

Mediating Role of Locus of Control on Factors Influencing Investment Decisions in Chennai

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Abstract: The stock market in any country becomes the yardstick for the measure of economic strength and development of the country. It is a place where the purchase and sale of shares take place. Since it is the source of financing investments of business organizations, the movements of the stock market or the trend as what it is called, can help determine the economic health of the country in which the rise of the share price is considered to be healthy and a fall in the prices vice versa. Pakistan, the emerging market, was ranked the best performing market in the whole of Asia in 2016 according to Bloomberg, and it is ranked as the fifth best market with regard to its market performance globally. Investors around the world today are looking for stock markets that are less effected by the interest rate cycles in the U.S. and the economic slowdown in China and Pakistan proves to be a great opportunity for such investors in future ventures. It is important to study the behaviour of investors operating in the Pakistan Stock Market to understand the factors that influence their investment behaviour. This study has been mitigated to identify the relationships between the representative bias and availability bias and the overall influence of representative as well as the availability bias on the investment decision making by the investors. The role of locus of control as mediator in this model has been explored. The structural equation modelling technique was adopted to test overall model fit and the mediating effect of locus of control. This study investigates the role of locus of control on relationships between representative bias and investment decisions, Availability bias and investment decisions. This study empirically approached the investors' decision making power in terms of their locus of control. The result does not support completely the locus of control plays a role in investors decision making but it also not completely eliminate the role of investors' decision making with respect to locus of control. It is concluded that the more focused studies on the internal behaviour of investors may fetch many attributes that would foster the investment venues.

Key Terms: Investors' decision making, Locus of control, Mediation

INTRODUCTION

The stock market in any country becomes the yardstick for the measure of economic strength and development of the country. It is a place where the purchase and sale of shares take place. Since it is the source of financing investments of business organizations, the movements of the stock market or the trend as what it is called, can help determine the economic health of the country in which the rise of the share price is considered to be healthy and a fall in the prices vice versa. Pakistan, the emerging market, was ranked the best performing market in the whole of Asia in 2016 according to Bloomberg, and it is ranked as the fifth best market with regard to its market performance globally. Investors around the world today are looking for stock markets that are less effected by the interest rate cycles in the U.S. and the economic slowdown in China and Pakistan proves to be a great opportunity for such investors in future ventures. It is important to study the behaviour of investors operating in the Pakistan Stock Market to understand the factors that influence their investment behaviour.

Various conventional theories of finance may portray investors as rational and acting as wealth maximisers in financial decisions (Markowitz, 1952), but it is not true in most cases, because when observed the decisions of investors in real life, behave very different, and to be specific, the behaviour is irrational.

Behavioural finance combines the ideas of psychology and finance to identify the cause of variations and differences from standard finance theories.

Normally the motive behind any investor's decision would be to maximize the gain with minimized risks and it is based on the assumption that investors are rational and that they study the market situation by having a close eye on the determinants and indicators of the market.

However, the psychological state of the investor which includes various factors like attitude, emotions, feelings, instincts etc result in irrational decision-making behaviour. In the case of investing, bias is inevitable and investors are prone to various biases as they have various predispositions and this is solely because of lack of complete information. They could also be a result of various mental shortcuts from the part of the investors and it is known as heuristics.

In the words of Gigerenzer and Gaissmaier, Heuristic is a strategy that ignores part of the information with the goal of making decisions more quick or rather frugally by ignoring the more complicated statistics or methods that could be accurate, it is more like a rule of thumb that helps the investor save a lot of time, by avoiding complex methods of analysing the more accurate decision they are unaware of the actual probabilities and values can be misinterpreted due to heuristic. Due to the ineffective decisions caused by heuristics investors can be led to severe systematic errors. Therefore, the study is about the two most commonly used heuristics among many in the course of decision making which is representativeness and the availability Heuristic.

The purpose of having chosen representativeness and the availability Heuristic is because these heuristics is not confined just to the laymen's decision but it also apply to the experienced investor. It isn't much of a surprise that investors are using these heuristics for forming their decisions. Certain people prefer using heuristics instead of any sort of applied fundamental statistical principles to form their decision. They trust their instincts and aren't willing to accept any rational analysis which becomes the reason behind their irrationality. It is in the very nature of humans to think that personal involvement can change the results but in reality human memory cannot be relied on and the chance of error always exists.

The study will focus on the mediating effect of the locus of control on the link between investment decision making and both representative and availability biases. The present study will theoretically and empirically explore how the effect of representative and availability biases on investment decision. The study has tested data collected from investors operating in the Pakistan stock market (PSX). The following research study is a pioneering study in Pakistan on the context of representatives and availability Heuristic.

LITERATURE REVIEW

The following content is based on the theoretical background upon which this entire proposed model is based.

Investment Decision Making

Investment involves investing money with the hope of future benefit. Investing is always done with an aim to achieve maximum gain with limited risk. The investing act can be successful if investing is done through research by keeping a rational mind open. There are various methods through which the returns and risk can be calculated. Sharpe(1964) had explained that the maximum level of risk for a specific level of return to compare decisions from a benchmark position. Research conducted in the past few decades has inferred that rational decisions are dependent on the knowledge of finance. It is considered that the better the knowledge one has in finance the better will be the rationality of the decision. Research over the past two decades has shown that behavioural phenomenon of the investors psyche through cognitive unconsciousness when is related to perceptions memories and thoughts without awareness. And this is used to describe why investors are making errors in investment decisions. Heuristics can change the decision of the investor from rational too irrational.

The conventional theories of finance always state investors to be perfectly rational, but in the actual world, they are affected by so many other factors that revolves around them. Psychological factors and behavioural factors can hinder the rationality of decision making. Behavioural finance attempts to

understand this reason by linking human nature with financial models and results indicate that at times investors do not display appropriate informational efficiency. Therefore, it is important to study investment decision making under the various theories of behavioural finance.

Representative Bias and Investment Decision Making

Representativeness is defined as the level of how well or how accurately something reflects upon a sample. When a study gives a good indication of what the whole population believes in, this could be an example of a study that has good representatives. The representativeness can be explained as the degree of similarity that an event has with its parent population (DeBondt and Thaler, 1995). The heuristic can be observed when a person is willing to generalize about another person or phenomenon, regarding anything based on a few attributes alone.

Investors use rule of thumb to make investment decisions and may invest in a company only on the basis of its characteristics which include the type of management, past records of return, popularity and others.

Such recognition and neglect can be weak due to the lack of supporting evidence. Investors who are prone to the representative's heuristic take decisions based on biasness, their judgement is singled to recent experiences which ignores the average long-term rate (Ritter, 2003). Representatives can also cause investors to misinterpret the long-term growth rate of the company based on recent increases. (Waweru et al., 2008) Investors tend to overreact when representatives convince them into deciding to invest the high performing stock instead of the one that is poorly performing. All these have led to depending on behavioural finance in the mid-20th century, where research has proved that investors decide based on facts rather than probability. Investors should be calculating future expected returns from the investment regardless of how they consider the probability of a particular outcome using previous experience.

It is just the way people infer that big companies making huge profit with generate high returns in the future. Complex decisions are made in extremely uncertain environments and is often based on intuition.

Investors have a habit of believing that their behaviour is rational based on previous experiences and that decisions have never gone wrong, this gives them a confidence that they would not go wrong in the future either. This way the investors are stuck in their own web of intuitions misguided by lack of information and they go for the same pattern of investment over and over again, regardless of the fact that it may not always work. This also leaves them unaware and ignorant about the current market scenario that they should be closely eyeing.

Rational investors regardless of the gut feelings always go in for a cross check analysis in depth, however this is also based on past experiences. Financial markets aren't always stable, but it can be predicted to a certain extent.

In the past few years, researchers have been trying really hard to bring certain factors to light. For instance, investors representatives, and how all these cause irrationalities. The celebrity effect and common reputation are some highlights into why investors can be irrational.

All phenomena are based on past data, records and experiences and the investors rarely see the danger they are in, but understanding that the market is continuously fluctuating and it is not possible to get accurate results and also it would be in vain as outcomes can vary is a caution every investor should take

These phenomenon's that are caused by representativeness often lead the investors to choose a suboptimal alternative. Hence proposed that:

H1: Representatives bias is significantly and positively associated with the degree of irrationality in investment decisions.

Availability Bias and Investment Decision Making

In the case of availability bias, the decision maker decides based on the knowledge made available to the investor rather than examining the alternatives and procedures. Therefore, the decisions are bound to be irrational as investors are observed to invest in local companies in which the investor is familiar or where information can be easily availed. Decision makers in the capital market also get influenced as they give more weight to people-oriented information (Haley and Stumpf, 1989)

Availability bias can cause an investor to wrongly believe that when a stock is perceived to have good returns it involves low risk and when stocks are performing bad the risk is higher and return would be lower, which leads to the investor choosing suboptimal decisions

Researchers after the 20th century investigated important factors that may cause availability bias, due to which investors change their decisions based on partial decisions available to them. Facts like change of executives and management or even appointing of a new CEO can cause investors to change their decisions (Lubatkin et al., 1989) Investors most of the times take decisions without taking into consideration the correct and relevant information. In case a financial crisis occurs, investors suffer more than the market itself because of their decisions based on available information, or availability bias. Investors overreact in the most negative manner when they face announcements regarding securities and layoffs (Worrell et al., 1991).

Investors tend to take decisions of choosing the stocks that they have recently heard of performing well. The stocks have to grab their attention by offering extreme returns which is mostly information from people trading abnormally. In certain cases, investors dismiss the decision to purchase such stocks by overweighting or underweighting such information received.

Investors also have a habit of comparing the performance of a firm that they have set their minds on with the performance of a peer, and they tend to react, with regard to the difference in performance. Such information can reflect on the portfolio selection of the investor, where the investor shows liking towards liabilities instead of assets that could actually benefit the investor.

Investors do not assess the validity of information, rather they sum up judgements based on the most recently available information. A major reason as to why investors act upon impulse is because of the heavy competition. Every investor is given limited time within which they must choose or reject stocks, and since prices fluctuate every moment, the investor chooses to go with the information available to him rather than understanding the depth of information and evaluating it, the investor finds himself in a state to act quick. Hence proposed that

H2: Availability bias is significantly and positively associated with the degree of irrationality in investment decisions

Mediating role of Internal Locus of Control

Internal locus of control refers to the extent to which individuals consider they have power over the events that occur in their lives. When an individual attains a desired result without any sort of underlying probability supporting it, they believe its an outcome of their abilities. On the contrary, if a person was to think vice versa, that all events that occur has absolutely nothing to do with their abilities rather was an outcome of external factors it is known to be the external locus of control. The following study incorporates the idea of internal locus of control to be the mediator. A variable acting as a mediator is said to obey one that can alter the form or strength of the relationship between the predictor and criterion variable (Sharma et al., 1981). The role of the locus of control can be identified by studying to what extend the internal locus of control influences the investors decision. For mediation, the effect of interaction term on the relation between heuristics biases and decision making will be analysed as per the rules set by Baron and Kenny (1986).

Investors tend to be motivated to a great extend if they consider the situation to be under their own control. The locus of control is important behavioural factor and is incorporated in the studies od the factors influencing decision taking that is ethical (Ozbek et al., 2013). The behaviour of consumers is the like of investors. Investing is very much a purchasing decision but it involves capital assets instead of products or services. No significant research is specifically made in the area of investment decision making. Hence there is a need to explore the field to understand the differences in investor behaviour. Various modern researches understand that the locus of control provides a strong explanation for future outcomes (Hiller and Hambrick, 2005) and can explain difference in investors behaviour. There is difference in the level or degree of locus of control from investor to investor and based on collectivist and individualist societies it can be broadly given a classification. When an interpretation is made by the investor based on the locus of control it is widely influenced by two factors one being nature of the investment and the second being the time horizon. The decision makers are not just investors but managers, executives and other key level decision makers are also indulging in this phenomenon of believing that events or outcomes are a result of their control.

Some investors underestimate the abilities they posses and become risk averse, and some on the contrary overestimate their abilities and go to the extend of believing they can change or control the

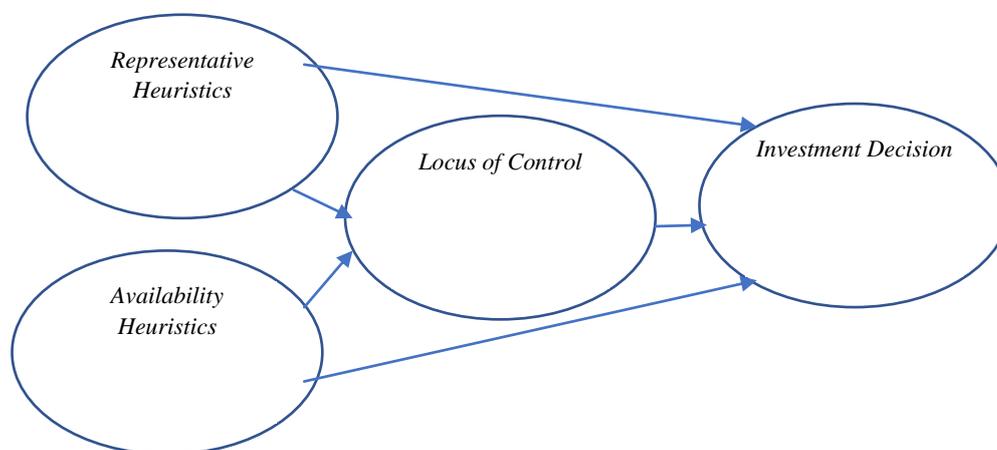
market conditions itself. Both the above-mentioned types of investors, gravely make mistakes by taking irrational decisions on a wide extend.

Investors with a high degree of internal locus of control will never perform well. The reason being they ignore facts and information that are extremely useful to make decisions and solely rely on the intuition and limited available information. The certainty that an investor feels when investing is based on the internal locus of control as they decide out of gut feelings and intuition. They ignore rationality and evaluation of information. Such investors become more self-centred during the decision making process, and hence the absence of willingness of investors to accept the errors of judgement will lead investors to biased and irrational decision making process. The greater the degree of internal locus of control the greater will be the reliance of the investor on heuristics. Hence, the study views that the presence of internal locus of control influences and leads investors towards biased and irrational investment decisions. Therefore proposing

H3: Internal locus of control mediates the relationship between representative bias and investment decision making.

H4: Internal locus of control mediates the relationship between availability bias and investment decision making.

Conceptual Framework



RESEARCH METHODOLOGY

This study has been mitigated to identify the relationships between the representative bias and availability bias and the overall influence of representative as well as the availability bias on the investment decision making by the investors. The role of locus of control as mediator in this model has been explored. The structural equation modelling technique was adopted to test overall model fit and the mediating effect of locus of control.

Survey Instrument

A questionnaire was created to collect data among the investors in Chennai. A non-probability sampling technique is used. The scale adapted (Rasheed, Amir Rafique, TayyabaZahid 2018) consist of 18 items, a 5 point likert scale used, which further grouped as four latent variables.

Availability Heuristics. This construct was measured with four items among which one and two are derived from Kudryavtsev et al. (2013). The third and fourth items of the measure are from Luong and Thu Ha (2011).

Representative Heuristics. This construct is measured with six items, of which the first three questions identify the degree of representativeness in investors using a 27-item instrument from

Sarwar et al. (2014). The fourth and fifth items are from Waweru et al. (2008), whereas the last item for measuring the representative heuristic in investors is from Luong and Thu Ha (2011).

Locus of Control. Measured items for the internal locus of control in investors are adapted from an instrument developed by Furnham (1986). For our research, we have adapted seven items that deal with the internal locus of control and operationalised for this study.

Decision Making. Scott and Bruce (1995) the scale adopted which consist of three items, from which a proxy for the degree of irrational behavior in decision making is developed.

Sampling

In this study, convenience sampling technique is used in order to collect the sample of 255 investors whose representative and availability heuristics and bias have been studied. Sample size has been checked with sample size determination rule which denotes that at least a 223sample.

Reliability and Validity

The reliability of the questionnaire is tested with Cronbach alpha value which indicate that the items used in this model under respective constructs satisfy the reliability requirement. The representative bias (.89) and availability bias(.87) shows good score of reliability.

Validity is checked with the inter-correlation of all the constructs. That shows a valid relationship among the constructs besides the difference between items are ensured through the item correlation matrix.

EMPIRICAL ANALYSIS AND RESULTS

Collected data was analysed through SPSS and AMOS software to remove missing value. The proposed model has been tested by Structural Equation Modelling technique. The model comprises Observed and Latent variables.

Correlation Analysis

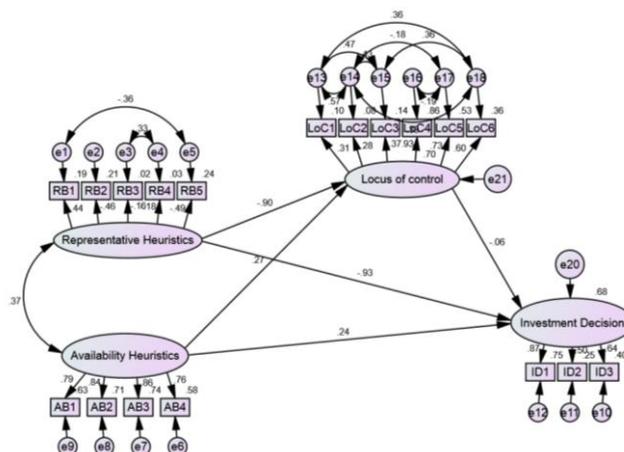
Data gathered was analysed for normality to ensure that the data satisfy the assumption for SEM analysis. A spearman’s correlation analysis was done to understand the direction and strength between the relationships. The Table below shows the result of correlation analysis.

Correlations				
	Representative Heuristic	Availability Heuristics	Locus of Control	Investment Decision
Representative Heuristic	1			
Availability Heuristics	.695**	1		
Locus of Control	.065	.062	1	
Investment Decision	.034	-.040	.469**	1

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

IMPACT OF HEURISTIC BIAS ON INVESTMENT DECISION MAKING

In order to analyse the relationships between representative, availability biases and investment decisions, SEM method was employed to figure out regression weights of independent variables on dependent variables. The overall model fit is arrived. The model fit indexes is explained below.



The measurement model denotes the good model fit. The chi square value is 398.193, DF- 120, CMIN/DF – 3.318 shows that model is acceptable and the model fit indexes GFI = 0.908 , CFI = 0.906 , values show that model fit is also acceptable with the RMSEA value of 0.073 which is lower than 0.08. The path values between representative heuristic and Investment decision ($\beta = 0.517$, $p < 0.01$), the path between availability heuristics and investment decision ($\beta = -0.427$, $p < 0.01$), the locus of control and investment decision ($\beta = 0.289$, $p < 0.01$) are significant.

MEDIATION ANALYSIS

In this model, the locus of control mediates the relationship between representative bias and investment decision and availability bias and investment decision. The direct and indirect effects of mediation is analysed through bootstrapping method in AMOS.

Path	Direct effect without Mediator (β)	Direct effect without Mediator (β)	Indirect effect (β)	Mediation Type observed
RH-LoC-ID	.565(.000)	.215(.035)	.86(.082)	Partial Mediation Observed
AH-LoC-ID	.428(.000)	.115(.000)	.47(.066)	

The above table shows the regression weights (Beta) of direct effect with mediation, without mediation and indirect effect through which the mediation type is decided. If Direct with mediation and Indirect are significant (Baron and Kenny, David MacKinnon, 2012), Partial Mediation exists in the model. The paths representative bias and investment decisions are partially mediated by Locus of control and availability bias also shows the partial mediation. This shows that the locus of control has an impact on the relationship between representative bias and investment decisions. Representative bias has an impact on investment decision which is yet influenced by locus of control. When locus of control is introduced the regression estimate among the representative bias and investment decision is reduced. This clearly denotes that the investment companies need to consider the locus of control of individuals due to its inevitable role in investment decisions. The availability bias and the investment decision relationships in this model shows partial mediation as same as representative bias.

HYPOTHESIS RESULTS

No	Hypothesis	Result
1	Representative bias is significantly and positively associated with degree of irrationality in investment decision making.	Accepted
2	Availability bias is significantly and positively associated with degree of irrationality in investment decision making.	Accepted
3	Internal locus of control mediates the relationship between representative bias and investment decision making.	Rejected
4	Internal locus of control mediates the relationship between availability bias and investment decision making.	Rejected

Thus, Hypotheses 1 and 2 are statistically significant that reveals that representative bias and availability bias are directly influencing investment decision. Hypotheses 3 and 4 rejected. The mediation in this model is partial that expose that the role of locus of control is there but it cannot be treated as only factor that determine the relationship between independent and dependent variables. It has also got the a particular impact which can be neglected.

CONCLUSION

It is importantly noticed that the manner in which the investors receive such financial news regarding the market and the role of intermediaries play a vital role in altering investment decision and have great influences on the investor's way of thinking. The information made available to investors influences their mindset and also leads to a fixed pattern of investment, and many a times this information may be irrelevant for decisions on investments. On the basis of recent information, the risk-taking behaviour of investors about particular security or stock changes as they are widely influenced by the information. This study investigates the role of locus of control on relationships between representative bias and investment decisions, Availability bias and investment decisions. This study empirically approached the investors' decision making power in terms of their locus of control. The result does not support completely the locus of control plays a role in investors decision making but it also not completely eliminate the role of investors' decision making with respect to locus of control. It is concluded that the more focused studies on the internal behaviour of investors may fetch many attributes that would foster the investment venues.

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