# Role of Locus of Control in the Relationship between Behavioral Biases and Investment Decision

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## ABSTRACT

*The current study focuses on three heuristics commonly used in decision making; anchoring bias and representative bias with investor's numeracy capability. This research explains the relationship between biases of investors in investment decision making of Pakistan Stock Exchange. The research also identifies the moderating role of locus of control between behavioral biases and decision making. Data was taken from 400 investors of Pakistan Stock Exchange. The results of the study revealed that representative bias and anchoring bias has a positive impact on investment decisions of the investors. However, the results also revealed that individual's numeric capabilities do not affect his/her investment decision. Locus of control is used as a moderator in the study. Results show that presence of internal locus of control enhances the impact of biases on their investment decisions. Nonetheless, locus of control does not moderate the relationship between individual's numeric capabilities and investment decisions. This study is helpful for both individual investors and the regulator in understanding the role of biases in the investment decision making.*

***Keyword:*** *Representative Bias, Anchoring Bias, Individual's Numeric Capabilities, Locus of Control, Investment Decision*

## INTRODUCTION

The stock market serves as a platform for the trading of stocks and constitutes an integral component of every economy, facilitating the financing of investments by business organizations (Samuel, 1996). Stock markets serve as channel for financial transactions between borrowers (organizations) and lenders (investors). These exchanges have historically played a pivotal role in generating both long-term and short-term financing options (Zuravicky, 2005). Furthermore, stock markets have been utilized as barometers for assessing a nation's economic development, assuming a pivotal role as a generator of wealth for the country. Hence, it can be said that stock market reflects the condition of an economy.

The upward trajectory of stock prices is indicative of a flourishing economy (Jaswani, 2008). Stock markets are typically categorized into two broad segments: developed economies such as the United States, the United Kingdom, Germany, Russia, the European Union, China, Japan, among others, and emerging markets including nations like Pakistan, Malaysia, India, as well as developing economies including Vietnam and Kenya. Pakistan Stock Exchange (PSX) outstandingly excelled in Asia and achieved the 5th rank globally in the year 2016. However, it has experienced a prolonged period of underperformance in market indices from 2017 to the present. This instability in PSX's performance can be attributed not only to internal domestic factors but also to external influences from the global arena.

The unique geographical location and status as the sole nuclear Islamic state worldwide have contributed to the significance of the Pakistan Stock Exchange. Consequently, the performance of the Pakistan stock market is influenced by a confluence of both internal and external dynamics, underscoring its complexity and susceptibility to a wide range of factors.

Investors often act irrationally due to the presence of behavioral biases (Jamal & Rizwan, 2022). It's really very important to study and be aware of behavior of investor's investing in Pakistan Stock Exchange and dynamics which were manipulating their behavior. All respondents of market besides researchers, regulators and practitioners have been queasy about perfect running of market. So, productiveness of market has been remaining under discussion. Investors are sane and play a function like capital amplifiers in financial decision making (Markowitz, 1952). According to classical finance, markets are efficient, investors draw decision rationally and prices promptly and equally absorb latest information in market (Fama, 1965).

Several theories and assumptions exist about investor's investment choices and market mobility. Investor's decisions effect prices of stock and stir market. Genuine investors carry out inconsistence investment decisions so behavioral finance assists to identify investor's divergence from traditional theories of finance. Investors keenly interrogate market, determinants and its indicators for achieving aim of earning maximum profit. Inconsistence investment verdicts are echoes of investor's feelings, emotions and intuitions (Kahneman & Tversky, 1979).

Investor's sub-consciousness has an impact on inconsistency of investment decisions (Zaidi & Tauni, 2012). Biases which are resultant of investor's emotions and psyche are inclination towards investors' error (Shefrin, 2007). To avoid these biases and errors, investors exercise a number of mental shortcuts which were called heuristics (Slugoski et al., 1993). A heuristic is technique that ignores facts with making decision quickly and accurately than complex methods (Gigerenzer & Gaissmaier, 2011). These ballpark estimates upsurge inconsistency in decisions by providing shortcuts and help to avoid necessary difficult probability evaluation required before investing. There were various studies about how these heuristics alter investor's decision power.

Heuristics straighten way to rigorous and systematic errors in investment decision of investors (Tversky & Kahneman, 1974). All financial affairs and profit making decisions are covered under head of investment decisions. Investor's capability to do calculation is salvation for best investment decisions. Since last few years, introduction of new financial products have opened Investment Avenue for small investors. Hence, to handle these complicated financial products are difficult, particularly for low numerate investors. According to various previous studies either conducted in developed or underdeveloped economies, numeracy level is very low particularly in women, low literate and elder ones.

Numeracy has budding effects on personal as well as for society since numeracy is coupled with financial decision. Numeracy is need of an hour in modern tangled economic environment. A person's thinking especially outcome in his/her life is due to own effort is internal Locus of Control. Study is going to investigate moderating locus of internal locus of control on investor's numeracy capability, anchoring and representative biases.

# LITERATURE REVIEW

### Investment Decision

Lerner et al., (2014) defined that investment decision is procedure of choosing finest security from existing investment alternatives. Investment is contribution of money to make money.

**Representative Bias**

Tversky and Kahneman (1979) defined representativeness like anxiety in calculating probabilities of events/conditions and taking decisions under shade of doubtfulness. While Ritter in 1991 described that after effects of representativeness on judgment that investors take incorrect decisions in long term. Representativeness can also be explained as how much an event is identical to its parental sample space. Gilovich et al. (2002) briefed representativeness like degree of correspondence among a population and sample, category and instance, more generally, among a result and a model. Heuristic of representativeness may be seen in a personal that is ready to follow another person or circumstances / events or stocks only because of having a number of similarities (Nisbett & Ross, 1980).

**Anchoring Bias**

Tversky and Kahneman (1974) described anchoring like investment decisions on hints of previous perceptions and past ideas of investors. Anchoring is a bias of investors to form an anchor which they believe that this anchoring will provide help in making profit (Pompian, 2006).

**Individual's Numeric Capabilities**

Numeracy is a personal capability to deal with primary numerical knowledge, quantitative assessments, ratios and probability (Peter et al., 2006; Cokely et al., 2012). OECD (2016) defined numeracy like "the ability to asses, use, interpret and communicate mathematical information and ideas, in order to engage and manage mathematical demand of a range of situations in adult life".

**Locus of Control**

Belief of a person that desired outcome can be achieved from his/her own efforts is termed as locus of control (Rasheed et. al., 2018),

**Representative Bias and Individual Investment Making**

Heuristic of representativeness may be seen in a personal that is ready to follow another person or circumstances / events or stocks only since of having a number of similarities (Nisbett & Ross, 1980). Therefore, personal utilizes mental traps and heuristics (rule of thumb) for investing's and invests in only that companies which have better management and high historical profits etc.

It's admirable to calculate financial ratios for future predicted returns of investments but in actual investors consider possibility of specific outcome in view of their previous experiences, thence they guess that highly valuable and high profit gaining companies will attain or generate high profit in future like in history (Jacobson, 1994). In highly unpredictable environments, decisions were often planted on intuition and this role of perception is essential (Kahneman & Riepe, 1998).

However, such decisions are often biased and inconsistences since these were established on heuristics and instincts (Simon, 1987). Investment decisions are significantly affected by individual influences. Consequently, different inclinations will result in diverse behaviors. It proves that psychological factors play a significant part in decision-making (Aksa & Wijayanti, 2022) Representativeness is reason in all above said phenomena and mostly leads investors to opt other suboptimal alternatives because of historical performance of companies (Kasoga, 2021; Galavotti et al., 2021). A negative relation between representative bias and investments is reported by Shah et al., (2018). Rasheed (2018) find out that representativeness bias is present in Pakistan stock exchange

investors and hence their investment decisions are mostly sub optimal and inconsistence. So proposed hypothesis is:

*$H_{1:}$ Representative bias is positively impact investment decision*

**Anchoring Bias and Individual Investment Making**

Anchoring sets in when investor infatuate on an assured reference point in investment decision making (Jordan et al., 2015). Investor accounts profit or loss appropriate to reference point that usually purchasing price of stock (Duxbury, 2015). Investor are rewarded or penalized like they eagerly follow their investments in connection to reference point (Hirshleifer, 2015). Hence, problem arises when investor does not consider his level of wealth but paying too much heed to the reference point. It is noticed that investor keeps stock which it has been purchased at lower price while historical price of stock is inessential unless tax redemption. Kliger et al. (2014) highlighted fact that whether investors withhold or sale out the stock depends on decrease in eminence of acquisition of stock. Hirshlifer (2015) argued another aspect of human emotions that by picking a willing stock, investors try to rise up his self-esteem. Investor workability at zero in relation to reference point since investor is naturally biased to loss averse so he is clinging to anchor.

Lowies (2016) find out negative impact of anchoring in Pakistan's property market. Shah et al., (2018) reported that Pakistan stock exchange investors are negatively affected by anchoring bias. Pakistan individual investor's decisions are inclined commonly by anchoring, overconfidence and herding (Chisti et al., 2022).

*$H_2$: Anchoring bias positively affects investment decision*

**Individual's Numeric Capabilities and Individual Investment Making**

Experts of numeracy are less prone to frictions and ratios based on reasoning and presentation of numbers (Liberali et al., 2012), which distract investors for actual risk and poor assessment and at the end substandard decisions are taken. Numeracy capabilities affect investors' level of risk aversion. Individual that possesses strong numeracy abilities can deal with risk more logically (Pachur & Galesic, 2013; Jasper et al., 2013).

People who have numeric capabilities can play with available numerical information perfectly and can differentiate between logical and illogical information. Individuals having good numeric capability draw best decision by choosing option with great care. Lack of numeracy is not only widely spread in world but too severe in certain demographic groups. Lusardi and Mitchell (2011a) age and numeracy have negative relation. Furthermore, Lusardi and Mitchell (2011b) elaborated that financial knowledge varies in different sex, like researches conducted in Sweden, Netherland, Germany, Italy, Russia, United States and New Zeeland highlighted that females immensely mostly avoid answering financial knowledge questions.

Lusardi and Mitchell (2011b) indicated that individuals who are not able to calculate interest cannot perfectly plan his pension. Likely Russians, who have more knowhow of compounding interest rate usually, participate in pension plan (Klapper & Panos, 2011). Lusardi and Mitchell (2011a) reported that higher numeracy capabilities grow tendency of purchasing stock. Almenberg and Widmark (2011) explored that in Sweden numerical competence is strongly associated to involvement in housing and stock exchanges. Gerardi et al., (2010) indicated that not only literacy but numerical capabilities, especially, strongly assist in mortgage and default. Investment decisions involve numbers,

quantities, ratios and percentage so for outstanding investment decisions being numerically competent is vital (Skagerlund et al., 2022).

*$H_3$: Individual's numeric capability is positively related to investment decision*

**Locus of Control as a Moderator**

Investors' satisfaction from their investment can be increased by the existence of the fact that the outcome of the decision is based on their efforts (Özbek et al., 2013). Recent research has highlighted that the locus of control provides a robust explanation for future outcomes and can explain differences in the behavior of investors, particularly concerning variations in the levels of locus of control among investors from collectivist and individualist societies (Spector et al., 2002). Investors with an internal locus of control are more likely to believe that their investment outcomes are within their control. When investors think they can control certain situation, the investment decisions get triggered (Rasheed et. al., 2018). They may attribute investment success to their own skills, research, and decision-making. As a result, they may be more confident in their investment choices and may actively manage their portfolios. Additionally, an investor's perception of their ability to influence outcomes is influenced by factors such as the nature of the investment and the time horizon. Interestingly, some investors are uncertain about their abilities (Gervais & Odean, 2001) and tend to be excessively risk-averse. Conversely, others tend to overestimate their capabilities and believe they can manipulate or alter market conditions. These investors often perceive themselves as superior to the average investor (Kaustia & Perttula, 2012), leading to heightened levels of irrationality in their investment decisions.

Therefore to study upshots locus of control on investments the proposed hypotheses are as underneath:

*$H_4$: Locus of control moderates the relationship between representative bias and investment decision*

*$H_5$: Locus of control moderates the relationship between anchoring bias and investment decision*

*$H_6$: Locus of control moderates the relationship between Investor's numeracy capability and investment decision*

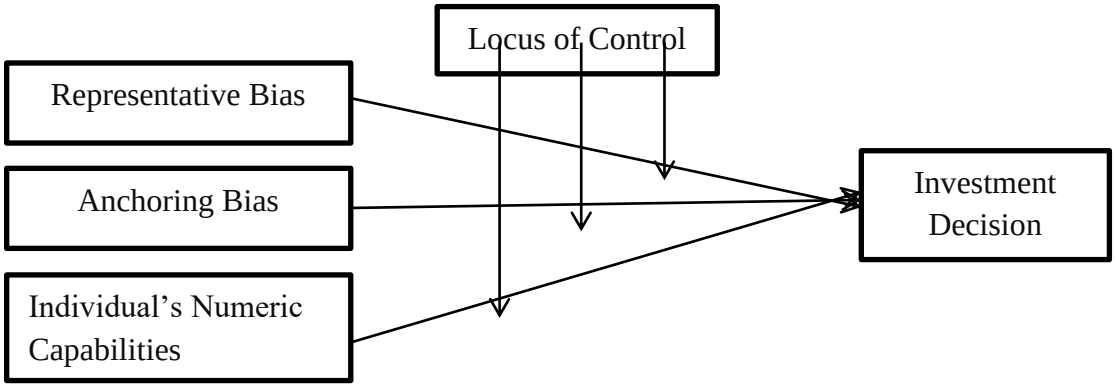


***Figure 2.1:*** Model of the study

# RESEARCH METHODOLOGY

### Sample and Data collection Procedure

Individual investors of Pakistan Stock Exchange are unit of study and population consist of registered individual investors of Pakistan Stock Exchange. Convenience sampling technique is used for selecting sample of study. This research is quantitative in nature and primary data is gathered. There are approximately 220000 individual investors trading at Pakistan Stock Exchange. As population is more than 200000, sample size is determined by Cochran's formula. It was calculated that sample size should be at least 385 (Krejcie & Morgan, 1970). In this study, responses from 400 investors are obtained and analyzed. AMOS 24 is used for analysis of the data.

### Measures

Questionnaire is chosen for primary data collection from investors. Questionnaire has two sections: first section covers descriptive questions, including gender, marital status, qualification, age, nature of experience and investment. The second section included questions on anchoring, representative heuristics, numeracy capability, locus of control and Investment Decisions.

### Representative Bias

The scale consists of 6 questions. First three questions are adopted from Sarwar et al. (2014). Two questions has been adopted from Waweru et al. (2008) and one item from Le and Thuha (2011).

### Anchoring Bias

The scale for anchoring bias is adopted from Waweru et al. (2008). The sample item included "The high rate of return in market is main motivating factor for investing in stock market"

### Individual's Numeric Capability

Instrument consists of 8-question adopted from Lipkus et al. (2001). Sample item include "How good are you at working with percentages?"

### Locus of Control

Internal locus of control in investors is measured by 8 questions adopted from the instrument formed by Furnham (1986).

### Investment Decision

The scale for investment decision is adopted from Scott and Bruce (1995). The sample question include "When making investments, I rely upon my instincts"

# RESULTS

### Reliability of the Constructs

Cronbach's alpha values are calculated to check the reliability of the instruments. Value for all the variables is found are above 0.70 which implies that all the scales are reliable. The cronbach's alpha value for each variable is given in the table as follows:

**Table 4.1: Reliability Analysis**

| Variables | No. of Questions | Cronbach's Alpha |
|---|---|---|
| Representative Bias | 6 | 0.718 |
| Anchoring Bias | 3 | 0.764 |
| Investment Decision | 4 | 0.738 |
| Individual's Numeracy Capabilities | 8 | 0.711 |
| Locus of Control | 8 | 0.75 |

**Table 4.2: Demographic Statistics of Investors**

| Demographics | Categories | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 348 | 87 |
| | Female | 52 | 13 |
| Age | 25-30 years | 63 | 15.8 |
| | 31-40 years | 95 | 23.8 |
| | 41-50 years | 94 | 23.5 |
| | 50-60 years | 121 | 30.3 |
| | Above 60 years | 27 | 6.8 |
| Education | Matric | 42 | 10.5 |
| | FA/F.Sc | 50 | 12.5 |
| | Bachelors | 219 | 54.8 |
| | Masters and Above | 89 | 22.3 |
| Experience | 0-5 year | 104 | 26 |
| | 6-10 years | 75 | 18.8 |
| | 11-15 years | 103 | 25.8 |
| | More than 15 years | 118 | 29.5 |

Men and women have different behavior and characteristics. Out of 400 respondents, 13% are female and 87% are male. This study present age demographics into five groups i.e. among 25-30, 30-40, 41-50, and 51-60 and last group is from 60 and above. Out of 400 respondents, majority of the investors lie between 31 years to 60 years of age. Out of 400 interviewees of study, results indicate that most of the respondents are having Bachelor degree i.e. 54.8% like mentioned. The 400 testers of study show that major respondents were having 0 to 5-year investment experiences i.e. 26% as mentioned in table Descriptive statistics are nut shell of informational coefficients, that summarize a given statistics data, that may represent either the complete population or a sample of population. Measures of central tendency and measures of variability are important to understand (Shah et al., 2018). On the other hand, standard deviation provides the variability of the data.

Table below represents the descriptive statistics of the data.

**Table 4.3: Descriptive Statistics**

| Variable | N | Mean | SD |
|---|---|---|---|
| RB | 400 | 3.4721 | 0.89164 |
| A | 400 | 3.4292 | 1.01807 |
| LC | 400 | 3.2762 | 0.87758 |
| ID | 400 | 3.285 | 0.97431 |
| INC | 400 | 3.1975 | 0.68999 |

RB = Representative Bias; A = Anchoring

LC = Locus of Control; ID = Investment Decision

INC = Individual's Numeracy Capabilities

Because of the ease with which computation may be done quickly and the time reduction activities that can be performed, representativeness is frequently observed in the judgments of investors. To calculate mean and the standard deviation (SD) of variables and data interpret in tabular form, descriptive statistics was used is given underneath in table 4.8.

**Multicollinearity**

For the purpose of determining the multicollinearity, Variance Inflation Factor (VIF) is calculated. The value of VIF, for all predictors is fewer than 5 and hence has acceptable value (Bazerman & Moore, 2012). As a result, there is not a significant issue regarding Multicollinearity. The value of VIF is shown in the table 4.4.

**Table 4.4: Multicollinearity**

| Constructs | VIF |
|---|---|
| RB | 1.932 |
| AB | 1.376 |
| LC | 1.591 |
| INC | 0.41 |

**Correlation**

Spearman's rank Correlation test shows association among variables. It informs us about how strong or weak association exists among variables. Spearman's correlation analysis results are described is table 4.5 which indicate strength of relations among variables.

**Table 4.5: Correlation Matrix**

| | RB | AB | LC | ID | INC |
|---|---|---|---|---|---|
| RB | 1.000*** | | | | |
| AB | .531** | 1.000*** | | | |
| LC | .625** | .344** | 1.000*** | | |
| ID | .395** | .354** | .541** | 1.000*** | |
| INC | .195** | .145** | .155** | .099* | 1.000*** |

## 2.1 Testing of Hypotheses

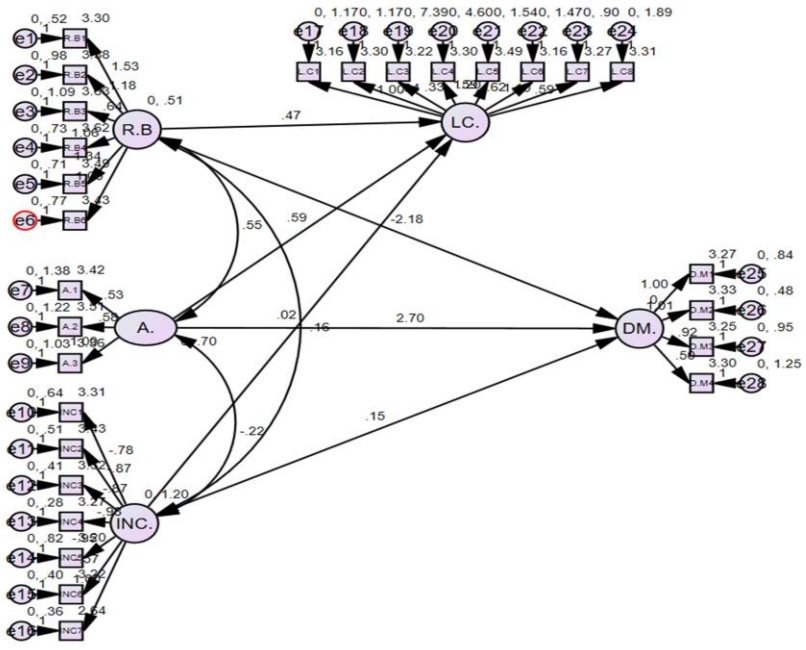


**Figure: 4.1**

To see whether proposition can be supported or not supported, depends on the significance value between constructs, t-statistics, and p-values. The yield stick established for this study were that t-statistic > 1.96 with a significance level of p-value 0.05 (5%) with a positive beta coefficient. The values of analysis the proposition of investigation can be presented in Table 4.6:

**Table 4.6: Regression Analysis**

| Model | Intercept | Unstandardized B | t | p |
|---|---|---|---|---|
| RB->IDM | 1.705 | 0.455 | 9.135 | 0.000 |
| AB->IDM | 2.074 | 0.136 | 7.923 | 0.000 |
| INC->IDM | 3.031 | 0.077 | 1.522 | 0.129 |

Outcomes demonstrates that representative bias influence investors investment decision in positive and significant manner, in such an extent that one-unit increase in level of representative bias will produce an increase in ID of β=0.455 ($p<0.05$). This reflects that the more an individual investor has representative bias, the degree of satisfaction with the investment increases, thus attesting Hypothesis 1. Similarly association among anchoring bias and irrationality in IDM is also significant and having a affirmative impact. Hence, it can be perceived from above results, one-unit increase in the level of AB will lead to boost in ID of $\beta = .136$ ($p < 0.05$), therefore as well accepting Hypothesis 2. This implies that investors that have anchoring bias in their cognition are more satisfied from their investment decision. The association among individual numeracy capabilities and ID is not significant. It can be said that numerical capabilities do no impact the investment decisions of the investors. The outcomes of this investigation are lined with prior researches (Shah et al., 2018; Khan et. al., 2017; Rasheed et al., 2018) that proved that the heuristics affect investors' investment decisions. The same results were drawn by few other previous researches i.e. the heuristic biases and investment decision has positive direct relation (Khoirunnisa et. al., 2022; & Dongal & Manandhar, 2020).

***Analysis of Moderation Effect of LC***

**Table 4.7: Interaction of LC in relationship of RB and ID**

| Independent variables | Model A β | SEE | t-value | p-value | Model B β | SEE | t-value | p-value |
|---|---|---|---|---|---|---|---|---|
| RB | 0.188 | 0.059 | 3.197 | 0.000 | 0.141 | 0.203 | 2.393 | 0.000 |
| LC | 0.447 | 0.06 | 7.5 | 0.000 | 0.419 | 0.059 | 7.08 | 0.017 |
| INTERACTION | | | | | -0.171 | 0.046 | -3.717 | 0.000 |
| R2 | 0.276 | | | | 0.3 | | | |

Above portrays model A and B both are significant having p-value of 0.00 ($p < 0.05$). β of interaction is -0.171 with p= 0.009 ($0.000 < 0.05$), that proof interaction has significant influence in

predicting change in value of the IDM. More overly, $R^2$ have increased by 0.004 this too directs there is significant moderation effect of internal LC on the relationship between RB and IDM.

Moderating effect of locus of control in the relationship between anchoring bias and investment decision is given the table 4.8.

**Table 4.8: Interaction of LC in relationship of AB and ID**

| Independent variables | Model A | | | | Model B | | | |
|---|---|---|---|---|---|---|---|---|
| | β | SEE | t-value | p-value | B | SEE | t-value | p-value |
| AB | 0.213 | 0.043 | 4.999 | 0.000 | 0.21 | 0.043 | 4.975 | 0.000 |
| LC | 0.479 | 0.05 | 9.683 | 0.000 | 0.484 | 0.052 | 9.351 | 0.000 |
| INTERACTION | | | | | 0.025 | 0.047 | 1.495 | 0.009 |
| R2 | 0.301 | | | | 0.305 | | | |

Models show significance having p=0.00 ($p < 0.05$). β of interaction =0.025 with p= 0.009 ($0.009 < 0.05$), signals that interaction has significant effect in model B. Moreover, $R^2$ has increased from 0.301 to 0.305 which directs there is significant moderation effect of internal LC in the relationship among AB and IDM of individual investor.

Moderation role of locus of control in the relationship between individual's numeric capabilities and investment decisions is shown in the Table 4.9.

**Table 4.9: Interaction of LC in relationship of INC and ID**

| Independent variables | Model A | | | | Model B | | | |
|---|---|---|---|---|---|---|---|---|
| | Beta | SEE | t-value | p-value | Beta | SEE | t-value | p-value |
| INC | -0.05 | 0.044 | -0.11 | 0.912 | -0.01 | 0.045 | -0.287 | 0.821 |
| LC | 0.554 | 0.049 | 11.595 | 0.000 | 0.575 | 0.049 | 11.731 | 0.000 |
| INTERACTION | | | | | -0.071 | 0.044 | -1.624 | 0.105 |
| R2 | 0.257 | | | | 0.262 | | | |

Beta of interaction is -0.071 with p=0.105 which indicates interaction has insignificant influence in model B. It is concluded from the above given table that locus of control do not moderate the relationship between individual's numeric capabilities and investment decision.

# CONCLUSION

Behavioral finance gives a method to explain market fluctuations and the construction of market beliefs, and it also makes it possible to more significantly analyze the effects of market behavior. Assumption of rationality with regard to existing market beliefs as a result, the present market beliefs are taken into account in this study. This allows us to discover how the market responds in reaction to the decisions made by investors. It sheds light on the important part that anomalies (INC, RB, AB, etc.) play in the process of measuring the performance of investments. On the contrary, individual stockholders are content with, their investment success despite the existence of anomalies due to the effective application of heuristics in their decision-making.

The findings of the study showed that representative bias and anchoring bias positively affect investment decision. However, individual numeric capabilities do not affect the investment decision of the investors. The results show that when investors are biased they tend to be more satisfied their investment decision. On the contrary, numeric capabilities of investors is not a factor that keep them satisfied their investment decisions.

Locus of control is used as a moderator in this study. The results of the study depict that when investors are of the belief that outcome of the decision is dependent of their efforts, this phenomenon increase the effect of biases on their investment decision. Presence on locus of control enhances the satisfaction from investment decision of the investors especially when they are biased. However, results also revealed presence of locus of control do not affect the relationship between individual numerical capabilities and the investment decision.

**Implications of study**

These insights can be useful for both researchers and practitioners. The study exposed the factors that distract the individual investors of PSX from behaving logically and rationally and feeling over satisfied about the incorrect investment decisions. Results of research are reflection of Dongal (2020) study's results that investors use mental short cuts to avoid complicated calculations and behave irrationally. The findings of investigation will help the individual investors of PSX to be familiar with the factors that create irrationality in their decisions and consider those aspects while making investment decisions in future. Moreover; study will assist to recognize their behavior and its impact on investment decision making which will help to generate more earnings. This research will assist personal investors as well as other players of the stock market who join to operate for their clientele in determining how to avoid biases and inconsistency in their day-to-day dealings by providing them with useful information. Policy makers will understand role of behaviors and importance of numeracy capabilities in investment decision making to enable them make policies seeing their ascendency on investments.

**Limitations and Future Research Direction**

This study depended on a sample size of 400 members which was chosen through convenient sampling techniques from stock exchange. Information was gathered through survey. Future researchers can use larger sample size in enhance reliability of the results. There are other variable that moderate the relationship between behavioral biases and investment decision e.g. ego of the investor, religiosity and social capital of investors. Future researcher can unearth the role of these factors in the investment decisions.

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