

# Behavioral Financial Factors and their Impact on Investment Decisions Quality: the Mediating Role of Rationality

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**Abstract:** The study aimed to examine the impact of behavioral financial factors on investment decision quality through rationality by applying it to investment companies in Jordan. The study population include all investment companies in Jordan, the legal entity for the number of investment companies in Jordan has reached (974) existing investment companies, and because of the difficulty of accessing the entire community, a stratified random sample was drawn Proportional Stratified Random Sample includes 10 layers. (SPSS) and (AMOS) used to analyze data . The finding showed a significant effect of the behavioral financial factors on investment decisions through rationality. The strongest effect was the expectation theory , and the weakest for the trust factor. Recommendations were concluded, the most important of which are: educating the investment decision-maker about the importance of the role of behavioral finance based on its role which plays in making the investment decision.

**Keywords:** Behavioral finance, Investment Decision Quality, Rationality, Expectation theory, Herd Factor, Trust Factor, The Cognitive Bias Factor, Jordan

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## 1 Introduction

The investment decision is greatly affected by behavioral factors, which are a group of actions that investment decision makers take in an irrational manner when they make their investment decisions and may be important for understanding the reactions of investment decision makers and the ability to anticipate investment decisions and predict their returns [1]. This topic is significant because it combines two important areas: investment and psychology in companies that are still in the process of development and growth, and investment decision makers do not only make reasonable decisions based on their unbiased behavior [2]. As rational people, we can predict the future by being updated with market information and making accurate and economically feasible decisions every time based on that information [3].

Many previous related theories assume that investment decision-makers act rationally toward those decisions [4,5]. Chavali and Rosario (2019) confirmed and stressed that it is important to study the behavioral factors that affect investment decisions in order to understand and provide an appropriate explanation for these decisions [6]. Keswani et al. (2019) mentioned that it would be beneficial for investment decision makers to understand the common behaviors by which they justify their reactions to obtain better returns [7]. Therefore, the main aim of this study is to investigate the impact of behavioral financial factors on investment decisions in the presence of rationality.

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## 2 Literature Review

### 2.1 Behavioral finance

The investor's behavior and decisions have become a subject of study and research in recent years [8], and this is due to the importance of human behavior, as there are aspects of the investment decision-makers personality such as his attitudes and awareness of risks, as well as his level of education and experience, all of which are factors that are reflected in the way he deals with the investment decision [9]. Understanding these behaviors leads to making correct investment decisions because the motives for those decisions and their outcome are determined by the behaviors of the investment decision-maker [10]. Behavioral finance suggests that psychological factors and emotion have a significant impact on investment decisions, with emotions such as panic, fear, envy, greed, contentment, vanity, and ambition all overlapping to varying degrees when making investment decisions [11, 12].

Behavioral finance is still considered a relatively new approach during historical periods, and research developed behavioral finance when the traditional theory was unable to maximize the benefit for rational investment decision-makers within efficient markets [13, 14]. as the beginning of behavioral finance was in the last century during the 1950s, and it gradually developed until 1970, and it appeared strongly with the work of Amos Tversky and Daniel Kahneman in 1974, where it appeared in the article titled "Judgments Under Conditions of Uncertainty, Experiments, and Prejudices," where the foundation of behavioral finance was laid, which is characterized by its taking into account psychological principles and one of the most important The work in the development of behavioral finance What the researchers presented in the "expectation theory," which stated that the investment decision uses cognitive psychology techniques, explains a number of anomalies in rational investment decision-making [15]. The behavioral financial factors, which in turn affect investment decisions, are summarized to include the following dimensions [16]:

**Theory of expectation:** The theory of expectation is considered a reference for any rational choice, and the focus is on this theory when analyzing the factors influencing investment decision-making in light of risk, but this theory is unable to explain why the investment decision-maker is attracted to adventure when making the investment decision, and in contrast, the expectation theory The factors influencing the investment decision-making process are identified and include regret avoidance, loss avoidance, and mental processes [17, 18].

**The herd factor:** Investment decisions are dependent on and influenced by the decisions of surrounding investors and rumor spreaders, which affect the expectations of the investment decision-maker himself, his psychological state, and information and news that cannot be trusted permanently [19]. The herd factor in the markets depends on some investment decision-makers making investment decisions similar to those made by those large crowds in the market, which are usually ignored by the rational investment decision-makers; also, the herd factor weakens market efficiency [20].

**Cognitive bias:** is defined as a regular pattern of deviation from the norm or the rationality of judgment, in which investment decision makers create their own reality through their perceptions of inputs that are not objective, leading to cognitive distortion in the individual, inaccurate judgments, and illogical interpretations, which are referred to as "irrationality" [21]. Cognitive bias, on the other hand, means that investment decision makers give more weight to information that confirms their viewpoints than information that contradicts them; when they form certain hypotheses or perceptions, they use evidence that does not serve their interests, and thus they will believe in their viewpoint despite its contradiction with available data [22].

**Trust factor:** The trust factor leads investment decision-makers to buy high-priced shares and sell them at a low price, where excessive confidence has been linked to an increase in the amount of trading and where there are price bubbles in the financial market because investment decision-makers tend to build beliefs that confirm their previous convictions and ignore the evidence against what they see [23]. that it is coherent and convincing, and the reason is that people carry an excessively positive image of themselves, and among the investment decision makers are those who believe that experts possess special abilities that enable them to choose stocks with high returns in the short term, and this is the opposite of what came from the theory of efficient financial markets and what was confirmed by the literature on consumer behavior [24].

### 2.2 Investment decisions

Investment decisions are among the most difficult for management or the investment decision-maker to make because of their impact on the investment company's continuity and survival. The direct correlation between the returns and related risks from these investments and the traditional theories for long periods were the eye of the organization for all investment decisions, as they indicated that the investment decision-maker relied on prediction and evaluation based on economic indicators, which were related to the published financial statements or the situation of the economy in general. After investigation and research, it was found that the investment decision-maker is influenced by his personal characteristics, the extent of his knowledge, his emotional biases, and a group of behavioral factors that he follows [22, 25].

Investment decisions are usually associated with several characteristics, including conditions that depend on time because the results of investment decisions need a period of time in order to be achieved and some conditions that depend on the conditions of the decision because they are related to risk and uncertainty in making the investment decision, including conditions that depend on the financing aspect. For the project, because it is related to the method of financing the project in making the investment decision, and for more detail on these characteristics, we highlight the following dimensions [26,27].

**The time dimension:** There is a period of time that separates the initial expenditures from the completion of obtaining the expected future returns, as the returns are not obtained once but over a period of time not less than one year, where the problem of the time value of money appears, and several elements branch out from this dimension, namely [24].

**After the circumstances of the decision:** The investment decision is surrounded by many problems and conditions that must be overcome, such as uncertainty, risk, and the inability of many variables to be quantified, all of which require a scientific methodology in order to deal with them. Therefore, the most important characteristics of the investment decision lie in the conditions of the decisions themselves, and several elements branch out from this dimension [26].

**Financing structure factor:** Where the process of financing investment decisions is considered one of the most important aspects that must be studied during the investment decision process, which entails the method of financing the future project, the company allocates available resources such as retained earnings, which is considered one of the least expensive internal sources of funding, or financing through long-term loans, which is called debt and is considered the most expensive due to the benefits and additional financial burden that result from it [24].

### 2.3 Behavioral financial factors, investment decisions quality and rationality

Rationalism has been used as a method of application and deductive analysis since the time of Greece, based on information that confirms that there is an objective truth common to all and that the facts extracted after that are self-evident, but in real life they often involve uncertain facts. Despite this, philosophical systems dealt with rationality at a later time, which enabled economists to conclude that the investment decision-maker can reach a rational investment decision without any excuses at all. The economist Karl Marx began in 1864 with an interest in rationalism when making investment decisions. He classified the types of investment decision-makers into two categories: rational and irrational. As for the rational, in his opinion, he sets his goals and possesses sufficient information to achieve them, while the irrational lacks goals and information [22].

The researchers suggested different situations where they mentioned that rational minds should not be trusted because rationalism is related to hypothetical human behavior, which indicates that the individual seeks rationalism to reach his goals in the best and shortest way with the fewest mistakes, and in fact there are no individuals who act objectively and impartially. He completely circumvents the facts and defends his beliefs strongly. If he is satisfied with himself, he will constitute an obstacle to development and disrupt his critical thinking because rationalism is based on logical matters such as argument, proof, conclusion, inference, and measurement, and judgments that are based on emotion are not accepted [28].

On the other hand, investment decision makers resort to wise rationalism in their actions when the necessary information is not available at the specified time, or when there is a failure to analyze alternatives according to the desired goals, or when the goals are confusing, or when they avoid making investment decisions in case of danger. Most investment decision makers do their best to represent rationalism and its application to achieve the best goals given the nature and magnitude of the risks involved in the obstacles.

Many previous studies talked about the topic of the current study. The study [24] aimed to explore the impact of behavioral financial biases represented in its two dimensions (availability bias and representational bias) to reveal the course of events on investors' decisions in the Pakistani Stock Exchange, and one of the results of the study is that availability and representational bias have an important and positive impact on investors' investment decisions. Another study [29] sought to discover the relationship between the dimensions of electronic banking service quality and customer behavior, as well as their purchase intentions with intervening customer satisfaction, and discovered that reliability, efficiency, and responsiveness of communication, security, and privacy have a significant positive impact on the purchase intentions of customers in Qatar. As for the study [26], which aimed to search for the impact of personal properties on investors' decisions through risk tolerance and extra-version, one of the study's findings is that extra-version has a significant positive effect on investment decisions and that risk tolerance partially mediates the relationship between extra-version and investment decisions. study of Somathilake (2020), which aimed to search for factors in their three dimensions (accounting information, neutral information, and recommendations) that affect individual investment decisions in the Colombo Stock Exchange, and one of the results of the study is that both neutral information and recommendations affect the individual investment decision [30].

A study by Theo and Lasmiyanto (2020) aimed to investigate the impact of behavioral finance on the decision to invest in gold tools, where a number of behavioral factors such as fixation, availability bias, information asymmetry,

representational bias, and risk aversion were chosen [22]. It has a significant impact on the decision to invest in gold tools, while behavioral factors such as risk aversion, representational bias, and fixation have no effect on the decision to invest in gold tools. According to [28] which aimed to search for the effect of behavioral finance on making investment decisions using selected investment banks in Nigeria, and one of the study's findings is that there is a relationship between probability theory and the individual investment decision. According to the study of Chavali and Rosari (2019), one of the findings is that there is a relationship between probability theory and the individual investment decision [6]. Also, it came up in the Prince (2018) study to measure risk management within the framework of behavioral financial theory, and one of the findings of the study was the existence of a new model for measuring and predicting risks based on the behavioral approach [31]. Based on the foregoing, the following study hypotheses may be proposed:

**H1:** There is a statistically impact of behavioral financial factors on the investment decisions quality through rationality in investment companies in Jordan.

### 3 Study Model

To achieve the aim of the study and to test the study relations, the researchers developed the study model in Figure 1, which shows the relationships between the independent variable represented by behavioral financing, the dependent variable represented by investment decision quality, and the mediating variable represented by rationality.

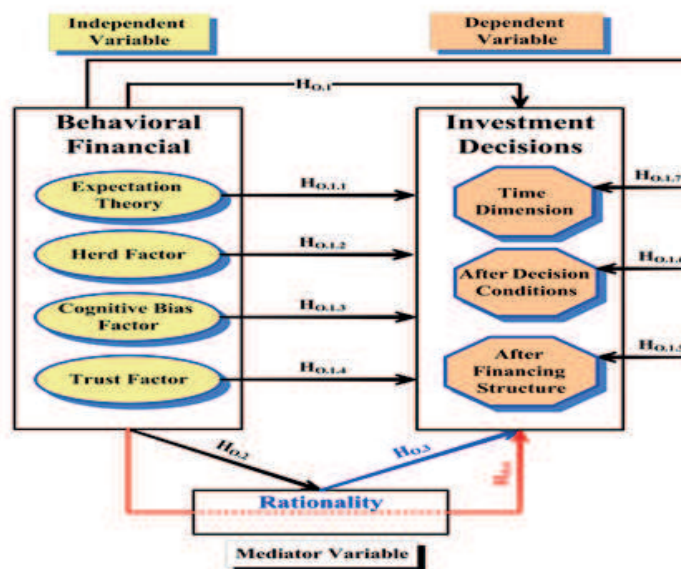


Fig. 1: Study model

### 4 Methodology

Based on the descriptive and analytical approach, we used descriptive and inferential statistical procedures, as well as hypothesis testing, simple and multiple regression analysis, in addition to tests of significance of partial regression coefficients, correlation coefficients, the coefficient of determination, the detection of multicollinearity, and autocorrelation, to reach the results and answer the study questions through the SPSS program and the Path Analysis Model using the AMOS program.

#### 4.1 Study population and sample

The population includes all investment companies in Jordan, and according to the report of the Ministry of Industry and Trade (Companies Control Department) in 2021, the legal entity for the number of investment companies in Jordan

has reached 974 existing investment companies. Because of the difficulty of accessing the entire community, a stratified random sample was drawn. Proportional A stratified random sample has ten layers based on the legal entity. In order to determine the proper sample size and be representative of the study population, and based on the law of the British mathematician (Thomas Simpson), the sample size of the limited communities can be calculated through the law 1:

$$n = \frac{Z^2 P(1 - P)}{e^2} \tag{1}$$

And since there is no historical information available to determine the proportion of the available population, P, it was adopted as the highest value, which is P = 0.5, and depending on the value of  $\alpha = 0.05$ ,  $Z(1 - \alpha/2) = 1.96$ , and when applying the above equation, we find that the required sample size is:

$$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} \simeq 384$$

This sample size represents any population [32,33,34,35].

#### 4.2 The results of the descriptive statistics

**Table 1:** The results of the descriptive statistics

Behavioral Financial Dimensions	Mean	Standard Deviation	Approval Degree
Expectation theory	3.84	0.734	High
Herd worker	3.67	0.790	High
Cognitive bias factor	3.74	0.721	High
Trust factor	3.95	0.667	High
Time	3.95	0.673	High
Conditions of the decision	3.97	0.703	High
Financing structure	3.86	0.746	High
Rationality	3.94	0.686	High

We note from Table 1 that the standard deviations of all dimensions are low, and this indicates that there is no dispersion in the answers of the study sample towards the items of the study tool. Each dimension was measured by five elements, the general index equal to (3.8) from the overall scale area which reflects a high level of agreement.

### 5 Results

To analyze and test this hypothesis, the Path Analysis model was used using the AMOS program, and its results were as shown in Table 2. They showed a significant effect of behavioral financial factors in investment decisions through rationality as a mediating variable, as measured by the Chi-square test  $\chi^2$ , as the calculated value was (52.670), which is greater than its tabular value and equal to (28.87), as well as through the test (CMIN/DF= 2.926), and it is statistically significant as the value of P= 0.00, which is less than 0.05.

Analysis found the GFI of 0.971, which approaches a correct one; the closer it approaches a correct one, the more this indicates a good fit of quality in the model (Good-Enough Fit); and it found the CFI of 0.986, which also approaches the number one integer; in addition to that, it found the RMSEA of 0.066, which approaches zero, which shows the good agreement of the model [36,37,38,39,40].

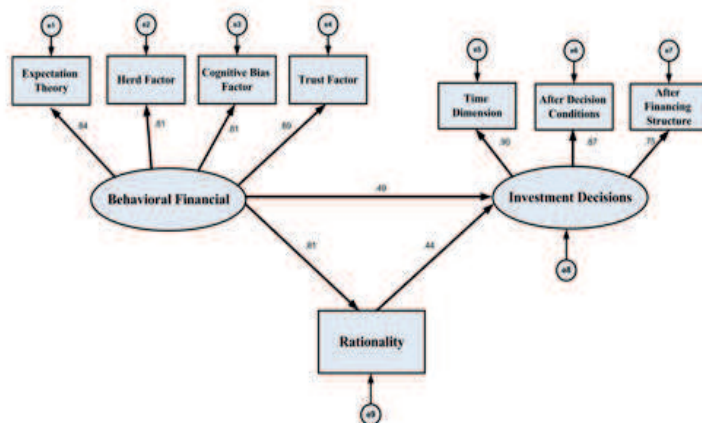
**Table 2:** Results of the path analysis model to verify the direct and indirect impact of behavioral financial factors on investment decisions quality through rationality

Paths	Direct Impact	Indirect Impact	Total Impact
Behavioral Financial -> Rationality	0.807	—	0.807
Rationality -> Investment Decisions	0.440	—	0.440
Behavioral Financial -> Rationality -> Investment Decisions	0.489	0.355	0.844
<b>Table Chi2</b>	<b>Chi2</b>	<b>CMIN/DF</b>	<b>GFI</b>
28.87	52.670	2.926	0.971
			<b>CFI</b>
			0.986
			<b>RMSEA</b>
			0.066
			<b>P</b>
			0.000

**Note:** CMIN: is the chi-square value, CMIN/DF: is a chi-square correcting for sample size which should be less than 3 in a good fitting model, GFI: goodness of fit index must approach 1, The indirect effect is by multiplying the direct effect values between variables, RMSEA: Root Mean Square Error of Approximation must approach to 0, Comparative Fit Index must be close to 1.

Table 2 and Figure 2 show that the standard direct effect of behavioral financial factors on rationality was 0.807, with a significant level of 0.05, while the standard direct effect of rationality on investment decisions was 0.440, and the effect was insignificant. In the presence of rationality, normative direct behavioral financial factors toward investment decisions. Accordingly, the behavioral financial factors were able to interpret a rate of 35.5 percent as an indirect influence on investment decisions through rationality in investment companies in Jordan.

Based on the preceding, we accept the study hypothesis, which states that behavioral financial factors have an effect on investment decision quality through rationality, with a total score of (0.844) at the level (0.05).



**Fig. 2:** The results of the path analysis model to verify the direct and indirect impact of behavioral financial factors on investment decisions through rationality

## 6 Conclusion

The study concluded that there is a statistically significant effect of behavioral financial factors in their combined and individual dimensions (expectation theory, the herd factor, the cognitive bias factor, and the trust factor) on investment decisions in their combined and individual dimensions (the time dimension, after the decision conditions, and after the financing structure), with a strong and direct relationship of 75.1%, and the behavioral financial factors were able to explain 56.4% of the change in investment decisions, with significant significance for each of the partial regression coefficients in the multiple and simple regression models. interpretation of 57.2% of the change in rationality with the indication of each of the partial regression coefficients in the model, in addition to the presence of an effect of rationality in investment decisions with a strong and direct relationship amounting to 79.9%, and rationality was able to explain 63.9% of the change in investment decisions, and there was also an effect of financial factors and behavioral dimensions combined in investment decisions through rationality, and I was able to interpret 35.5% as an indirect influence on investment decisions through rationality.

## 7 Recommendations

In the light of the results of the statistical analysis of the answers of the respondents, the researchers reached a set of recommendations as follows:

1. Educating the investment decision-maker about the importance of the role of behavioral finance, given the significant role it plays in investment decision-making.
2. Conducting more studies on behavioral and rational finance, given the great role they play in the world of decisions, in order to be more beneficial.
3. It is useful for investment companies to know the behavioral financial dimensions individually and collectively because of their importance in analyzing and making the appropriate investment decision.

4. The necessity of conducting training courses and directing guidance and advice with behavioral knowledge to investment decision makers so that their incorrect decisions are not fraught with risks and uncertainty as much as possible.

## Conflicts of Interest Statement

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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