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An Empirical Investigation on Behavioral Determinants of Perceived Investment Performance; Evidence from Karachi Stock Exchange

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Abstract
The study aims to explore behavioral determinants of perceived investment performance from Karachi Stock Exchange. Risk perception is mediating the process while financial literacy has moderation role in this study. Data are collected from the sample of 150 perceived investors of Karachi Stock Exchange. For the purpose of data collection study uses adopted questionnaire. Results are indicating that both framing and herding effects have a positive significant relationship with perceived investment performance. Mediation is not established and financial literacy shows moderating relationship with framing effect and perceived investment performance.
Keywords: Behavioral determinants, Risk Perception, Financial Literacy, Perceived Investment Performance, Pakistan

INTRODUCTION

There has been a plethora of research literature available on behavioral determinants of stock market investment performance in context of Western countries. It has also been documented in existing literature that individuals' behavior varies from context to context. People raised in Asian cultures trapped by behavioral biases more, than in Western cultures (Yates et al. 1989). Asian cultures tend to based on collectivist paradigm (Hofstede, 1984). It has been argued that collectivist societies cause individuals to be trapped more by behavioral biases (Kim & Nofsinger, 2008). Prior studies have also been documented that people are trapped by behavioral biases when they make stock market investments. Understanding of an investor's psychology helps better in understanding of investment decision making patterns (Sahi, Arora & Dhameja, 2013). Current study considers two behavioral determinants (herding and farming effect) to explore their influence on investment decision in collectivist culture of Pakistan.

Herding is a pattern of behavior that is correlated among individuals (Devenow & Welch, 1996). Banerjee, (1992) has also documented that people do as they see in their surroundings rather than using their own source of information. Herding or mimic behavior in stock markets is described as a behavioral tendency for an investor to follow the actions of other investor (Tan, Chiang, Mason & Nelling, 2008). While, framing effect means influencing human's judgments about a problem by framing it into positive or a negative ways. The usage of positive or negative framing has a considerable influence on information processing and how information is perceived and understood (Morris, Sheldon, Ames & Young, 2005). In prospect theory perspective, framing the same information in positive or negative ways, may systematically affect the action of decision maker (Tversky & Kahneman, 1986). An object is assessed more favorably when it is presented in a positive frame rather a negative frame in context of consumer research. For example, consumer's assessments are more favorable towards a beef product labeled "75% lean" rather one labeled "25% fat" (Levin & Gaeth, 1988). Similar findings have been documented in context of marketing, for example the use of pleasant music in a commercial can lead to a favorable image of product, although the music is irrelevant to the merits of the product (Gorn, 1982).

The current study attempts to address, unexplored area of Pakistan where influence of behavioral factors on investment performance may considerably high than Western countries due to collectivism. Because, in collectivist culture investor decisions are subjective to social influence and peer pressures rather processing of private information. It has been argued that stock market investment is influenced by social interaction (Hong, Kubik & Stein, 2004). The author of the view that individuals are trapped more by behavioral biases in collectivist cultures because of mimic behavior of individuals, social influence and family members or friends' pressure in making decisions. In context of Pakistan most if not all, investors tend to invest if family members or friends are investing in stock market rather processing their private information (herding behavior). Similarly, investors' judgments about a problem by framing it into positive or a negative ways is strongly influenced in Pakistani context because of the less sophisticated investors (framing effect). To authors' best knowledge, despite interest of researchers on behavioral determinants of stock market investment performance, the majority of studies conducted in Western countries, is limited in regions such as Pakistan. So it should be considered that how behavioral determinants influence investment decision making, in turn, how these decisions affect investors' stock market performance in collectivist societies, particularly Pakistan.

The author of the view that study on behavioral determinants of stock market investment performance is

important because, this study attempts to answer the following questions. How does noise (uninformed or herd) investor make investment decisions? How framing and herding biases influence investors' investment performance? Does risk perception mediate behavioral determinants and investment performance? Does investors' financial literacy moderate behavioral determinants and investment performance? The importance of current study is encouraged by the statement of De Bondt , Mayoral and Vallelado (2013), who were of the view that behavioral biases and social influence have received a great deal of attention and are extremely relevant topics to figure out what happens in financial markets. Furthermore, studies conducted in Western and some Asian countries cannot be generalized and may not necessarily have any application in context of Pakistan because of the difference in contextual paradigm and market dynamics. Hence, an attempt is being made to find out the behavioral determinants of stock market investment performance in context of collectivist society of Pakistan.

First part of the study is comprises of introductory text regarding behavioral determinants and their influence on perceived stock market investment performance. Second part gives insights into the existing literature and their findings. Third part is comprises of the data collection and methodology and finally, fourth part is of data analysis, interpretation, discussion and future research directions.

LITERATURE REVIEW

Relationship between Framing Effect and Perceived Stock Market Investment Performance:

Framing means the same event may be viewed in different ways by different people. Pessimists see the wine glass half empty while optimists see it half full (Mandel, 2001). One of the most commonly cited deviations from rational decision making is referred as framing effect, that is, the tendency for people to avoid risk when a decision is framed in terms of potential gains and to increase risk when a decision is framed in terms of potential losses (Kahneman & Tversky, 1979). In generating predictions dependable with the framing effect, prospect theory propose that individuals frames decisions with respect to a reference point, so that the marginal utility decreases as the outcome of decision deviates from this reference point (Tversky & Kahneman, 1991). In simple words it is to be said that people tend to perceive outcomes as gains or losses frame rather final states of wealth and also these gains or losses are defined in relation with a reference point. Individual adopts a risk-seeking behavior when their outcomes are below the target level and risk-aversion behavior when their outcomes are above the target level (Fiegenbaum, 1990). Framing effect assumes that people make decisions after weighing the risks and payoffs associated with possible choices (Loewenstein, Weber, Hsee, & Welch, 2001). , Simply, when investor makes their decisions after weighing the risks and rewards associated with given choices then this behavior ultimatly influences their decisions making and investment performance. Hence, it is assumed that:

Hypothesis 1: Framing Effect has a significant influence on perceived stock market investment performance.

Relationship between Herding Effect and Perceived Stock Market Investment Performance:

In a number of social and economic situations individuals are influencing by others regarding decision making. Herding behavior explains in better way that how individuals are influencing by others in making decisions. Herding can be defined as people will do what others are doing rather processing their private information (Banerjee, 1992). There are to views about herding behavior; rational herding and irrational herding. In case of irrational herding individual investors disregard their prior beliefs and blindly follows the action of others (Welch, 2000). Contrary, rational herding view focuses on the principal-agent problem in which managers follow the actions of others and ignore their private information in order to maintain their reputation in market (Scharfstein & Stein, 1990). Current study is focusing on irrational herding behavior of individual investors rather than rational herding behavior of managers.

Existing literature has been documented four models regarding herd behavior; first set of herding models is called Information-Based Herding and Cascades, which occurs when it is optimal for individual to observed the actions of others, those ahead of him rather own private information in making decisions (Bikhchandani, Hirshleifer & Welch, 1992). The second model is called Information Acquisition Herding, based on the notion that investors decides to follow the same source of information or same set of stocks. Early informed investors (who discover the information) trades aggressively in initial period and takes reverse position in next trading period for getting profits from reverse position and late informed (noise) traders appears to follow the leaders (Hirshleifer , Subrahmanyam & Titman , 1994). Third model is known as Principal-Agent Based Model of Herding, developed by Scharfstein et al. (1990), they were of the view that when principals are uncertain about the ability of agents in picking right stocks, under such circumstances, agents or managers simply mimic the investment decisions of other managers or agents instead of using their private information. Fourth model discusses that institutional investors share preferences towards stocks with certain attributes such as liquidity, riskiness and size (Gompers &Metrick, 2001). The preference of stock with similar attributes encourages the institutional investors to follow each other in making decisions about stocks (Sharma, 2004).

Herding behavior depends on investors' types, volume of stocks to trade, buying and selling of stocks and

speed of herding. Individual investors have tendency to follow the masses' action in making investment decision more than institutional investors (Goodfellow, Bohl & Gebka, 2009). Investors' decisions of buying and selling, choice of stocks and volume of stocks to trade influences by others. The buying and selling decisions are significantly influences by herding but choice of stocks and volume of stocks to trade are seem to be less influences by herding (Waweru, Munyoki & Uliana, 2008). Herding dimensions like choice of Stocks, volume of stocks, buying and selling, speed of herding do not have positive significant influence on investment performance (Kengatharan & Kengatharan, 2014). If market participants follow the masses' action, the volatility of returns might be forced, which results in destabilizing financial markets specifically during a crisis situations (Demirer & Kutan, 2006). Hence, it is assumed that:

Hypothesis 2: Herding effect has a significant influence on perceived stock market investment performance.

Mediating Role of Risk Perception between Framing Effect and Perceived Stock Market Investment Performance:

Risk perception has been defined as a decision maker's estimation of the risk inherent in a situation (Sitkin & Pablo, 1992). Most of scholars who have studied individual's decisions making behavior found contradictory results about risk perception and framing effect. In conclusion of prospect theory, negatively framed situation leads to risk seeking behavior while positively framed situation leads to risk aversion due to protecting prior gains. However, several studies have contradiction with these results. The outcomes of an individual's prior risk seeking behavior leads to future risk behavior (Osborn & Jackson, 1988). It is to be said that whatever the situation (negatively or positively framed) is, individuals' past risk seeking behavior leads to future risk behavior. If individual has risk taking behavior in past, in future his behavior will be risk taking and vice versa. Similar finding that have contradictory results with prospect theory conclusion as when individuals are threatened by losses then they become risk-averse (Staw, Sandelands & Dutton, 1981). Though, these scholars have contradictions but their studies are showing a relationship between risk behavior and framing effect. Risk is inherent feature of all investment decisions (Sachse, Jungermann, Belting, 2012). The crux of assets pricing models is that the risky portfolio yields higher return and vice versa (Walia & Kiran, 2009). The existing studies are showing a relationship between risk perception and framing effect. Hence, it is assumed that:

Hypothesis 3: Risk perception has a mediating relationship in framing effect and perceived stock market investment performance.

Mediating Role of Risk Perception between Herding Effect and Perceived Stock Market Investment Performance:

Risk perception has also been defined as an assessment of individual that how risky a situation is in terms of probabilistic estimates (Bettman, 1973). When the investor wants to invest a large sum of capital then he/she tends to follow the other investor's actions to reduce the risks (Ngoc, 2013). In stock market, herd investors' decisions regarding buying and selling usually based on masses' decisions rather processing private information, this behavior of investors cause stock prices to deviate from their fundamental or intrinsic values. The deviation from fundamental value or market inefficiency does not explained by rational models of asset pricing. Stock price changes due to herding and also influences the characteristics of risk and return model of asset pricing (Tan et al. 2008). In case of herding because of imitated masses' action, investors do not make informed decisions and also determination of their expected returns deviates from equilibrium model like Capital Asset Pricing Model (Prosad, Kapoor & Sengupta, 2012). Existing studies are showing a relationship between risk perception and herding effect. Hence it is assumed that:

Hypothesis 4: Risk perception has a mediating relationship in herding effect and perceived stock market investment performance.

Moderating Role of Financial Literacy:

Financial literacy has been defined as the ability to make educated decisions about using money in the present and in the future (Hetling & Postmus, 2014). In current study financial literacy facilitating the relationship of independent variables (framing effect and herding effect) and dependent variable (perceived stock market investment performance). Herding behavior is reasonable for less sophisticated investors to imitate market gurus or to seek advice from victorious investors, when using their private information incurs more cost (Amirat & Bouri, 2009). Less sophisticated investors' earnings judgments are more influenced by positive framing than highly sophisticated investors (Zhou, 2013). It has also been argued that financial literacy refers to a person's capability for managing money (Remund, 2010). The ability of consumers to make informed financial decisions improves their ability to develop sound personal finance (Klapper, Lusardi & Panos, 2013). Financial literacy benefits the consumers in making investment decisions by allowing them to increase the returns on wealth (Jappelli & Padula, 2013). Prior literature is showing the facilitating role of financial literacy with behavioral factors and investors' decision making. Hence, it is assumed that:

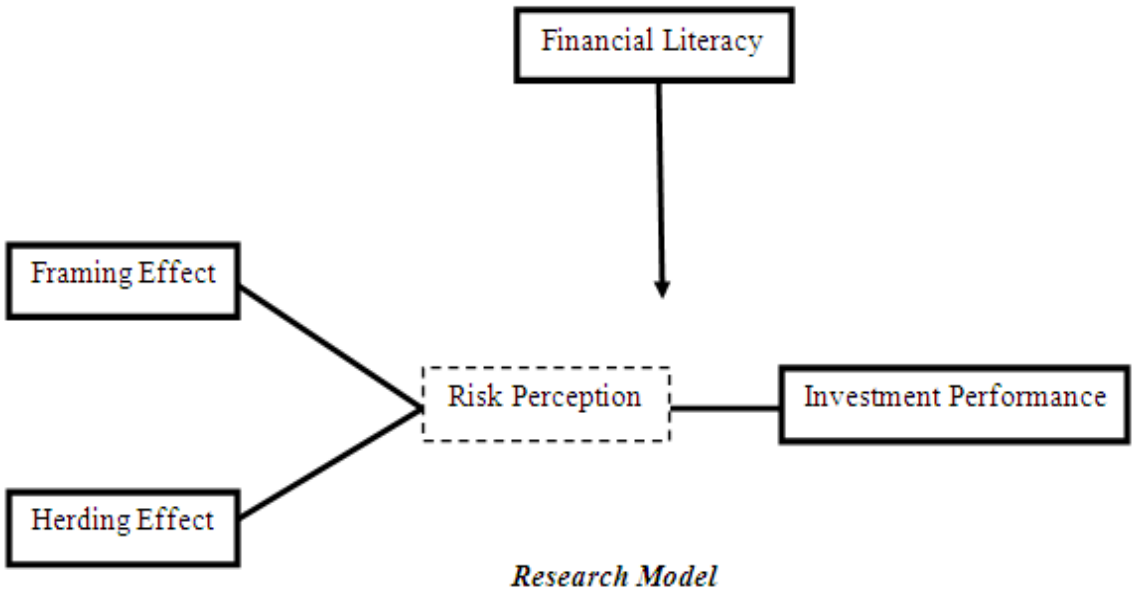
Hypothesis 5: Financial Literacy has a moderating relationship with framing effect and perceived stock market investment performance.

Hypothesis 6: Financial Literacy has a moderating relationship with herding effect and perceived stock market

investment performance.

THEORATICAL FRAMEWORK

The research model of current study considers two independent variables i.e. framing and herding effect, while perceived investment performance as dependent variable. Risk Perception is mediating the process, while financial literacy has a moderating role for independent and dependent variables.



Research Model

RESEARCHMETHODOLOGY

Sample Characteristics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Framing Effect	150	2.25	4.35	3.50	0.58
Herding Effect	150	1.33	4.33	3.23	0.87
Risk Perception	150	2.36	4.14	3.55	0.47
Financial Literacy	150	2.14	4.29	3.68	0.59
Perceived Investment Performance	150	1.67	5.00	3.82	0.88

The descriptive statistics shows that mean range from minimum value of 3.23 (herding effect) to maximum value of 3.82 (perceived investment performance). Standard deviation which is the measure of dispersion or deviation from mean range from 47% (risk Perception) to 88% (perceived investment performance). Furthermore, the sample includes, 68.7% (n=103) males and 31.3% (n=47) females. Sample is a reasonable blend of different age groups as 42.7% (n=64) are between the age of 18-25 years old, 45.3% (n=68) are between the age of 26-33 years old and 12% (n=18) are between the age of 34-41years old. Sample includes the participants with average qualifications as 41.3% (n=62) holding Bachelor degree, 44.7% (n=67) holding Master degree, 8.7% (n=13) holding MS/M-Phil degrees and 5.3% (n=8) holding PhD degree, As for as experience is concerned 81.3% (n=122) are having experience between 5 and Less years, 15.3% (n=23) are having experience between 6-13 years and 3.3% (n=5) are having experience between 14-21 years. Finally, convenience sampling technique is used for data collection and the demographics (gender, age, qualification and experience) are taken as controlled variables.

Measures

Primary data are collected by using five point likert scale questionnaire with 1 representing “strongly disagree” and 5 representing “strongly agree”. The overall reliability of instrument is 0.92. Questionnaire regarding investment performance is adopted from (Kengatharanet al. 2014), having three items with reliability value of 0.63. Representative items are:

Item 1: The return rate of your recent stock investment meets your expectation.

Item 2: Your rate of return is equal to or higher than the average return rate of the market.
Questionnaire regarding risk perception and financial literacy are adopted from (Barbara, 2007), each of which having fourteen items with reliability values 0.66 and 0.82 respectively. Some representative items are:
Item 1: I usually have a fear to invest in stocks that have a sure gain.
Item 2: I am hopeful when undertaking investment in stocks that have exhibited a sure loss.
Item 1: I am somewhat knowledgeable of stock market activities on the KSE.
Item 2: I usually follow the stock market through financial news on TV at least twice a week.
Questionnaire for herding effect is adopted from (Ngoc, 2014), having three items with reliability value of 0.45. Representative items are:
Item 1: Other investors' decisions of the stock volume have impact on your investment decisions.
Item 2: Other investors' decisions of buying and selling stocks have impact on your investment decisions.
Questionnaire regarding framing effect is adopted from (Johnson, 2009), having ten items about a given situation with reliability value of 0.87. Some representative items with given situation are:
Situation: Imagine that you have Rs. 12, 000 invested in each Company's stock. A downturn in the economy is occurring. You have two investment strategies that your broker has recommended to preserve your capital. Two strategies have the same associated commissions and fees:
Item1: Strategy A: Rs. 2,000 of your investment is saved.
Strategy B: 1/6 chances that the entire Rs. 12,000 investment will be saved and a 5/6 chance that none of the Rs. 12,000 will be saved.
Item 2: Strategy A: Rs.10, 000 of your investment is lost.
Strategy B: 1/6 chances that none of the Rs. 12,000 investment will be lost, and a 5/6 chance that all Rs. 12,000 will be lost.

Procedure

An adopted questionnaire is used for the purpose of data collection. Initially, 280 questionnaires are distributed directly to respondents, only 150 responses in complete are returned, with a response rate around 54%. Overall, data are collected in one month from respondents.

DATA ANALYSIS

Table 1
Correlation Analysis

Variable	1	2	3	4	5
1.Framing Effect	1				
2.Herding Effect	.03**	1			
3.Risk Perception	.42**	.38**	1		
4.Financial Literacy	.02**	.04**	.27**	1	
5.Perceived Investment Performance	.48**	.44**	.37**	.21**	1

N=150; *P<0.05 and **P<0.01**;**. Correlation is significant at 0.01 level (2-tailed).
*. Correlation is significant at 0.05 level (2-tailed).

Results indicate a statistically significant positive relationship of framing effect with risk perception (.42**), financial literacy (.02**) and perceived investment performance (.48**). Herding effect also has a statistically significant positive relationship with risk perception (.38**), financial literacy (.04**) and perceived investment performance (.44**). Risk perception has a significant positive relationship with financial literacy (.27**) and perceived investment performance (.37**). Finally, financial literacy shows a significant positive relationship with perceived investment performance (.21**).

Table 2
Regression Analysis for Outcomes

Predictors	Perceived Investment Performance		
	β	R^2	ΔR^2
Step1			
Control Variables		.02	
Step2			
Framing Effect	.64***		
Herding Effect	.40***		
Risk Perception	.28	.50	.47***

N=150; P< .10; *P< .05; **P<.01;***P<.001

Above result shows regression analysis for outcomes and performed in two steps to formally test the hypothesis. Gender, age, qualification and experience are entered as control variables in first step and only value of R^2 is reported. In second step, framing effect, herding effect and risk perception are regressed on Perceived Investment Performance. The value of R^2 = .50 shows that about 50% of variation in perceived investment performance is caused by framing effect, herding effect and risk perception collectively. In other words,

perceived investment performance is 50% explained by framing effect, herding effect and risk perception collectively but remaining 50% is not captured in this model and need to be explored. The values of independent variables, framing effect (β=.64) and herding effect (β=.40) shows that one point change in framing and herding effects would bring 0.64 and 0.40points change respectively in perceived investment performance. Furthermore this relationship is statistically significant. Hence, the first and second hypothesis (H1 and H2) are accepted.

Table 3
Mediated Regression Analysis

Predictors	β	R^2	ΔR^2
Step1			
Control Variables		.18	
Step2			
Framing Effect to Risk Perception Path	.37***		
Herding Effect to Risk Perception Path	.20***	.55	.37***
Step1			
Control Variables		.02	
Step2			
Risk Perception to Perceived Investment Performance Path	.28	.50	.011
Step1			
Control Variables		.02	
Step2			
Framing Effect to Perceived Investment Performance Path	.75***		
Herding Effect to Perceived Investment Performance Path	.46***	.49	.46***

N=150; P < .10; *P < .05; **P < .01;***P < .001

Above result presents Mediated Regressions Analysis, in which gender, age, qualification and experience are entered as control variables in first and third steps (*Independent Variables to Mediator Path*) and (*Independent Variables to Dependent Variable Path or Direct Path*), while in second step (*Mediator to Dependent Variable Path*), demographics as well as independent variables entered as control variables. In second step of mediated regression (*Mediator to Dependent Variable Path*) result indicates (β=.28, with insignificant value in table 3). According to Baron and Kenny (1986) mediation cannot run, if three conditions are not fulfilled. Hence, third and fourth hypothesis (H3 and H4) are rejected.

Table 4
Moderated Regression Analysis

Predictors	Perceived Investment Performance		
	β	R^2	ΔR^2
Step1			
Control Variables		.02	
Step2			
Framing Effect	.07		
Herding Effect	.08		
Financial Literacy	.97***	.58	.55***
Step3			
Framing Effect *X* Financial Literacy	-1.1***		
Herding Effect *X* Financial Literacy	.12	.68	.10***

N=150; P< .10; *P< .05; **P<.01;***P<.001

Result of Moderated Regression Analysis indicates that financial literacy moderate the relationship between framing effect and perceived investment performance (β=-1.1, with significant value). Hence, hypothesis five (H5) is accepted. On the other hand result also indicates that financial literacy does not moderate the relationship between herding effect and perceived investment performance (β=.12, with insignificant value). Hence, hypothesis six (H6) is rejected.

DISCUSSION

The findings of present study indicate that value of R^2 = .50 or only 50% variation in dependent variable is explained by all independent variables, while remaining part is not captured by this model. Result also shows that hypothesis one, two and five are accepted, while hypothesis three, four and six are rejected. The first hypothesis is that, framing effect has a significant influence on perceived stock market investment performance. Current study has a consistent results with the finding of Kahneman et al. (1979), they were of the view that when a situation is described in loss frame, then investors become risk seekers and vice versa. The reason of similar findings with existing literature is that, investors in Asian countries are mostly gamblers or risk seekers. Hence, when a situation is described in a loss or negative frame, investors become risk takers. When an investor

takes more risk he/she will get more return as discussed by Markowitz (1952) and Sharpe (1964) in their risk and return relationship models. Second hypothesis of the study is that, herding effect has a significant influence on perceived stock market investment performance. The results of current study are similar with the findings of Latief and Shah (2014**).** They were of the view that herding has a significant positive relationship with perceived stock returns in Pakistani stock market. The reason of significant influence of herding behavior on perceived stock market investment performance is that, in collectivist societies (*as Pakistani culture*),investors' decisions subjective to social influence, family members and peer pressures rather processing of their own private information. The third and fourth hypotheses are about mediating relationship of risk perception between independent variables (*Framing and Herding Effect*) and dependent variable (*Perceived Stock Market Investment Performance*). Both the hypotheses are rejected in current study. The reason for hypotheses rejection is that, in collectivist societies individuals decision process is influenced by social interaction of family members and peers and hence investors usually ignores the consequences of risk inherent in investment. Secondly, noise or uninformed investors makes decisions after the actions of informed investors in stock market and they think their information is correct but actually they are trapped by asymmetry of information. Hence, due to asymmetry of information, investors trapped by behavioral biases which in turn influence the investment performance. So it can be concluded that in collectivist societies decision making based on social interaction by ignoring risk and asymmetry of information plays an important role in behavioral biases and investment performance rather risk perception. Hypothesis five of the study is that, financial literacy has a moderating relationship with framing effect and perceived stock market investment performance and indicates consistent result with the findings of existing literature. The reason of this moderation is that, the sample of the current study is university students who have high sophistication level. Hypothesis six of the study is that, financial literacy has a moderating relationship with herding effect and perceived stock market investment performance, but it is rejected. The reason of hypothesis rejection is cultural differences in Western and Asian countries particularly Pakistan. Because in collectivist societies herding behavior is considerably high and in case of herding, investment decisions based on social interactions and peer's pressure whatever the literacy level is, it does not matter.

FUTURE RESEARCH DIRECTIONS

The current study can helps future research in following ways. Firstly, this research is an investigation into individual investors, not institutional investors regarding stock market investment. The further research studies are suggested to apply behavioral determinants of investment performance for institutional investors in context of stock markets. Secondly, future research studies can be conducted to confirm the findings of this research with the larger sample size and the more diversity of respondents. Also, R square in regression analysis for outcomes, indicates that only 50% variation in dependent variable is explained by independent variables, remaining part is not captured bythis model. Therefore, future research studies are suggested to explore remaining behavioral factors that influence investment performance in context stock market.

LIMITATIONS

There are few limitations to this study. As this study measures only two behavioral determinants (*framing and herding effect*) of perceived investment performance in context of stock market, other determinants should also be studied. Secondly, this study is conducted with a small sample size and future researchers should use large sample size to make the study more significant. Thirdly, due to time constraints, data are collected through questionnaire method, future research studies are suggested to use mixed method for more reliability of data.

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