

Behavioral Finance Biases in Investment Decision Making

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Abstract: Traditional finance suggests that investments made by rational behaviors investors examine risk and return before decision making to gain maximum profit later behavioral finance challenge traditional finance and introduce psychological factors affect decision making. The aim of this research paper is to explore how behavioral biases affect investment decision making under uncertainty. Dependent variable investment decision making is a composite activity, it never be made in a vacuity by depending on personal resources. Based on this study investment choices alternatives influence by human rational and irrational behavior, therefore, examine the impact of behavioral finance in the decision-making process. Behavioral finance phenomenon variables; heuristic, prospects, personality characteristics, feeling, moods and ecological factors explore under this research. Overconfidence, Representativeness, Anchoring, Regret Aversion, Hindsight, Herding Effect and Home Bias included in investors psychology behaviors. Survey questionnaire tool used to collect sample to conduct quantitative research. To test the hypothesis Regression analysis run by the SPS software. Findings revealed that there was an effect of behavioral biases on investment decisions. Empirical results concluded investment decision making influenced by heuristic behaviors more than prospects and personality characteristics. The originality of this study, it is very beneficial for investors and financial institutions to make decision by observation of psychological factors.

Keywords: Behavioral Finance, Decision Making, Heuristic, Prospects, Big Five Personality Characteristics

1. Introduction

Psychological and cognitive concept integrates with finance urge new field behavioral finance. Behavioral finance explores how investors make decision with irrational biases. Investment decision making is complex and challenging activity due to which outcomes of investment choices incorporate with psychology, sociology and cognitive theory. [15] There was a problem that reality of the market scenario or real behavior of market contradicted with finance theories before 90's. Then in 90's modern finance theories urged predicted the reality of mismatch between theories and market early. Modern finance included the psychology in finance field as known behavioral finance and suggests that behavioral finance also controlled the market behavior. In the aggregation scenario behavioral finance is familiar with traditional finance but the theories of traditional finance like rational behavior and profit maximization are deficient in considering the individual behavior. [21] Behavioral finance attempts to investigate the psychological and sociological

issues that influence investment decision making process of individual and institutions. Factors of behavioral finance like overconfidence, fear, cognitive and emotions also affect the investments strategies and investment decisions making process. Behavioral finance not just influences to traditional theories but integrate with return of investment growth because investment decision making depend on intrinsic factor investor behavior. [13] The goal of this paper is to observe the different personalities have different behaviors respond different in investment decisions. Situational behaviors of people also effect the financial decisions. Sometimes events occur investors behave psychologically different in investment decisions. Globally impact of behavioral finance in decision making about stock markets and capital markets is observed in this research paper. The purpose of this paper is observing the impact of behavioral finance on the investment decision making. The problem statement is to identifying that how behavioral finance effects the decision making. There are many anomalies in the behavioral finance that can influence the decision making but in this paper some anomalies discussed that identify the

whole phenomenon of impact of behavioral finance on investment decision making process.

2. Literature Review

The process of decision making is not based on the situation and environment variables but it also link with the decision maker psychic. Decision making process is a complicate mental activity which is influence by the psychological behavior of decision maker. Basically choose a precise alternative from a quantity of alternatives after collected the information and evaluate the alternatives is known as decision making process. Investor psychology discuss in behavioral finance; define as factors of finance and psychology combine read as a behavioral fiancé in which psychology theories investigating the investor behaviors and influence the decision making about stock market and investment. Now a day's behavioral finance is integrated part of decision making because it is against the modern finance arguments and says market anomalies can be perceive by understanding the investor psychology in the pattern of decision making process.[2] Finance managers can take better decision by understanding Behavioral finance. Traditional finance follows the rational decision of investors but modern finance considers both cognitive and emotional illusions in the investment decision making. [14]

3. Heuristic Behavior

In the uncertainty and unpredictable environment investor make decision by the trial and error method or by old rules of thumb. But in reality cognitive and emotional factors include when investment alternative evaluate which can eliminate the rational behavior in decision making process.

3.1. Representativeness

Decisions based on the recent investments outcomes if decisions of investor in last investment give his success then investor continue the same decisions in next investment without considered the Different uncertainty patterns. This is like stereotype decisions based on recent past experience. [10] Investor try to buy hot or good stock instead bad performance stock it shows representative bias in which investor behave overreaction. [12]

3.2. Overconfidence

Confidence is usually an Optimistic behavior of investor which courage his in the investment but overconfidence effective in contradiction of the confidence because in overconfidence mostly investor ignore the risk and uncertainty element due to previously continue success and made more trading so in this situation probability of failure increased. [17]

3.3. Anchoring

When human made decisions by the one trait or one piece

of information is known as anchoring behavior. When new information released decisions outcomes show slightly change in it due to anchoring behavior. Investor considered the historical return trend in mind for reaction in decision making. [1]

3.4. Gamblers Fallacy

Investor wrong speculations leads the wrong decisions and money invested with the hope of profit converted in lose but sometimes speculations pick the right side and give much more profit. [5]

3.5. Availability Bias

Decisions depend on the level of importance of information, investor weight the information with respect to importance and then make decisions on these assigned weights of information, in this way less return gain but sometimes lose can bear. [18]

3.6. Escalation of Commitment

If an outcome shows that investment decision was wrong but still investor carrying on like investment decisions. This kind of insist behavior of investor in commitments refer that his judgment was not correct. Investor always tries to see the positive side of decision although ignoring the negative data which indicates the low risk and success perception about investment. [18]

3.7. Hindsight

Hindsight is psychology perceptual approach can change the decisions after the event happened. Sometimes people predict the consequences after the incident occurred, conclude the scenario and carried the slightly changes in decision. The predictions of results before the incident were not better therefore hindsight behavioral approach is more appreciated against the prediction. [18]

3.8. Randomness

Investment choices can be influenced by the human's perception about fate and superstitions. Some people are superstitious believe on luck their decision based on very low rationality because they consider outcomes happened will be written in luck. But some people have strong inner control they ignore the fate and superstitions, their decisions are based on the rationality factors because they know their own decisions are the responsible of outcomes. [21]

3.9. Herding Effect

Some investors make decisions by follow the others information and decisions process. They rely on public information rather than collecting personal information about investment alternatives. [15]

3.10. Disposition Effect

Sometimes investor sell immediately stocks whose prices

increased and keep hold low prices stocks because investor show loss aversion behavior effects investment decision. [4]

3.11. Home Bias

Investors invest in their home securities rather than in foreign securities due to investment hurdles, cost of transaction and any other asymmetric information. So home bias also effects investor decision making. [11]

The prices of stocks fluctuate under the rational and irrational behavior stimulates the decision maker that they make decision on the optimistic or pessimistic behavior. When psychology heuristic tends implemented in the financial market regulate them under which investors behave like over/under reaction. This implication of psychology in stock prices shows the impact of behavioral finance in decision making. [20]

H0: There is no significant impact of Heuristic behavior on investment decision.

H1: There is significant impact of Heuristic behavior on investment decision.

4. Prospect Theory

This theory includes a number of mental states which contributed in the investment process. There are different mental approaches led risk seeker behavior in loss possibilities while risk averse in chance of gain. This happening is identified as loss aversion. [3]

4.1. Regret Aversion

Regret aversion mean investor never want to feel the pain of regret by inefficient investment decisions. Investors buy low performing stocks therefore to avoid fear of loss these stocks not offer for sale. Then low income from stocks is reduced tax by showing the investment losses. [19]

4.2. Framing

Some few words that use mostly in particulars situation and problems refer framing in behavioral finance. There are many investment choices it is most probability investor choose that one which mostly listen or talk in situations. [13]

4.3. Mental Accounting

The pattern of investment activities fulfilled by the mental accounting approach of psychology in which three components control these investment patterns. One component identifies that how returns outward and how decision choices evaluated. A second component leads activities to particular accounts. Third component refer the frequency of choices availability and evaluate. These three core components of psychology concept regulating the decision making. [16]

4.4. Self-control

Decision maker always try to avoid the losses therefore

find safe side for investment. Investors keep improving the self-control so that they could make investment with protection tools by raising the subjectivity. By avoiding the over consume investor keep spare financial assets into capital and spending pools available limit. [22]

Human being have different behaviors respondent different in decision making process. So every person with his own observation and knowledge settle a particular reaction against market action. Individual make strategies on the basis of self-awareness and experience. Understanding about psychology biases contributed in investment strategies through which investment criteria fluctuate effect decision making process. Diversifying and scheming investment environment also matter individual strategies regarding about investment decisions. Risk and return in investment linked with feelings and emotion through psychology contributed in making decision of investment perspective. [7]

H0: There is no significant impact of Prospect behavior on investment decisions.

H2: There is significant impact of prospect behavior on investment decisions.

5. Role of Personality

Psychological biases influence the decisions as well as personality behaviors also involve in the decision making process. Personality characteristics are unlike of decision makers so they make different decisions in the same situation or problem. [9] Rationality effect decisions more than personality characteristics because person estimation, knowledge and his experienced contributed much more.

5.1. Extroversion

Extrovert investor makes investment decisions under the influence of external variables like outside information about opportunities. Extroversion people ignore their own internal evaluation capabilities but they rely on the external judgment points and evaluation. Extroversions people make decisions easily because they focuses on the present time, not follow the rules and regulations. Low internal control, low intellectual ability, poor striving these are the characteristics of extroverts person which can influence the investments. [20]

5.2. Agreeableness

Anyone have agreeableness personality measured the opinion of the others in decisions due to emotional attachment. His priority is fulfilling the necessities of others for that decision reflects by the sincerity and honesty with others. These characteristics of agreeableness mostly matter in the decisions making when anyone going to invest money in partnership business. [20]

5.3. Conscientiousness

The characteristics of conscientiousness personality are trust, self-control and manage own motivation accompanied

with the rationality decisions. Conscientious person has capability to guess hazard therefore deviations in decisions to adjust risk for maximize profit. [20]

5.4. Neuroticism

Neuroticism investors make decisions to achieve the personal goals. They always make decisions which give them benefits because their personality is self-centered and selfish. They don't need the social values, their decisions based on the self-evaluation and self-interest scenario. [20]

5.5. Openness to Experience

Openness to experience characteristic urge investor makes risky decisions. High risk led high return motivated to make investment in new projects to earn high profit. Anyone has openness to experience personality always try to new things for experience and knowledge. This type personality engage in social, political, perceptual, cultural and stock market behaviors so the knowledge about these all areas contributed in the decision making process. [20]

H0: There is no significant impact of Personality characteristics on investment decisions.

H3: There is significant impact of personality Characteristics on investment decisions.

6. Feelings and Emotions

Recent researches show feelings have great collision in the

investment decisions. Moods are the embodied in the feelings which can regulate the decisions, such as ecological factors like climate, body's biorhythms and societal factors translate the stock prices. Decision making process would be efficient in the circumstances where feelings emerge by ecological factors like climate, body's biorhythms and societal factors. [8] Moods are influence by variations in the environmental factor due to which deviations in the decision can happen because these environmental variables direct link with the stocks prices changes. The representation of the stock concerned with the emotions which control the behavior of investors. When discrete events occur regulate the emotions then ecological factors arise in the decision making. Sometimes investor has got feelings about project either it is risky or give high return that's why behavioral finance researchers quoted feelings have relation with risk phenomena. Predictable results and probability guide to evaluate feelings scale by cognitive approach to judge the market risk and uncertainty. Investor loss aversion feelings must mediate the decision if there is chance of negative outcomes. Investor feelings and emotions has association with the psychology, if there is awareness about psychology of investor's feelings and emotions according to the situations so that decision maker can estimate the stock prices which are helpful in decision making. Study about feelings and emotions help in making better decision to attain improved results. [6]

Conceptual Framework:

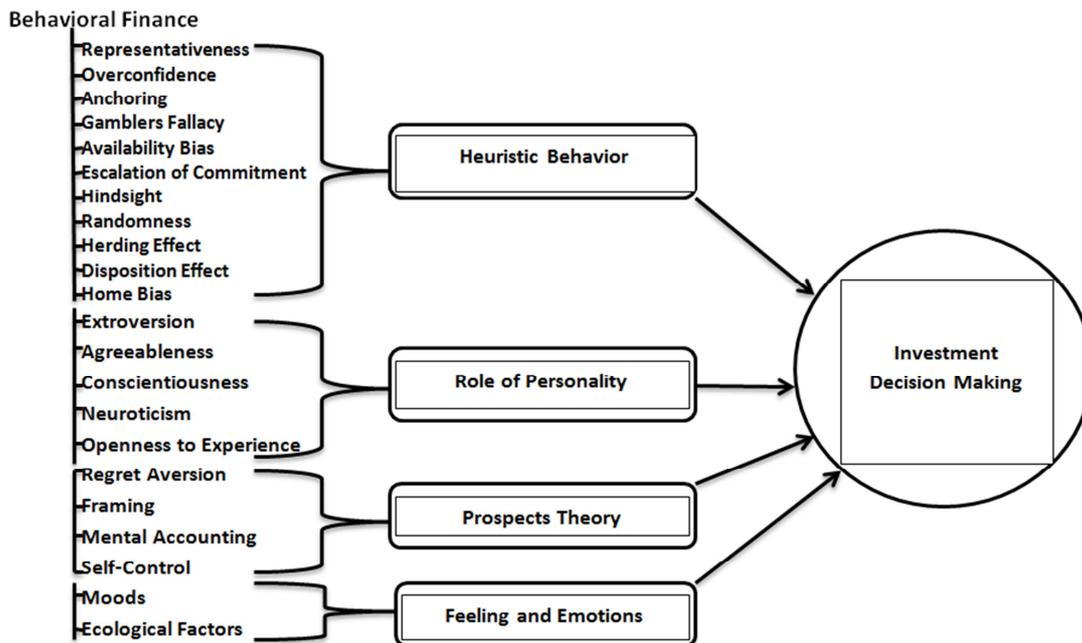


Figure 1. Conceptual Framework.

7. Methodology and Results

Quantitative research approach adopted to collect data in this study. According to the factors which can influence research methodology like, resources availability, research

expertise and time frame of the study used questionnaire tool to collect data and conduct survey to collect the responses from investors and financial institutions. The quantitative scale used in questionnaire (1=strongly disagree, 5=strongly agree). After the data collection used the regression analysis

technique through the software of SPSS and interprets the empirical results of research.

Data Normality and Reliability: The values of Skewness - .760, -.238, -.017 and kurtosis.095, -.669, -.371 for the heuristic behavior, prospects theory and personality

characteristics respectively show that the data is normal because all the values lies between +3 and -3. Overall reliability of the data according to the independent and dependent variable is.540.

Table 1. Relationship Between Independent Variables and Investment Decision.

Correlations		HB	Prospects Theory	Personality Characteristics	Investment decision
Heuristic Behavior	Pearson Correlation	1	.074	-.043	.643**
	Sig. (2-tailed)		.306	.549	.000
	N	195	195	195	195
Prospects Theory	Pearson Correlation	.074	1	-.056	.140
	Sig. (2-tailed)	.306		.433	.050
	N	195	195	195	195
Personality Characteristics	Pearson Correlation	-.043	-.056	1	.197**
	Sig. (2-tailed)	.549	.433		.006
	N	195	195	195	195
Investment decision	Pearson Correlation	.643**	.140	.197**	1
	Sig. (2-tailed)	.000	.050	.006	
	N	195	195	195	195

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

Here the above correlation table shows the relationship between independent variables (heuristic behavior, prospects theory, personality characteristics) and investment decision. Sig. (2-tailed) test results.000,.050,.006 for heuristic

behavior, prospects theory, personality characteristics respectively with investment decision ($p < 0.05$) show strong relationship between behavioral finance and investment decision.

Table 2. Relationship Between Model and Dependent Variable.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.689 ^a	.475	.467	.66684

a. Predictors: (Constant), personality characteristics, Heuristic behavior, prospect theory.

The results of the model summary table reports about relationship between model and dependent variable and it shows overall impact of the independent variables on the dependent variable. The R-Square value.475 means 47% variation in dependent variable due to independent variables.

Table 3. Impact of Independent on Dependent Variable.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	76.940	3	25.647	57.675	.000 ^b
	Residual	84.933	191	.445		
	Total	161.873	194			

a. Dependent Variable: investment decision.

b. Predictors: (Constant), personality characteristics, Heuristic Behavior, prospect theory.

ANOVA results reports the fitness of the model $F(3, 191) = 57.675$, $P < 0.05$ it means null hypothesis rejected. The value of sig. p-value is.000 show strong impacts of independent variables on dependent variable.

Table 4. To Observe Impact of Heuristic, Prospect and Personality Characteristic on Dependent variable separately.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	-.436	.250		-1.744	.083
	Heuristic behavior	.636	.052	.645	12.269	.000
	Prospect theory	.583	.290	.106	2.009	.046
	Personality Characteristic	2.153	.490	.231	4.394	.000

a. Dependent Variable: investment decision.

The results of the coefficient table reports impact of every independent variable on the investment decision separately. The values $B = .645$, $P < 0.05$ indicates heuristic behavior influence 64% to investment decision and its relationship is significant, so null hypothesis rejected and alternative hypothesis accepted “There is significant impact of heuristic behavior on investment decision”. The results precede a following regression equation:

$$Y = -.436 + .645X$$

The values $B = .106$, $P < 0.05$ indicates prospect theory influence 10% to investment decision and its relationship is significant, so null hypothesis rejected and alternative hypothesis accepted “There is significant impact of prospect theory on investment decision”. The results precede a following regression equation:

$$Y = -.436 + .106X$$

The values $B = .231$, $P < 0.05$ indicates personality characteristics influence 23% to investment decision and its relationship significant, so null hypothesis rejected and alternative hypothesis accepted “There is significant impact of personality characteristics on investment decision”. The results precede a following regression equation:

$$Y = -.436 + .231X$$

8. Discussion

The results of study prominent that heuristic behavior influenced more than prospect theory and personality characteristics as well as all the sub-variables are also supported in the acceptance of all alternative hypotheses. In the support of this research other researches results compared, variables like representativeness, overconfidence, and anchoring and gambler fallacy are reported sig. p-values 0.58, 0.91, 0.00 and 0.00 respectively. While according to this research these variables study and test combine in the heuristics behaviors and sig. value of heuristics is 0.000 it means alternative hypothesis is accepted. Some other research show that prospects theory most effective in decision making because 70% respondents are loss aversion and 61% are regret aversion from sample size as well as the results of our research also show positive effect of prospect theory on investment decision, so our second alternative hypothesis about prospects theory is accepted with the sig. value of 0.046. Few studies tested the personality characteristics with behaviors, results of these researches are extroversion and hindsight are correlated with the significance 0.02; agreeableness and randomness are on significances relation with 0.003 like this neuroticism and openness are in significance level with 0.000 and 0.10 respectively. When cumulative testing of personality characteristics then our results shows personality can effects the decision making, the third alternative hypothesis accepted with the significance level of 0.000.

9. Conclusion

There are varying behaviors of decision maker included in the framework of behavioral finance like heuristic and prospects behaviors. H1 is belong to heuristic and investment decision making, so to test this hypothesis some sub-variables of heuristic; representativeness, overconfidence, anchoring and gambler fallacy are empirically tested and some sub-variables like randomness, hindsight, escalation of commitment and availability bias are descriptive tested by logical reasoning in theory building. The empirical and descriptive results of H1 show that it is accepted. H2 is belong to prospects behavior and investment decision making, so to test this hypothesis some sub-variables of prospects; loss aversion and regret aversion are empirically tested and some sub-variables like mental account and self-confidence are descriptive tested by logical reasoning in theory building. The empirical and descriptive results of H2 proved it is accepted.

Personality characteristics are integral part of investment decision making because different personalities are different in decision making process. Third alternative hypothesis is belong to personality characteristics and investment decision making, so to test this hypothesis personality characteristics; extroversion, agreeableness, openness to experience, neuroticism and conscientiousness are empirically tested by regression analysis according to this results H3 is accepted. The theory building extracts another variables that influence the investment decisions; feelings, moods and ecological factors also integrated in the investment decision making. Different authors point of view discussed in this theory support the feelings, moods and ecological variables that influence the investment decision making. By descriptive and empirical test of the entire hypothesis H1, H2 and H3 are positive it means that behavioral finance has impact on investment decision making. This research concluded that behavioral finance contributed in the investment decision making.

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