Risk Tolerance and Behavioral Finance

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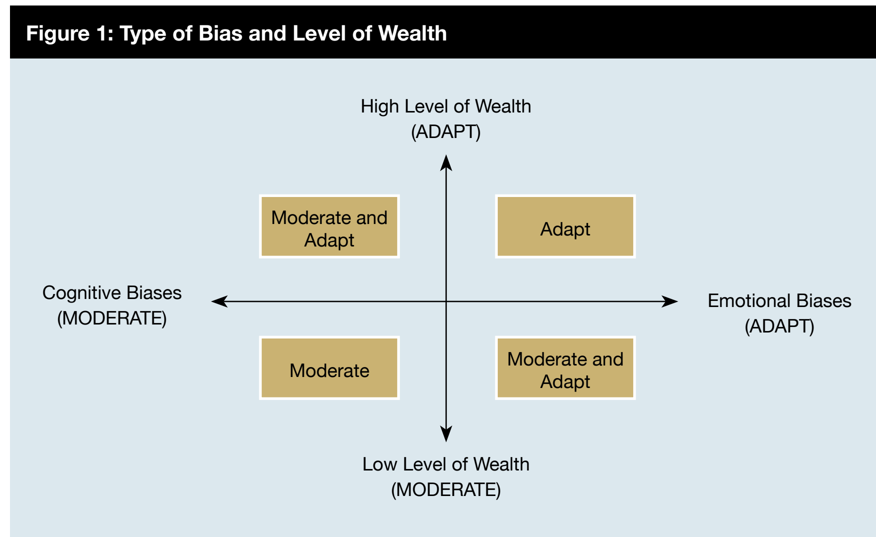
We have seen a powerful recovery in asset prices in the wake of the global financial crisis (GFC). We cannot forget, however, that more than $15 trillion in asset values evaporated in 2008–2009, wiping out gains earned in the bull markets of the 1990s and early 2000s. During the GFC, clients were horrified and did not know what to do. Of course, in hindsight, the right thing to do was to ride out the storm; some investors sold out and regret it to this day. History has shown that markets are cyclical, so another bear market will occur again, it is just a matter of time. When times are good, as they have been for the past eight years, our skills as advisors can get dull because we haven't had to deal with panicky, stressed-out clients. But we need to stay on top of our game. Knowing that markets can grow suddenly violent, financial advisors must be able to diagnose irrational behaviors and advise their clients accordingly. That means incorporating behavioral finance into our practices.

Figure 1: Type of Bias and Level of Wealth



Behavioral Finance

The way investors think and feel affects their investment behaviors. Some investor behaviors are unconsciously influenced by past experiences and personal beliefs to the extent that even intelligent investors may deviate from logic and reason. These influences, or behavioral biases, can affect the way risk is perceived. In Pompian (2006), I introduced a way to categorize biases. The broadest category is cognitive and emotional. Cognitive biases involve how people think and emotional biases involve how people feel. Cognitive errors result from memory and information-processing errors—that is, faulty reasoning. Emotional biases lead to reasoning influenced by feelings. This distinction is critical.

Cognitive biases can be broken down into belief-perseverance and information-processing biases. Belief-perseverance biases affect people who have a hard time modifying their beliefs even when faced with information to the contrary. It is a very human reaction to feel uncomfortable when new information contradicts information you hold to be true. For example, for decades many people have been under the false impression that eating sugar produces hyperactivity in children. Twenty years ago, several studies examined the effects of sugar on children's behavior and concluded that sugar in the diet does not affect children's behavior (Wolraich et al. 1995). But many people continue to believe that it does; this is an example of belief perseverance. Related biases include cognitive dissonance, conservatism, confirmation, representativeness, illusion of control, and hindsight.

Information-processing biases affect people who make thinking errors when processing information. The simplest example is anchoring, where people tend to estimate something based on an initial default number. If I asked you to estimate the population of Canada and remarked that I did not know whether it was higher or lower than 30 million, you would probably "anchor" your estimate to that number and adjust from there rather than make an independent estimate. Information-processing biases include anchoring and adjustment, mental accounting, framing, availability, self-attribution, outcome, and recency.

Emotional biases are based on feelings rather than facts. Emotions can overpower our thinking during times of stress. All of us likely have made irrational decisions

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during our lives. Emotional biases include loss aversion, overconfidence, self-control, status quo, endowment, regret aversion, and affinity.

The distinction between cognitive and emotional biases is critical when assessing risk tolerance. Advisors often need to adapt to client behaviors caused by emotional biases because it is hard to change the way people feel. With cognitive biases, however, advisors have an opportunity to modify or change clients' thinking and moderate clients' behaviors.

Figure 1 shows a simple framework for applying behavioral finance in practice that I have used in my advisory practice over the past 20 years to solve vexing challenges of client relationship management.

Defining Risk

There are lots of aspects to risk. Risk appetite generally is the willingness to take risk, and risk capacity is the ability to take risk. We further define risk appetite and risk capacity in terms of known and unknown risks, because when clients can understand and measure the risks they are taking, they can accept the results. But problems arise when the risks fall outside the bounds of what they expect or understand.

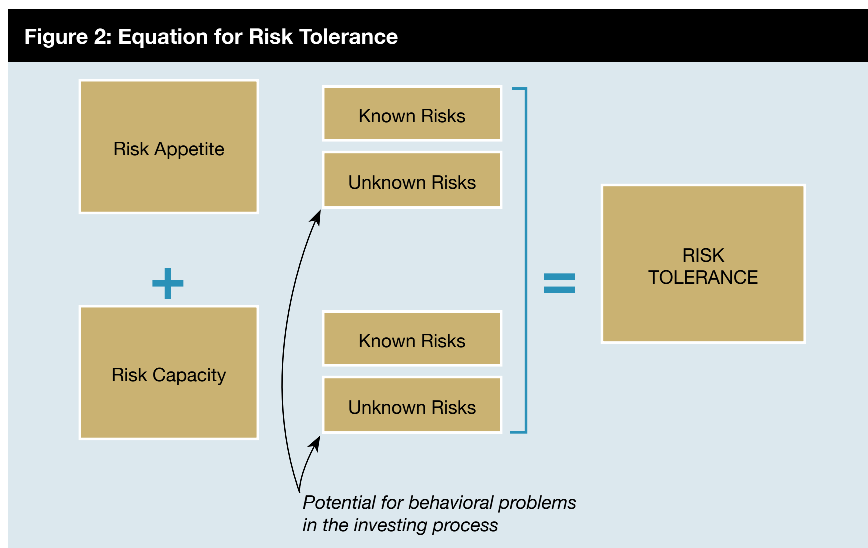
Risk appetite is the amount of risk that one is willing to take in pursuit of reward. Risk appetite varies per expected return; it may be expressed qualitatively and/or quantitatively. Investors with a high risk appetite focus on the potential for significant gains and are willing to accept a higher possibility or severity of loss. Conversely, investors with a low risk appetite are risk-averse and focus on stability and preservation of capital.

The level of both risk appetite and risk capacity varies by individual; obviously, investors should not define their risk appetite without considering their risk capacity, but sometimes they do. In the end, risk capacity is the amount of risk a person can actually bear. On the one hand, an investor may have a high risk appetite but lack the capacity to handle the potential volatility or impact. Or risk capacity may be high but the investor may have a lower risk appetite. Advisors can get a handle on these issues with their clients relatively easily for known risks. Unknown risk, which is not so easily measured, is often associated with irrational investor behavior.

Known and Unknown Risk

Donald Rumsfeld, U.S. secretary of defense under President George W. Bush, famously described known and unknown risk: "There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we know we do not know. But there are also unknown unknowns. There are things we don't know we don't know."[1]

Figure 2: Equation for Risk Tolerance



Clients may tell advisors that they have certain risk appetites and risk capacities. But do the advisor and the client agree on what is meant by risk? How much known risk and how much unknown risk can the client handle? Known risk is what we might call "normal risk"—risk we can comprehend easily and quantify using historical data from observations of financial markets. But what about unknown "abnormal" risk, the kind that occurs once every 10 or 20 years and falls outside expectations? We can think of normal risk as one or two standard deviations from the normal. We can think of unknown risk as three or more standard deviations from the normal. Although severe bear markets and crashes occur from time to time, 2008–2009 can be categorized as an unknown or abnormal risk. At that time, portfolio return fell outside the expected range of most models based on a normal distribution of returns.

When a decision is made about how much risk to take (risk appetite) or a measurement is taken of how much loss can be tolerated without jeopardizing financial goals (risk capacity), unknown risk can cause investors to behave irrationally. People must consider their likely reaction to known risk and especially unknown risk to get a complete picture of their risk tolerance. Figure 2 combines these concepts to graphically represent an equation for risk tolerance.

Risk Tolerance and Behavioral Finance

Consider the concept of behavioral investor types (BITs). BITs can be identified using my Behavioral Alpha® (BA) process. BA is a multi-step diagnostic process that classifies clients as one of four investor types. Bias identification, which is done near the end of the process, is based on the client's risk tolerance.

BITs were designed to help advisors make rapid yet insightful assessments before recommending an investment plan. By ascertaining investor type at the outset of a

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relationship, an advisor can mitigate client behavioral surprises that might dispose a client to change the portfolio because of market turmoil. If an advisor can limit traumatic episodes by delivering smoother (or closer-to-expected) investment results by tailoring an investment plan to the client's behavioral makeup, a stronger client relationship is the result. Here each BIT is characterized by a certain risk tolerance level and a primary type of bias—either cognitive (driven by faulty reasoning) or emotional (driven by impulses and/or feelings).

Advisors should keep in mind that the least risk-tolerant investors and the most risk-tolerant investors are driven by emotional biases, whereas the two types between these extremes are driven by cognitive biases (Pompian 2012). Emotional clients, however, tend to be more difficult to work with. Advisors who can recognize the type of client they are dealing with before making investment recommendations will be much better prepared to deal with irrational behavior when it arises.

Guidelines for Practitioners

As discussed, the least risk-tolerant BIT clients and the most risk-tolerant BIT clients are emotionally biased in their behavior. In the middle of the risk scale are BITs that are affected mainly by cognitive biases. This dynamic should make intuitive sense. Emotion drives the behavior of clients who have a high need for security (i.e., a low risk tolerance); they get emotional about losing money and are uneasy during times of stress or change. Similarly, highly aggressive investors are also emotionally driven people who typically suffer from a high level of overconfidence and mistakenly believe they can control the outcomes of their investments. Between these extremes are the investors who suffer mainly from cognitive biases, and education and information about their biases can help them make better investment decisions. With aggressive clients, the best approach is to deal with their biases head-on and discuss how their investment decisions will affect family members, legacy, and standard of living.

Clients who are emotional about their investing need to be advised differently from those who make mainly cognitive errors. When advising emotionally driven investors, advisors need to focus on how an investment program can affect important emotional issues such as financial security, retirement, and the impact on future generations—rather than focusing on portfolio details such as standard deviations and Sharpe ratios. A quantitative approach is more effective with clients who are less emotional and tend to make cognitive errors. The goal is to build better long-term relationships with clients, and BITs were designed to help in this effort. The four BITs are conservative, moderate, growth, and aggressive; brief descriptions of the types, their common biases, and thoughts about how to advise each type of client are included.

Conservative Investors

Risk tolerance level: Low
Behavioral bias orientation: Emotional

BIT description: Conservative Investors (CIs) place great emphasis on financial security and preserving wealth. Many have gained wealth through inheritance or by not risking their capital to build wealth (e.g., by working in a large company). Because they tend to be risk-averse, CIs may be worriers; they obsess over short-term performance and are slow to make investment decisions because they are uncomfortable with change and uncertainty. This behavior is consistent with their approach to their professional lives—they are careful not to take excessive risks. Many CIs focus on taking care of family members and future generations, especially by funding life-enhancing experiences such as education and homeownership.

The biases of CIs tend to be emotional—loss aversion, status quo, and endowment bias—but CIs also exhibit anchoring and mental accounting, both of which also have cognitive aspects.

Conservative Biases

Loss Aversion Bias

Bias type: Emotional

CIs tend to feel the pain of losses more than the pleasure of gains compared with other client types. Thus, these clients may hold losing investments too long, even when they see no prospect of a turnaround. Loss aversion is a very common bias and is seen by large numbers of financial advisors.

Status Quo Bias

Bias type: Emotional

CIs often like to keep their investments (and other parts of their lives, for that matter) the same—that is, they maintain the status quo. These investors tell themselves that "things have always been this way" and thus feel safe keeping things the same.

Endowment Bias

Bias type: Emotional

CIs, especially those who inherit wealth, tend to assign a greater value to an investment they already own (such as a piece of real estate or an inherited stock position) than to one they neither possess nor have the potential to acquire.

Anchoring Bias

Bias type: Cognitive/Emotional

CIs often are influenced by purchase points or arbitrary price levels and tend to cling to such numbers when facing questions like, "Should I buy or sell this investment?" Suppose that the stock falls to $75 a share from a high of $100 five months ago. Frequently, a conservative client will resist selling until the price rebounds to at least $100/share.

Mental Accounting Bias

Bias type: Emotional/Cognitive

Conservative clients often treat various sums of money differently on the basis of where the sums are mentally categorized. For example, these investors segregate their

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assets into safe and risky "buckets." Although this behavior is usually not harmful, returns almost certainly will be suboptimal if all the assets are viewed as safe money.

Advice for Conservative Investors: CIs can be difficult to advise because they are driven mainly by emotion. They greatly need good financial advice, and advisors need to take time to interpret the behavioral signs provided by CI clients. CIs need big-picture advice, so advisors should not dwell on details such as standard deviations and Sharpe ratios lest they lose the client's attention. CIs need to understand how their portfolios will deliver desired results concerning such emotional issues as family members and future generations. Once they feel comfortable discussing these important emotional issues and trust is established, they will act. After a while, CIs are likely to become an advisor's best clients because they value the advisor's professionalism, expertise, and objectivity in helping them make the right investment decisions. In addition, CIs usually can benefit from the added risk that a competent advisor persuades them to take—so long as the advisor carefully monitors the risk and does not allow it to become too large.

Moderate Investors

Risk tolerance level: Moderate
Behavioral bias orientation: Cognitive

BIT description: Moderate Investors (MIs) often do not have their own ideas about investing but instead follow the lead of their friends and colleagues in making investment decisions. They are comfortable with being invested in the latest, most popular investments, often without regard to a long-term plan. One of the key challenges of working with MIs is that they often overestimate their risk tolerance. Advisors need to be careful not to suggest too many "hot" investment ideas—MIs likely will want to do all of them. Some dislike, or even fear, the task of investing, and many put off making investment decisions unless they have professional advice; the result is that they maintain, often by default, high cash balances. MIs generally comply with professional advice when they get it, but they can sometimes be difficult because they do not enjoy, or they have no aptitude for, the investment process.

The behavioral biases of MIs are mostly cognitive: recency, hindsight, framing, cognitive dissonance, and regret aversion.

Moderate Biases

Recency Bias

Bias type: Cognitive

Recency bias is a predisposition to recall and emphasize recent events and/or observations and to extrapolate patterns where none exist. Recency bias ran rampant during the bull market of 2003–2007, when many investors wrongly presumed that the stock market—particularly energy, housing, and international stocks—would continue to gain indefinitely. A similar mentality is emerging now that the more recent bull market of 2009–2017 has become entrenched in some investors' minds. MIs may invest when prices are peaking, materially hurting long-term returns.

Hindsight Bias

Bias type: Cognitive

Moderate clients may be susceptible to hindsight bias, which occurs when an investor perceives past investment outcomes as if they had been predictable. An example of hindsight bias is the response by investors to the financial crisis of 2008. Initially, many viewed the housing market's performance from 2003 to 2007 as normal (i.e., not symptomatic of a bubble), only later saying, "Wasn't it obvious?" when the market had a meltdown in 2008. Hindsight bias gives investors a false sense of security when making investment decisions, emboldening them to take excessive risk without recognizing it as such.

Framing Bias

Bias type: Cognitive

Framing bias is the tendency of investors to respond to situations differently based on the context in which a choice is presented (framed). The use of risk tolerance questionnaires provides a good example. Depending on how questions are asked, framing bias can cause investors to respond to risk tolerance questions in either an unduly risk-averse or an unduly risk-taking manner. For instance, when questions are worded in the "gain frame" (e.g., suppose an investment goes up), a risk-taking response is more likely. When questions are worded in the "loss frame" (e.g., suppose an investment goes down), risk-averse behavior is the likely response.

Cognitive Dissonance Bias

Bias type: Cognitive

In psychology, cognitions represent attitudes, emotions, beliefs, or values. When multiple cognitions intersect—for example, a person believes something is true only to find out it is not—people try to alleviate their discomfort by ignoring the truth and/or rationalizing their decisions. Investors who suffer from this bias may continue to invest in a security or fund they already own after it has gone down (i.e., they double down), even when they know they should be judging the new purchase objectively and independently of the existing holding. A common phrase for this concept is "throwing good money after bad."

Regret Aversion Bias

Bias type: Emotional

MIs often avoid taking decisive actions because they fear that, in hindsight, whatever course they select will prove unwise. Regret aversion can cause MIs to be too timid in their investment choices because of losses they have suffered in the past.

Advice for Moderate Investors: Clients with the biases of MIs need to recognize that they tend to follow the lead of others and may not have their own ideas about investing. They may not fully grasp their own risk tolerance but simply plow ahead with the task of investing. When an investment goes their way, they may convince themselves that they "knew it all along," a

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view that also increases future risk-taking behavior. Advisors need to handle MIs with care because they are likely to say yes to investment ideas that make sense to them regardless of whether the advice is in their best long-term interest. Advisors need to lead MIs to take a hard look at behavioral tendencies that may cause them to overestimate their risk tolerance. Because MI biases are mainly cognitive, educating MI clients on the benefits of portfolio diversification and sticking to a long-term plan is usually the best course of action. Advisors should challenge MI clients to be introspective and should provide data-backed substantiation for their recommendations. Offering information to MI clients in clear, unambiguous ways so they have the chance to "get it" is a good idea. If advisors take the time, this steady, educational approach will generate client loyalty and adherence to long-term investment plans.

Growth Investors

Risk tolerance: Medium to high
Behavioral bias orientation: Cognitive

BIT description: Growth Investors (GIs) are active investors with medium to high risk tolerance; some are strong-willed and independent thinkers. GIs are often self-assured and "trust their gut" when making decisions; when they do their own research, however, they may not be thorough enough with due diligence tasks. GIs sometimes make investments without consulting anyone. This behavior can be problematic because, owing to their independent mindsets, these clients maintain their views even when those views are no longer supportable (e.g., because of changed market conditions). GIs often enjoy investing and are comfortable taking risks, but they may resist following a financial plan. Of all the behavioral investor types, GIs are the most likely to be contrarian, which sometimes can benefit them. Some GIs are obsessed with trying to beat the market and may hold concentrated portfolios.

The behavioral biases of GIs are cognitive: conservatism, availability, representativeness, self-attribution, and confirmation.

Growth Biases

Conservatism Bias

Bias type: Cognitive

Conservatism bias occurs when people cling to a prior view or forecast at the expense of acknowledging new information. GIs often exhibit this behavior. For example, assume that an investor purchases a security based on knowledge about a forthcoming new-product announcement. The company then announces that it is experiencing problems bringing the product to market. GIs may cling to the initial, optimistic impression of the new-product announcement and fail to act on the negative announcement.

Availability Bias

Bias type: Cognitive

Availability bias occurs when people estimate the probability of an outcome based on how prevalent that outcome appears to be in their lives. People who exhibit this bias perceive easily recalled possibilities as more likely than prospects that are harder to imagine or difficult to comprehend. For example, suppose that GIs are asked to identify the "best" mutual funds. Many of them would perform a Google search and, most likely, find funds from firms that engage in heavy advertising. Investors subject to availability bias are thus influenced to pick funds from such companies, even though some of the best-performing funds advertise very little, if at all (they do not need to).

Representativeness Bias

Bias type: Cognitive

Representativeness bias occurs because of a flawed perceptual framework when processing new information. To make new information easier to process, some investors project outcomes that resonate with their own pre-existing ideas. For example, a GI might view a particular stock as a value stock because it resembles an earlier value stock that was a successful investment, but the new investment is not a value stock. Suppose that a high-flying biotech stock with scant earnings or assets drops 25 percent after a negative product announcement. Some GIs might take this situation to be representative of a "value" stock because the stock is cheap. But biotech stocks do not typically have earnings, whereas traditional value stocks have had earnings in the past but are temporarily underperforming.

Self-Attribution (Self-Enhancing) Bias

Bias type: Cognitive

Self-attribution bias (or self-enhancing bias) refers to the tendency of people to ascribe their successes to their own innate talents and to blame failures on outside influences. For example, suppose that a GI invests in a particular stock that goes up in price. The investor believes it went up because of the GI's investment savvy rather than external factors such as economic conditions or competitor failures (the most likely reasons for the price rise). This behavior is classic self-enhancing bias.

Confirmation Bias

Bias type: Cognitive

Confirmation bias occurs when people observe, overvalue, or actively seek information that confirms their claims while ignoring or devaluing evidence that discounts their claims. Confirmation bias can cause investors to seek only information that confirms their beliefs about an investment and not to seek information that contradicts their beliefs. This behavior can leave investors in the dark regarding, for example, the imminent decline of a stock. GIs are often subject to this bias.

Advice for Growth Investors: GIs can be difficult clients to advise owing to their independent mindsets, but they usually are grounded enough to listen to sound advice when it is presented in a way that respects their independent views. As we have learned, GIs firmly believe in themselves and their decisions but can be blind to contrary thinking. As with MIs, education is essential to changing the behavior of GIs, whose biases are predominantly cognitive.

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A good approach includes regular educational discussions during client meetings, in which the advisor does not point out unique or recent failures but, rather, educates clients and incorporates concepts that are appropriate for them. Because GI biases are mainly cognitive, educating GIs on the benefits of portfolio diversification and sticking to a long-term plan is usually the best course of action. Advisors should challenge GIs to reflect on how they make investment decisions and should provide data-backed substantiation for their recommendations. Offering information in clear, unambiguous ways is an effective approach. If advisors take the time, this steady, educational method should yield positive results.

Aggressive Investors

Risk tolerance: High
Behavioral bias orientation: Emotional

BIT description: Aggressive Investors (AIs) are the most aggressive BIT. These entrepreneurial clients are often the first generation in their family to create wealth. They are even more strong willed and confident than GIs. Very wealthy AIs often have been in control of the outcomes of their business activities and believe they can do the same with investing—they are overconfident. AIs often like to change their portfolios as market conditions change, which often creates a drag on investment performance. AIs are quick decision-makers; they may chase higher-risk investments that their friends or associates are investing in. Some AIs do not believe in basic investment principles such as diversification and asset allocation; they are often hands-on types and want to be involved in the investment decision-making.

The behavioral biases of AIs are overconfidence, self-control, affinity, outcome, and illusion of control.

Aggressive Biases

Overconfidence Bias

Bias type: Emotional (with cognitive aspects)

Overconfidence is best described as unwarranted faith in one's own thoughts and abilities—which contains both cognitive and emotional elements. Overconfidence manifests itself in investors' overestimation of the quality of their judgment. Many AIs claim an above-average aptitude for selecting stocks; however, numerous studies have shown this claim to be almost always a fallacy. For example, a study done by researchers Barber and Odean (2000) showed that after trading costs (but before taxes), the average investor underperformed the market by approximately 2 percent a year owing to the investor's unwarranted belief in his ability to assess the correct value of investment securities.

Self-Control Bias

Bias type: Emotional

Self-control bias is the tendency to consume today at the expense of saving for tomorrow. The primary concern for advisors is a client with high risk tolerance coupled with high spending. For example, suppose that you have an aggressive client who prefers aggressive investments and has high current spending needs—and suddenly the financial markets hit severe turbulence. To meet current expenses, the client may be forced to sell solid long-term investments that have been priced down owing to current market conditions.

Affinity Bias

Bias type: Emotional

Affinity bias, another emotional bias, refers to investors' tendency to make irrationally uneconomical consumer choices or investment decisions based on how they believe a certain product or service will reflect their values. AIs are often subject to this bias.

Outcome Bias

Bias type: Cognitive

This bias occurs when investors focus on the outcome of a process rather than on the process used to attain the outcome. In the investment realm, this behavior consists of focusing on a return outcome without regard to the process used (i.e., the risk taken) to achieve the return. It is important for clients to understand how the outcome was achieved, not simply the outcome itself.

Illusion of Control Bias

Bias type: Cognitive

The illusion of control bias occurs when people believe that they can control or at least influence investment outcomes when, in fact, they cannot. AIs who are subject to this bias believe that the best way to manage an investment portfolio is to constantly adjust it. For example, trading-oriented investors, who accept high levels of risk, believe that they possess more control over the outcomes of their investments than they actually do because they are "pulling the trigger" on each decision.

Advice for Aggressive Investors: AIs are the most difficult clients to advise, particularly if they have experienced losses. Because they like to control, or at least get deeply involved in, the details of investment decision-making, they tend to eschew advice that might keep their risk tolerance in check. They are excited and optimistic that their investments will do well, even if that optimism is irrational. Some AIs need to be monitored for excessive spending, which, if out of control, can inhibit the performance of a long-term portfolio through withdrawals at inopportune times. In my view, the best approach to dealing with these clients is to take control. Advisors who let an aggressive client dictate the terms of the advisory engagement always will be at the mercy of the client's irrational decision-making, and the result likely will be an unhappy client and an unhappy advisor. Advisors need to prove to AI clients that they can help make great, objective, long-term decisions and that they can effectively communicate the results. Advisors who demonstrate the ability to take control of a situation will see their aggressive, emotionally charged clients fall into line and be better clients who are easier to advise.

Conclusion

In this piece, I have discussed risk tolerance using a behavioral finance lens and then provided some practical steps for advisors to follow when working with behaviorally biased clients.

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When viewing risk tolerance from a behavioral finance perspective, try to identify how your clients will react to known risks as well as unknown risks. Unknown risks that come to pass are often the source of behavioral issues that can derail an investment plan.

When advising clients, it is essential to distinguish between the various types of biases encountered. If you are dealing with emotional biases, your advice should be tailored to that type of behavior; if you are dealing with cognitive biases, your advice should reflect that situation.

I suggest that as an advisor, you try to discuss these issues with your clients as often as possible. I know it is not always easy to discuss psychological issues during the investment process, but if you are successful, you will have very satisfied, long-term clients.

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Endnote

1. This phrase is from a response that former U.S. Secretary of Defense Donald Rumsfeld gave to a question at a U.S. Department of Defense news briefing with General Richard Myers, chairman, Joint Chiefs of Staff, on February 12, 2002, about the lack of evidence linking the government of Iraq with the supply of weapons of mass destruction to terrorist groups, http://archive.defense.gov/Transcripts/Transcript.aspx?TranscriptID=2636.

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