities. They argued that government own securities showed less herding whereas as privately owned securities showed more herding.

4.2.2 Results; using CSAD extreme market movements

For the estimation of regression results Gleason et al. (2004) model is used for extreme high and low market movements, however herding can also be measured by using CSAD instead of CSSD. The findings are same as reported in table 2. CSSD is taken as dependent variable. The positive and significant β_1 and β_2 illustrates the dispersion of individual fund return from market return, and confirms that there is no existence of herd formation in daily data. These results confirm the results estimated by previous studies that there is no herd formation. The findings from Table 4.2 and 4.3 provide confirmation that there is no existence of herding in Pakistan Mutual Funds on daily returns. It is also indicated by Christie and Huang (1995) that in extreme stock returns the positive and significant coefficients are supported by the asset pricing model.

Table 4. 3 Panel a: Results; CSAD extreme market movements at 5% criterion

Sample	A	β_1^U	β_1^L	AdjR^2	F	Sig
Daily	0.468	0	0.864	0.32	520	0.00
t-stat	72.22	65.53	29.81			
p-value	0.00	0.00	0.00			
Monthly	3.085	-0.251	-0.833	0.001	0.557	0.574
t-stat	16.10	-0.309	-1.025			
p-value	0.00	0.04	0.03			

Panel b: Results; CSAD extreme market movements at 1% criterion

Sample	A	β_1^U	β_1^L	AdjR^2	F	Sig
Daily	0.485	0.477	2.102	0.35	591	0.00
t-stat	77.82	7.80	33.56			
p-value	0.00	0.00	0.00			
Monthly	3.039	0.012	-1.001	0.003	0.159	0.852
t-stat	16.52	0.006	-0.565			
p-value	0.00	0.00	0.00			

It is observed from the above table that the coefficients of β1 and β2 are positive significant which also support the study of Guglielmo et al. (2008) that there is no evidence of herding behavior in daily data. The coefficients β1 and β2 are negative for monthly data confirms the existence of herding. When individual returns show herd around market return dispersions are predicted to be low. According to Asset Pricing Model these return dispersion will increase. In the above table there is an existence of herding in monthly data which are consistent with the findings of Lao and Singh (2011). They found herding inn Indian mutual fund managers due to information asymmetry. Economou, Philippas, and Caporale (2008) investigated that emerging markets are more involved in herding as compared to developed market.

4.2.3 Non-Linearity results; using CSSD and CSAD

In Table 4.4 the results are obtained by using model of Chang et al. (2000). It shows whole data based on daily and monthly which are incorporated in the results of regression equation. In this model, quadratic term is used to investigate non-linearity towards market deviation. In the model the coefficient γ_1 and γ_2 for daily and monthly data is positively significant and confirms that with the absolute market returns both CSSD and CSAD increases.

Table 4. 4 Panel a: Results of non-linear model using CSSD

Sample	A	γ1	γ2	AdjR^2	F	Sig
Daily	0.599	0.847	1.245	0.74	3149	0.00
t-stat	38.11	10.45	36.52			
p-value	0.00	0.00	0.00			
Monthly	2.461	0.572	0.040	0.31	22.96	0.00
t-stat	5.349	1.857	0.965			
p-value	0.00	0.00	0.03			

The results confirms that overall market is efficient, there is no existence of herding in daily data. These results are not in contradiction with the results of Riza Demirer et al. (2010), these results represent market efficiency and express the discrepancy. Moreover, evidence of herding is seen in monthly data.

Panel b: Results of non-linear model using CSAD

Sample	A	γ1	γ2	AdjR^2	F	Sig
Daily	0.331	0.907	0.282	0.76	3471	0.00
t-stat	54.14	28.75	21.25			
p-value	0.00	0.00	0.00			
Monthly	1.504	0.706	-0.005	0.41	34.46	0.00
t-stat	5.085	3.567	-0.196			
p-value	0.00	0.00	0.00			

The $term\ \gamma_2$ is negative for monthly data which shows that herding behavior exists in monthly data. It shows the existence of herd formation because at increasing rate market dispersion decreases. These findings are consistent with the findings of El-Shiaty and Badawi (2014) who observed herding behavior in Egyptian stock market by using CSSD and CSAD. The findings confirm that during market stress the investor's trade away in long run. Where as in monthly data market is inefficient and evidence of herding is found existence of herding in Saudi stock market Rahman, Chowdhury, and Sadique (2015).

4.3 Herding Behavior; Asymmetric Affect

Herding behavior arises due to information asymmetry. In this section the effect of herding is observed on market returns. When there is information asymmetry in the market investors will involve in herding and this will affect market returns. Herding is observed when market return is increasing on monthly and it is also observed when market is declining. For asymmetric affect bullish and bearish trends can be measured separately in two equations.

4.3.1 Market Returns

The result in Table 4.5 shows findings for the existence of herd formation during bullish and bearish market conditions. The coefficient γ_1 is significant for daily data which indicate that there is no evidence of herding in daily data.

$$CSAD_t^{Up} = \alpha + \gamma_1^{Up} |R_{m,t}^{Up}| + \gamma_2^{Up}(R_{m,t}^{Up})^2 + \varepsilon_t, \quad \text{if } R_{m,t} > 0$$

Table 4. 5 Panel a: Result estimation for bullish market conditions

Sample	A	γ_1^{up}	γ_2^{up}	AdjR^2	F	Sig
Daily	0.356	0.443	0.355	0.61	948	0.00
t-stat	46.46	10.40	20.47			
p-value	0.00	0.00	0.00			
Monthly	2.088	0.022	-0.086	14.29	27.04	0.00
t-stat	6.014	0.080	-1.696			
p-value	0.00	0.00	0.00			

The coefficient γ_2 is negative for monthly data which is the evidence for the formation and existence of herding. These results are consistent with the findings of Chang et al. (2000). They confirmed the formation of herding during market rising phase and market declining phase. The finding of F-stat provides highly significant results for daily as well as monthly data. The overall model is good fit. The coefficient is positive and significant for γ_1 which confirms the fact that there is no existence of herding in daily and monthly data, whereas γ_2 confirm herd behavior in monthly data during market rising phase.

$$CSAD_t^{Down} = \alpha + \gamma_1^{Down} |R_{m,t}^{Down}| + \gamma_2^{Down}(R_{m,t}^{Down})^2 + \varepsilon_t, \text{ if } R_{m,t} < 0$$

Panel b: Result estimation for bearish market conditions

Sample	α	γ_1^{down}	γ_2^{down}	AdjR^2	F	Sig
Daily	0.347	1.171	0.211	0.86	2918	0.00
t-stat	40.67	28.80	12.18			
p-value	0.00	0.00	0.00			
Monthly	1.129	1.350	-0.072	0.54	29.04	0.00
t-stat	2.720	0.00	0.04			
p-value	0.00	0.00	0.04			

It is confirmed that the coefficient γ1 is significant during bearish market trend for daily as well as for monthly data. Whereas, the coefficient of γ2 is negative and significant which is the confirmation of previous studies done by Economou et al. (2011) that there is formation of herding behavior in monthly data when market is declining. During the phase of declining herding behavior is more dominant because everyone wants save himself from low returns. Lao and Singh (2011) widely studied and concluded that herding is observed in emerging markets. There are certain reasons. The availability of information is low, less transparency, less acquisition of reporting and low regularity. Bikhchandani and Sharma (2000) argued that herding is more commonly observed in stocks that have small market capitalization and less availability of information. These results are also consistent with previous studies who found the existence of herding in bullish and bearish markets. Riza Demirer et al. (2010) also found existence of herding in Taiwan's bullish market as well. The existence of herding was also observed in Chinese market during decline period, whereas Indian markets showed herding during bearish trend as observed by Lao and Singh (2011).

There are two market movements that are called as bullish and bearish markets. Bullish market is defined as a market in which prices are generally expected to rise. Because prices of securities rise and fall essentially during trading, the term bull market is reserved for extended periods in which a large portion of security prices are rising. Whereas, in a bearish market price are generally expected to fall. The financial markets are greatly influenced by investors' attitudes, these terms also denote how investors feel about the market and the ensuing economic trends. The following equations are used to measure bullish and bearish trend.

$$CSAD_t^{Up} = \alpha + \gamma_1^{Up}\mid R_{m,t}^{Up}\mid + \gamma_2^{Up}(R_{m,t}^{Up})^2 + \varepsilon_t, \quad if \; R_{m,t} > 0$$

$$CSAD_t^{Down} = \alpha + \gamma_1^{Down}\mid R_{m,t}^{Down}\mid + \gamma_2^{Down}(R_{m,t}^{Down})^2 + \varepsilon_t, \; if \; R_{m,t} < 0$$

If $R_{m,t} > 0$ it signifies that the market is rising and if $R_{m,t} < 0$ it signifies that the market is falling.

CHAPTER 5

CONCLUSION

5.1 Key Findings

This study investigates the presence of herding behavior in Pakistan mutual fund industry. The analysis was fundamentally based on daily and monthly returns which substantiate the evidence that there is no possible existence of herding in daily data whereas monthly data provide substantial evidence of the existence of herding. The empirical results show that throughout the period of extreme market movement equity return dispersion seems to increase rather than taking a downward trend, which strengthen the arguments against herd formation. The findings of these results are consistent with those provided by Christie and Huang (1995) and provide support for the assumption of asset pricing model indicates the efficiency of market during extreme market movements. They also investigated existence of herding in equity returns. Due to formation of herding behavior the dispersion among individual return and market changes. Herding is usually an observable phenomenon which can be seen during unfavorable market conditions. Likewise, results based on Chang et al. (2000) model confirm that there is no evidence of herding during extreme market movements. The presence of non-linearity relationship is also found by using Chang et al. (2000) model and quadratic term is found significantly positive measure of dispersion.

According to the study of Chang et al. (2000), the presence of significantly negative non-linear coefficient confirms the presence of herd behavior in monthly data. Whereas significantly positive coefficient provides evidence that there is no existence of herding. Therefore, it may be said that there is no existence of any

herding behavior in daily data whereas it is confirmed in monthly data of Pakistan mutual funds. There are no market players in Pakistan in mutual funds industry. This might provide us with the reasons as the case for institutional investors who prefer not to involve in herding in short term, however they are more inclined to stay actively involved in herding in long term. Rıza Demirer and Kutan (2006) studied Chinese market and found no evidence for the existence of herd mentality. They also analyzed the existence of herding behavior in emerging markets and used Taiwan stock exchange for their study. They found strong evidence of herding in this market and gave reasons to substantiate their study that there is lack of diversification opportunities for investors and information is not available to everyone. Due to which investors are involved in herding behavior.

Lao and Singh (2011) came up with the conclusion that herding is related to market inefficiency because noise traders are involved in herding. On the basis of noise trading, traders take irrational decision which leads them to induce visibly sharp movement in security prices. According to the theory of CAPM, there is linear relationship between return dispersion and market return. In the absence of herding, a positive relationship is observed between return dispersion and market return. According to Christie and Huang (1995) in the presence of herding behaviour the return dispersion of securities decreases. The rational asset pricing model suggested that dispersion will increase with increase in market return.

Chang et al. (2000) and Lao and Singh (2011) widely studied and concluded that herding is observed in emerging markets. There are certain reasons. The chance for the availability of information is low, less transparency, less acquisition of reporting and low regularity. Bikhchandani and Sharma (2000) argued that herding is more commonly observed in stocks that have small market

capitalization and less availability of information. These results are also consistent with Ganesh, Naresh, and Thiyagarajan (2017) who found the existence of herding in Indian National Stock Market in bullish and bearish markets. Y.-F. Chen and Wang (2010) also found existence of herding in Taiwan's bullish market as well. Y.-F. Chen and Wang (2010) used cross sectional absolute deviation and found that herding is present in China when markets are facing rising trends. It is argued that herding is a behavior in which one mimics the behavior of other. There are certain reasons behind encouraging a herding behavior. One of the reasons is the information asymmetry due to which investors unintentionally follow others. The other reason is related to human psychology and past beliefs. People mostly follow their feelings and emotions rather than believing osn rationality. Some of the studies revealed that herding is not involved in deviation of security prices, but most of these studies confirmed that prices deviate from their fundamental values when investors are involved in herding behavior.

5.2 Policy Implications and Recommendations

For rational decision-making, herding should be given a thorough analysis that should cover all possible areas of future assessment. There are significant factors involved more actively behind the existence of herding which should be incorporated into an integrated mechanism to be considered as vital ingredients for future research. In this study the results of overall markets suggest that they are not in consistent with asset pricing model. This study has significant implications for investors, portfolio managers and risk managers. It facilitates in identification of potential risks and guides in devising appropriate strategy for investment in mutual fund industry. Similarly for appropriate valuation of assets investors should consider the role of herding in financial market and take their

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decision accordingly. Mutual fund provides diversification opportunities for portfolio managers they can diversify their investment in multiple funds and can enjoy the pool of resources. This study has also implications for risk manager professionals they can invest in mutual funds by capturing herding behavior properly. As asset prices may be misleading and markets are inefficient, therefore due care should be taken by local and foreign investors to avoid the chances of irrationality.

5.3 Future Research and Limitations

This study fundamentally examines herding behavior in Pakistan mutual fund industry focusing on the net asset values. Owing to lack of reliable data, other forms of herding are not fully concocted into this study. However, this study does provide an independent investigation into the scenarios like how future studies on herding and its impact on financial market in developing countries should be conducted and concluded. This study can also be buttressed by comparing Pakistan mutual fund industry with developed countries to find the rationale behind the very basic concept of materializing herding behavior. Similarly, future research scenarios should be developed primarily by considering an analysis that would aptly demonstrate the impact of individual and institutional investors on herd mentality. It has been widely observed that herding is considered to be treated in terms of behavioral dimension. Therefore, future studies should be focused and conducted to evaluate the relationship between herding behavior and different personality traits. Herding behavior should be studied on the basis of cross-cultural backgrounds. Similar studies should be extended to include developed countries as well.

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