Quest Journals
Journal of Research in Business and Management
Volume 4 ~ Issue 12 (2017) pp: 11-19
ISSN(Online) : 2347-3002
www.questjournals.org

Research Paper

Why Behavioral Finance is Helpful for Investors to Decision Making Process?

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Received; 05 Feb. 2017 Accepted; 18 Feb. 2017; © The author(s) 2017. Published with open access at **www.questjournals.org**

ABSTRACT: *Behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and the subsequent effect on markets. It is of interest because it helps explain why and how markets might be inefficient.*

Keywords: *Decision making, Hypothetical value, Neuro economics, Limits to arbitrage, Investment behavior, Investor types* & Collateralized debt obligations.

• INTRODUCTION

That behavioral finance has revolutionized the way we think about investments cannot be denied. But its intellectual appeal may lie in its cross-disciplinary nature, marrying the field of investments with biology and psychology. This literature review discusses the relevant research in each component of what is known collectively as behavioral finance. Behavioral finance has been growing over the last twenty years specifically because investors rarely behave according to the assumptions made in traditional financial and economic theory. Behavioral finance studies the psychology of financial decision-making. Most people know that emotions affect investment decisions. People in the industry commonly talk about the role greed and fear play in driving stock markets. Behavioral finance extends this analysis to the role of biases in decision making, such as the use of simple rules of thumb for making complex investment decisions. In otherwords, behavioral finance takes the insights of psychological research and applies them to financial decision making.

• HISTORY:

Back in 1896, Gustave le Bon wrote The Crowd: A Study of the Popular Mind, one of the greatest and most books of social psychology ever writtenle Bon 1896).Selden (1912) wrote Psychology of the Stock Market. He based the book`upon the belief that the movements of prices on the exchanges areconsiderable degree on the mental attitude of the investing and tradingpublic. In 1956 the US psychologist Leon Festinger introduced a new concept insocial psychology: the theory of cognitive dissonance (Festinger, Riecken andSchachter 1956). When two simultaneously held cognitions are inconsistent, this will produce a state of cognitive dissonance. Because the experience of dissonance is unpleasant, the person will strive to reduce it by changing theirbeliefs.Pratt (1964) considers utility functions, risk aversion and also risks considered as a proportion of total assets.Tversky and Kahneman (1973) introduced the availability heuristic: a judgmental heuristic in which a person evaluates the frequency of classes or the probability of events by availability, i.e. by the ease with which relevant instances come to mind.' The reliance on the availability heuristic leads to systematic biases.

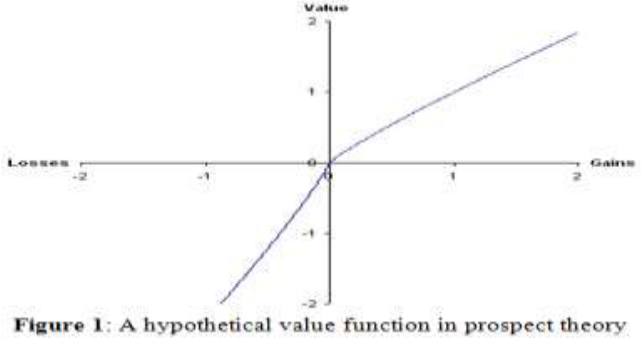

Figure 1: A hypothetical value function in prospect theory

In another important paper Tversky and Kahneman (1981) introduced framing. They showed that the psychological principles that govern the perception of decision problems and the evaluation of probabilities and outcomes produce predictable shifts of preference when the same problem is framed in different ways. Shiller (1981) discovered that stock price volatility is far too high to be attributed to new information about future real dividends. Kahneman, Slovic and Tversky (1982) edit Judgment Under Uncertainty: Heuristics and Biases, thirty five chapters which describe various judgmental heuristics and the biases they produce. In 1985 Werner F. M. De Bondt and Richard Thaler published `Does the stock market overreact? The Journal of Finance (De Bondt and Thaler1985), effectively forming the start of what has become known as behavioral finance. They discovered that people systematically over reacting to unexpected and dramatic news events results in substantial weak-form inefficiencies in the stock market. This was both surprising and profound. Mental accounting is the set of cognitive operations used by individuals and households to organizeevaluate and keeps track of financial activities. Thaler (1985) developed a new model of consumer behavior involving mental accounting. Tversky and Kahneman (1986) argue that, due to framing and prospecttheory, the rational theory of choice does not provide an adequate foundation for a descriptive theory of decision making. Yaari (1987) proposes a modification to expected utility theory and obtains a so-called `dual theory' of choice under risk. De Bondt and Thaler (1987) report additional evidence that supports the overreaction hypothesis. Samuelson and Zeckhauser (1988) perform a series of decision-making experiments and found evidence of status quo bias. Poterba and Summers (1988) investigate transitory components in stock prices and found positive autocorrect.In 1974, two brilliant psychologists, Amos Tversky and Daniel Kahneman, described three heuristics that are employed when making judgments underuncertainty (Tversky and Kahneman 1974): representativeness When people are asked to judge the probability that anobject or event A belongs to class or process B, probabilities are evaluatedby the degree to which A is representative of B, that is, by the degree to which A resembles B. availability. When people are asked to assess the frequency of a class or the probability of an event, they do so by the ease with which instances oroccurrences can be brought to mind. Anchoring and adjustment In numerical prediction, when a relevant value(an anchor) is available, people make estimates by starting from an initialvalue (the anchor) that is adjusted to yield the final answer. The anchor may be suggested by the formulation of the problem, or it may be the result of a partial computation. In either case, adjustments are typically insufficient.The most cited paper ever to appear in Econometrics, the prestigious academic journal of economics, was written by the two psychologists Kahnemanand Tversky (1979). They present a critique of expected utility theory (Bernoulli1738; von Neumann and Morgenstern 1944; Bernoulli 1954) as a descriptive model of decision making under risk and develop an alternative model, which they call prospect theory. Kahneman and Tversky found empirically that people underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty; also that people generally discard components that are shared by all prospects under consideration. Under prospect theory,value is assigned to gains and losses rather than to final assets; also probabilities are replaced by decision weights. The value function is defined on deviations from a reference point and is normally concave for gains (implying risk aversion), commonly convex for losses (risk seeking) and is generally steeper for losses than for gains (loss aversion) (see Figure 1). Decision weightsare generally lower than the corresponding probabilities, except in the range oflow probabilities. The theory| which they confirmed by experiment |predicts adistinctive four fold pattern of risk attitudes: risk aversion for gains of moderate to high probability and losses of low probability, and risk seeking for gains oflow probability and losses of moderate to high probability.Thaler (1980) argues that there are circumstances when consumers act in amanner that is inconsistent with economic theory and he proposes that Kannemanand Tversky's prospect theory be used as the basis for an alternativedescriptive theory. Topics discussed are: under weighting of opportunity costs, failure to ignore sunk costs, search behaviour, choosing not to choose and regret, and pre commitment and self-control. The paper introduced the notion of`mental accounting' (described below).In another important paper Tversky and Kahneman (1981) introduced framing. They showed that the psychological principles that govern the perception.This review of behavioral finance aims to focus on articles with direct relevance to practitioners of investment management, corporate finance, or personal financial planning. Given the size of the growing field of behavioral finance, the review is necessarily selective. As Shefrin (2000, p. 3) points out, practitioners studying behavioral finance should learn to recognize their own mistakes and those of others, understand those mistakes, and takesteps to avoid making them. The articles discussed in this review should allow the practitioner to begin this journey. Traditional finance uses models, in which the economic agents are assumed to be rational, which means they are efficient and unbiased processors of relevant information and that their decisions are consistent with utility maximization. Barberis and Thaler (2003, p. 1055) note that the benefit of this framework is that it is "appealingly simple." They also note that "unfortunately, after years of effort, it has become clear that basic facts about the aggregate stock market, the cross-section of average returns, and individual trading behavior are not easily understood in this framework."Behavioral finance is based on the alternative notion that investors, or at least a significant minority of them, are subject to behavioral biases that mean their financial decisions can be less than fully rational.

Evidence of these biases has typically come from cognitive psychology literatureand has then been applied in a financial context. Examples of biases include: Overconfidence and overoptimism—investors overestimate their ability and the accuracy of the information they have & below more;

- Representativeness—investors assess situations based on superficial characteristics rather than underlying probabilities.
- Conservatism—forecasters cling to prior beliefs in the face of new information.
- Availability bias—investors overstate the probabilities of recently observed or experienced events because the memory is fresh.
- Frame dependence and anchoring—the form of presentation of information can affect the decision made.
- Mental accounting—individuals allocate wealth to separate mental compartments and ignore fungibility and correlation effects.
- Regret aversion—individuals make decisions in a way that allows them to avoid feeling emotional pain in the event of an adverse outcome.

Behavioral finance also challenges the use of conventional utility functions based on the idea of risk aversion. For example, Kahneman and Tversky (1979) propose prospect theory as a descriptive theory of decision making in risky situations. Outcomes are evaluated against a subjective reference point (e.g., the purchase price of astock) and investors are loss averse, exhibiting risk-seeking behavior in the face of losses and risk-averse behavior in the face of gains.

One aspect of the discussion about rational and irrational investors that is important to consider is the extent to which professional traders and money managers are subject to the same behavioral biases that are more commonly discussed in the context of individual (typically assumed uninformed) investors. A number of articles—discussed here—consider this issue directly and find that professionals are far from immune to the biases. A full description of these biases and the evidence for them is beyond the scope of this review. Readers who would likea more detailed discussion should refer to Barberis and Thaler (2003) and Shefrin (2000). Although the existence of behavioral biases among some investors is an essential component of behavioral finance, a second essential strand relates to the limits to arbitrage. Traditional finance holds that if some (irrational) investors misprice assets, the mispricing will be corrected by the trading actions of rational investors (arbitrageurs) who spot the resulting profit opportunity, buy cheap assets, and sell expensive ones. Behavioral finance theorycounters that mispricing may persist because arbitrage is risky and costly, which has the result of limiting the arbitrageurs' demand for the fair-value restoring trades (Shleifer and Vishny 1997). The existing academic literature has tended to develop behavioral finance against the "foil" of traditional or rational finance. But a number of authors (e.g., Statman 1999a; Thaler 1999) make the case for the "end of behavioral finance," arguing that because all financial theory requires some assumptions about investor behavior, researchers should strive to make the best assumptions about behavior in all models rather than invent a subclassof models featuring empirically observed behavior. Despite great strides in recent years, behavioral finance doesnot appear to have reached the point of being considered in all models.

Investors seeking a more comprehensive introduction to the field are directed to the review articles by Hirshleifer (2001) and Barberis and Thaler (2003) as well as to the relevant articles in the November/December 1999 issue of the *Financial Analysts Journal*. Shefrin's (2000) book *Beyond Greed and Fear* is also recommended. In the following sections, we discuss key areas in the application of behavioral finance. We discuss the limits to arbitrage and then proceed to discuss behavioral asset pricing theory, behavioral corporate finance, and evidenceof individual investor behavior and behavioral portfolio theory. We also discuss briefly the psychology of risk, ethics, and the emerging field of neuro economics.

The Limits to Arbitrage: A key argument in behavioral finance is that the existence of behavioral biases among investors (noise traders) will affect asset prices and returns on a sustained basis only if limits to arbitrage also exist that prevent rational investors from exploiting short-term mispricing's and, by doing so, returning prices to equilibrium values. Evidence suggests that limits to arbitrage exist, for example, in the failure to eliminate obvious and straight forward mispricing situations. Mitchell, Pulvino, and Stafford (2002) are able to document 82 cases in which the market value of a company is less than the market value of the company's stake in its subsidiary.

These situations imply arbitrage opportunities leading to swift correction of the pricing anomaly, but the authors find a degree of persistence that indicates barriers to arbitrage. Barberis and Thaler (2003) outline the various issues that create limits to arbitrage. When the mispriced asset lacks a fairly priced close substitute, arbitrageurs are faced with fundamental risk in that they are unable to effectively hedge their position in the mispriced asset from adverse changes in fundamentals. Even if a close substitute isavailable, arbitrageurs face noise trader risk. Because trading by uninformed investors may cause the mispricing to increase before it corrects, the arbitrageur may be unable to maintain the position in the face of margin calls,especially when trading with other people's capital, as in institutional investment management. Finally, other issue includes high implementation costs for any arbitrage trade. At the extreme, taking a short position in an over priced security may be impossible if, for example, stock lending is prohibited or no shares are available to borrow.

On the latter point, Lamont and Thaler (2003) review examples in which the market value of spinout subsidiaries of tech companies exceeded that of the parent company that retained a majority stake in the spinout. In these cases; short-selling **of the spinout was difficult, expensive, or impossible, reducing or eliminating the arbitrage opportunity.**

Behavioral Asset Pricing:

Where as academics talk about asset pricing and about explaining the cross-section of stock returns, fo rpractitioners, the same issues fall under the simpler heading of "stock picking." If behavioral biases among investors cause mispricing of stocks in a predictable fashion, then active managers may have the scope to beat the marketby using strategies based on these sources of mispricing.

Investor Sentiment:

One important issue is whether investor sentiment has the potential to affect stock returns, which is considered self-evident by most practitioners. But traditional finance theory has little role for sentiment in asset pricing. Recent behavioral literature (Baker and Wurgler 2006; Kumar and Lee 2006; Tetlock 2007) suggests evidence of investor sentiment affecting stock returns. The effect is most pronounced for stocks that are difficult to value and/or hard to arbitrage. This category includes small stocks, young stocks, unprofitable stocks, and extreme growth stocks. When investor sentiment is high, subsequent returns for these types of stocks tend to be relatively low, and vice versa.

Causes of swings in investor sentiment vary and, in some cases, can be quite trivial. Hirshleifer and Shumway(2003) present evidence that daily returns across the world's markets are affected by the weather in the city of the country's leading stock exchange. Unfortunately, a strategy to exploit this predictability in returns involves quite frequent trading, and trading costs may well eliminate any available gains for most investors. Kamstra, Kramer,and Levi (2003) provide similar evidence, showing that returns in various countries through the year are related to hours of daylight—a result possibly driven by the occurrence of seasonal affective disorder.The effect of sentiment is evident in various arenas. For example, Gemmill and Thomas (2002) show thatnoise trader sentiment, as peroxide by retail investor fund flows, leads to fluctuations in the discount of closed-endfunds. Of note, one measure of sentiment that does not predict returns is the current sentiment—bullish or bearish—of investment news letter writers. Rather, recent past returns predict the sentiment of the writers, which,in turn, has no correlation with future returns (Clarke and Statman 1998).

Under- and Over reaction. Another key area of behavioral research relates to the extent to which investors under- or overreact to information in pricing securities. The available empirical evidence appears tosuggest short-term (up to 12 months) return continuations, or momentum (e.g., Jegadeesh and Titman 1993),but longer term (three- to five-year) reversals (e.g., De Bondt and Thaler 1985; Lakonishok, Shleifer, and Vishny1994). This evidence poses something of a challenge for behavioral researchers to come up with a theory that explains initial under reaction but longer term over reaction and rebuts Fama's (1998) contention that a market that over reacts about as much as it under reacts can be regarded as broadly efficient.Various behavioral models have been developed to explain the empirical findings.

In Barberis, Shleifer, andVishny (1998), investors suffer conservatism bias and use the representativeness heuristic. Conservatism means that individuals are slow to change their beliefs in the face of new evidence and can explain why investors would fail to take full account of the implications of an earnings surprise. The representativeness heuristic means that individuals assess the probability of an event or situation based on superficial characteristics and similar experiences they have had rather than on the underlying probabilities. This approach can mean that investors, seeing patterns in random data, could extra polate a company's recent positive earnings announcements further into the futurethan is warranted, creating overreaction.

Daniel, Hirshleifer, and Subrahmanyam (1998) present a related model based on overconfidence and biased self-attribution. Overconfidence leads investors to overweight their private information in assessing the value ofsecurities, causing the stock price to overreact. When public information arrives, mispricing is only partially corrected, giving rise to underreaction. Further more, biased self-attribution means that when public information confirms theinitial private signal, investor confidence in the private signal rises, leading to the potential for over reaction.

Behavioral Corporate Finance:

Behavioral finance also has applications in analysis of corporate finance decisions. As Baker, Ruback, and Wurgler(2007) note, the extension of behavioral ideas to corporate finance has taken two distinct paths. The first path,which takes the view that investors are less than fully rational, analyzes the corporate financing decisions made by management in response to the behavior of investors—that is, the rational managers make decisions in response to the mispricing of securities by behaviorally biased investors. The second path holds that corporate managers can be subject to behavioral biases and that some of the corporate finance transactions they undertake are the result of those biases. For example, managers may make certain decisions because they are overconfident about their abilities or the prospects for their firm or because they are loss averse. Baker et al. (2007) note that the second,"irrational managers," path is somewhat less developed than the first path, which focuses on managerial responsesto market mispricing.

Rational Managers and Irrational Investors: The rational managers/irrational investors school of thought has its main implications in terms of corporate financial structure and the timing of securities issues. For example, Baker and Wurgler (2000) find that the share of equity issues relative to total equity and debt issues is high before periods of low equity market returns, suggesting that companies time their equity issues to take advantage of positive investor sentiment and market mispricing. These results suggest also that corporate capital structure often reflects the cumulative outcome of past attempts to time the equity market rather than some target capital structure (Baker and Wurgler 2002). Baker and Wurgler (2004) argue that dividend policy may be influenced by managers "catering" to the demands of investors. According to the authors, managers rationally cater to investor demand by paying dividends when investors put higher prices on payers and not paying when investors prefer non payers. The authors show that the lagged dividend premium—the difference between the average market-to-book ratio for dividend payers relative to the average for nonpayers—is positively related to dividend initiations. The authors argue also that investors' time-varying demand for dividends is related to sentiment. When the dividend premium is high, investors are seeking companies that exhibit characteristics of safety, and when it is low, investors are seeking maximum capital growth. Shleifer and Vishny (2003) present a model that seeks to explain merger and acquisition (M&A) deals in behavioral terms. In the model, stocks are mispriced and management perceives and responds to the mispricing.The authors argue that M&A decisions and decisions about methods of financing deals are driven by mis valuations of the participating companies; for example, acquisitions will involve payment in stock when valuations are high.The model suggests that acquisitions for stock are made by over valued companies and target companies tend to be less overv alued. The model is able to explain many of the observed characteristics of the M&A market. Behavioral finance also has implications for the market for IPOs. These offerings are widely documented as showing high first-day returns, usually taken to imply that the issues are under priced at the offering price.

One puzzle is why issuers and pre-IPO shareholders are prepared to tolerate this "money left on the table" phenomenon.Loughran and Ritter (2002) propose a model based on prospect theory in which issuers are likely to net the amount of money left on the table by an under priced offering together with the "gain" in their wealth that comes from the rise in the price of the shares that they retain in the company. The net amount will often be a positive sum with the increase in value of the retained holdings exceeding the difference between the offer price and the market price for the shares sold in the offering. Furthermore, the most underpriced offerings tend to be those in whichthe offer price has been revised up in the face of strong demand from the price set out in the prospectus. Therefore,the original pre-IPO shareholders can offset the loss of the underpricing with the good news that their total wealth is higher than was previously expected. Ljungvist and Wilhelm (2005) provide some support for this hypothesis in that issuers of under priced offerings often use the IPO underwriter for subsequent equity issues, suggesting they are not unhappy with the service received.

The goal of any investment advisory service is to explore the best personal strategy for the client and to review it on a regular basis. An investment strategy cannot be optimal unless it integrates the client's risk ability, risk tolerance, and risk awareness.

Risk ability refers to the client's financial situation. What are the client's assets and income, spending patterns, and earning sources? The client's risk ability limits the optimal portfolio if they cannot financially bear losses beyond a certain amount. This circumstance must be accounted for. Risk tolerance indicates how much risk an investor is emotionally willing to bear. The subjective assessment of the objective (measurable) risk of an investment is determined by risk awareness.

The client's risk awareness is often distorted and can change quickly. Due to the biases just mentioned, among other factors, they are unable to identify the real risk and evaluate it properly. One example is hedge funds, or collateralized debt obligations (CDOs), which became notorious during the financial crisis. Many investors considered these investments evil, due in part to media coverage.

Despite its importance, subjective risk awareness is generally not given the attention it deserves, even in the year 2015. The goal of investment advisory services should be to review the investor's risk awareness and provide sufficient risk disclosure. Because we can assume that the client's risk awareness is distorted by many biases and influenced by the media, it should not be a part of optimal portfolios. Reputable banks have a research department that uses the best methods to adequately assess the current risks of asset classes. The advisor must provide the client with this market view along with an explanation.

A structured advisory process can help investors explore their actual risk ability and risk appetite. We also advise conducting a diagnostic test for behavioral biases and identifying the client's existing financial knowledge. The test will identify four categories of investors, based on their investment approach and financial knowledge. Does the client want to make his own investment decisions based on the investment advice received, or is a discretionary mandate preferable? The investor type determined by the diagnostic test can help answer this question.

Intuitive investors - Intuitive investors make emotional decisions. Without the right investment strategy, they may be influenced too heavily by current market developments and lose sight of their investment goals. Using a discretionary mandate can help intuitive investors to maintain a defined investment strategy. Research studies show that the investment strategy is responsible for about 80% of investment gains.10 Otherwise, clients may make hasty purchases in a rush of euphoria when the markets are up (too expensive) and sell off stock in a panic when the markets are down, which likely will erode at their assets over time.

Exploring investors - Exploring investors are very familiar with the financial market but make emotional decisions. They have a good understanding of the opportunities and risks on the market. Although they are sometimes dazzled by new, innovative financial products, they always bear the risks in mind. Despite their vast financial knowledge, these investors sometimes abandon their predefined investment strategy for emotional reasons. This is why their investments must be reviewed periodically.

Realistic investors - These investors are not swayed by emotions. However, they lack the financial knowledge to assess risks and opportunities properly. Professional investment advice is recommended for realistic investors. Such advice can help them make investment decisions and improve their financial knowledge.

Strategic investors - Strategic investors have a good understanding of the financial markets, so they can assess the risks and opportunities they are facing. They are not swayed by emotions and can make objective decisions. Their strategic approach does not allow them to lose sight of their investment goals. They are qualified to implement their investment strategy in conjunction with a non-discretionary mandate.

Next, based on the investors' background, a holistic investment strategy is developed, taking into account the investor's assets, wealth building, obligations, and asset depletion. In particular, this proposal focuses on personal liquidity management – in other words, coordinating income with financial obligations.

Traditional vs. Behavioral finance:

Over the past fifty years established finance theory has assumed that investors have little difficulty making financial decisions and are well-informed,careful and consistent. The traditional theory holds that investors are not confused by how information is presented to them and not swayed by their emotions.But clearly reality does not match these assumptions. Behavioral finance has been growing over the lasttwenty years specifically because of the observation that investors rarely behave according to the assumptions made in traditional finance theory. Behavioral researchers have taken the view that finance theory should take account of observed human behavior. They use research from psychology to develop an understanding of financial decision making and create the discipline of behavioral finance. This guide summarizes the findings of these ground-breaking financial theorists and researchers.

How behavioral biases affect investment behavior:

Research in psychology has documented a range of decision-making behaviors called biases. These biases can affect all types of decision-making, but have particular implications in relation to money and investing. The biases relate to how we process information to reach decisions and the preferences. We have the biases tend to sit deep within our psyche and may serve us well in certain circumstances. However, in investment they may lead us to unhelpful or even hurtful decisions. As a fundamental part of human nature, these biases affect all types of investors, both professional and private. However, if we understand them and their effects, we may be able to reduce their influence and learn to work around them. A variety of documented biases arise in particular circumstances, some of which contradict others. The following sections discuss the key biases and their implications for investors and advisers.

The end of behavioral finance:

We expect behavioral finance to continue to grow inimportance. Commentators such as Richard ThaylerThayler, 1999) have suggested that we will reach the'end of behavioral finance' by which they mean the ideas will become sufficiently established to become part of the mainstream. In essence, at some stage all finance will be behavioral. At that point behavioral ideas will be well embedded in the financial planning process.

Understanding our brains, one emerging strand of research is the field of Neuro economics. Medical imaging technology now allows us to look at brain activity as decisions are being made. This helps us to understand the nature and reasons for certain behavioral biases. A recent study demonstrated that individuals with brain lesions that impaired emotional decision-making were more likely to behave as rational investors than individuals with normal brains.14 Other imaging studies have confirmed that the rational parts of our brain are in tension with the emotional or limbic sections of our brain. This line of enquiry offers the possibility of understanding and improving decision making.

Better investing:

We hope this guide has provided you with a useful insight into the research on behavioral finance. As humans, we are effective decision-makers, but with flaws that can cause problems in realms such as investing. An understanding of the nature of these flaws can help us avoid these problems and invest better.14 Shiv, Loewenstein, Bechara, Damasio and Damasio, 2005. 'Investment Behavior and the Negative Side of Emotion' *Psychological Science* 16, 435-439.

• CONCLUSION

Traditional finance, based on the hypothesis of efficient markets and the optimization of statistical figures such as means and variances, suggests that investing has a lot to do with mathematics. However, behavioral finance has put the spotlight back on people. People make mistakes – even in investment decisions, which results in inefficiencies at the market level. Based on behavioral finance, investment is 80% psychology.
In the meantime, behavioral finance has created methods that can help investors identify typical mistakes while finding the right portfolio for them. The hope is that as many investors as possible will make use of this school of thought and that the markets will become as efficient as traditional finance assumes. However, the saying "There is no such thing as a free lunch" will always apply.

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