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Risk Perception is a Mediator between Cognitive Biases and Risky Investment Decision: Empirical Evidence from Pakistan's Equity Markets

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Abstract

Investors play a vital role in stock exchange. Sometimes the decisions are based on rational behavior and sometimes these decisions consist of irrational behavior. Traditionally researchers argued that investors behave like a rational agent.

Objectives

This study explores the investor's cognitive biases and how these biases put effect on investor decision. At the same time due to globalization stock market situation is changed day by day even after few seconds. The research examined and explored the impact of cognitive biases on risky investment decision and foremost intention of this study to check the effect of cognitive biases on risky investment decision while mediating role of risk perception. There are numerous biases which are putting effect on investor decisions but this study explores the individual and combined effect of two biases i.e. heuristic and overconfidence on risk perception, which is mediating variable and also examined the effect of these two cognitive biases on risky investment decision.

Place of the Study

This study is conducted at Pakistan stock Exchange

Subject and Method

As this study belongs to the behavior of investor so it comprise of primary data. For this purpose adapted questionnaire is used. 450 questionnaires are distributes out of which 400 questionnaires are returned. The data is run on SPSS. To check the reliability of questionnaire, Cronbach's alpha is applied and the result of reliability is above than 0.7 which is considered to be fit tool for research. Descriptive statistics are used to check the frequency of each respondent towards their age, business tenure and respective stock exchange and regression is used to check the cognitive biases on risky investment decision. Baron and Kenny is used to check the mediating effect of risk perception.

Results & Conclusion

The study finds a significant relationship between cognitive biases (heuristic and overconfidence) and risky investment decisions. There is partial mediation between overconfidence and risky investment decision and full mediation between heuristic and risky investment decision while risk perception is a mediating variable. Study also indicates that risk perception have also positive and significant relation on risky investment decisions.

Keywords: Biases, Heuristic bias, overconfidence bias, risk perception, risky investment decision

INTRODUCTION

The investment in the stock market is a complex and important process for an ordinary person. Whenever a person or an investor wants to take a decision about how, where and why to invest in the stock market, there are several reasons which are effecting their behavior (De Bondt, Mayoral, & Vallelado, 2013)

Nowadays a study is being used to take better decisions about the investment in the stock market. This study is called behavioral finance. Behavioral finance shows how individual investors interpret and judge the information to take risky investment decisions. Behavioral finance defines the mental abilities which are about attention, Memory, reasoning, problem solving, decision making and comprehension. In psychology cognition is related to mind, thinking and intelligence. In simple words we can say that cognition is related to the higher mental process such as thinking, feeling, logical ability, analytical ability, problem solving and decision makes(Duclos, 2015).

Study of behavioral finance shows the impact of psychology on the performanceand abilities of investors and it is important to study because it shows the main factors behind market inadequacy. Investor's decisions are reflected by the cognitive errors, feelings and emotions and these behavioral actions urge a investor to take decision. Bias is leaning of character to present a viewpoint often accompanied by rejection consider the possible alternative view. People are biased toward individual, race and nation (Ehrlinger, Mitchum, & Dweck, 2016)

The purpose of this study is to investigate those factors and biases which are effecting to investors while they are making risky decisions. Most of the studies explore the portfolio decisions but there is a lack of activity to investigate the biases who are effecting to risky investment decision. This study explore those biases which are effecting to risky investment decision while risk perception playing as a mediator between cognitive biases and risky investment decision.

Prospect theory

Develop an alternative model which explains the risk in a different way. Prospect theory explains that potential outcome before reaching the final outcome(Tversky, Kahneman, Series, & Sep, 2007)

Significance of the study

In the present study, it is investigated that individual investors decisions are usually based on income, investment portfolio, and other demographic factors. In past, impact of behavioral and cognitive biases aspect on risky decision making specially ignored. The objective of this paper is to explore the impact of behavioral factors and investor's psychology on investors decisions, and to examine the role of risk perception as mediator.

LITERATURE REVIEW

Cognitive biases

The developed market practices is positively related to emerging and diversified market .Firms' entry and survival in developed markets are features that are same in both the markets. However, cognitive biases are the biases that directly linked with the roles that are being played by other type of experience and knowledge(Yang, 2013)

Overconfidence

Overconfidenceis one of the major biases that distress the judgment of investor as well as business world. People are usually inclined to overestimation that are related to one own personality. They overestimate their abilities and evade consulting others in decision making practice. Such people totally rely on their abilities(Grégoire, 2016)

Heuristic

The concept of uncertainty and risk always go hand in hand. Heuristic judgment constitutes the only practical way to evaluate uncertain elements(Maldonato, Dell'Orco, Moldonato, & Dell'Orco, 2011)

Risky investment

The subjective judgment and thinking of customer and market situation is not only affected to investor but it also affect to company(Shavit, Giorgetta, Shani, & Ferlazzo, 2010)

Risk perception

Risk perception determines investor'sopinion when they evaluate pervious or how risk is associated with investment(Scholtus, Dijk, & Frijns, 2014)Thus investor's opinion is totally linked the risk perception they possess.

Risky investment decision

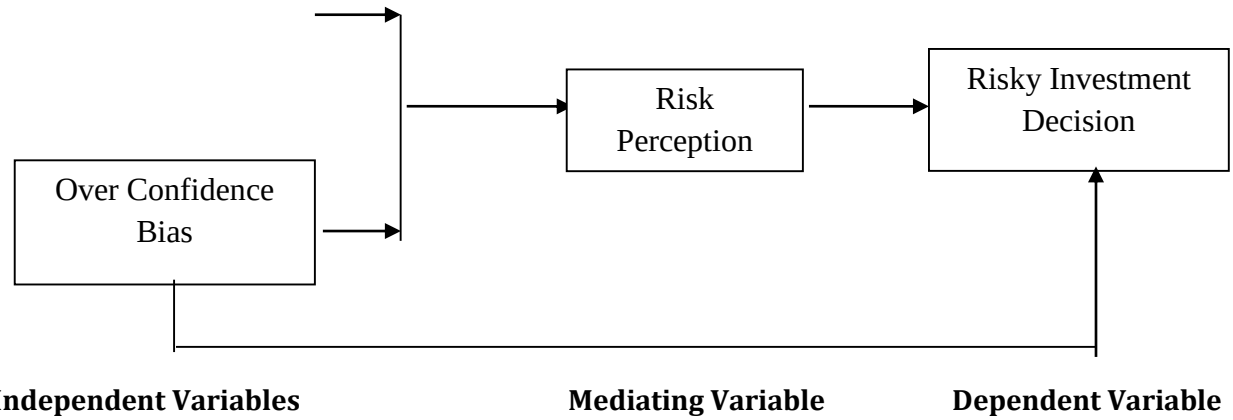
A study is conducted by at South Korea in field experiment to evaluate that how stock prices influence investors trading decisions and investment performance. Questionnaire is distributed to 550 respondents. Researcher argued that investors who have stronger confirmation bias having greater overconfidence.Such kind of investor has higher expectations about stock prices and they trade frequently but get lower realized returns. The rate and degree of overconfidence and perceived competences of investors, subsequently effects investors trading patterns, frequency and performance(Asadullah & Kundi, 2013)

(Sahi, Arora, & Dhameja, 2013) conducted a study. 250 questionnaires were distributed to investors out of which 178 were considered as worth full. Data was analyzed through one sample t-test and Pearson correlation coefficient techniques to check the relationship between the variables.Results show that the most of biases are significant and they have positive relationship with market development and decision making.

Objectives of the study

- To discover the effect of Heuristic and Overconfidence on risky investment decision.
- Effect of risk perception as a mediating variable between cognitive biases and risky investment decision.

Conceptual Framework



Theoretical Framework depicts the cause and effect relationship between cognitive biases and risky investment decision while risk perception playing as a mediating variable.

Hypotheses of the Study

H1: There is a significant relationship between Overconfidence and risky investment decision

H2: There is a significant relationship between Heuristic and risky investment decision.

H3: There is a significant relationship between risk perception and risky investment decision.

H4: There is a significant relationship between Cognitive biases and risk perception.

H5: Risk perception is a mediator between cognitive biases and risky decision making.

RESEARCH METHODOLOGY

This study is based on primary data. Questionnaires are personally handed over to the respondents for getting their responses. 450 questionnaires were distributed in between investors. 420 questionnaires are collected and while entering the data it was viewed that 400 questionnaires are properly filled. The variables items were measured by a 5point like scale. 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. The technique which is used in the present study is random sampling technique.

Population and Sample

The population of this survey is investors which belongs Pakistan stock exchange. There are more than 1200 companies registered in Pakistan stock exchange and also existing number of brokerage houses who are providing the facilities to investors to make investment in different stock exchanges.

Reliability (Scale Development)

Reliability is a method which is used to check the internal consistency between the items. Reliability indicated about that either researcher can rely on the responses of respondents or not.

Reliability Statistics

	Cronbach's Alpha	No. of items
Heuristic	0.788	06
Risky investment decision	0.712	05
Risky Perception	0.832	04
Overconfidence	0.991	03

RESULTS AND DISCUSSION

Descriptive analysis

Gender response rate

Gender	Frequency	Valid percentage	Cumulative percentage
Male	357	89.25	89.25
Female	43	10.75	100
Total	400	100	

Investors who are male are more willingly to invest into share as compared to female. Out of 400 investors 357 are men and 43 individual investors belong to female category. The response rate of male is 89.25% on the other hand response rate of female investors are 10.75%.

Correlations

		Heuristic Bias	Over Confidence	Risk Perception	Risky Investment Decision
Heuristic Bias	Pearson Correlation	1	.732**	.863**	.797**
	Sig. (2-tailed)		.000	.000	.000
	N	400	400	400	400
Over Confidence	Pearson Correlation	.732**	1	.906**	.788**
	Sig. (2-tailed)	.000		.000	.000
	N	400	400	400	400
Risk Perception	Pearson Correlation	.863**	.906**	1	.922**
	Sig. (2-tailed)	.000	.000		.000
	N	400	400	400	400
Risky Investment Decision	Pearson Correlation	.797**	.788**	.922**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	400	400	400	400

**. Correlation is significant at the 0.01 level (2-tailed).

Table depicts the correlation between independent variable, mediating and dependent variable. There is a significant relationship between heuristic bias and overconfidence bias. High correlation (0.906) exist between risk perception and overconfidence bias

Regression analysis was used to measure and check the relationship and intensity between independent variables and dependent variables, either there is any significant or insignificant relationship; independent variables have on dependent variable.

Mediating Effect

Baron and Kenny, (1986) is used to check the mediating effect of risk perception. Regression analysis is used to check the individually independent variable affect and combined (heuristic and overconfidence) affect on risky investment decisions by Baron and Kenny four steps.

Heuristic and risky investment decisions

Heuristic is a cognitive bias, which is independent variable and risky investment decision is dependent variable.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.397[a]	.158	.155	.61861	1.118

a. Predictors: (Constant), Heuristic Bias

b. Dependent Variable: Risky Investment Decision

R Square measures the combined effect of all predictors on dependent variable. Value of R-Square depicts that 15.8% heuristic bias is affecting to risky investment decision and Durbin Watson value is 1.118 which shows satisfactory results.

Overconfidence and risky investment decision

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.788[a]	.622	.621	.41456	1.372

a. Predictors: (Constant), Over Confidence

b. Dependent Variable: Risky Investment Decision

R-square value shows that 62.2% overconfidence affecting to risky investment decision while 37.8% other variables are affecting to risky investment decision. R value represents the coefficient correlation between these two variables. Value of Durbin-Watson is also shows the satisfactory results.

Biases and risky investment decision

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.666[a]	.443	.442	.50303	1.903

a. Predictors: (Constant), Biases

b. Dependent Variable: Risky Investment Decision

R-Square value (0.443) depicts that independent variables (heuristic and overconfidence) have 44.3 % affect on risky investment decision .There is no autocorrelation as Durbin Watson value is 1.903.

Biases and risk perception

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.769[a]	.591	.590	.41354	2.903

a. Predictors: (Constant), Biases

b. Dependent Variable: Risk Perception

R-Square value (0.591) depicts that independent variables (heuristic and overconfidence) have 59.1% affect to risk perception and correlation coefficient value is 0.769 which also shows that there is strong relationship between cognitive biases and risky investment decision

Effect of biases and risk perception on risky investment decision

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.925[a]	.855	.854	.25677	1.684

a. Predictors: (Constant), Biases, Risk Perception

b. Dependent Variable: Risky Investment Decision

R-Square value (0.855) shows that 85.5% risk perception and cognitive biases affecting to risky investment decision and 14.5% other variables affecting to risky decisions. Correlation coefficient value shows that there is a strong positive correlation. Combined effect of Biases and risk perception on risky investment decision is 85.5% which predict significant effect on an investor.

CONCLUSION

Investors while taking investment decisions must consider these biases as risk factor associated with their investment portfolios. So there is a need to understand, utilization and interpret of these two biases This research will help them to judge investors attitudes towards risk with a new perspective, and in a better way, thus leading to better investment decision making.The present study is also helpful for investors to aware about the consequences of their demographic roles and behaviors regarding risky investments thathow business tenure effecting to their investment decisions. Understanding of the cognitive biasesplaying vital role, especially when there is prevailing uncertainty in the market. The current study will increase the confidence of individual investors to prefer risky investments by providing them guidance that how to control the constraint factors to achieve higher returns and secure their capital. Emotional and personality factors need to be incorporated in the investment strategies formulated for individual investors.

Findings and limitations

It is common human tendency to make investment decision which give huge returns and safe investment. Previous studies concluded that traditionally an investor decisions are based on rational. Only market forces and factors affecting and influence to investors to take decisions. Behavioral finance advances the concept that investor's perception is based on some psychological thinking and beliefs. Investor's decisions are not based on the market situation and forces.

This study only check the affect of two cognitive biases heuristic and overconfidence on risky investment decision and role of mediating on risky investment decision. There are several other biases which are affecting to investment. Some biases are relates to own mental capabilities and some relates to thinking level of an investor's. It is difficult to access and know the each and every investor behavior because behavioral finance is based on the personal observations and thinking and decisions made by the investors depends on the biases.

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