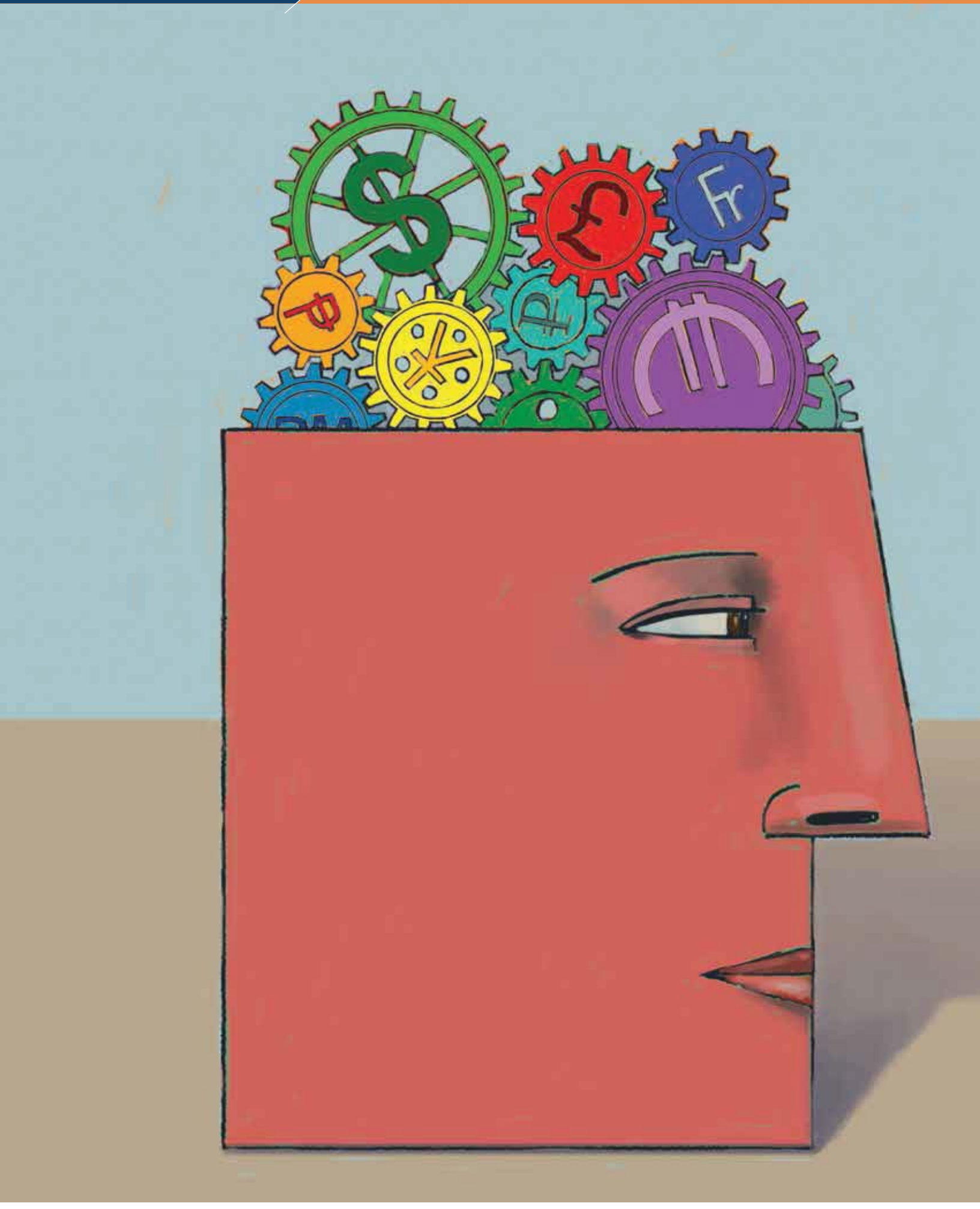
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Expertise in behavioral finance is an important building block in improving outcomes — and thus in being perceived as a thought leader by clients and prospects.

What Is Behavioral Finance — And Why Do We Need It?

BY WARREN CORMIER

Over the past 10 years behavioral finance (and behavioral economics) has become a key phrase in the investment world generally, and the DC industry specifically. In 2006, Dr. Shlomo Benartzi and I founded the Behavioral Finance Forum (now owned by RAND Corporation) whose primary goal (and that of behavioral finance in general) is to help consumers make optimal financial decisions and display sensible financial behavior.

Since this is a goal of many organizations, the Forum saw sold-out attendance each year, with the world's leading academics and leading financial institutions attending. Today, many DC industry association and universities conduct academic forums where new ideas in behavioral finance and introduced. Record keepers and DCIOs have followed suit.

Why is there such a fascination with this discipline? Because it's a new approach to solving persistent problems often addressed previously with the concepts of standard finance and classical economics. Behavioral finance has had its share of breakthroughs, such as automatic deferral increases and auto enrollment. Many less notable advances have been made in education, statement design, web design, etc. Essentially, it works.

Despite its efficacy, the term "behavioral finance" is still only vaguely understood by many DC practitioners, even after all this time. Just as importantly, how to apply these disciplines to solving real-world problems is elusive. After attending a behavioral finance event, a common observation from audience members is: "That was fascinating, but what do I do now?"

Understanding what behavioral finance is and why we need it is fundamental to applying it.

There is actually a debate over the precise definition of behavioral finance. This results from the fact that it is a discipline that is evolving every day. Furthermore, ask academics from different fields and you may get a different definition. Nonetheless, a Nobel Prize in Economics was awarded to Dr. Daniel Kahneman (considered by most as the dean of behavioral finance) in 2002 "for having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty. Kahneman integrated economic analysis with fundamental insights from cognitive psychology, in particular regarding behavior under uncertainty, thereby laying the foundation for a new field of research.

> "DC participants may find themselves frozen in indecision as a result of regret aversion."

Dr. Richard Thaler, a pioneer in behavioral finance, explains that behavioral finance is a "combination of psychology and economics that investigates what happens in markets in which some of the agents display human limitations and complications. It attempts to explain and increase understanding of the reasoning patterns of investors, including the emotional processes involved and the degree to which they influence the decision-making process. Essentially, it attempts to explain the what, why, and how of finance and investing, from a human perspective."

I think those two explanations are sufficient. But a second important question is, "Why do we need it?" Isn't standard finance and classical economics effective in explaining and predicting behavior and how to optimize choices?

To address this question, let's examine some of the underlying behavioral assumption of a leading concept in standard finance: Modern Portfolio Theory. MPT, created in the 1950s (not so modern anymore), argues that one can maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets.[1]

Let's examine some of the underlying assumptions of MPT from a behavioral perspective:

- All investors aim to maximize economic utility (in other words, to make as much money as possible, regardless of any other considerations).
- All investors are rational and risk adverse.
- All investors have access to the same information at the same time.
- Investors have an accurate conception of possible returns, i.e., the probability beliefs of investors match the true distribution of returns.
- All investors are price takers, i.e., their actions do not influence prices.
- Risk/Volatility of an asset is known in advance and is constant.

Examining these assumptions against the practical dynamics of the stock market leads most casual and expert investors to conclude they don't often reflect reality. Dr. Meir Statman provides one of the best explanations of why the world needs behavioral finance:

"People in standard finance are rational. They are not confused by frames, they are not affected by cognitive errors, they do not know the pain of regret, and they have no

1 Harry M. Markowitz — Autobiography, The Nobel Prizes 1990, Tore Frängsmyr, Editor [Nobel Foundation], Stockholm, 1991.

> "When anchoring, investors base decisions on values known to them, even though these values may have no bearing on the decision."

lapses of self control. People in behavioral finance may not always be rational but they are always normal. Normal people are often confused by frames, affected by cognitive errors and know the pain of regret, and the difficulty of self control."

And what about classical economics? Why is behavioral economics needed? One of the fundamental assumptions of classical economics is that people behave rationally. Dr. Dan Ariely writes in *Predictably Irrational* that, "rationality is the foundation of standard economic theories, predictions, and recommendations. (This assumes) we are capable of making the right decisions for ourselves. Behavioral finance allows for the possibility that we may consistently behave irrationally."

This, of course, raises the question of what rationality actually is and who decides if thinking or behavior is, in fact, rational or irrational. Kahneman, in his book *Thinking Fast and Slow*, explains:

"The only test of rationality is not whether a person's beliefs and preferences are reasonable, but whether they are internally consistent. A rational person can believe in ghosts so long as all her other beliefs are consistent with the existence of ghosts. A rational person can prefer being hated over being loved, so long as his preferences are consistent. Rationality is logical coherence — reasonable or not."

Given these thoughts from Drs. Ariely and Kahneman, it appears "rational" to believe standard finance and classical economics needed a facelift.

Behavioral finance envelops a vast array of concepts that fall into three major categories:

1. cognitive biases
2. heuristics
3. choice architecture

If you master these concepts you are well on the way to being fluent in behavioral finance. Let's take a closer look at each one.

COGNITIVE BIASES — ERRORS IN HOW WE THINK

Taking cognitive biases first, this simply means that people inadvertently make errors in their thinking. Though there is a seemingly endless list of cognitive biases, there are a handful that are fundamental to understanding behavioral finance/economics and exceedingly applicable to investing and DC plan administration.

Overconfidence

Overconfidence is perhaps one of the most potentially damaging and dangerous errors in thinking to optimal decision-making. Essentially, behavioral scholars have observed that human beings have a tendency to overestimate their own skills and predictions for success. It comes from overestimating the probabilities of things happening. A non-financial example of extreme overconfidence can be found in the explosion of the space shuttle Challenger. Historically, there is a failure of a booster rocket every 57 launches. However, according the Rogers Commission's report on the explosion, less than a year before the disaster, NASA set the chances of an accident at 1 in 100,000.

We certainly see overconfidence in investing every day. What leads to it?

There are a variety of cognitive biases that are the culprits. The "illusion of control" is the tendency for people to overestimate their ability to control events — for instance, to feel that they control outcomes that demonstrably they have no influence over.

Directly related to the illusion of control is the "hot-hand" fallacy — the erroneous belief that a person who has experienced success with a random event has a greater of further success in additional attempts. The concept certainly applies to investing, but also to gambling and sports.

"Miscalibration" is often seen among investors who overestimate the precision of their knowledge and underestimate the risk of being wrong. Corollary to this is the "better-than-average" effect, where most people believe they achieve above-average performance in their field despite any

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reliable evidence. Excessive optimism is where one believes he or she is at less risk of experiencing a negative event.

Regret Aversion

Regret aversion is another powerful force that can cause bad decisions. It has important relevance to participant behavior as it relates to under-diversification. Essentially, we all hate to admit we made a bad decision and/or took an unwise action. DC participants may find themselves frozen in indecision as a result of regret aversion. Investors may put off selling stocks that have declined in value in order to avoid the regret of having made a bad investment choice and the distaste for admitting to themselves that they suffered a loss.

Additionally, investors may find it easier to invest in the "hot or popular stock of the week." Basically, the investor finds comfort in following the crowd. That is, an investor can more easily rationalize having made a losing investment choice if everyone else made the same bad choice. The investor can minimize his or her regret since a group of investors also lost money on the same bad investment. Associated with regret is "herding behavior," where investors follow the crowd, since following the mass consensus spreads out responsibility and therefore disperses regret if the decision results in a loss.

Loss Aversion

Closely tied to regret aversion, loss aversion is the inclination to prefer avoiding losses to acquiring gains. Some studies suggest that losses are twice as powerful, psychologically, as gains. Loss aversion implies that one who loses $100 will lose more satisfaction than another person will gain satisfaction from receiving $100. Accordingly, whether a transaction is framed as a loss or as a gain is very important to this calculation: would you rather get a $5 discount, or avoid a $5 surcharge? This helps to explain, for example, why a price increase (a loss) has a much more powerful impact on demand than a price decrease (a gain).

The Endowment Effect

Loss aversion explains another important cognitive bias affecting investment decisions known as the endowment effect. Simply stated, the endowment effect is the phenomenon that people impute more value to things (like homes or investments) merely because they own them. People will tend to pay more to retain something they own than to obtain something owned by someone else — even when there is no cause for attachment, or even if the item was only obtained minutes ago. The endowment effect is due to the fact that once you own the item, selling it feels like a loss … and we know humans are loss-averse.

Anchoring

You probably see the impact of anchoring every day. When anchoring, investors base decisions on values known to them, even though these values may have no bearing on the decision. An example is selling a stock that has lost value. Investors tend to use the price they paid for the stock as the reference point (anchor point) upon which they make a decision to sell. That is, if they bought the stock at $10 a share, that $10 price becomes the anchor point upon which they base their decision to hold or sell. This can lead to investors holding a stock that will likely never recover, thereby compounding losses.

Anchoring is especially at work in the housing market, where people hang onto real estate that is declining in value because their purchase price is the anchoring point they need to achieve.

Hyperbolic Discounting

The final critically important cognitive bias is hyperbolic discounting. This is the phenomenon where people typically intend to forfeit small, immediate gains for larger rewards in the future, but often don't make that choice at decision time. The decision maker values the small, immediate reward more than the larger future reward — "Would you prefer a dollar today or three dollars next year?"

Combined with loss aversion, hyperbolic discounting can easily offset, for example, the impact of a match in a 401(k) plan. In effect, we are asking employees to receive less take-home pay (and purchasing power) and defer immediate gratification so they can fund the expenditures of a retired person (themselves) whom they may not be able to relate today. In that they discount deeply the future rewards (retirement income) relative to the immediate "loss," the employee either declines the invitation to participate at all, or minimizes his or her deferral rate in an attempt to minimize the pain of a loss.

Furthermore, in that people tend to evaluate prospects or possible outcomes in terms of gains and losses relative to some reference point (their take-home pay) rather than their long-term wealth (the value of the DC account many years in the future), the DC plan

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doesn't look as good as we believe it to be. In fact, the DC plan looks particularly inferior if we compare it to a DB plan in which there is certainty of a gain and no probability of a loss.

HEURISTICS — MENTAL SHORTCUTS

Turning to heuristics, these are simply rules of thumb that people use when making decisions. Essentially they are mental shortcuts that allow people to make decisions and solve problems quickly. They can be beneficial but can also lead decision-makers astray. A familiar heuristic is "never put all your eggs in one basket." As with cognitive biases, there are too many to mention, but there are a few that are most relevant to plan consultants.

Availability Heuristic

First identified by Amos Tversky and Daniel Kahneman in the early 1970s, this heuristic is "the tendency to use the ease with which instances of a particular event or situation come to mind as an indication of the likelihood of the event occurring." This can work in both directions. The more frequently a person hears something, in the news sources they choose to consume, the more likely they believe it is true, regardless of any critical thinking they are applying to a particular topic. DC plan participants, for example, are far more likely to be hearing negative than positive news about annuities. This makes it easier to take the metal shortcut to concluding that they are not desirable. On the other hand, if DC participants continually hear that 401(k) accounts balances are for long-term use only, then cashouts, loans and hardship withdrawals are reduced.

Mental Accounting

Related to the availability heuristic is mental accounting, where people mentally frame assets as belonging to:

- current income;
- current wealth; or
- future income.

This has implications for their behavior, since the accounts are largely not substitutable and one's tendency to spend the money in each mental account is different. Conditioning participants that the money in the DC account is for future use only is obviously an education goal for DC plans.

Default Heuristic

Defaults have become increasingly popular in DC plan design. This is considered a heuristic in that defaults allow mental shortcuts to critical thinking. Defaults are also a form of choice architecture (discussed below). Importantly, the probability that an investor will chose a particular option when it is set as a default rises, compared with an option that has not been set as default.

CHOICE ARCHITECTURE — HOW CHOICES ARE PRESENTED MATTERS

Choice architecture refers to the fact that every aspect of the choice environment affects what choice we make. "Framing" is an often-discussed method of choice architecture. That is, changing the way a problem is presented can lead individuals to make different choices about things that are essentially the same. Drs. Tversky and Kahneman conducted a study on choice architecture in which people were given the following scenario and asked which program they preferred:

> Imagine that the U.S. is preparing for the outbreak of an unusual disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume the exact scientific estimate of the consequences of the programs is as follows:
>
> - Program A: 200 people will be saved.
> - Program B: There is a one-third probability that 600 people will be saved, and a two-thirds probability that no people will be saved.

The results: 72% preferred Program A and 28% preferred Program B! In a study conducted by Drs. Benartzi and Thaler, the number of lines on the enrollment form affected the number of investment options participants included in their 401(k) accounts. Defaults are also considered a form of choice architecture. Clearly, everything we say or do affects peoples' decisions.

BEHAVIORAL FINANCE = THOUGHT LEADERSHIP

Finally, a word on thought leadership. It has become abundantly clear to me that experts in behavioral finance are viewed as thought leaders. Interestingly, the definition of thought leadership varies widely across individuals. In his book *Made to Stick*, Dr. Chip Heath points out that "the ideas that catch on are those that have defied conventional thinking, made people think differently about things and altered their behavior" — the best working definition of thought leadership I have found.

Why should plan consultants want to be conversant in behavioral finance and be considered thought leaders? Plan sponsors expect their consultants to help improve plan outcomes such as participation, deferral rates, replacement ratios and diversification. Our research has shown that plan sponsors are far more loyal to consultants and other service providers who exhibit thought leadership that effectively changes behavior. Behavioral finance expertise is clearly a path to that perception. **PC**

Warren Cormier is president and CEO of Boston Research Group and author of the DCP suite of satisfaction and loyalty studies. He also is cofounder of the Rand Behavioral Finance Forum, along with Dr. Shlomo Bernartzi.