

Heuristic Availability Bias's Effect on Investment Decisions: Moderating Effect of External Locus of Control

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Abstract

In this work, the impact of heuristic availability bias on financial decisions is attempted to be quantified. Besides, the external locus of control as a moderating variable has also been analyzed. The population of the research consists of investors who made investments in the Pakistan Stock Exchange. But 400 responses make up the sample. The responders got questionnaires online. A total of 293 complete replies were received. Moderation and regression analysis of the data were performed. The findings indicate that availability bias greatly affects investors' decision-making process. Later research revealed that locus of control affects both financial responsibilities and availability bias. The government, the State Bank of Pakistan, Pakistan Stock Exchange, and educational institutions all advised giving investors education, protection, and awareness high priority. Better still, they could choose assets that would maximize return.

Keywords: Investment Decision, Locus of Control, Availability Bias.

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Introduction

Background of the study

Due to its central role as a venue for trading shares of publicly traded companies, the stock market serves as a leading economic indicator for every nation. The stock market facilitates investment by people (Khan et al., 2020) and lends a helping hand to enterprises (Castaneda, 2007). One measure of a country's economic health is the movement of its stock market. Everyone knows that when stock values go up, it means the economy is doing well, and when they go down, it means the economy is doing poorly (Jaswani, 2008). As of 2016, the Pakistan Stock Exchange (PSX) ranked sixth globally and first in Asia (Rasheed et al., 2018). The foundation of conventional finance rests on the sanity and reasoning of investors. The relatively

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young field of behavioural finance, on the other hand, contends that investors' emotions influence their decision-making and cause them to behave irrationally. Many investors rely on mental shortcuts like the rule of thumb when developing investment strategies. When it comes to bettering corporate governance and investment strategy, stock markets are vital. Aziz and Khan (2016) state that the stock market's primary advantage is that it encourages more individuals to invest. It is very uncommon for individual traders to make mistakes in trading due to their own behavioral biases (Chen et al., 2007).

Due to the overreactions and underreactions brought about by these bad investment decisions, the stock market becomes inept (Jiang & Li, 2020). According to Salamanca et al (2020) people having external locus of control believe that their triumphs are due to things outside their control, such fate, chance, or other people's choices. Rotter (1966) gives the opinion of locus of control as when someone believes that his/her abilities or actions are responsible for the final outcome. Locus of control mirrors an individual's feeling of agency over their own fate. Anyone who believes in a universal locus of control must be quite confident in themselves. This supports the idea that one may alter their surroundings or circumstances as well as the ensuing encouragement of personal responsibility. Domestic locus of control individuals are more prone to blame outside forces for their lack of agency and poor luck (Raymond & Hayes, 2014). The locus of control shows how one moves from feeling powerless in their surroundings to believing they can shape their own destiny there. We assume a discrete and unchanging internal locus of control. Agustina and colleagues (2020) state that those with an external locus of control look to other sources for direction.

One typical method that investors obstruct rational decision-making is by implementing heuristic rules, which may be useful in certain situations but result in significant bias and irrational behavior in others, write Kahneman and Tversky (1974). Still, research has shown the inefficiency of markets and the possibility of irrational decisions by investors (Daniel et al., 2002; Hirshleifer & Luo, 2001). As such, the heuristic values that investors have may cause them to behave differently in various markets (Subrahmanyam, 2007). Ahenkan (2020) recommended that the Ghanaian government promote investment possibilities and provide incentives to private companies that work to address climate change. Knowledge of the psychological components facilitates better rational decision-making by stock investors.

Rasheed et al (2018) demonstrated that the impact of representational bias and heuristic availability on investment choices is lessened by locus of control. Abdin et al. (2017) examined how the biases of investors influenced their decisions in their research. Reviews of the literature on organizational behaviour show that an external locus of control modifies the interaction between many elements (Chhabra & Mohanty, 2016; Phuong, 2016).

High locus of control investors are more prone to be risk-tolerant, claim Gambetti and Giusberti (2019). Previous research studies highlighted the relationship of heuristic availability bias, investment decisions and locus of control (Abdin et al., 2017; Salamanca et al, 2020). However, Salman (2020) suggested that external locus of control should be examined as moderating factor on the link between heuristic availability bias and investment decisions.

Research Questions

- i. Does IDM affected by HAB?
- ii. Does the relationship between HAB and IDM become moderated by ELC?

Research Objectives

- i. To investigate the effect of HAB on IDM
- ii. To analyse the moderating effect of ELC on HAB and IDM

Literature Review

Individual Investment Decision

Throughout their lives, humans serve as potential solutions or courses of action that ultimately lead to a decision; among these options, some are crucial, while others are supplemental and of lesser importance. Supplements are complicated and need a multi-step decision-making process, while other judgments are rapid. People don't gather information to make educated judgments; instead, they rely on their perceptions and the systems in place (Shah, Ahmad, & Mahmood, 2018).

New research shows that individual investors value autonomy and would want to have a say in the mainstream financial industry's most popular and sensible investment alternatives (Kubilay & Bayrakdaroglu, 2016). The investment choice process involves investing with the expectation of future benefits and interests. The investment landscape is dynamic, but you can stay ahead of the curve by thinking logically. Having the best investment decisions is a goal of every investor (Raut, 2020).

Heuristic Availability Bias

According to Folkes (1988), availability bias occurs when an investor gives greater weight to their knowledge and experience than to publicly accessible facts. Rather of using their brains and reasoning, investors frequently only look at the data (Dangol & Manandhar, 2020). Investors often only depend on the data that is readily accessible to them. They do not care about the prospects and drawbacks of potential investments (Folkes, 1988). Moreover, based on the information investment received, investors prefer to put their money into local businesses (Waweru et al., 2008).

External Locus of Control

According to Rotter (1966), locus of control plays a crucial part in their perspective on the world. The concept's significance is shown by the extent to which an individual's locus of control impacts their investment decisions. According to Spector (1988), this perspective shows how much one's feelings are influenced by factors within one's own control (such as one's own efforts, abilities, and perseverance) or by factors outside of one's control (such as one's surroundings, which may be influenced by things like chance and luck). Those who put their faith in other people often feel helpless since they can't change the way things turn out, in contrast to self-reliant people who take full responsibility for their actions. Individuals who perceive a greater impact from their position within the organization are more likely to be receptive to requests

made by those in charge, according to research by Chiu et al. (2005). There is a robust relationship between locus of control and investment behavior (Johnsi & Sunitha, 2019).

Availability Bias and Investment Decision-Making

When making financial choices, a decision maker depends on their knowledge and expertise, which boosts their confidence. Investors put their faith on easily accessible data instead of exploring other options and methods. A result of availability bias is the irrationality of investment choices (Folkes, 1988). Consequently, investors gravitate toward local, well-known enterprises because of the abundance of readily accessible information about them (Waweru et al., 2008). This happens because investors can readily imagine the result, say Tversky and Kahneman (1974). Investors' investing choices are impacted by availability bias. Investors' availability bias had a beneficial effect on their investment selections, according to Khan (2015) and Ikram (2016). According to Brauer and Wiersema (2012), investors respond based on information about the performance of securities after comparing it to the performance of other firms. In order to stay ahead of the competition, investors must move swiftly on the information they have (Bowers et al., 2014). This might lead to illogical choices made via the use of heuristics and other shortcuts.

Locus of control as moderator

Internal locus of control is when a person credits their efforts for positive results; external locus of control credits things like fate, luck, chance, or other people's influence (Selart, 2005). In their paper, Szilagyi (1976) address the significance of an investor's locus of control while making investment choices. Unable to own up to mistakes might lead an investor to make prejudiced decisions (Davis & Bobko, 1986). This phenomenon affects decision-makers at the executive level, like managers and executives, as the outcomes of their acts are completely within their domain of control (Boone et al., 1996). The kind of investment and the investor's time frame affect how in control the investor feels about the outcome of the investment (Lam & Schaubroeck, 2000). Some investors, notwithstanding their arrogance, will attempt to take all the credit (Gervais & Odean, 2001).

Prospect theory

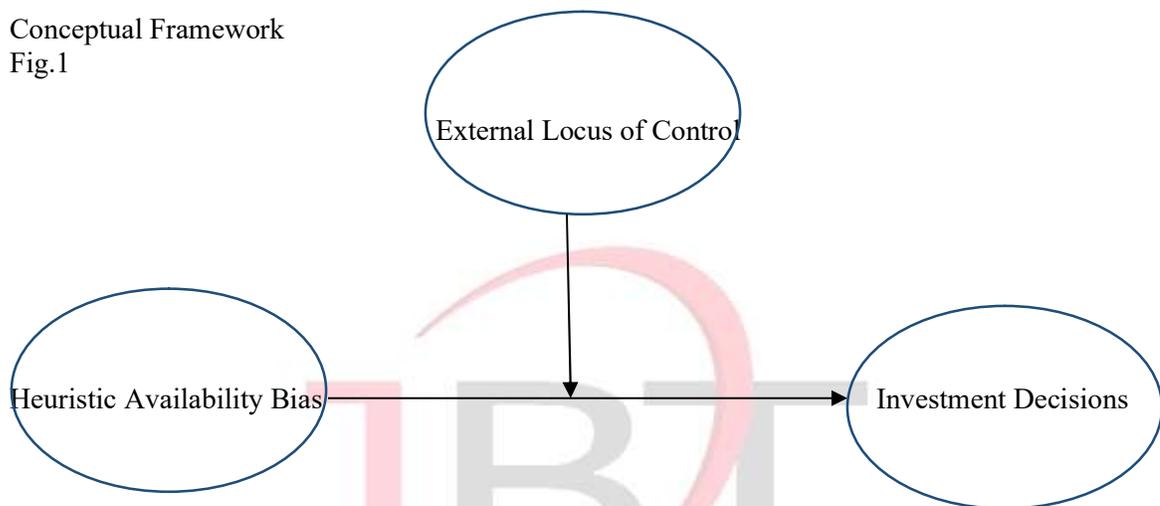
Prospect theory holds that investors make irrational judgments because they don't utilize all the information at their disposal; instead, they base their evaluations and choices on subjective appraisals of worth (Wang, 2017). Prospect theory contends that alternatives for profit and loss affect investors' inclination toward gains over losses (Hosseinpour et al., 2022). Put otherwise, investors make their decisions mostly based on their potential earnings rather than their potential losses (Lude & Prügl, 2019). According to prospect theory, investors give greater weight to profits than losses, based on how they perceive them. An investor will choose the higher expected return when given two equally good options. The loss-aversion theory and prospect theory are interchangeable terms.

Heuristic theory

Psychologists characterize heuristic biases as trained mental quick cuts that help investors solve problems and make choices, especially in circumstances involving complexity and little

information (Ahmad, 2021). Three decision-making heuristics proposed by Tversky and Kahneman (1974) are anchoring, availability, and representativeness. In cognitive psychology, a heuristic is a method of making a quick and reasonably good (but not perfect) choice, prediction, or inference when faced with ambiguity.

Conceptual Framework
Fig.1



Hypotheses

H1. HAB significantly influences IDM.

H2: the link between HAB and IDM is moderated by the ELC

Methodology

Population of the study

The population of the study is comprised of registered investors on Pakistan Stock Exchange. A total of 235,406 registered investors made up the population (Securities & Exchange Commission of Pakistan, 2021). The investors were diverse and invested in several projects and stocks.

Sample size, sample frame, and sampling technique

The sample size was determined through Yumani (1967) formula which found 400 sample size. The formula is $n = N / (1 + Ne^2)$.

Sampling

Convenience sampling a kind of non-probability sampling approach was used for sampling. There are several benefits of convenience sampling such as cheap or less costly, efficient, and easy to apply. Convenience sampling has the major drawback of not being able to generalise the results.

Data collection Tools/methods

The data from the respondents were collected through online questionnaires. A total of 400 questionnaires were distributed and 293 questionnaires were received with a response rate of

73%. The respondents voluntarily participated in the survey. The data collected was analysed through SPSS-28 version.

Results and Discussions

The questionnaire has two sections. The first portion of the questionnaire is mostly focused on the required demographic questions. Section 2 addressed the magnitude of study variables. Respondents were assured anonymity throughout the data-collecting process to provide honest information. Four hundred people in all were contacted for the online data collection. Just 293 completed surveys, or 73.25 percent of the total, were returned, however. Just 293 of the surveys received replies.

Several statistical tests are used to determine the significance of the data, such as the mean, reliability, correlation, and regression. It will also either confirm or disprove many theories. Using a basic linear regression, we first investigated the relationship between two variables. Subsequent analysis was carried out using the multiple regression technique. The independent and dependent factors of the study are confirmed to be associated by means of multiple linear regression analysis.

Table 1. Reliability Analysis

S. No.	Name of Variable	Items	α
1	HAB	5	0.769
2	ELC	7	0.827
3	IDM	6	0.732

Table.1. above displays Cronbach's Alpha. The reliability metric Cronbach's Alpha is regarded as satisfactory at values above 0.70; all of our variables are within this range.

Table 2. Correlation Analysis

S.No	Variables	1	2	3
1	HAB	1		
2	ELC	.782**	1	
3	IDM	.559**	.574**	1

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

The table.2 above shows the relationship between the variables of the research study. HAB as well as ELC are significantly and positively correlated ($r=0.782$). We find a correlation ($r=.559$, respectively) between HAB and IDM. Moreover, the IDM ($r=.574$) is positively and significantly correlated with the ELC

Regression Analysis

The modified R-square indicates how much variations in the independent variables may explain the variation of the dependent variable. By the R Square value of the equation, HAB explains

31.9 percent of the variation in the investment decision. The result is in line with the previous studies such as (Agustina et al., 2020; Caliendo et al., 2022)

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.565a	.319	.315	.51720

a. Predictors: (Constant), Heuristic availability bias

The table.3. illustrates that an F value of more than 74.08 and a sign value of less than 0.05 are indicators of a fit model. If the significance threshold is more than 0.05, one tends to conclude that the model does not fit the data well. The results enable us to state that the model is statistically significant.

Table 4. ANOVA a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.818	1	19.818	74.085	.000b
	Residual	42.265	158	.267		
	Total	62.083	159			

a. Dependent Variable: Investment Decision making

b. Predictors: (Constant), Heuristic availability bias

The dependent and independent variables' interactions are shown in the following table. The table shows that HAB has a positive impact on IDM, with a beta (effect strength) of 0.691. When compared to the suggested 1.96, the t-value of 8.607 is greater, and the sig-value is 0.000, or 0.05. The HAB does not have a statistically positive effect on investment choices, as shown by the t and sig data.

Table 5. Standardized and Unstandardized Coefficients

Model		B	SE	Beta	t	Sig.
1	(Constant)	1.337	.317		4.222	.000
	Heuristic availability bias	.691	.080	.565	8.607	.000

a. Dependent Variable: Investment decision making

Moderation Analysis

Using the Hayes process macro the moderation analysis has been explained below.

Table 6. Moderation Analysis

	β	SE	t	p
Moderating effect on investment decision-making (moderation external Locus of control)	.151	.075	1.99	.047

We have reviewed the results from the moderation analysis. The results of the moderation analysis are given in this table. Statistically significant effects of moderation were shown. The information in the preceding table indicates a statistically significant link ($b = .151$, $p = .047$) between investment decision-making and heuristic availability bias. The findings suggest that H1 and H2 are accepted. The results are consistent with recent studies that show HAB having a significant impact on IDM and ELC as a moderating factor (Agustina et al., 2020; Caliendo et al., 2022).

Conclusions and Recommendations

Conclusion

Assessing the influence of HAB on IDM is the main aim of this study. It illustrates even further how HAB, ELC, and IDM are related. Given the research goals, two hypotheses have been developed. The first hypothesis holds that the heuristic availability bias significantly affects investing decisions. The second, however, maintains that the ELC acts as a moderator on the relationship between HAB and IDM. The results of the research indicate that heuristic availability bias influences investment choices even while external locus of control acts as a moderator. The results also suggest that investors should rely more on their expertise and experience and make more solid investment decisions. Moreover, most individual investors on the Pakistan Stock Exchange suffer from heuristic availability bias.

Furthermore, supported by other studies, the ELC modifies the investors' decisions in the stock market as well as the HAB. In other words, investors' decisions are influenced by the effect of investors' attitudes. These findings suggest that investors choose their investment projects based on the information at hand. Moreover, it is also revealed that investors on the Pakistan Stock Exchange incur higher risks when they have an outside locus of control. The findings of the study support earlier studies that also assert that heuristic availability bias has a major impact on stock market trading decisions. Furthermore, heuristic availability bias and investment choices are moderated by an external locus of control (Agustina et al., 2020; Caliendo et al., 2022; Dangol & Manandhar, 2020; Ikram, 2016).

Recommendations

The suggestions presented as the study's result are listed below to assist policymakers in putting them into practice.

Training for investors: Investors want to provide instruction on stock market investing. The training needs to be offered by many agencies and organizations at various levels. In this sense, the Pakistan Stock Exchange and State Bank of Pakistan need to be involved actively. It should provide investors thorough training programs tailored to maintain the economic and practical conditions of the nation. Though encouraging, the State Bank of Pakistan's fake trading project has to be strengthened while maintaining the real-life conditions.

Government policies: Before the government, a major stakeholder, collaborates with the State Bank of Pakistan and PSX to create workable laws, the training advice mentioned above cannot be carried out in full. Furthermore, attractive policies for investors should be developed and put into effect by the government about stock market investments.

Role of educational institutions: Education establishments should also create and adapt their curricula to meet the needs of the market about investing in education and knowledge of the stock market scenario. Making decisions and doing a real internship on the stock market is part of the curriculum, which might open doors for investors at the college or university level.

Investor protection: Government legislation ought to be passed to safeguard and secure investors, particularly small ones. Furthermore, while making dangerous investment choices, a system needs to support and direct the investors.

Implications

The current research study has several managerial or practice significances. Firstly, it helps the practitioners to invest in the stock market with rationality. It would help them to invest in the stock exchange by getting proper training and know-how about the patterns of the stock market. Secondly, the policymakers will be able to map out policies that benefit investors by safeguarding their stakes thanks to the research's findings. These measures can be reflected in devising relevant policies and regulations for stock market investments. Lastly, the research would help the country in terms of economic prosperity as viable stock market investment may lead to economic growth of the country.

Limitations and Future Direction

Like previous studies, the present one features several drawbacks that need to be addressed by the next researchers. Above all, the findings of the current research cannot be extrapolated because of the very small sample size. Therefore, to increase the accuracy of the findings, future researchers had to use a big sample size. Second, it is recommended that a longitudinal or time lag study be carried out to evaluate the behaviours of investors since the present research has employed cross-sectional data, which sometimes results in prejudices. Not to mention, because locus of control was used as a moderator, it is recommended that additional moderators, including risk, be included in future research.

References

- Abdin, S. Z. ul. (2017). *The Impact of Behavioral Factors on Investment Decision and Performance: Exploring Multiple Mediation Mechanisms* (The University of Lahore). The University of Lahore. Retrieved from <http://pr.hec.gov.pk/jspui/handle/123456789/10195>
- Aftab, M., & Nau, A.-. (2020). Behavioral Biases as Predictors of Investment Decision of Individual Investors in Pakistan. *SSRN*, 1–51. doi: 10.2139/ssrn.3619580
- Agustina, T., Gerhana, W., & Sulaiman, S. (2020). The Effect of Locus of Control, Learning, and Adversity Quotient towards Micro Business Success (Study on Entrepreneurship under Foster Group of the Banjarmasin Regional Government). *Journal of Wetlands Environmental Management*, 8(1), 21-32.
- Alsedrah, I. (2014). Behavioral Finance: The missing piece in modern finance. *Proceedings of the First Middle East Conference on Global Business, Economics, Finance and Banking*.
- Barber, B. M., & Odean, T. (2001). Boys will be Boys: Gender, Overconfidence, and Common Stock Investment. *The Quarterly Journal of Economics*, 116(1), 261–292. doi: 10.1162/003355301556400

- Bell, E., Bryman, A., & Harley, B. (2018). *Business Research Methods* (5th ed.). Oxford: Oxford University Press.
- Caliendo, M., Cobb-Clark, D. A., Obst, C., Seitz, H., & Uhlendorff, A. (2022). Locus of control and investment in training. *Journal of Human Resources*, 57(4), 1311-1349.
- Castaneda, G. (2007). Business groups and internal capital markets: the recovery of the Mexican economy in the aftermath of the 1995 crisis. *Industrial and Corporate Change*, 16(3), 427-454.
- Cooper, D. R., & Schindler, P. S. (2018). *Business Research Methods* (12th ed.). New York, NY: McGraw-Hill/Irwin.
- Cummings, C. L. (2018). Cross-sectional design. *The SAGE Encyclopedia of Communication Research Methods*. Thousand Oaks: SAGE Publications Inc. Retrieved.
- Dalati, S., & Marx Gómez, J. (2018). Surveys and questionnaires. *Modernizing the Academic Teaching and Research Environment: Methodologies and Cases in Business Research*, 175-186.
- Dangol, J., & Manandhar, R. (2020). Impact of Heuristics on Investment Decisions: The Moderating Role of Locus of Control. *Journal of Business and Social Sciences Research*, 5(1), 1–14. doi: 10.3126/jbssr.v5i1.30195
- Dervishaj, B. (2018). Psychological Biases, Main Factors of Financial Behaviour-A Literature Review. *European Journal of Medicine and Natural Sciences*, 2(2), 54–64. Retrieved from <http://journals.euser.org/index.php/ejmn/article/view/4390>
- Folkes, V. S. (1988). Recent attribution research in consumer behavior: A review and new directions. *Journal of Consumer Research*, 548–565.
- Gambetti, E., & Giusberti, F. (2019). Personality, decision-making styles and investments. *Journal of Behavioral and Experimental Economics*, 80, 14-24.
- Ganesh, HR, & Aithal, P. S. (2022). How to Choose an Appropriate Research Data Collection Method and Method Choice among Various Research Data Collection Methods and Method Choices During Ph. D. Program in India? *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 7(2), 455-489.
- Ghauri, P., & Gronhaug, K. (2010). *Research Methods in Business Studies* (4th ed.). Harlow, England: Pearson.
- Gutter, M. S., Garrison, S., & Copur, Z. (2010). Social Learning Opportunities and the Financial Behaviors of College Students. *Family and Consumer Sciences Research Journal*, 38(4), 387–404. doi: 10.1111/j.1552-3934.2010.00034.x
- Hofstede, G. (1980). Culture and Organizations. *International Studies of Management & Organization*, 10(4), 15–41. doi: 10.1080/00208825.1980.11656300
- Hosseinpour, H., Khodamipour, A., & Pourheidari, O. (2022). The impact of the prospect theory value on the relationship between liquidity risk and returns. *International Journal of Islamic and Middle Eastern Finance and Management*, (ahead-of-print).
- Ikram, Z. (2016). An Empirical Investigation on Behavioral Determinantson, Impact on Investment Decision Making, Moderating Role of Locus of Control. *Journal of Poverty, Investment and Development*, 26, 44–50. Retrieved from www.iiste.org
- Ishfaq, M., Nazir, M. S., Qamar, M. A. J., & Usman, M. (2020). Cognitive Bias and the Extraversion Personality Shaping the Behavior of Investors. *Frontiers in Psychology*, 11. doi: 10.3389/fpsyg.2020.556506
- Israel, G. D. (1992). *Sampling the evidence of extension program impact*. Gainesville, FL:

University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS.

Jiang, J., & Li, H. (2020). A new measure for market efficiency and its application. *Finance research letters*, 34, 101235.

Salamanca, N., de Grip, A., Fouarge, D., & Montizaan, R. (2020). Locus of control and investment in risky assets. *Journal of Economic Behavior & Organization*, 177, 548-568.

