
BEHAVIORAL ECONOMICS AND BEHAVIORAL FINANCE IN DECISION MAKING

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ABSTRACT

Behavioral economics emphasizes the importance of empirical evidence and facts that contradict traditional economic assumptions. Several empirical studies have shown that individuals are prone to systematic bias in decision-making, as they do not always make decisions that are in their best interest. Behavioral Economics and Behavioral Finance aim to incorporate psychological aspects into the decision-making process, although it focuses on financial decisions and financial markets. This paper aims to describe the concept of economic behavior and its relation to financial behavior in decision-making using a literature survey. Behavioral economics and behavioral finance involve the science of psychology to study economics and finance, explaining that human biases can influence people's financial decision-making. This paper examines some of the behavioral biases that usually occur in investor decision-making, such as heuristics, overconfidence, mental accounting, and loss aversion, etc. and each of them shows their own representation and the way they influence decision-making

Keywords: behavioral economics, financial behavior, decision making

INTRODUCTION

In recent years, behavioural economics has received increasing attention. It happens because the standard model of consumer decision-making cannot comprehensively explain human behaviour (Bernheim & Regel, 2007). Behavioural economics is an experimental science because it is based on experiments that combine economic deduction and psychological induction, thus creating a complementary means of explaining human decisions (Brzezicka & Wisniewski, 2013).

Behavioural economics is not a new field, and it has historical roots. However, it gained prominence in the 1980s, when Richard Thaler popularized his view of human rationality and emphasized the influence of the endowment effect², mental accounting, concern for justice, and various other anomalies in economics (Sunstein, 2018). Behavioural economics combines the theoretical concepts of economics with psychology, enabling various models to explain the difficulty of welfare evaluation problems (Bernheim & Rangel, 2007).

The advancement and enhancement of Behavioral Economics, for example, enabled the discovery of what is now known as Behavioral Finance (Tomer, 2007). Behavioral Finance, which is based on Behavioral Economics, tries to incorporate psychological components into decision-making processes while focusing on financial decisions and financial markets (Shefrin, 2009). As a result, it was discovered that the field of behavioral and experimental economics and finance had evolved in order to demonstrate that behavioral, cognitive, and emotional factors influence human decisions (Kahneman & Smith, 2002), as well as to demonstrate that various psychological aspects determine individual behavior regarding the use and acquisition of information (Garc'a, 2013).

The importance of actual evidence and facts that challenge standard economic assumptions is emphasized in behavioral economics. Several empirical research have revealed that people are prone to systematic bias in decision-making because they do not always make the optimal options for themselves (Pereira, 2016). Errors in decision-making arise because people make mistakes in their decisions, even when those mistakes are predictable (Laibson and List, 2015). Complex local situations, non-standard preferences,

and non-standard beliefs all contribute to these errors (DellaVigna, 2009; Congdon et al., 2011). Time preference, risk preference, and social preference are examples of non-standard preferences. Meanwhile, non-standard beliefs develop because people are systematically overconfident, therefore they use limited samples and people who are unaware of their ability to anticipate future situations, future Deviations from the rationality principle, according to Congdon et al. (2011), have led to a more realistic picture of decision-making systems.

Many decisions are made on behalf of other people. Elected leaders, nonprofit trustees, physicians, healthcare proxies, financial advisers, and investment fund managers make choices on a regular basis with constituents, clients, or stakeholders in mind. Grandparents gifting savings bonds; partners planning retirement together; and friends offering professional and relationship guidance. While estimating the quantity of resources allocated by decisions taken on behalf of others is challenging, it is likely, with a significant impact on individual and social well-being. It is also worth noting that the settings and motivations in such judgments vary greatly. Investment fund managers are typically compensated for their performance, whereas nonprofit trustees are not; physicians typically make decisions on behalf of individual patients, whereas elected officials represent the entire population.

Human behavior and demand, consumption, and prices (Hursh, 1984; Hursh and Silberberg, 2008), investment risk (Kumar and Goyal, 2015), and market efficiency (Fama 1998; Shiller 2003), intertemporal choices (Albrecht et al., 2011), retirement planning (Thaler and Shefrin, 1981; Diamond and Hausman, 1984; Warneryd, 1999; Benartzi and Thaler, 2002; Mitchell and Utkus, 2003) and with process managerial decision making (Schade and Koellinger, 2007), while attempting to uncover in psychology the notions of heuristics and cognitive biases in order to demonstrate inaccurate judgments in the decision-making process (Tversky and Kahneman, 1974).

LITERATURE REVIEW

The concept of homo-economics, which can be defined as rational, utility or benefit-maximizing, and cost-minimizing persons with relatively consistent preferences, has impacted traditional economists. If the goal is to change behavior, the only way to do so is to avoid being deceived and mislead, or to provide some advantage. Traditional economic research believes that people make economic decisions in accordance with utility-maximizing norms. Behavioral economics differs from conventional economics in two ways. To begin, behavioral economics does not presume that people are good at maximizing utility, and it is not their main purpose. People, on the other hand, have psychological biases such as loss aversion, limited cognitive resources, and values such as justice, all of which might hinder their utility maximizing behavior, according to this theory. The second distinction between traditional economic research and decisions is in the areas of market prices, returns, and resource allocation. The difference between theoretical models and behavioral economics is that the former depends on empirical instruments to test hypotheses. In a nutshell, behavioral economics investigates what impacts society's economic decisions and the implications of those decisions for market prices, returns, and resource allocation.

Theory of Economic Behavior

There is no universally accepted definition of behavioral economics. Behavioral economics is defined broadly as the application of economic principles to the study of economic behavior (Wright 2014; Hursh and Roma, 2013; Chetty, 2015). Wright (2014), for example, describes behavioral economics as the economic analysis of behavior through the use of psychology and economics. As defined by Espin et al. (2017), behavioral economics is the use of psychology and sociology to economic analysis. According to Laibson and List (2015), "Behavioral economics uses a variant of traditional economic assumptions (often with psychological motivation) to explain and predict behavior, as well as to prescribe policies" (p. 385). According to this definition, behavioral economics is a discipline that

studies individual decision-making and the impact decisions have on individual behavior (Earl, 2018). Combine economics and psychology to study the impact of decisions on behavior. Angner and Loewenstein (2012) describe behavioral economics as an approach that examines how people and companies make decisions using a variety of approaches and empirical evidence. As a result, behavioral economics can be defined as the application of psychology and sociology to analyze decision-making processes rather than the traditional economic premise that all individuals make rational economic decisions

As previously noted, the classic economic theory assumes that humans are logical and seek the greatest possible advantage from their decisions. This viewpoint, however, fails since not all people make logical decisions (Tversky and Kahneman, 2000; Alm and Bourdeaux, 2013). The area where behavioral economics attempts to explain individual behavior and activities using various methodologies. To explain irrational behavior, behavioral economics incorporates many social science fields, particularly social psychology (cognitive psychology) (Stewart, 2005).

Individual behavior and actions are seen in behavioral economics as the outcome of the collaboration of two accepted factors: (1) normative preferences, which refer to individual goals and activities that are thought to encourage optimal well-being, and (2) expressed preferences, which refer to decisions made that may not always promote optimal well-being. Because behavioral biases are constantly possible, optimal well-being cannot always be reached (Kooreman and Prast, 2010; Fighan, 2015). To make rational decisions, individuals require extensive information, cognitive abilities, and consistent preferences, all of which are difficult to achieve in the real world (Kooreman and Prast, 2010). This is known as constrained rationality and is caused by the incomplete information given by the individual so that the outcome does not take into account his or her own interests (Diamond and Vartiainen, 2007). In behavioral economics, individuals are not always rational because they have limited access to information resources and therefore cannot make decisions as they would if they had extensive information. As a result, their decisions may not encourage, or even actively impair, their long-term aims. For example, despite being aware of the bad impacts of smoking on future health, a person might continue to smoke (Luoto and Carman, 2014). Strategy is frequently employed in behavioral economics to impact behavior and routines, such as smoking (Blaga, 2018).

Theory of Financial Behavior

The concept of behavioral finance arose from the assumption that humans, as social and intelligent beings, involve thoughts and emotions in decision making. According to Hirschey and Nofsinger (2008), behavioral finance is defined as

“the study of cognitive and emotional errors in financial decision-making”.

They explain that the concept of behavioral finance is the study of financial decision-making driven by emotional and cognitive factors, and classifies decision-making biases into two categories: cognitive biases and emotional biases. The former are prejudices related to thought processes, the latter to feelings and emotions. As suggested by Shefrin (2002), (2013) classified cognitive biases into three groups.

Heuristic bias is the tendency to simplify decision-making by applying rules of thumb. Heuristics are cognitive shortcuts or rules of thumb that simplify decisions, particularly in the face of uncertainty, general propensity bias, and representational bias.

The framing effect refers to the reaction bias to information depending on an information framework. (Agriculture Effect) The framing effect is a cognitive bias in which people choose options based on whether they are provided with positive or negative connotations. Framing bias occurs when people make decisions based on how information is presented rather than just the facts themselves. People can make different judgments or decisions when the same fact is given in two different ways. Traditional finance has hitherto overlooked the importance of framing as a substance. Overreaction, conservatism, restraint, and confirmation bias are all members of this group.

Prior prejudice is defined as a bias in receiving information and responding to market pricing. Prices will gradually vary from their basic worth due to priority bias, heuristic bias, and framing effects, resulting in an inefficient market. Optimism, overconfidence, and an accounting mentality are all part of this group.

According to Sha and Ismail (2020), investors make decisions based on accessible information, and the issue is tied to how they construct their impressions of that information. In this context, investors should be aware of the various sorts of cognitive biases that can lead to significantly better or worse outcomes. They discovered that distinct cognitive biases effect investors differently depending on their gender. Building on the findings and phenomena of previous research, this study further explores the impact of cognitive and emotional biases on investment decisions according to Shefrin (2002), revealing that behavioral finance is not the science of winning the market. increase. Recognize that risks arising from investor sentiment and psychological factors may outweigh fundamental risks.

METHODS

This research uses a literature review to look for theoretical references that are relevant to the cases or problems uncovered to investigate behavioral economics and financial behavior in decision-making. A literature review, according to Creswell, John. W. (2014), is a written summary of articles from journals, books, and other documents that describe theory and knowledge, both past and present, grouping literature into the subjects and documents required. The type of data used by the author in this study is data obtained from literature studies. This paper will discuss the concept of economic behavior and then relates it to financial behavior in decision-making.

RESULTS AND DISCUSSION

Decision Making

Investment decision-making is the process of selecting an investment from a range of alternatives and is usually influenced by past investment returns and expected future returns (Subash, 2012). There are two types of investors who make investment decisions: rational investors and irrational investors. A rational investor is one who makes decisions based solely on reasoned thinking and information about investment prospects. On the other hand, irrational investors make decisions based on psychological aspects, which leads to bias in investment decisions.

Investment decision-making is also influenced by factors in that investors interpret market information in their minds to take bold steps regarding investment decisions. How people's investment decisions as well as how he buys and sells shares from the stock market Investors who are just entering the market are usually irrational, it doesn't matter how much he learns about the market, how much information he gets from the market because investors have a fear of loss. The difference in the behavior of a stock market investor depends on the factors he is exposed to in the market and even the factors that force him to behave rationally.

According to conventional financial theory, investors are presumed to be so rational, that wealth maximizers simply follow the basic rules on which investment decisions are based. Such investors make investments based on high-risk considerations. The degree of consideration for risk-taking is not the same for all investors; it depends on their investment and psychological behavior Investors' investment decisions are usually based on both internal and external behavioral factors. Investment decisions generally depend on various factors such as market knowledge, financial literacy, individual risk-taking capacity, and account-related information. is necessary for new information because if an investor is not aware of accounting information, he or she can be affected by sunk costs. Wealth maximization behavior primarily affects investors. obtained via the internet, etc. All of the above factors are considered to influence investors' investment decision-making. The

phenomena of this decision-making process can be explained in various behavioral theories that have been put forward by several experts in behavioral science as explained below.

Bounded Rational Theory

Herbert Simon introduced the term 'limited rationality' (Simon 1978) as shorthand for his summary of opposition to neoclassical economics and his call to replace the assumption of perfect rationality of homo economicus with a cognitively limited agent-adapted conception of rationality. Broadly stated, the task is to replace the global rationality of economic man with the kind of rational behavior appropriate to the access to information and computing capacities that organisms, including humans, actually possess in the kinds of environments in which there is an organization (Simon 1978).

'Bound rationality' has since come to refer to various descriptive, normative, and prescriptive explanations of effective behavior that depart from the assumption of perfect rationality. This entry aims to highlight the main contributions—from decision science, economics, cognitive and neuropsychology, biology, computer science, and philosophy—to our current understanding of limited rationality.

The essence of the conception of bounded rationality is that individual humans are not perfectly rational beings as assumed in mainstream economic theory. Human rationality knows the limits of ability because it is referred to as bounded rationality. One of the main manifestations of bounded rationality is that in making decisions, individuals are oriented towards the best results that can be achieved, or what is known as satisficing, not the greatest results that should be achieved. Thus satisficing is a theoretical alternative to optimal utility (the greatest result that should be achieved) in rational behavior.

Prospect Theory

Corresponding to Kahneman and Tversky, the valuation of losses and gains is different, so users make decisions based on perceived gains rather than perceived disadvantages. For example, most people would rather be sure he wins \$50 than flip a coin and he wins \$100 or make a risky bet that wins nothing. But Kahneman and Tversky also found that:

If they have a 100% chance of losing \$50 vs no or he has a 50% chance of losing \$100, these same people will frequently choose the second alternative. I have. Prospect theory outlines the three decision-making biases that people have. Certainty:

"This is when people tend to choose the sure option of being overweight and are averse to risk of gain".

Thermal insulation effect:

"Refers to people's propensity to respond to striking and unusual information."

Loss avoidance:

"When people prefer avoiding losses to getting equal gains"

The certainty effect occurs when people place excessive weight on outcomes that are considered certain rather than the only possible outcome. In other words:

We prefer sure wins and little wins over chances of winning more and risking nothing.

Nudge Theory

Thaler's contributions to economics fall into three broad categories.

(i) exposed the empirical deficiencies of rational choice theory and developed the perspective of Kahneman and Tversky to understand various anomalies; used it to understand how it reacts to different types of pricing strategies, and (iii).) with Cass Sunstein, he develops the concept of 'libertarian paternalism' and examines its practical implications for politics, especially through the 'push' method.

Richard Thaler and Cass Sunstein, in their popular book *Nudges – Improving Decision-Making About Health, Wealth, and Happiness* (2008), argue that unfavorable behavioral and decision-making patterns are cognitive limitations. It suggests that prejudices, or habits, may be the result of being "encouraged." Incorporating the same kinds of insights about constraints, prejudices, and habits into behavioral decision-making structures—the physical, social, and psychological aspects of the situations in which they influence and

influence our decisions. and aim to make better decisions. In a way that encourages rather than discourages desired behavior.

In particular, such promotions face some of the traditional regulatory challenges and potential pitfalls, such as costly procedures and ineffective campaigns, unintended consequences of incentivized behavior, and regulation of intrusive decisions such as bans. claims to be able to avoid They say the benefits of using incentives reinforce traditional rules with incentives for public decision makers to influence people's decisions and everyday behavior in a more cost-effective and efficient way. , or can be replaced (Thaler & Sunstein, 2008). . A more invasive and effective method. That said, nudges give policy makers the ability to influence public behavior without further restricting freedom of choice, imposing obligations, or introducing new taxes or tax cuts. It seems to offer a viable method.

Economic Behavior and Financial Behavior

Behavioral finance is becoming increasingly important in corporate finance, investment, stock market, and financial market efficiency discourses. If economists were asked in the mid-1980s to name a discipline of economics that was least likely to exercise limited rationality, finance would probably be mentioned most often. One leading economist calls the efficient market hypothesis (see definition below), which follows from traditional economic thought, the most established fact in economics. Yet finance is perhaps the branch of economics in which behavioral economics has made the greatest contribution.

Two factors contributed to the surprising success of behavioral finance. First, financial economics in general, and the efficient market hypothesis (see efficient capital markets) in particular, make robust and testable predictions about observable phenomena. Second, high-quality data is readily available to test this robust prediction. The rational efficient market hypothesis states that stock prices are "correct" in the sense that asset prices reflect a security's true or rational value. In many cases, the principle of the efficient market hypothesis cannot be tested because the intrinsic value cannot be observed. However, in some special cases, the hypothesis can be tested by comparing two assets whose relative intrinsic values are known.

Prospect theory, developed by Kahneman and Tversky (1979) and Tversky and Kahneman (1981, 2002) is proposed as a best practice alternative to conventional wisdom. Prospect theory is a theory of average behavior. It theorizes how an individual or group of individuals behaves, on average, in a world of uncertainty. The basic premise of behavioral finance is that an individual's systematic choice behavior deviates from the predictions of conventional wisdom (Fama, 1970, 1993; Shleifer, 2004, Makrehchi et al, 2013). Conventional wisdom is exemplified by the efficient market hypothesis (EMH) and subjective expected utility theory.

The conventional financial theory assumes that individuals behave according to the dictates of these theories and, as such, act as rational agents. Even if some individuals choose not to behave according to standard theory, market forces will force them to do so. At a minimum, on average, market behavior will map to the predictions of conventional wisdom. Thus, conventional theory should be read more than just a theory of individual behavior (Makrehchi et al, 2013). Like prospect theory, a significant part of conventional theory focuses on average, not individual, behavior.

A critical underlying assumption of conventional wisdom is that the agent economy is rational as defined by the normative structures of the EMH and SEU (Subjective Expected Utility) theory. Other irrational behaviors are ruled out by definition or assumed to be of trivial analytical importance because they will, in a short time, be taken care of by market forces. The conventional model is considered to provide the most accurate analytical predictions, thereby validating the model's simplifying assumptions. An important constituency in behavioral finance, of which prospect theory is a critical component, accepts the perspective of conventional wisdom that behavior is irrational or at least suboptimal if it deviates from the ideal behavior norms defined in EMH and SEU (Subjective Expected Utility) theory. But behavioral finance scholars argue that irrational choice

behavior is typical and therefore needs to be better explained and modeled. When such behavior is modeled appropriately, it yields more accurate analytical predictions (; Shiller, 2004; Barberis and Thaler, 2018; Kahneman, 2002; Altman, 2004, 2012, Schwartz, 2010). Moreover, based on sufficient consideration of empirical evidence, behavioral economics maintains that behavioral models and institutional assumptions are critical to causal analysis and the accuracy of analytical predictions.

Prospect theory only touches on some of the issues raised in the behavioral finance literature. But the focal point is critical: how individuals evaluate risky gambling or prospects and engage in risky choice behavior. The choice of risky behavior is at the heart of participation in financial markets. Some scholars argue that the value of prospect theory is in its ability to better explain the conundrum of human behavior in a world of uncertainty. This puzzle includes a preference for a certain paradoxical unexpected result (from a conventional theory perspective) high average returns on stocks relative to bonds, referred to as the equity premium puzzle; paying more for insurance and getting involved in the expected value lottery; individuals tend to weigh losses over gains (referred to as loss avoidance); apparent excess weight from minor mistakes (related to regret theory), which can lead individuals to hold onto low-return assets for too long in the hope of a better tomorrow to avoid regretting taking losses; and the importance of reference points for decision making. The importance of reference points suggests and helps explain both herding and cascades in behavioral investing (Shiller, 2003).

Bias in Behavioral Economics and Finance

Traditional finance's economic model believes that people are sensible. They have consistent preferences and are continuously looking to optimize their profits. However, this is not the case. Some research implies that people occasionally behave unreasonably as a result of behavioral biases. We first examine behavioral biases in detail before analyzing how they influence individuals in corporate financial decision making.

A behavioral bias is a series of errors in judgment that occur in a certain scenario, particularly when the circumstances are ambiguous. In other words, behavioral bias is the tendency for humans to make systematic errors based on cognitive variables rather than evidence under particular conditions. Many factors can contribute to bias. (Rabin, 1996) define bias as

"a person's preference as determined by change in outcome" relative to his reference level, rather than just absolute outcome levels. People despise losses substantially more than they like them in comparison to their current situation." Behavioral biases are classified into two types: cognitive biases and emotional biases. Both have the same impact, but emotional bias produces decision-making distortion due to emotional elements such as fear, concern, and so on. Behavioral biases necessitate the use of several patterns, each with its own representation and influence on financial decision-making. Some of these patterns are as follows:

Heuristic bias

Heuristics, often known as rules of thumb, are methods of problem solving, learning, and discovery. Most managers utilize heuristics because they speed up the process of finding a solution when the situation is complex. According to Schwartz (2010),

"heuristics are shortcuts that simplify complex methods for assessing probabilities and values normally required to make judgments and eliminate the need for extensive computations"

Heuristics make decision making easier. There are many situations in which an investor would like to use heuristics to solve a problem. for example:

The first is when an investor is unaware of alternative ways to a problem, even though there is an ideal solution. In addition, investors either do not have the resources to get help from others, or it is too expensive to get help from others. Second, investors may have difficulty obtaining sufficient information to resolve issues or have limited time to make

decisions. Third, investors may not be familiar with data processing programs. Additionally, decisions can be overwhelmed with an emotional side. Heuristics can be powerful tools for finding solutions. However, when used in the wrong context, investors can make systematic mental mistakes (Fuller, 2000).

Overconfidence

Overconfidence refers to people's inclination to overestimate their skills. Overconfidence, according to Shefrin (2007), is

"related to how well people understand their own abilities and limits of knowledge."

People, in general, lay far too much weight on their efforts, knowledge, and talents, especially when they have a high level of self-confidence. Overconfidence can present itself in a variety of ways. According to Shefrin's research, between 65 and 80 percent of people assessed themselves as above average (defined as the median) when asked,

"Relative to all the people you work with, how do you rate yourself?"

as a chauffeur? This means that most people have too much confidence in their abilities and knowledge when faced with difficult and difficult tasks. Levels of overconfidence can also vary by gender. Barber and Odean (2001) tested this prediction by splitting investors by gender. They used discount broker account data and analyzed men's and women's activity in these investments from February 1991 to January 1997. The results showed that men tended to be more financially confident than women.

Familiarity bias

The tendency of people to believe and favor what they are familiar with is known as familiarity bias. According to Shefrin's (2007) study, "people's ability to judge an event as likely depends on how they recall specific past information related to that event." Most investors prefer to pour money into well-known companies because they believe that companies they are less familiar with are riskier (Chira, Adams, & Thornton, 2008). Simply put, investors prefer to invest in what they know. But the market does not give investors a risk premium for 'loyalty' or 'friendliness'.

Loss aversion

Loss aversion, often known as prospect theory, is the tendency of humans to prefer avoiding losses over experiencing comparable gains (Tversky and Kahneman, 1979). Loss aversion refers to how investors choose between two risky choices. According to empirical evidence, losses weigh nearly twice as much as wins for investors. Making decisions can also be influenced by how alternatives are expressed. Investors can usually try to avoid unfavorable options. For example, suppose an investor must choose between a guaranteed loss of \$7500 and a 75 percent Loss aversion, often known as prospect theory, is the tendency of humans to prefer avoiding losses over experiencing comparable gains (Tversky and Kahneman, 1979). Loss aversion refers to how investors choose between two risky choices. According to empirical evidence, losses weigh nearly twice as much as wins for investors. Making decisions can also be influenced by how alternatives are expressed. Investors can usually try to avoid unfavorable options. For example, suppose an investor must choose between a guaranteed loss of \$7500 and a 75 percent probability of losing \$10,000 and a 25 percent possibility of losing nothing. The majority of investors will go with the latter. "Because investors hate to lose, unpredictable choices give them hopes that their investments will not lose" (Shefrin, 2001).

Hindsight bias

When looking back at the market's loss, investors may engage in what is known as selective withdrawal. Past events are brought to light as a result of selective remembering. Investors often ignore all of their current ideas and feelings and only concentrate on the few things that end up being an issue. In this way, investors perceive past occurrences to be considerably more predictable than they were previously. This is known as hindsight bias. People's foresight can be harmed by hindsight bias since it causes them to believe that the future can also be foreseen easily. According to Nester and Egloff's (2009)

research, hindsight bias has three components: the feeling of inevitability, the impression of predictability, and memory distortion. This initial component happens when people can identify specific reasons of an occurrence. The possibility of hindsight bias increases when the cause is easily explained. The second component entails predicting the future if there are no surprises related with the events that occur. Otherwise, if the event is unexpected and the forecaster cannot discover a clear phrase for it, hindsight bias will be avoided. The third process, memory deformation, occurs when people forget their original predictions and see them as close to truth rather than true (Goodwin, 2010).

Confirmation bias

Confirmatory bias is the tendency of investors to evaluate information in ways that reinforce their prejudices while avoiding interpretations that oppose their ideas (Shefrin, 2007). As a result, investors selectively retrieve information from memory and utilize it to interpret data in a biased manner. There are three types of confirmation bias: searching for information bias, perception bias, and memories bias. All three types of prejudice have a similar effect: they seek evidence to support their initial ideas. Nickerson (1998) explains in his research: "In addition to searching for information that supports existing hypotheses and beliefs, people seem to be more likely to search only or primarily for information that supports those hypotheses or beliefs in a particular way." A large body of empirical evidence shows that confirmation bias strongly influences people's decision-making. When investing, investors want information that supports their original ideas and avoids information that contradicts them. However, this one-sided information gives investors only a small part of the overall market picture and can lead to erroneous decisions.

Anchoring Bias

"In many cases, people estimate by starting with an initial adjusted value and working their way up to a final answer." Problem formulation or partial calculation results can propose initial values. That is, different beginning points produce estimates that are biased toward the initial value. This is referred to as the anchoring phenomenon" (Tversky and Kahneman, 1974).

Many studies suggest that anchoring has a broad impact on people's decision-making processes, with topics ranging from probability estimate to legal judgments, valuations, and purchase decisions. Dowd and McElory (2007). Several research, however, have demonstrated that anchor values have an effect on judging judgements. For example, restraint and judgment were first introduced by Tversky and Kahneman (1974). Mussweiler and Strack showed that the difference between anchor height and low only occurred for anchor values within a range of reasonable responses and not for irrational or extreme responses. Wegner et al. (2001) proposed a new perspective on attachment based on the process of attitude change. From the above, we can see that constraints can change as mechanisms and contexts change. (Furnham and Boo, 2011)

Mental accounting

According to the research, "people use "mental accounts" in multi-attribute decision situations, in which individuals form separate psychological accounts and use them to evaluate events or choices" (Moon et al, 1997). This is known as mental accounting bias. Many academics have attempted to demonstrate the influence of mental accounting on decision-making. Tversky and Kahneman's (1981) data from experiments, including buying of a jacket and a calculator in the same store, with a discount on the computation in a different store, demonstrates that people make purchasing decisions based not only on the amount of absolute money they can save, but also on the money savings linked to the original price of a particular good. Then, the findings of Mowen (1986) and Ranyard and Abde-Nabi (1993) studies all suggest that people's decisions can be heavily influenced by mental accounting. People cannot make exceptions for some of the "anomalies" in the capital market.

Regret avoidance

We constantly hear investors claim that they have learned from their failures. Investors put themselves up for regret by making decisions based on speculation, and the bias is to avoid whatever caused the embarrassment. Avoiding regret is founded on a counterfactual mental concept that leads to guilt. For example, "If only I hadn't made the decision to buy that stock or fund when it went down" is a counterfactual since it truly is a counterfactual.

To avoid regret, people tend to focus on bad outcomes and blame the decisions that led to them. A bad decision is to go too fast. Bad results for investors can mean losses in stock portfolios, but that doesn't mean the decision to push stocks up is necessarily bad per se. Because while investors can avoid bad decisions, they may perceive that bad outcomes are inevitable. The regret effect can be eliminated if investors can carefully analyze market conditions, adjust their portfolios, and never make decisions based on speculation. In addition to the biases discussed above, there are still many behavioral biases that influence investor decision-making. Only knowing exactly what mistakes investors might make in the decision-making process can they make better decisions about outcomes?

Effects of Behavioral Bias on Investor Decision Making

Many studies in behavioral finance suggest that behavioral biases influence investors' financial decisions. This effect affects not just small investors, but also specialists who have spent a long time studying finance. Market "anomalies" that cannot be explained by classical finance appear to have a credible explanation in behavioral finance. We will investigate the impact of behavioral bias on investors..

Most financial economists believe there are two types of investors in the market.

Arbitrage traders and noise traders. While arbitrage trading is considered perfectly reasonable, noise traders are defined as investors. Who Is Affected by Systemic Bias? De Long (1989) argued that noise traders typically do not accept financial advice to buy or hold market portfolios. Instead, they want to select stocks based on their own research. However, portfolio diversification fails because irrational behavior and bias can interfere with the decision-making process.

Overconfidence is a major factor affecting investors' financial performance decisions. Overconfidence occurs when an investor is overly confident in their abilities and knowledge while underestimating the risk. According to Kyle and Wang's (1997) research, "overconfident traders may earn higher expected returns or have higher expected utility than rational traders because overconfident words such as commitment devices to aggressive trading" (Baker and Nofsinger, 2010). Even so, we believe that early movers benefit from higher returns for overconfident investors. If there are many cheeky investors, you can expect the market to have a high trading volume. Based on rational portfolio theory, investors should pay more attention to the expected usefulness of a portfolio than to the specific components of the portfolio (Von Neumann and Morgenstern, 1947 and Savage, 1954). However, investors tend to divide their investments into multiple areas. Multiple Portfolios Investors making safe account decisions designed to guarantee minimum net worth. As a result, it is heavily influenced by mental accounting. Several studies suggest that investors are concerned with a specific price. They must wait until the stock price reaches a reference point before they can begin trading. Anchor bias affects this type of investor (Baker and Nofsinger, 2002). Investors are not the only ones influenced by behavioral biases because they constitute the majority of the market. Behavioral biases will have an impact on the entire financial market.

CONCLUSION

The classical economics approach posits that people make economic decisions based on utility-maximizing norms. The behavioral approach, on the other hand, does not assume humans are adept at utility maximization; rather, it says people have psychological biases (such as loss aversion), limited cognitive resources, and care about people. Others, such as justice, have values that can impair utility-maximizing conduct. Attention to behavioral economics and behavioral finance has stressed this field's capacity to recognize that

people do not always act rationally or in their own best interests in their activities and decisions. Because of behavioral biases, irrationality will always arise. Because of the integration of psychology and sociology, behavioral economics has been able to detect that standard or mainstream economic assumptions (such as rationality and self-interest) are not always achieved.

Behavioral economics and behavioral finance use psychology to research economics and finance, demonstrating how human biases can influence people's financial decisions.

This paper investigates some of the common behavioral biases in investor decision-making, such as heuristics, overconfidence, mental accounting, loss aversion, and so on. Each of them demonstrates their own representation and how they impact decision-making. The impact of behavioral bias is pervasive; not only do investors suffer, but so do firms and market capital. Investors can be influenced by a variety of behavioral biases, including overconfidence, mental accounting, and anchoring. Irrational actions can result in profit loss or portfolio failure.

REFERENCES

- Altman, M. (2004). "The Nobel Prize in Behavioral and Experimental Economics: a Contextual and Critical Appraisal of the Contributions of Daniel Kahneman and Vernon Smith," *Review of Political Economy*, 16: 3-41
- Altman, M., 2012. *Behavioral economics for dummies*. New York: John Wiley and Sons
- Alm, J., & and C. Bourdeaux, 2013. Applying behavioral economics to the public sector. *Review of Public Economics*, 206(3): 91–134. View at Publisher
- Asri, M. (2013). *Behavioral finance*. Yogyakarta: BPFYogyakarta.
- Baker, H.K, and Nofsinger, J.R. (2010). *Behavioral finance: investors, corporations, and markets*. New Jersey: John Wiley & Sons, Inc
- Barberis, N., 2018. Richard Thaler and the rise of behavioral economics. Retrieved from <http://faculty.som.yale.edu/nicholasbarberis/tt8b.pdf> [Accessed April 20, 2018]
- Benartzi, S. and Thaler. R, (1995). Myopic loss-aversion and the equity premium puzzle. *Quarterly Journal of Economics* 110 (1), pp.73-92
- Benartzi, S. and Thaler, R.H. (2002) How much is investor autonomy worth? *The Journal of Finance* 57(4): 1593–1616.
- Brzezicka, J. and R. Wisniewski, 2013. Homo oeconomicus and behavioral economics. *Contemporary Economics*, 8(4): 353–364
- Creswell, John W. 2014. *Research design pendekatan kualitatif, kuantitatif, dan mixed*. Yogyakarta : Pustaka Pelajar
- Chira, Adams and Thornton (2008), Behavioral bias within the decision making process, *Journal of Business & Economics Research*, Volume 6, pp. 11-20
- Chetty, R., 2015. Behavioral economics and public policy: A pragmatic perspective. *American Economic Review: Papers & Proceedings*, 105(5): 1-33. View at Google Scholar | View at Publisher
- Congdon, W., J. Kling and S. Mullainathan, 2011. *Policy and choice – public finance through the lens of behavioral economics*. Washington, D.C: The Brookings Institution Press
- DellaVigna, S., 2009. Psychology and economics: Evidence from the field. *Journal of Economic Literature*, 47(2): 315–372. View at Google Scholar | View at Publisher
- Diamond, P.A. and Hausman, J.A. (1984) Individual retirement and savings behavior. *Journal of Public Economics* 23(1):81–114
- Earl, P.E., 2018. GLS Shackle's introspective behavioral economics. *Journal of Behavioral Economics for Policy*, 2(1): 19–23. View at Google Scholar
- Espin, A.M., F. Reyes-Pereira and L.F. Ciria, 2017. Organizations should know their people: A behavioral economics approach. *Journal of Behavioral Economics for Policy*, 1(S): 41–48. View at Google Scholar
- Fama, E.F. (1970) Efficient capital markets: a review of theory and empirical work. *The Journal of Finance* 25(2): 383–417.

- Fama, E.F. and French, K.R. (1993) Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics* 33(1): 3–56.
- Fama, E. (1998) Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics* 49(3): 283–306
- Fuller, R. J., (2000). Behavioral finance and sources of Alpha, *Journal of Pension plan investing*, volume. 2, No.3
- Furnham, A. and Boo, H, C (2011), A literature review of the anchoring effect, *Journal of Social-Economics*, Volume 40(1), pp. 35-42
- Hirschey, M., & Nofsinger R. J. (2008). *Investment: Analysis and behavioral*. New York, NY: McGraw-Hill/Irwin
- Hursh, S.R. and P.G. Roma, 2013. Behavioural economics and empirical public policy. *Journal of the Experimental Analysis of Behavior*, 99(1): 98–124. View at Google Scholar | View at Publisher
- Kanter, R.M. *The change masters*. & Schuster, 1983). (New York: Simon)
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291. doi:10.2307/1914185
- Kahneman. D and Tversky. A, (1981). The framing of decisions and the psychology of choice. *Science* 211, pp
- Kahneman, D., 2002. Maps of bounded rationality: A perspective on intuitive judgment and choice. Price lecture. Retrieved from https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2002/kahnemann-lecture.pdf [Accessed January 10, 018].
- Kumar, S. and Goyal, N. (2015) Behavioural biases in investment decision making—a systematic literature review. *Qualitative Research in Financial Markets* 7(1): 88–108.
- Laibson, D. and J.A. List, 2015. Principles of (Behavioral) economics. *American Economic Review*, 105(5): 385–390. View at Google Scholar | View at Publisher
- Levinson, D. *The seasons of a man's life*. (New York: Alfred A. Knopf, 1978).
- Makrehchi, M., Shah, S., & Liao, W. (2013). November. Stock prediction using event-based sentiment analysis. In *Web Intelligence (WI) and Intelligent Agent Technologies (IAT)*, 2013 IEEE/WIC/ACM International Joint Conferences (Vol. 1, pp. 337–342). IEEE.
- McElroy, T., and Dowd, K., (2007). Susceptibility to anchoring effects: how openness to experience influences responses to anchoring cues. *Judgment and Decision Making* 2, pp.48–53
- Meyer, J. W., & Rowan, B. (1977). Institutional organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, 929-984.
- Mowen, M.M., Mowen, J.C., (1986). An empirical examination of the biasing effects of framing on business decisions. *Decision Sciences* 17, pp.596-602
- Moon, P. , Keasey, K. and Kuxbury, D. (1997), Mental accounting and decision making: the relationship between relative and absolute saving, *Journal of Economics Behavior & Organization*, volume 38, pp. 145-153
- Mitchell, O.S. and Utkus, S.P. (2003) Lessons from Behavioral Finance for Retirement Plan Design (October 2003). PRC Working Paper No. 2003-6
- Pereira, C.M., 2016. Reviewing the literature on behavioural economics. *Capital Markets Law Journal*, 11(3): 414–428. View at Google Scholar | View at Publisher
- Rabin, M., (1996). Psychology and Economics, *Journal of Economic Literature*, volume 36(1), pp.11-46
- Ranyard, R., and Abdel-Nabi, D., (1993). Mental accounting and the process of multiattribute choice. *Acta Psychological* 84, pp. 161-177
- Savage, L.J., (1954). *The Foundations of Statistics*. Wiley, New York.
- Schwartz, H., (2010). Heuristics (Rules of Thumb) Behavioral Finance: Investors, Corporations, and Markets, Chapter 4, H. Kent Baker, John Nofsinger, eds., (2010) John Wiley and Sons.
- Schade, C. and Koellinger, P. (2007) Heuristics, biases, and the behavior of entrepreneurs. In M. Minniti (ed.), *Entrepreneurship: The Engine of Growth*, Vol. 1 (pp. 41–63). Westport, CT: Praeger)

- Sha, N., & Ismail, M. Y. (2020). Behavioral investor types and financial market players in Oman. *Journal of Asian Finance, Economics, and Business*, 8(1), 285–294. <https://doi.org/10.13106/jafeb.2021.vol8.no1.285>
- Shefrin, H. (2001), Behavioral corporate finance. *Journal of Applied corporate finance*. Volume 14(3)
- Shefrin, H. (2007) *Behavioral Corporate Finance. Decisions that Create Value*. McGrawHill/Irwin. New York.
- Shleifer, A. (2004). *Inefficient markets: an introduction to behavioral finance*. New York: Oxford University Press Inc
- Shefrin, H., and Statman, M. (1984). Explaining investor preference for cash dividends. *Journal of finance economics* (13), pp. 253-282
- Shleifer, A. and Summers, L.H., (1990). The noise trader approach to finance, *Journal of Economic Perspectives* 4, pp.19-33.
- Shiller, R.J. (2003) From efficient markets theory to behavioral finance. *The Journal of Economic Perspectives* 17(1): 83–104.
- Simon, H.A., 1978. Rational decision-making in business organizations. Nobel memorial lecture. Retrieved from https://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1978/simon-lecture.pdf [Accessed January 8, 2018]
- Sunstein, C.R., 2018. The rise of behavioral economics: Richard Thaler's misbehaving. *Journal of Behavioral Economics for Policy*, 2(1): 53–57.
- Subash, R. (2012). Role of behavioral finance in portfolio investment decision: Evidence from India [Master Thesis, Charles University in Prague]. <https://is.cuni.cz/webapps/zzp/detail/110165/?lang=en>
- Thaler, R.H. and Shefrin, H.M. (1981) An economic theory of self-control. *Journal of Political Economy* 89(2): 392–406
- Thaler, R.H. and C.R. Sunstein, 2003. Libertarian paternalism. *American Economic Review*, 93(2): 175–179.
- Tversky, A. and Kahneman, D. (1974) Judgment under uncertainty: heuristics and biases. *Science* 185(4157): 1124–1131.
- Tversky, A. and Kahneman, D. (1981) The framing of decisions and the psychology of choice. *Science* 211(4481): 453–458.
- Timmons, J.A., Smollen, L.E. & Dingee, A.L., Jr. *New venture creation: A guide to entrepreneurship* (2nded.) (Honewood, IL: Richard D. Irwin, Inc., 1985).
- Timmons 5. K.H. Vesper (Eds.) *Frontiers of entrepreneurship research* (Wellesley, MA: Center for Entrepreneurial Studies, 1984) pp. 159-174.
- Tsai T., Young, M.N., & Cheng, B., *Confucian business practices and firm competitiveness: The case of Sinyi Real Estate*, 2011.

