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Presenting the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns

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Abstract

The current research aims to present the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns. This research is applied in terms of purpose. It is a descriptive-analytical one. The mixed research method is used in quantitative and qualitative parts. The statistical population of this research in the qualitative part is academic experts and managers of listed companies, who were selected using the snowball sampling method and theoretical saturation point. The tool for data collecting the qualitative part is a semi-structured interview derived from theoretical foundations. The analysis method of this section is using thematic analysis method. The quantitative part of the research used a researcher-made questionnaire tool derived from the qualitative research model after confirming the validity and reliability. Based on stratified sampling, the statistical population sample was estimated to be 213 people. Paths and causal relationships between external and internal constructs in the structural model were confirmed by confirmatory factor analysis. The results of this part of the research were explained in the form of four main categories and subcategories. The dimensions and components of the model include "the influence of optimism, pessimism and business periods on the behavior and decisions of investors, lack of accurate information and knowledge on the status of transactions in the stock market, overconfidence and optimism of investors, understanding and acceptance of risk by investors, the review of the companies' past performance by the investors and the review of the history of the environmental actions of the companies by the investors". The strategies of the model include "openness of thought and opinion, rationality and tendency to be curious, better investment recommendations by analysts, flexibility and adaptability to the situation, holding financial and investment training courses, information on the status of environmental and social issues of the companies and informing on the published information of the companies in the stock market". The model's drivers include "demographic factors, fundamental principles of the stock market, individual and psychological characteristics of people, capacity to overcome risk and personal values and beliefs". The consequences of the model include "understanding the analysis and interpretation of the results in the financial markets, the smoothing of profit through corporate social responsibility, preferring social benefit over individual benefit, increasing profit and social welfare, sustainable development and monitoring and control over stock companies and social legitimacy of companies". The results in the quantitative part showed that the path coefficients were more than 0.3 and the corresponding t was more than 1.96, so all the paths were checked and confirmed. The present study shows that the behavior of investors can be an effective factor in stock returns based on corporate social responsibility. The findings of theoretical and experimental studies also confirm this result. Therefore, disclosure of corporate social responsibility is affected by investors' feelings, and changes in investors' tendencies lead

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to the identification of risks and opportunities related to companies' stock returns and provide conditions for improving social responsibility activities.

Keywords: financial behavior model of investors, corporate social responsibility, perceptions of stock returns, behavioral finance
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1 Introduction

One of the most vital research programs of financial knowledge today, which is at the top of the theory of efficient markets, is the theory of financial behavior. The issue of behavioral finance is one of the new topics that were raised by some financial thinkers during the last two decades and quickly attracted the attention of professors, experts, and students in this field all over the world. The use of different sciences in solving problems faced by financial researchers has increased significantly in recent years. By stating the prospect theory, Kahneman and Tversky [19] provided the foundations for presenting a new school called financial behavior. In financial behavior, using the integration of psychology and finance, a perspective has been presented that can explain people's financial behavior in their decisions [1].

Most behavioral finance research focuses on the behaviors related to people's financial decisions. However, other studies of investors' behavior in personal decisions, financial planning, etc., can be interesting. From the neoclassical economic theory, it is deduced that economic man is a simple model of human economic behavior based on principles such as complete self-interest, complete rationality, and economic decision-making based on complete information [41]. Economic man is a special attitude that economists support to different degrees. It can be said that financial behavior tries to identify and learn from human psychological phenomena in the whole market and at the individual level [37]. Behavioral finance has also been successful in explaining the behavior of some groups of investors, especially regarding how to form a portfolio and how to make investment transactions over time; considering the expansion of the capital market and the increasing acceptance of people to this market, these studies will become more important in the future. In this part, some evidence about the behavior of investors and its behavioral explanations are presented [21].

For example, one of the behavioral observations of investors is that the "Insufficient Diversification" discussion shows that investors diversify their portfolios much less than what the normative models recommend. The studies conducted by researchers in this field show that most investors tend to invest in the issued shares of their own country. This behavior of investors is known as home bias [14].

Also, in behavioral finance, investors' perceptions of stock returns are a serious issue that has been paid attention to in recent research [6].

In the theoretical literature, investors' perception is defined as their level of optimism or pessimism regarding the horizon of investors in the capital market [35]. Variables such as the volume of stock transactions, the number of IPOs and the return on the first day of the IPO, the amount of the company's capital increase, and the market's reaction to the dividend can help measure investors' perception of the horizon of investors in the capital market. The improvement of the performance variables of the capital market shows that investors have a positive perception of the investment horizon in the capital market and vice versa. Directing the perception of the market through profit management is one of the managers' motivations. Investors' perception of the capital market is affected by macroeconomic factors and company-specific factors. For this reason, managers with financial reporting can strengthen or weaken the positive or negative perception of investors affected by macroeconomic conditions to strengthen rational or emotional behavior. Considering that corporate social responsibility and their managers differ in different economic conditions, investors' perceptions of the capital market can be correlated with selecting an optimal model for understanding and explaining corporate social responsibility by managers [31].

In this regard, Bazarkara's hypothesis states that when optimistic and irrational people buy a stock, rational investors sell it. When pessimistic and irrational people sell a share, rational investors buy it. As a result, it effectively removes the effect of irrational trading on the market price. In contrast, financial theory usually suggests that rational investors are not successful in neutralizing the effect of ordinary investors. From a theoretical point of view, it is far from mind that rational investors have the power to direct market prices to intrinsic values [3]. For example, in a model where there are both groups of feedback traders and rational investors, rational investors prefer to reduce the feedback rather than the influence of the traders and strengthen the feedback by buying ahead of the traders. In a related model, rational investors expect to maximize their expected utility and never seek to offset the impact of irrational investors because they are rationally associated with the risk posed by irrational investors. If the risk borne by irrational investors is neutralized, other investors must bear it [30].

The financial behavior of investors can also be justified and explained according to the social responsibility of the companies they invest in.

Disclosure and social reporting transfer information related to the social and environmental responsibilities of the company's economic performance to society. Expanding the organization's responsibility implies that its responsibilities have gone beyond what it was in the past, that is, "providing money for shareholders". Moving toward social and environmental responsibilities is a necessary factor that leads to the continuation of the organization's activity in the long term. Extensive studies and research at the end of 2002 by the Pricewaterhouse Coopers Institute at the international level indicated that nearly 70 percent of senior managers believe that showing the company's social responsibilities has a significant impact on the profitability of the company's activities. The cost of capital is the minimum rate of return required to maintain the company's market value. The cost of capital is considered a fundamental factor in decisions related to investment, capital budgeting, working capital management, establishing an optimal financial structure, helping to measure performance, and determining the company's value by helping to discount cash flows [25]. Based on this view, company managers should feel responsible towards their shareholders and investors. By carrying out activities that are caused by the company's social concerns, the company achieves some degree of self-governance and with such self-imposed controls, it reduces government interference [13]. This issue, in turn, reduces conflicts between government organizations and institutions. In the general view, this view is consistent with the third stage of the historical process, according to which the organization is required to work towards solving the problems of society. As a result, profitability is only one of the goals of an economic enterprise. Proponents of this philosophy believe that because society has granted permission for the company to operate and use scarce resources and created the right environment for it to earn profit, the company should consider itself indebted to society and always consider itself its servant [29].

The ambiguous issue is how the financial behavior of investors concerning corporate social responsibility is related to investors' perception of the capital market and returns; Although this perception can be positive or negative; Also, investors' perceptions of stock returns can be effective in the relationship between financial behavior patterns of investors and corporate social responsibility, and so far no pattern has been designed and formulated in this regard and considering these variables.

2 Theoretical foundations of research

2.1 Definitions

2.1.1 The concept of investor behavior

The attitude (feelings) of the investor can affect the stock price in two ways. First, because the investor's assessment of the intrinsic value of securities can be based on their mentality (in other words, the attitude of investors) and done intentionally. Second, on the basis that the investor may react irrationally to resolve the existing uncertainty. By reviewing the identity of the market, the behavioral approach of the market recognized the fact that investors are not rational but are normal, and systematic distortions in their tendencies cause them to enter into transactions based on non-fundamental information, this issue is called emotions [11].

To provide long-term resources for investment in various economic sectors, the capital market has played a major role in the economic growth and development of advanced countries, among which, the stock exchange is considered as the main part of the capital market. The main role of the stock exchange as a fundamental pillar of the formation of the capital market is to attract and direct the wandering and scattered savings and liquidity of the society to the optimal paths and direct it towards productive investment [15].

The stock exchange is an economic market in which the buying and selling of securities under the regulations and laws affect it and cause it to fluctuate. Investigating and analyzing the behavioral finance of investors and market participants is one of the nascent topics of the field of financial management based on the approaches in This field of investors' decision-making is not only based on quantitative and rational analysis, but factors resulting from market expectations will also have a great impact on the way shareholders react to market interactions. Psychology and decision-making [27].

In classical financial theory, it is assumed that investors are rational. Also, according to the efficient market hypothesis, the stock price reflects all the company's information. According to the behavioral finance literature, the assumption of investors' rationality and belief in the efficiency of the stock market has been criticized by experts [23]. Critics say that in addition to the factors, the basic behavioral and emotional conditions of investors should also be considered, investors are not completely rational and rational and they make wrong decisions based on emotions in

the decision-making process. Investors' emotional decision-making causes stock prices to deviate from real prices and leads to incorrect stock pricing [27]. The incorrect pricing of the company's shares affects the financing decisions and consequently the company's investment decisions and causes deviation of the decisions of the company's governing bodies from the optimal investment decisions. Such a deviation will not result in the efficiency of the company's investments. Emotional decisions of investors have an unfavorable (negative) effect on the investment efficiency of companies [12]. On the other hand, non-optimal and inefficient investments are rooted in agency theory, information economy theory, and issues such as agency costs and information asymmetry. Based on the agency theory, the existential philosophy of all kinds of corporate governance mechanisms is to reduce the problems caused by information asymmetry and reduce the possible conflict of interests between owners, creditors, and management [18, 26]. Corporate governance can improve the company's investment efficiency in different ways to moderate the adverse effects of investors' emotional decision-making [43].

Emotions play a major role in decision-making, and in many cases, investors lean towards one of the two ends of the spectrum between the two spectrums of rationality and emotions [2, 5]. Emotional distortions are the main root of the occurrence of decisions based on emotions. When investors feel optimistic or pessimistic about decisions in the decision-making process, the spectrum of decision-making moves away from rationality and leans towards emotions, which results in making decisions based on emotions [23, 39].

In general, when the sentiments in the capital market are discussed, the subject of investors' sentiments and the sentiments of the market are considered as mentioned in the definitions, investors' sentiments are their expectations about cash flows and risks related to it [7, 34].

However, market sentiment is the perception of investors that the market will fall or rise shortly. In other words, capital market sentiments are the result of investors' sentiments and their expectations of future price trends in the capital market [28, 36].

2.1.2 Corporate social responsibility

The concept and definition of corporate social responsibility have evolved significantly since its initial appearance in the 50s, and during this period, this concept has evolved from inconsistent and voluntary procedures to a clear and explicit commitment in response to stakeholder pressures gradually It has become an immediate continuous obligation. Despite these significant changes in the perspective of corporate social responsibility with suitable literature, the problems caused by its definition remain. According to researchers, there is no specific definition of corporate sustainability, and each organization needs to design its definition in a way that is useful for its goals and objectives [42]. Although it seems that companies assume corporate sustainability and corporate social responsibility are synonymous and based on voluntary activity that includes attention to society and the environment. He examined the different definitions of corporate sustainability and the different responsibilities of corporate sustainability and corporate social responsibility and concluded that although they originated from different backgrounds, both of them tend to match financial responsibilities with corporate social responsibility and the environment of the company [22]. Some researchers have considered the sustainability of the organization as an approach to the conceptualization of the corporate social responsibility of companies [8].

In general, the term corporate social responsibility refers to the emergence of a movement that seeks to include environmental and social factors in the business decisions of companies, business strategy, and accounting to increase social and environmental performance along with economic dimensions in such a way that for the business unit, society, and the environment be useful and beneficial [38].

2.1.3 Perceptions of stock returns

Perception is the process by which environmental stimuli are organized and interpreted to achieve meaningful experiences. Perception includes awareness of events, people, objects, and situations. A very basic point in understanding perception is that people's unique interpretation of organizational situations does not necessarily correspond to reality; That is, the interpretation of reality is different from reality itself, and people act based on their perception of reality, not reality itself, in other words, perception is a process by which people adjust and interpret their thoughts and perceptions of their environment, and thereby they give that meaning [17].

Behavioral financial management examines how managers collect, interpret and process information, especially this field of financial knowledge focuses on cognitive and perceptual biases. In this science, it is thought that models can influence behavior and Shape decisions These biases can interfere with the decision-making process and lead to sub-optimal outcomes because emotions override personal control and shape our behavior. Behavioral and decision-

making scientists found that under certain conditions, people make mental errors in their judgments, and these errors can lead to false expectations, cause incorrect pricing of securities, and ultimately lead to unreasonable decisions [33].

On the other hand, it is clear that cognitive abilities play a major role in people's decision-making. Those who have a strong perceptive ability operate at a higher perceptive level and have a high ability to process information and act rationally in their decisions. A group of scientists believe that the factors and emotions that are in the subconscious level of a person affect his mind and lead to thoughts. He shapes, so while unconscious factors and their influence may be the main reason for making a decision; The reasons that a person gives at the level of self-awareness for his decisions may be the only justification or excuse for the decision, so to organize the error of investor psychology, two levels of technology (thinking and feeling) and social (relationships) should be considered. Since the time of Adam Smith, the dominant view of organizations has been that they derive their power from investors, employees, and suppliers to produce goods and services for their customers. In this view, organizational performance is the financial return that reaches the shareholders [32].

2.2 Research questions

1. What is the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns?
2. What are the dimensions and components affecting the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns?
3. What are the drivers affecting the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns?
4. What are the strategies resulting from the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns?
5. What are the consequences of the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns?

2.3 Research background

Karimi and Nasirzadeh [20], in their article on social responsibility disclosure and stock price awareness, emphasizing the role of corporate governance, acknowledged that there is a positive and significant relationship between corporate social responsibility and stock price disclosure and corporate governance. Therefore, the mediating role of corporate governance is confirmed. Also, in companies with higher social responsibility, the effect of corporate social responsibility and corporate governance on stock price information is stronger.

Talebi et al. [40] conducted a study titled Explaining the Impact of Psychology in the Form of Behavioral Economics on the Social Responsibility Reporting of companies listed on the Tehran Stock Exchange. The results showed that personality and social psychology in the form of behavioral economics both have a positive and meaningful impact on social responsibility reporting. Social responsibility reporting is a strategic management that encourages organizations to plan long-term societal changes, and maintain and take care of it.

Koh et al. [24] in the article "Corporate Social Responsibility (CSR) Performance and Stakeholder Engagement: Evidence from the Quantity and Quality of CSR Disclosures," acknowledged that this study uses a multivariate framework to explore potential moderators that lead to conflicting results among relationships. It is a focal point of study. This study shows that if the CSR disclosure strategy and measurement technique are adequately considered with the help of econometric tools, then the real effect of CSR can be observed. Furthermore, implications are drawn for academics and practitioners interested in examining the relationship between CSR disclosure and financial performance.

Álvarez et al. [9], in the article on the moderating effects of corporate social responsibility assurance in the relationship between corporate social responsibility disclosure and corporate performance, acknowledged that CSR disclosure is positively related to company performance, as suggested in our hypothesis. Furthermore, our evidence shows that CSR assurance positively moderates CSR disclosure and firm performance.

3 Research Methodology

This research is applied in terms of purpose. In the qualitative part of the research, the grounded theory method was used to identify the research variables and their dimensions since the theoretical foundations of the research on the subject do not have the necessary richness. In qualitative research, the main research tool is semi-structured interviews

with experts. The main research tool in qualitative research is semi-structured interviews with experts and associates. The study population of this research is academic experts and financial managers. The sampling method used will be the "snowball sampling" method. This method is based on the subjective judgment of the researcher. Especially where the resources are limited, or it is not possible to specify the sampling frame, the techniques related to "non-probability sampling" can be used. To reach the pattern emerging from the qualitative method, after 11 interviews with different people, data saturation was reached in terms of sampling adequacy. The indicators for entering the exam are having a relevant education, a graduate degree, and relevant work experience in the financial field. With semi-structured interviews of experts in the financial field, the concepts and key points obtained were first examined and listed. In the second stage, from the sum of the interviews and compiling and categorizing them, phrases, concepts, and items extracted with detailed analysis, Unification (choosing more correct words, removing common concepts) was done, and 145 codes were obtained in this section. Related items were merged and placed in 4 categories in the next step. Finally, the obtained codes were used to confirm the validity and reliability of the codes, reliability between coders, which is a scale to determine the quality of qualitative analysis, and the codes were approved.

In the quantitative section, the codes obtained from the qualitative section were analyzed by confirmatory factor analysis. The statistical population was a small part of legal investors in various industries, among which 82 active companies cooperated with this research. Among these companies located in Tehran province, 250 questionnaires were distributed, and 213 complete questionnaires were collected. Therefore, the sampling method in this section is random and convenience sampling. Since in the structural equation method, at least 200 questionnaires are necessary, the researcher collected the required data from 213 people.

The number of items was 22 questions, the validity of which was confirmed by using experts' opinions, and its reliability was confirmed using Cronbach's alpha test. The alpha score of the questionnaire was 0.77, which indicates the appropriate reliability of the tool. After collecting data, data analysis was done at two descriptive-inferential levels using confirmatory factor analysis methods and Amos software.

3.1 General structural equation modeling

This model is a combination of two measurement and structural models. In it, both the relationships between latent variables and obvious variables (measurement model) and the relationships between latent variables (structural model) are considered.

An example of a general structural equation model and its solution:

The relationship between three latent variables, m, p, and g, is investigated as follows.

The exogenous latent variable g, p, and m is the independent variable that affects the endogenous latent variable n.

To measure variable m, three obvious index variables, X_1, X_2, and X_3, have been used.

To measure the p variable, three obvious index variables, Y_1, Y_2, and Y_3, have been used.

To measure the latent variable g, three obvious index variables, Y_4, Y_5, and Y_6, are used.

The path coefficient between two dependent latent variables is denoted by β, and the coefficient between the independent and dependent latent variables is denoted by γ.

The relationship between each latent variable and the corresponding obvious variables is indicated by the letter λ, which is called factor loading.

ε represents the error (residual) for the endogenous latent variable

δ represents the error (residual) for the exogenous manifest variable

ζ represents the error variance (residual) for the endogenous latent variable used to fit the model.

$$n_t = \beta_1 + \beta_2 m_t + \beta_3 g_t + \varepsilon_{1t} \tag{3.1}$$

The model should be named according to the number of parameters of the model and the parameters should be entered into the model (Eqs. (3.2)–(3.7)):

$$n_t = \beta_{11} + \beta_{12} m_t + \beta_{13} p_t + \varepsilon_{2t} \tag{3.2}$$

$$n_t = \frac{\{(\beta_1\beta_{13} - \beta_{11}\beta_3) + \beta_{13}\beta_2 gt^{-}\beta_3\beta_{12} m_t - \beta_3\beta_{14} n_{t-1} + (\beta_{13}\varepsilon_{1t} - \beta_3\varepsilon_{2t})\}}{\beta_{13} - \beta_3} \tag{3.3}$$

$$p_t = \frac{\{(\beta_1 - \beta_{11}) + \beta_2 gt^{-}\beta_{12}\beta_{12}m_t - \beta_{14}n_{t-1} + (\varepsilon_{1t} - \varepsilon_{2t})\}}{\beta_{13} - \beta_3} \tag{3.4}$$

$$(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2} dt.$$
$$n = (n_1, n_2) \tag{3.5}$$

where

$$n_1 = \left\lceil 50\left(\frac{j}{k}\right)^2 - 450\left(\frac{j}{k}\right) + 1100 \right\rceil$$
$$n_2 = \left\lceil \frac{2}{2H}\left(A\left(\frac{\pi}{6} - B + D\right) + H + \sqrt{\left(A\left(\frac{\pi}{6} - B + D\right) + H\right)^2 + 4AH\left(\frac{\pi}{6} + \sqrt{A} + 2B - C - 2D\right)}\right)\right\rceil \tag{3.6}$$

where

$$A = 1 - p^2$$
$$B = parcsin\left(\frac{p}{2}\right)$$
$$C = parcsin(p)$$
$$D = \left(\frac{\delta}{z_1 - \alpha/2 - z_1 - \beta}\right)^2$$

where j is the number of observed variables, k is the number of latent variables, ρ is the estimated Gini correlation for a normal random vector of variables, δ is the predicted effect size, α is the corrected type I error rate, β is the type II error rate, and z is a standard score.

$$F(x; \mu, \sigma^2) = \frac{1}{2}\left[1 + erf\left(\frac{x - \mu}{\sigma\sqrt{2}}\right)\right] \tag{3.7}$$

where μ is the mean, σ is the standard deviation, and erf is the error function. Now, the same steps can be done using the software.

3.2 The Goodness-of-fit tests

As their name suggests, goodness-of-fit tests determine whether a particular distribution is well-fitted. Calculating goodness-of-fit statistics also helps to rank the fitted distributions according to how well they fit the data.

- **The first index- RMESA**

$$RMESA = \frac{\sqrt{(X^2 - df)}}{\sqrt{[df(N-1)]}} \tag{3.8}$$

- **The second index- GFI**

$$GFI = 1 - \frac{F(S, \sum(\acute{\theta}))}{F(S, \sum(\cdot))} \tag{3.9}$$

- **The third index – AGFI**

$$AGFI = 1 - \frac{k(k+1)}{2d}(1 - GFI) \tag{3.10}$$

4 Findings

4.1 Qualitative section

To analyze qualitative data from theme analysis and among different methods, theme analysis using the thematic network method has been used. It is defined as follows: “A theme is a pattern found in data that describes, organizes, observes, and interprets aspects of a phenomenon. This method is a unit for analyzing textual data and transforming diverse and scattered data into technical and detailed data” [4]. Theme analysis is done in different ways. In this research, a thematic network (to show the connection and dependence of themes) has been used.

4.1.1 Initial theoretical codes to discover themes

At this stage of the research, the concepts and key points obtained regarding the financial behavior model of investors were listed from the interview process. First, the concepts and key points obtained from this main concept were extracted from the process of interviews, phrases, concepts, and items, with detailed analysis, assimilation (choosing more correct words, removing common concepts), and 145 items were obtained in this section. The obtained topics were prepared as a checklist for conducting interviews, and some of the obtained items were removed and modified by conducting interviews with experts.

During the theoretical coding stage, the data was carefully examined, suitable terms and concepts, and specific related categories, their dimensions and characteristics were determined and the pattern was examined. The main unit of analysis for theoretical coding and thematic network are the concepts extracted from the interview. The concepts were titled by the researcher and directly from the interview transcript. The initial concepts were formed based on the theoretical codes and themes obtained in this step. Not necessarily all the extracted codes will be correct.

4.1.2 Thematic network analysis

After preparing and adjusting the tables as part of the qualitative analysis of the interview data, the resulting concepts were grouped at a higher and more abstract level to achieve categories to complete the analysis based on thematic analysis. Categorization is the process by which concepts are grouped. Because otherwise they will be confused. Therefore, once again, using the constant comparison of concepts with each other, each concept was compared with the concepts before or after it or with all the existing concepts to extract general categories. Therefore, after comparing the extracted concepts, the related concepts were categorized in a general category. General titles were considered for the categories based on the titles in related theories or the concepts obtained from the research.

Thus, after constant comparison of the answers obtained from the interview, similar answers were arranged and similar concepts were extracted from them. In addition, related topics were merged, and themes were categorized into four main categories.

The first category: The dimensions and components affecting the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns

This section contains 45 organizing themes.

The second category: The drivers affecting the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns

This section includes 49 organizing themes in 6 independent sections, including demographic factors, fundamental principles of the stock market, individual and psychological characteristics of people, capacity to overcome risk, personal values and beliefs, and other factors.

The third category: The the strategies resulting from the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns In this category, 21 organizing themes were identified.

The fourth category: the consequences of the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns

In this category, 30 organizing themes were identified.

4.1.3 Searching themes

At this stage, the produced themes are screen:

In this section, expert polls were conducted to check the importance of each of the organizing themes in each basic theme, and the most important categories were selected and placed in the thematic network model.

4.1.4 Extracting the final model from the basic, organizing, and inclusive themes

In this section, how to analyze the data and extract the basic, organizing, and global themes from the raw data from the interviews are shown in the above table; after the implementation of the interviews, the quotes that were explicitly or implicitly related to the research questions were selected, and then the basic themes , organizing and global were extracted from them. The form of the thematic network consists of 23 organizing themes arranged in the form of four main overarching themes identified from the beginning. The thematic network is shown in Figure 1. As

can be seen, in drawing the thematic network, it has been limited to global themes and organizing themes, which are arranged under the global themes.

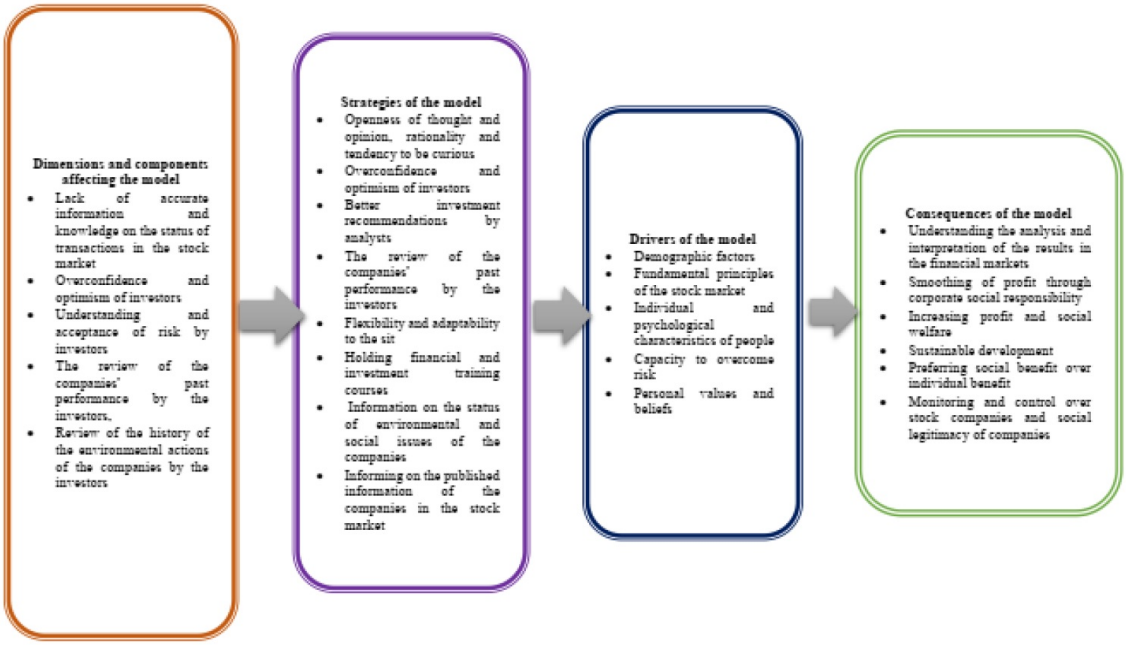

Figure 1: Network of research themes

4.2 Findings of the quantitative section

4.2.1 Confirmatory factor analysis of data

First, to enter the structural equations, the research tools must be subjected to confirmatory analysis to determine the validity of the construction. Confirmatory factor analysis was used to confirm each of the variables and the related items. Confirmatory factor analysis is used to determine the appropriateness of the measurement model. Confirmatory factor analysis is a theory-testing model where the researcher starts his analysis with a previous hypothesis. This model, based on a strong theoretical and empirical foundation, specifies which variables correlate with which factors. It also offers a reliable method to evaluate construct validity to the researcher so that it can test hypotheses about the factorial structure of the data resulting from a predetermined model with a specific number and combination of factors. The confirmatory method tests the optimal fit of the observed and theoretical factor structures for the data set by determining the fit of the predetermined factor model. This section is analyzed after a brief explanation of the fit indices of confirmatory factor analysis related to each of the factors mentioned in the conceptual model. It should be noted that to test the research model, modification indices were used to compile the final models. In addition, questions with low factor loadings were removed.

4.2.2 Confirmatory factor analysis of causal factors

Confirmatory factor analysis was used to determine the validity of the first category. The output of AMOS software shows that all factor loadings are higher than 0.3. According to the output of AMOS, the calculated value of χ^2/df is 2.07, the value of χ^2/df smaller than 5 indicates the appropriate fit of the model, and the root mean square error of approximation (RMSEA) estimate should be less than 0.08. This value in the model is equal to 0.066. The GFI, AGFI, CFI, and NFI indicators should be more than 0.9, higher than the set value in the investigated model. Therefore, the data of this research fits well with the factor structure of this scale, and this indicates the alignment of the variables of the first category.

Q1: the influence of optimism, pessimism, and business periods on the behavior and decisions of investors; Q2: lack of accurate information and knowledge on the status of transactions in the stock market; Q3: overconfidence and optimism of investors; Q4: the review of the companies' past performance by the investors, Q5: understanding and acceptance of risk by investors, Q6: willingness to reinvest, Q7: review of the companies' past performance by the investors, Q8: review of the history of the environmental actions of the companies by the investors, Q9: portfolio

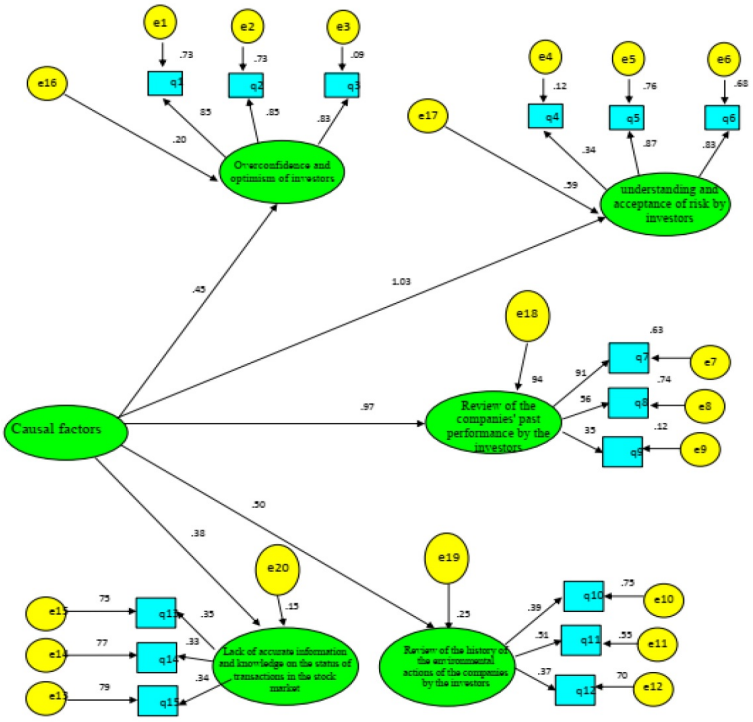

Figure 2: Path analysis of causal factors

turnover, Q10: investor performance, Q11: dividing stock market capital into several parts, Q12: calculating the ratio of risk to return in transactions, Q13: overestimation of the size of knowledge and skill, Q14: Being conscientious and willing to take a goal-oriented approach, Q15: Confidence in effective planning for future financial needs, e: remaining (except disruption) of each question.

Table 1: Fit indices of causal factors

Characteristic	**Estimated Value**	**Criterion Value**
Chi-Square to Degrees of Freedom Ratio (χ^2/df)	2.07	$\chi^2/df < 5$
Root Mean Square Error of Approximation (RMSEA)	0.066	$RMSEA < 0.08$
Goodness of Fit Index (GFI)	0.93	$GFI > 0.9$
Adjusted Goodness of Fitness Index (AGFI)	0.91	$AGFI > 0.9$
Comparative Fitness Index (CFI)	0.96	$CFI > 0.9$
Normal Fitness Index (NFI)	0.94	$NFI > 0.9$

4.2.3 Confirmatory factor analysis of strategies

Confirmatory factor analysis was used to determine the validity of the second category. The output of AMOS software shows that all factor loadings are higher than 0.3. According to the output of AMOS, the calculated value of χ^2/df is 1.8, the value of χ^2/df smaller than 5 indicates the appropriate fit of the model, and the root mean square error of approximation (RMSEA) estimate should be less than 0.08. This value in the model is equal to 0.057. The GFI, AGFI, CFI, and NFI indicators should be more than 0.9, higher than the set value in the investigated model. Therefore, the data of this research fits well with the factor structure of this scale, and this indicates the alignment of the variables of the second category.

(Q16: Openness of thought and opinion, rationality and tendency to be curious, Q17: better investment recommendations by analysts, Q18: flexibility and adaptability to the situation, Q19: holding financial and investment training courses, Q20: information on the status of environmental and social issues of the companies, Q21: financial and accounting information, Q22: information and knowledge on the status of transactions in the stock market, Q23: informing on the published information of the companies in the stock market, Q24: education Financial management in the media, Q25: holding financial and investment training courses, Q26: information on the index trend in the stock market, Q27: the rule of accessibility and agency initiative, e: the residuals (except for disruption) of each question)

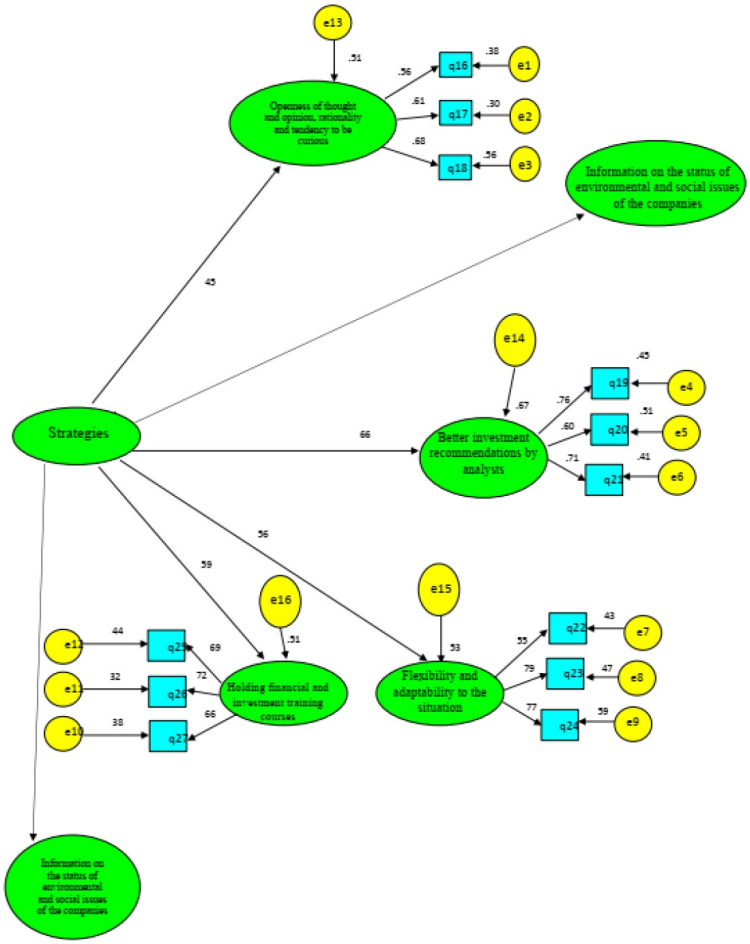

Figure 3: Path analysis of strategies

Table 2: Fit indices of strategies

Characteristic	**Estimated Value**	**Criterion Value**
Chi-Square to Degrees of Freedom Ratio (χ^2/df)	1.8	$\chi^2/df < 5$
Root Mean Square Error of Approximation (RMSEA)	0.057	$RMSEA < 0.08$
Goodness of Fit Index (GFI)	0.94	$GFI > 0.9$
Adjusted Goodness of Fitness Index (AGFI)	0.92	$AGFI > 0.9$
Comparative Fitness Index (CFI)	0.98	$CFI > 0.9$
Normal Fitness Index (NFI)	0.97	$NFI > 0.9$

4.2.4 Confirmatory factor analysis of model drivers

The numbers on the paths are factor loadings; all factor loadings are higher than 0.3. According to the output of AMOS, the calculated value of χ^2/df is 1.54, the value of χ^2/df smaller than 5 indicates the appropriate fit of the model, and the root mean square error of approximation (RMSEA) estimate should be less than 0.08. This value in the model is equal to 0.047. The GFI, AGFI, CFI, and NFI indicators should be more than 0.9, higher than the set value in the investigated model. Therefore, the data of this research fits well with the factor structure of this scale, and this indicates the alignment of the variables of the third category.

(Q53: Demographic factors, Q54: fundamental principles of the stock market, Q55: individual and psychological characteristics of people, Q56: the capacity to overcome risk, Q57: personal values and beliefs, Q58: information and knowledge on the status of transactions in the stock market, Q59: informing on the published information of the companies in the stock market, Q60: financial management training in the media, Q61: extroversion, excitement seeking and interest in teamwork with others, Q62: conscientiousness and adherence to moral obligations, Q63: agreeableness and willingness to forgive, empathy, sacrifice and loyalty, Q64: self-confidence and willingness to face people and events, e: residuals (except disturbance) of each question).

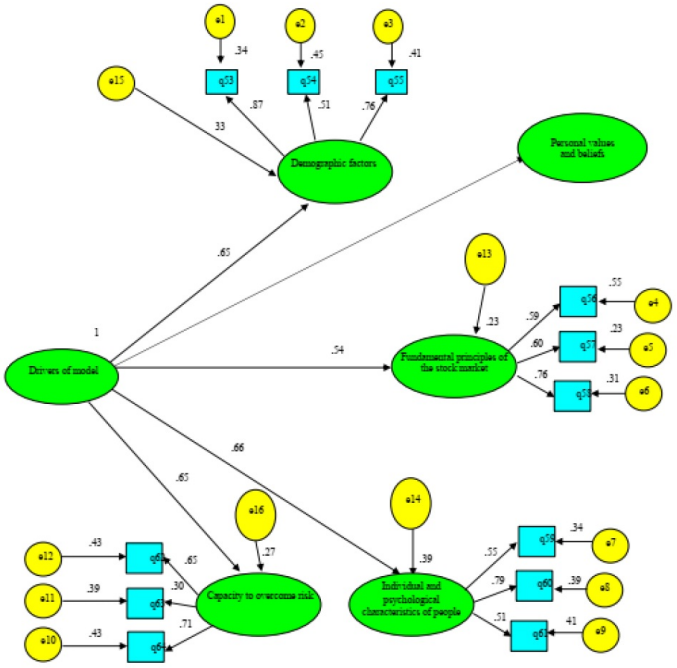

Figure 4: Driver path analysis

Table 3: Fit indices of drivers of the model

Characteristic	Estimated Value	Criterion Value
Chi-Square to Degrees of Freedom Ratio (χ^2/df)	1.54	$\chi^2/df < 5$
Root Mean Square Error of Approximation (RMSEA)	0.047	$RMSEA < 0.08$
Goodness of Fit Index (GFI)	0.96	$GFI > 0.9$
Adjusted Goodness of Fitness Index (AGFI)	0.94	$AGFI > 0.9$
Comparative Fitness Index (CFI)	0.99	$CFI > 0.9$
Normal Fitness Index (NFI)	0.98	$NFI > 0.9$

4.2.5 Confirmatory factor analysis of consequences

Confirmatory factor analysis was used to determine the validity of the fourth category. The numbers on the paths are factor loadings, all factor loadings are higher than 0.3. The findings related to the fit indices of the factors in Table 4 indicate that the CFI, GFI, NFI, RMR, and RMSEA indices have an acceptable level and these good fit characteristics show that the data of this research has a good fit with the factor structure of this scale., and this indicates the alignment of the variables of the fourth category.

(Q32: non-monopoly of obtaining income to the capital market, Q33: Capital distribution in the capital market and non-monopoly to a specific share or industry, Q34: understanding the analysis and interpretation of the results in the financial markets, Q35: understanding the broad view and deeper into the issues, Q36: not going beyond the budget or cost plan and calculated spending, Q37: confidence in brokers and the information performance of companies and the stock exchange organization, Q38: more investment due to higher expected returns, Q39: the smoothing of profit through corporate social responsibility and social legitimacy of companies, e: the residuals (except for disruption) of each question).

Table 4: Fit indices of consequences

Characteristic	Estimated Value	Criterion Value
Chi-Square to Degrees of Freedom Ratio (χ^2/df)	1.45	$\chi^2/df < 5$
Root Mean Square Error of Approximation (RMSEA)	0.043	$RMSEA < 0.08$
Goodness of Fit Index (GFI)	0.97	$GFI > 0.9$
Adjusted Goodness of Fitness Index (AGFI)	0.96	$AGFI > 0.9$
Comparative Fitness Index (CFI)	1	$CFI > 0.9$
Normal Fitness Index (NFI)	0.99	$NFI > 0.9$

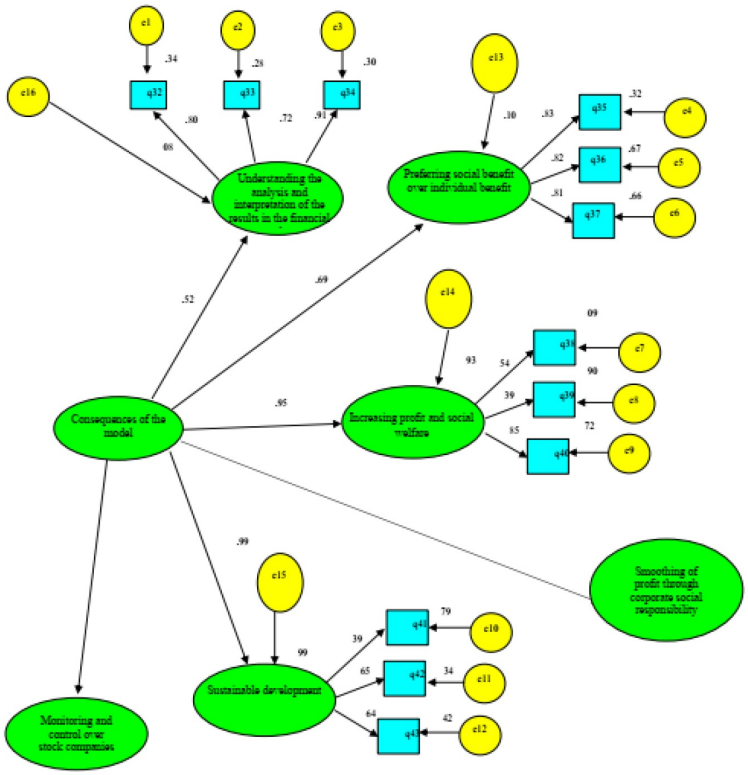

Figure 5: Path analysis of the consequences of the model

4.2.6 Analyzing the model and checking the fit of the proposed research model

In this section, using the information collected through a questionnaire designed based on the indicators identified in the qualitative section and distributed among a statistical sample of the studied community, the indicators related to the components were quantitatively analyzed statistically and the results are given below. Fit criteria is one of the most important steps in structural equation modeling analysis. These criteria are to answer whether the model represented by the data confirms the measurement model of the research. Many fit criteria have been introduced in structural equation modeling methodology to answer this question.

1. The ratio χ^2/df: In the chi-square test, the compatibility of the hypothesis of the desired model with the covariance pattern between the observed variables is examined. Its smaller values, i.e. less than 3, indicate greater fit [10]. The quantity of chi-square is highly dependent on the sample size, and a large sample increases the quantity of chi-square more than it can be attributed to the wrongness of the model.
2. Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI):
   These indices show a measure of the relative amount of variances and covariances that the model explains. Both criteria are varied between zero and one, the closer values to one indicate the better fit of the model with the observed data.
3. Root Mean of Residuals (RMR): In this index, the residuals of the observed variances and covariances are compared with the estimated values in the model. Its smaller values indicate a better fit [16]. The models in which this value is less than 0.05 have a very high fit, but values between 0.05 and 0.08 are also suitable for a good model.
4. Root Mean Square Error of Approximation (RMSEA): This index is 0.050 or less for good models, and a model in which this index is 0.10 or more has a poor fit.

The following table shows the status of these indicators.

Table 5: The results of the fit indices of the research model

χ^2/df	GFI	AGFI	NFI	CFI	RMR	RMSEA
2.858	0.835	0.841	0.887	0.845	0.133	0.090

4.2.7 Analyzing the model and checking the fit of the proposed research model

The results show the appropriate fit of the proposed model. After testing the measurement models, it is necessary to provide a structural model that shows the relationship between the latent variables of the research. Using the structural model, research hypotheses can be investigated. In this research, the structural equation model has been evaluated using Amos software in the form of Figure 6:

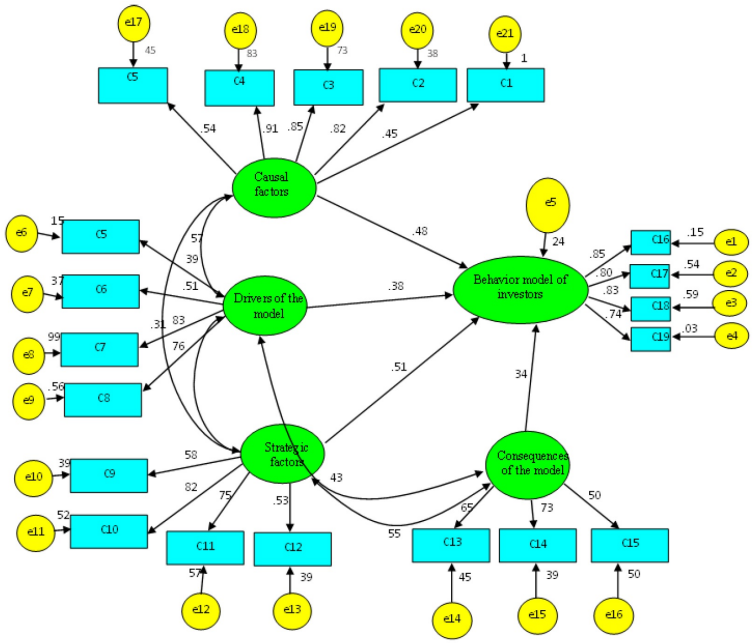

Figure 6: Standard coefficients of the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns based on structural equations with Amos software

C1: the influence of optimism, pessimism and business periods on the behavior and decisions of investors, C2: lack of accurate information and knowledge on the status of transactions in the stock market, C3: overconfidence and optimism of investors, C4: review of the history of the environmental actions of the companies by the investors, C5: review of the companies' past performance by the investors, C6: demographic factors, C7: fundamental principles of the stock market, C8: individual and psychological characteristics of people, capacity to overcome risk, C9: openness of thought and opinion, rationality and tendency to be curious, C10: better investment recommendations by analysts, C11: flexibility and adaptability to the situation, C12: information on the status of environmental and social issues of the companies, C13: understanding the analysis and interpretation of the results in the financial markets, C14: smoothing of profits through corporate social responsibility, C15: monitoring and control over stock companies and social legitimacy of companies, C16: causal factors, C17: strategic factors, C18: drivers of the model, C19: consequences of the model, e: residuals (except for disturbances) of each question.

According to the above chart and the number of significant coefficients, since the CR value (critical ratio) must be greater than 1.96 or less than -1.96 to reject or confirm the relationship, the parameter value between the model's two domains is not considered important. Also, the values between these two values indicate no significant difference in the value calculated for the regression weights with a zero value at the 95% level. The results of the model test are presented in the following table:

Based on this, the research model was evaluated using Amos software. As can be seen, all the relationships according to the value of the path coefficients are confirmed at the 95% confidence level. The presentation of the financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns is presented in the above figures and table. Based on the obtained results, the effective components in the final research model have been effective.

5 Discussion and conclusion

The issue of behavioral finance is one of the new topics raised by some financial thinkers during the last two decades and quickly attracted the attention of professors, experts, and students in this field worldwide. In investment discus-

Table 6: The results of implementing the financial behavior model of investors ($^*P \leq 0.05$)

Relationships	**Standard estimate**	**Standard error**	**Critical ratio**	**Significance level**
Causal factors → The financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns	0.420	0.056	4.018	0.000*
Strategies → The financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns	0.26	0.077	2.798	0.010*
Drivers → The financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns	0.68	0.045	3.813	0.000*
Consequences → The financial behavior model of investors based on corporate social responsibility according to the role of perceptions of stock returns	0.44	0.042	2.958	0.000*

sions, the type of decision-making by investors and the factors influencing their decision-making are very important. The increasing attention to the role of people's attitudes and internal factors and market psychology in financial studies has caused the focus of many financial discussions in the last two decades to change from econometric statistical analyses on prices and profits to human psychology and removing rational and logical frameworks and using more realistic assumptions to explain the behavior of financial markets. Financial theories and theories have had two different approaches in the last few decades. The first approach is the neoclassical approach in financial sciences. According to this approach, investors are assumed to be rational and their demand for risky assets is based on prior information. They believe that rational traders seek to exploit profit opportunities arising from mispricing by removing emotional effects. Based on this, stock price changes are related to systematic changes in the company's fundamental values, and irrational investor behavior does not affect returns. Even if some investors create shocks in supply and demand with unwise trades, rational arbitrageurs neutralize the effect of these shocks; Therefore, the stock price will remain at the fundamental level. This approach started with the capital asset pricing model and efficient markets theory in the 1960s, and the medium-term capital asset pricing model and arbitrage pricing theory of Miller and Modigliani in the 1970s. With the passage of time and conducting different research, researchers noticed many movements and disturbances in the financial markets that could not be justified using the theories related to the efficient market. This caused the emergence of a behavioral revolution in financial discussions.

On the other hand, risk and return are the most important investment concepts that are always together when making investment decisions and form the basis of decision-making. There are different definitions of these two words in different sources. In a simple expression, the return can be defined as follows: "Every share or every portfolio of shares, if bought, held, and sold in a certain interval of time, will give its holder a certain return". This return includes price changes and benefits from ownership. The term "rate of return" (or rate of return) describes the rate of increase or decrease of an investment over the asset's holding period. Also, in discussions related to financial and investment theories, risk is defined as "the difference between the actual return of an investment and its expected return". A company's financial performance is the most obvious aspect of its performance, and it seems that this importance cannot be achieved except by having employees with high knowledge in the field of finance. Naturally, people's financial intelligence will be effective in the company's financial performance, because according to research, it plays an important role in their financial decisions. Such decisions will not be unaffected by people's risk tolerance. Usually, in economics and especially in investment, it is assumed that investors act rationally, prefer certainty over uncertainty, and in other words, are risk averse. Rational and risk-averse investors expect higher returns in return for accepting risk. The degree of risk-taking or risk-aversion is one of the important factors affecting people's behavior, especially in financial markets. Risk-taking is "doing any activity with at least one ambiguous or uncertain outcome". The said result may be positive and benefit the person or it may be negative and cause the person to face losses.

According to the perspective of corporate responsibility, economic entities need to strive to preserve their capital increase their profits, and feel more responsible towards the groups that share their efforts. Based on the accountability point of view, companies are committed to pursuing humanitarian goals as much as they pursue shareholders' goals and try to solve public problems. These two views emphasize that companies have obligations to society beyond the requirements of laws and contracts. Accepting social obligations leads to social responsibility for companies, which must be accountable to them, and costs are imposed on the company in line with social responsibility. Management faces three types of problems: innovation (strategic product and market management), technical principles (production and distribution of products), and executive (to support innovative and technical decisions). When these problems are solved successfully, a stable strategic pattern is created in the company, where the business strategy of the company

is in a range of offensive and defensive strategies.

The basic argument about social responsibilities is that if the individual, group, or economic unit targets their interests without considering the consequences of their actions on society, they cannot have a sustainable performance and continue their existence. Business units have non-financial responsibilities and should pay special attention to the health of society. Today, along with the growth and development of various industries and business units, new issues and problems have arisen, which are caused by the consequences and effects of the activities of business units on the environment and society; Therefore, how to evaluate performance and its criteria has changed and moving in the direction of social and environmental responsibilities has become a necessary factor for the continuation of the organization's activity in the long term; So that the need to provide information related to the mutual effects of the performance of business units and society is felt more and more for the users of financial statements to make better decisions.

5.1 Suggestions resulting from research results

Based on causal factors:

1. Emotional tendency is important in determining prices and explaining returns. Therefore, based on emotional variables, the behavioral conditions of stock market participants should be examined and the effect of behavioral factors such as investors' feelings on stock prices should be considered.
2. As the optimism and pessimism periods are influenced by business periods, therefore, by identifying the periods when the investor is likely to deviate from rational judgment, the investor can be better equipped to deal with short-term strategies necessary to achieve long-term gains.
3. In organizations and companies, the decision to invest is the responsibility of company managers. There is a possibility that managers seeking to maximize their benefits will invest in projects with short-term benefits, especially in cases where rewards and salaries and the managers' benefits are dependent on the profit. They do not pay attention to the long-term interests of the shareholders and the increase in the company's value. As a result, the way managers make decisions for investment will likely change under the influence of investors' feelings.

Based on strategic factors:

1. One recommended way to invest away from the emotional nature of financial markets is to follow investment models. Using a rules-based approach and strategy to investing, the emotional component of investment decisions can be completely removed. This is the fastest and easiest way to address the "behavioral gap" that may limit investment returns.
2. Carefully paying attention to the company's past performance process technically and academically, because otherwise it will lead to the formation of a kind of classification in people's minds and create biased expectations about the future performance of companies.

Based on drivers:

1. Control over the contextual variables of investors, which according to the results have a significant impact on their capital decisions. Therefore, strengthening the culture of indirect investments and encouraging non-professional investors to invest in investment companies, portfolio management companies, and mutual investment funds can also reduce extreme fluctuations and increase stability in the stock market while controlling investors' emotions be securities.
2. Extensive training should be prepared to familiarize beginners and non-professional investors with the rules and models of investing in the stock exchange and be made available to the public through the mass media to prevent emotional behavior in the stock market.

Based on the consequences:

1. Training on understanding the analysis and interpretation of the results in the financial markets and creating a comprehensive and deeper look at the financial issues of stock companies will have significant benefits for investors.
2. Social responsibility reporting by companies monitoring and control over stock companies and the social legitimacy of companies by the government and policy makers are very important. In this regard, sufficient attention should be paid to their social capital in selecting managers of listed companies.

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