



# Implementation of Transactional Theory to Unlock the Secrets of Investor Behavior in the Capital Market

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**Abstract.** When traditional financial theory is tested in an actual context, various anomalies have been discovered. Such anomalies are the result of deviations from the norms established by standard financial theory. Further analysis of the anomaly leads to the understanding that the actual observed behavior is not as modeled in traditional financial theory. Through a qualitative approach using the perspective of Lazarus Folkman's transactional theory, this article presents research findings that investors do not always behave rationally and/or always emotional. The character of human cognitive and affective potentials presents a very wide space of possibilities for collaboration and competition against these two potentials. In the end, the behavior of investors in making economic decisions is very complex and varied. Maximum cognitive with limited affective and vice versa maximal affective with limited cognitive is one of the findings that reflects the collaboration and competition of the potential that produces several kinds of investor behavior. The conceptual framework found in this study has the potential to be tested in subsequent research with a different method approach.

**Keywords:** Traditional finance theory · Behavior finance · Transactional theory

## 1 Introduction

The investment environment provides many opportunities for investors to get the best returns. However, investors are not well equipped with instruments to evaluate all investment opportunities. Therefore, investors should use a certain valuation process that is influenced by emotions and psychological motives to make investment choices. The investment decision process is influenced by a number of factors that cause limited rational behavior [1], where investors in an effort to fulfill their desires utilize various heuristics that have an impact on behavioral bias.

The ability of individuals to effectively manage economic needs requires effective resources. Several theories try to explain how investors make decisions and what factors influence the decision-making process. Previous studies on how individuals make investment decisions in certain financial resource situations have focused mainly on socioeconomic and demographic variables. Little attention is paid to psychographic variables such as individual investor bias, while investors' beliefs and preferences are

operationally proven to influence investment decisions. There are several factors that influence decision making, namely past experience [2], cognitive bias, age and gender [3]. Understanding these factors is critical to determining what decisions are made and why.

When traditional financial theory is tested in an actual context, various anomalies have been discovered. This anomaly is the result of deviations from the norms established by standard financial theory. Further analysis of the anomaly leads to the understanding that the actual observed behavior is not as modeled in traditional financial theory [4]. The findings have relaxed the assumptions of infinite rationality, utility maximization, availability of complete information, and ability to evaluate complete sets of information. Ackert states that although the traditional approach provides a lot of useful knowledge, there is something that seems to be untouchable [5]. For example, investors who consistently suffer from certain behavioral biases and traditional models are unable to provide a satisfactory explanation. Several studies have documented that investors make systematic errors in thinking patterns such as overconfidence, equating what is happening in the moment with experiences constructed in thoughts and preferences that create distortions [6]. Fonseca states that behavioral financial research provides a framework that allows for further exploring and understanding investor preferences, investigating the biases that influence how investors make decisions and how these deviate from traditional theoretical assumptions about how rational investors should behave.

For example, some authors understand affective as a subjective personal experience that results from rewards and punishments [7]. Another definition mentions emotion as an expression or manifestation of somatic reactions [8]. In addition, [9] focuses affectively on emotional behavior such as fear, anger, envy and pride as a process of adaptation of humans and animals to their environment. Despite the many definitions of affective, most scientists have accepted the assumption that affective is related to physiological reactions. This important relationship between affective and physiological reactions has ultimately been the starting point for most of the research on affective in humans, particularly the underlying neural processes and the integration between the two.

Although the affective definition is still an area of controversy, relative agreement exists on the cognitive notion. Focus or attention, working of memory, problem solving and decision making are indications of cognitive processes. This process according to Pessoa [10] involves high-level mental functions which are characteristic of humans. One of the cognitive functions is to control shyness and behavior in accordance with the goals, intentions, rules and select the knowledge that has been obtained so that it is relevant to the problem solving process.

One of the main characteristics of cognitive control is the flexibility that allows humans to perform new tasks despite very little experience related to the task. [11] stated that cognitive control is very important to modulate lower levels of sensory, memory and motor system operations so that behavior is directed towards the goal of achieving well-being. When the affective has an adaptive role in the environment, which tries to dominate in certain situations and diverts to the original plan, cognitive control stimulates a return to the goal. Conversely, on certain tasks that must involve 'sense', affective control will automatically try to dominate behavior. Miller refers to this context as intelligent behavior in collaboration and competition [12].

## 1.1 Transactional Model for Coping

One of the scientists in the field of psychology, Lazarus and Folkman in 1984 introduced a model of stress and coping processes called the transactional model. The transactional model is a framework for identifying processes for dealing with stress. The transactional model emphasizes coping as a process of individual cognitive and behavioral interactions with things that are faced and assessed, as well as decisions about how they will be managed afterwards [13]. Cognitive efforts such as analysis, synthesis and evaluation so that individuals can produce attitudes to accept, escape from problems, change the perspective of events, self-deception and so on. This cognitive effort encourages affective responses to increase when the demands are too large compared to the available resources. While behavior is an activity to seek additional information, evidence and confirm other parties to form a new view of the problem. The transactional model has a stage of thought and action to defend oneself to solve problems and reduce stress so that the expected outcomes are optimal [14].

The coping process in Lazarus and Folkman's transactional model has two interrelated and inseparable subprocesses, namely appraisal and coping effort.

The appraisal process or also called primary appraisal is the individual assessing the potential consequences of an event or events. Individuals assess the nature of certain events and identify the importance and relevance of these events to themselves. Folkman states that an important aspect in primary appraisal is determining the possible consequences and the effect of these consequences on individuals [13]. These consequences can be in the form of challenges where certain events provide positive consequences such as gains and wins or threats where these events provide negative consequences such as losses and losses [13].

Coping effort or also called secondary appraisal plays a role after the individual assesses the situation he is facing is challenging (challenge) or threat (threat). Through secondary assessment, individuals analyze and evaluate what can and should be done, namely by measuring the resources from within themselves and their environment, which are felt to be useful for overcoming or adjusting to these challenging or threatening situations [15].

Furthermore, the cognitive assessment process (primary and second-ray) plays a role in determining the type of coping to be carried out, namely problem-focused coping and emotion-focused coping [13, 14, 16]. Problem-focused coping aims to overcome the problem by changing the situation that is a source of pressure or obstacles. Individuals perform this type of coping when the level of threat is moderate or the situation is challenging. Individuals identify problems, formulate problems, collect alternative solutions to problems by taking into account the resources they have.

## 2 Literature Review

### 2.1 Affective vs Cognitive

What is affective? What is the function of the affective? What is the underlying nervous system affective? These three questions are some of the key aspects of cognitive and affective psychology in the field of neuroscience that have been trying to be answered

for the last 30 years. Hundreds of studies on affective have been conducted, but the debate on the problem of definition alone, has not found common ground. A unique and complete definition that is able to describe affectively comprehensively is still unresolved or general agreement has not been reached. This happens because the facts show, affective appears and interacts with several factors, as well as the involvement of human beings as a complicated resource.

Emotional focus coping is thoughts and actions to manage emotions but do not change the situation that is a source of disturbance or stress. The goal is to restore emotions, reduce emotional distress, and maintain emotional stability. Emotion-focused coping is “sense/sense” oriented, including minimizing the “feel” of the consequences of the threat, such as maintaining hope and optimism and resisting the entry of negative impulses to sense. The choice of whether to use the type of problem-focused coping or emotion-focused coping depends on the results of one’s assessment of the situation. Individuals will choose coping strategies that promise a greater chance of success and restore calm [13]. Therefore, emotion-focused coping is done when the individual feels he has little control over a stressful situation, on the contrary, problem-focused coping is done when the individual has greater resources to control the situation [13].

## 2.2 Traditional Financial to Behaviour Finance

Traditional financial theory is based on the assumption that investors are rational, the market is efficient, investors form their portfolios according to the mean-variance rule and that the expected return is a function of risk. Copur states that Expected Utility, Markowitz Portfolio Trade-off Model, Capital Asset Pricing Model (CAPM) and Efficient Market Hypothesis (EMH) are pillars of traditional financial theory. However, the logic of this traditional financial theory has been questioned since many research findings show that investment decisions are irrational and Behavioral Finance does not stop criticizing every assumption of the traditional financial theory [10]. When investors are involved in managing resources for investment in conditions of uncertainty, they often tend to be nervous and behave irrationally. Defines behavior finance as the influence of psychological and sociological factors in financial decision making. Lubis suggests that there are three main components that influence investor behavior in making investment decisions, namely emotional intelligence, defense mechanisms, and personality traits [17]. State that behavioral finance identifies the reasons investors make irrational decisions and identifies the factors behind irrational decision making [18].

Sashikala and Chitramani state that the focus of behavioral finance is on studying emotional, cognitive and motivational factors that influence the investment decision-making process [19]. Investment intentions are considered a responsible aspect of resource management and investment portfolios. The short-term investment intentions are influenced by herding factors, prospects, heuristic behavior while long-term investment intentions are influenced by market analysis factors. Three psychological factors that work behind investor behavior are cognitive, emotional response, and social psychology [20]. Brahmana in their research identified two main psychological biases namely affection and cognitive [21]. Riaz and Hunjra state that the main factors that influence investor decision making are emotional bias, hunches, and market sentiment [22]. Furthermore, explain, risk and investor perception of risk are two aspects that actually affect

an investor in making risky decisions and in their research reveals that investor decision making is influenced by risk perception and psychological factors.

Joo and Durri identified that psychological traits such as overconfidence and optimism, overconfidence, pessimism, heuristics, other investor behavior, and confirmation bias affect investment decision making [23]. Among these biases, the most important bias that significantly influences investors' decision making is confidence. In addition, the investor's portfolio can be divided into short-term portfolios and long-term portfolios and to build short-term portfolios, the most influential factor is the psychological nature while long-term portfolios can be built based on returns and market behavior.

### **3 Research Methodology**

This study uses a qualitative approach through the behavior mapping method to analyze the data. Behavioral mapping is a research method for recording human behavior in certain locations and times [4]. The behavior mapping method developed by Ittelson in [24] identifies five elements of behavior mapping including, (1) a basic sketch of the research location, (2) a clear definition to describe the behavioral categories to be observed, (3) Schedule of observations or observations, (4) Systematic observation procedures, (5) Efficient coding system.

This research was conducted on securities company customers in Malang City where the community is considered active in stock transactions. This is evidenced by data from KSEI, the number of investors in East Java reached 221,187 SID, ranking third nationally. Investors in Malang reached 24,391 SID or the second largest in East Java. In addition, the selection of data in this study is primary data obtained through interviews and observations of 25 active investors to find behavior in making investment decisions. Checking the validity of the findings is done through technical triangulation and observation.

### **4 Results and Discussion**

Investment decision making in the capital market involves a variety of complex external and internal factors. Risk and return analysis requires instruments to study the signals sent by market information. In addition to the ability to analyze these two things, internal capabilities such as resources, both funding and access to information, are not sufficient to enter the market if they are not balanced with an intelligent mentality. Basically, all investors before carrying out investment activities, will first assess whether market information gives a signal of profit or loss. Then they compare the information with the capabilities of the resources they have. These two activities can occur simultaneously, because they have more basic knowledge of resource capabilities, especially funding than market information or they can also analyze market information first and then resources.

The fundamental difference between investors is how they view information and the behaviors that arise when investors have large or small resources and information signals give a message of profit or loss. The first finding shows the tendency of investors to produce behavior that results from maximal cognitive potential with minimal affect. This study shows that the Efficient Market Hypothesis which states that investors must

behave rationally is only a small part of explaining complex investor behavior. When a person's behavior is greater in using cognitive abilities, it does not mean that the person does not use affective abilities at all. That is, there is no action or behavior that is only produced by 100% cognitive abilities (rational) without involving affective abilities (irrational). This is shown through the findings of investor behavior in the first proposition.

Although most of the behavior is dominated by cognitive abilities, the data shows that there is a feeling of pleasure, happiness and satisfaction of investors because they get profits. In addition, investors feel a little fear, anxiety and worry if the next investment does not get the same amount of profit or maybe even a loss.

Attitudes related to "sense" can affect investor behavior, as evidenced by data showing that investors are occasionally affected by moods in making decisions, so that the planning resulting from a step-by-step (structured) process often does not work according to the objectives. Beginning. Although this situation can be immediately handled by logical actions, this illustrates that the affective capacity does not stop at all. This shows that the mechanism of the affective system in a person in a situation like this does not stop completely, but still works in a minimal capacity.

Loewenstein and O'Donoghue conducted a study on investor behavior when faced with self-control for commitment to portfolio planning [25]. According to Loewenstein and O'Donoghue, human behavior is the result of the interaction between two systems, namely the automatic system (affective) and the controlled system (cognitive) which may have different interests [26]. The automatic system at a certain time stimulates the desire to take other actions outside of portfolio planning because it is deemed capable of providing greater profits while the controlled system remains focused on the initial portfolio goals.

His findings show that at certain times, when a conflict of interest between cognitive and affective occurs, the controlled system can reduce the automatic system. When the ability of the controlled system is deployed to the maximum, they call it willpower. This willpower is an internal resource that over time may decrease after repeated activation (cognitive fatigue) in an attempt to dominate the automatic system.

The costs that must be borne by investors from time to time to maintain this willpower are in the form of unstable market conditions and all factors that can weaken the controlled system (reduced resources, losses, etc.). Loewenstein and O'Donoghue represent the utility-maximizing option ( $x$ ) in the decision-making function as

$$V(\alpha, S) = U(\alpha, c(S)) - h(W, \sigma) * [M(\alpha, a(S)) - M(\alpha, a(S))] \quad (1)$$

where,  $V(\alpha, S)$  is a utility function;  $c(S)$  represents cognitive ability caused by stimuli from the  $S$  environment;  $a(S)$  represents affective abilities caused by environmental stimuli;  $h(W, \sigma)$  the cost of spending a strong will to maximize cognitive potential, for example the condition of stock movements when willpower is mobilized ( $W$ ) and other factors ( $\sigma$ ).  $W$  and can weaken the controlled system.  $M(\alpha, a(S))$  represents the motivational function of the automatic system when  $A \arg \max_{\alpha \in X} M(\alpha, a(S))$  or is called the optimum affective.

The above model reflects how behavior is determined by the interaction between two different systems. This system can collaborate with each other and even compete (negate

each other) depending on various external stimulation factors. When information gives a profit signal, then the activation of willpower is more optimal for affective control, so that thoughts, attitudes and actions remain consistent with the initial goal.

Another study to strengthen the argument for the first proposition was conducted on the behavior of commitment to saving and the temptation to consumptively [27]. The results showed that a person's behavior is the result of the activation of two systems, namely the automatic system (affective) and the controlled system (cognitive). Affective is prone to temptations or impulses to consume while cognitive tries to control affective which is often tempted by consumption stimuli.

Cognitive encourages a person to commit by keeping attention on saving plans and inhibiting the affective system. But the situation can change otherwise when a person's cognitive is weak so that the automatic system dominates and there is incommitment behavior by consuming and violating savings plans. The conclusion is that the agent's behavior is influenced by which system is more active where this depends on external factors whether or not it supports the initial goal. The bigger the factors that support the initial plan, such as no discount, unwanted consumption objects, etc., the work of the controlled system will be relatively lighter.

If this is related to the first proposition, it is not surprising that investors who are in profit situations with large resources, type of behavior that uses maximum cognitive potential. This is because most of the factors that support the more active or dominant cognitive potential, shown through the behavior of investors when compiling a portfolio using a collaborative strategy, all of which rely on analysis, synthesis and evaluation of market information. If then there is anxiety, fear or worry about loss, this can immediately be overcome by cognitive potential through impulses of logical thoughts (analytical, synthetic and evaluative) that produce rational behavior.

The goal of the behaviour mapping is to produce behavioral reflection that are "retracted" from phenomena. This process involves continuous data exploration, where the data is analyzed and synthesized through conceptualization and abstraction. The major work in this research resulted in two propositions, which in this section will discuss in greater depth the second proposition, namely investors who value information as a signal of profit and have small resources and low ability to control the market, tend to behave cognitively with limited affective.

As described in the previous section, cognitive behavior is behavior that has characteristics based on problem focused coping or problem-based resolution, while affective behavior has behavioral characteristics based on emotional focused coping. Cognitive or controlled system represents rational behavior such as memorization, understanding, analysis, synthesis, evaluation, and application. On the other hand, the affective or automatic system contains behaviors that emphasize aspects of feelings and emotions such as interests, attitudes, appreciation, lust and ways of adapting.

Investors in making decisions are not always based on the calculation of the probability of profit and loss but the heuristic principle. This attitude causes deviations in decision making. We can see this in the results of this study where investors do not want to think complicated, in making investment decisions they no longer use mathematical modeling and other normative economic laws. They prefer to study stock price movements that are repeated every period.

The heuristic principle in this study is indicated by the behavior of investors' conservatism in viewing information. The burden of investors on new information that gives profit signals but is impossible to obtain because of small resources causes investors to doubt that the information represents the real market conditions. Finally, when investors generate a new expected return value based on the latest information, the new value is matched by the investor with the previous estimated value.

Often investors feel that the value of the previous estimate is not much different from the value of the new estimate so that investors increasingly avoid new information. Investors compare the current value with the value that has become a perceptual mapping in their minds even though it is not necessarily what has been constructed in their minds the same as what is happening. But interestingly, after some time and investors are ready to make a decision, usually they have started to realize their mistake (limited representativeness bias).

The firm stance of investors on the value of the previous expected return, and then used as a benchmark in making decisions, shows the acceptance and adjustment behavior. The tendency of investors to use the previous value as an anchor value or initiation limit to strengthen predictions on future stock performance will be a problem when the current situation is actually different from the anchor that is the investor's perceptual mapping. The suggestive power of anchor values has an impact on investors' views of information.

However, once again the interesting thing about this second proposition is that this anchoring and adjustment behavior does not last long, meaning that investors will immediately realize this. This shows that the level of control of the cognitive potential is greater than the affective potential, resulting in collaboration and mutual negation between the two potentials. However, cognitive function is more active than affective when a person is on a small resource in the midst of an event that has a beneficial consequence. The description above provides an increasingly comprehensive picture, why investors not only behave rationally (cognitively), but investors are also colored by irrational (affective) behavior but are limited.

## **5 Dual System Theory: Controlled System Reducing Automatic System**

The second proposition shows how investors behave cognitively (rationally) but are not optimal and are colored by affective behavior (irrational) but are limited. Analysis, evaluation and synthesis are still carried out by investors according to the capacity of their resources. Investors are still trying to maintain their commitment to their portfolio strategy. The investment objective is profit optimization shifting profit maximization.

However, investors are aware of the limited resources they have, and this affects their perspective in reviewing the information. They feel unable to take advantage of the new information that comes in because far greater benefits cannot be obtained. Investors are increasingly burdened to receive new information that contains profit opportunities that cannot be reached, causing apathy towards the new information. Conservatism bias emerges which in the end causes acceptance and adjustment behavior and representative bias although it is limited.



Behavior with cognitive type with limited affective which is the second proposition in this research, can be approached and strengthened by using theory in psychology, namely dual system theory. Epstein explains that individuals in processing information as the basis for attitudes and actions use two systems called controlled systems (cognitive) and automatic systems (affective) [28].

The characteristics of an automatic system that are effortless and understand something without going through rational (intuitive) reasoning, tend to often exist in individuals. They prefer an automatic system by capturing something according to their experience and perceptual mapping that has been built in them rather than having to apply logical rules, symbolic codes such as numbers or words. Automatic system requirements with emotions, details, features and sensations that match the object or event. Individuals study current events by incorporating them into sensations, emotions and features. In contrast, controlled systems rely on logic, analyzing problems with particular effort and considerations. To decide the problem, this system relies on logical rules and symbolic codes.

The existence of controlled systems and automatic systems is more effective depending on their respective contexts. This means that each system will be active on certain tasks, events, and/or information. However, both systems can work simultaneously or sequentially. Controlled systems that represent cognitive potential tend to 'win' when individuals perform concrete and verbal tasks that require the application of general principles, quantification of symbols and judgment. In contrast, automatic systems that represent affective potential tend to win when individuals perform activities that require creativity, art, aesthetics, enjoyment or pleasure, sadness, anxiety and subjective evaluation. Different procedures to activate the controlled system and automatic system. The results show that the design of concrete procedures, numbers that require quantification, sequencing and memorization and challenging concrete tasks can generate controlled systems [29]. On the other hand, when the procedure design involves senses such as aesthetics, beauty, anxiety and sadness, this procedure can generate an automatic system.

However, this is different when someone has limited resources or abilities to make decisions related to pleasure, the results of concrete and symbolic tasks do not only involve the controlled system but also the automatic system. Limited resources result in conflict between the two systems. The conflict is caused by limited abilities so that they cannot get greater pleasure. This process of accepting reality activates the stimulus of disappointment. However, because it is still a consequence of pleasure, the controlled system is able to control, evaluate and resolve the conflict. That is, the automatic system does not dominate individual behavior when the resources owned are small in the midst of opportunities to get pleasure.

The above explanation can strengthen the second proposition. The results of the study show that investor behavior is cognitive with limited affective, due to small resources on profit consequences, has shown that on the one hand investor behavior is rational and on the other hand limited irrational behavior. Small resources trigger the realization that they cannot do something beyond their capabilities so that optimal profit is the goal even though there is still a larger profit remaining.

The process to receive the optimal profit goal through analysis, evaluation and synthesis is colored by conservatism behavior which causes the emergence of representative bias and limited anchoring adjustment. That is, the conflict between the controlled system (cognitive) and the automatic system (affective) is caused by the process of receiving optimal benefits. However, because the level of consequences is still in the level of opportunity or challenge (profit, pleasure) then the conflict can be overcome by the controlled system (cognitive) so that the behavior of the automatic system (affective) is limited.

Sometimes individuals are involved in two systems at once in acting or behaving [30]. Their study involved two choices for participants to either use a controlled system (cognitive) or an automatic system (affective) in completing operational procedures for quantitative analysis of moderate difficulty as a basis for decision making. It turned out that most of the participants failed to make decisions when using the automatic system and were successful when using the controlled system. They agreed to use more cognitive when making decisions that involve quantitative analysis.

But then it is different when the second treatment is carried out, where decision making is based on quantitative analysis with a high level of difficulty. Most of the participants felt they did not have the ability to complete the task so that they completed the task according to their abilities. The open answers by the participants indicated that there was a level of anxiety in case the results of the quantitative analysis were incorrect. This results in biased or ambiguous decisions so that they are not right on target.

Several things that can be concluded in Yanif and Hogart's research related to the results of the research on the second proposition are when decision making involves quantitative analysis and the resources owned by individuals are small, then behavior involves not only controlled systems but also automatic systems. Therefore, the results of the study show that investors behave rationally with limited irrationality when they are on small resources with information signals showing profits.

In situations where the consequences felt by the individual are opportunities but the individual feels he has limited control due to minimal resources, causing the emergence of rational behavior (problem-based/cognitive) with irrational (emotional/affective-based) behavior [4]. Limited. This is because individuals feel they cannot do much with the resources they have and individuals also feel there is no need to reduce tension because the consequences of events are opportunities.

It is interesting to observe the explanation of Epstein in his article entitled Cognitive-Experiential Self-Theory of Personality [28]. Explains that as an effortful system, the controlled system (cognitive) is in a position to improve the automatic system (affective) for concrete tasks. On the other hand, in certain situations the automatic system is positioned as a guide from the controlled system for tasks related to 'sense'. In general, every individual has been spontaneous, impulsive and sometimes in the wrong place and time. This behavior is generated by the automatic system. Not in a long time, the controlled system will evaluate, improve and control attitudes and actions for a better existence. The moment when the controlled system succeeds in controlling the automatic system, is when there are no consequences that can threaten a person.

Controlled systems can also affect automatic systems by providing final understanding after attitudes and actions are taken. This understanding will ultimately train the initial reaction that is modulated by the automatic system to produce better behavior.

Controlled systems affect the automatic system intentionally which can then continue to be unintentional. That is, the Controlled system performs repetition of thoughts that have an impact on behavior. At first, this behavior is under the control of the controlled system, and it becomes a habit, so that the control shifts from the controlled system to the automatic system. In the end, attitudes that require effort are increasingly becoming effortless to do.

On the one hand this is positive, but on the other hand it will be negative when this habit is rooted and difficult to change. Situations and conditions that move dynamically and complex require flexibility in thought patterns and behavior. We can give an example of this when investors have formed a perceptual mapping in their minds where, its formation is through the investment journey process in a market situation that they are able to control. Of course, this perceptual mapping is not appropriate to be used in a market crash situation which clearly has different characteristics of the situation and handling from what has been formed in investors' perceptual mapping.

The second proposition shows that there is a limited representativeness bias, meaning that habits can still be changed and mindsets are still flexible. Of course, one of the factors supporting this situation is the low level of interference from outside, so that the controlled system is successful in controlling the automatic system. The explanation described above provides a real picture that investor behavior is formed from patterns of collaboration and competition processes from controlled systems and automatic systems.

## 6 Conclusion

The results of this study indicate that rational behavior in traditional finance is a small particle of complex investor behavior. Exploration involving several psychological theories has made an important contribution in the realm of finance. During this research on behavior, most assume that investors are rational by placing other aspects in a deterministic manner.

Meanwhile, in reality the behavior of investors is very rich and complex so it is not appropriate when viewed from a narrow angle. Therefore, the results in this study provide a more diverse color in representing the complex and complicated behavior of investors. The results show that the behavior of investors under certain conditions is rational, irrational, and even collaboration and competition. That is, the emotional aspects follow the behavior of investors.

This is a psychological study that human behavior is the result of collaboration and competition (rational) and affective (irrational). Based on these empirical findings, there is actually no reason to contradict each other between rational and irrational views because both perspectives that study the investor's decision-making process are equally correct. Both are complex and intricate parts of behavior.

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