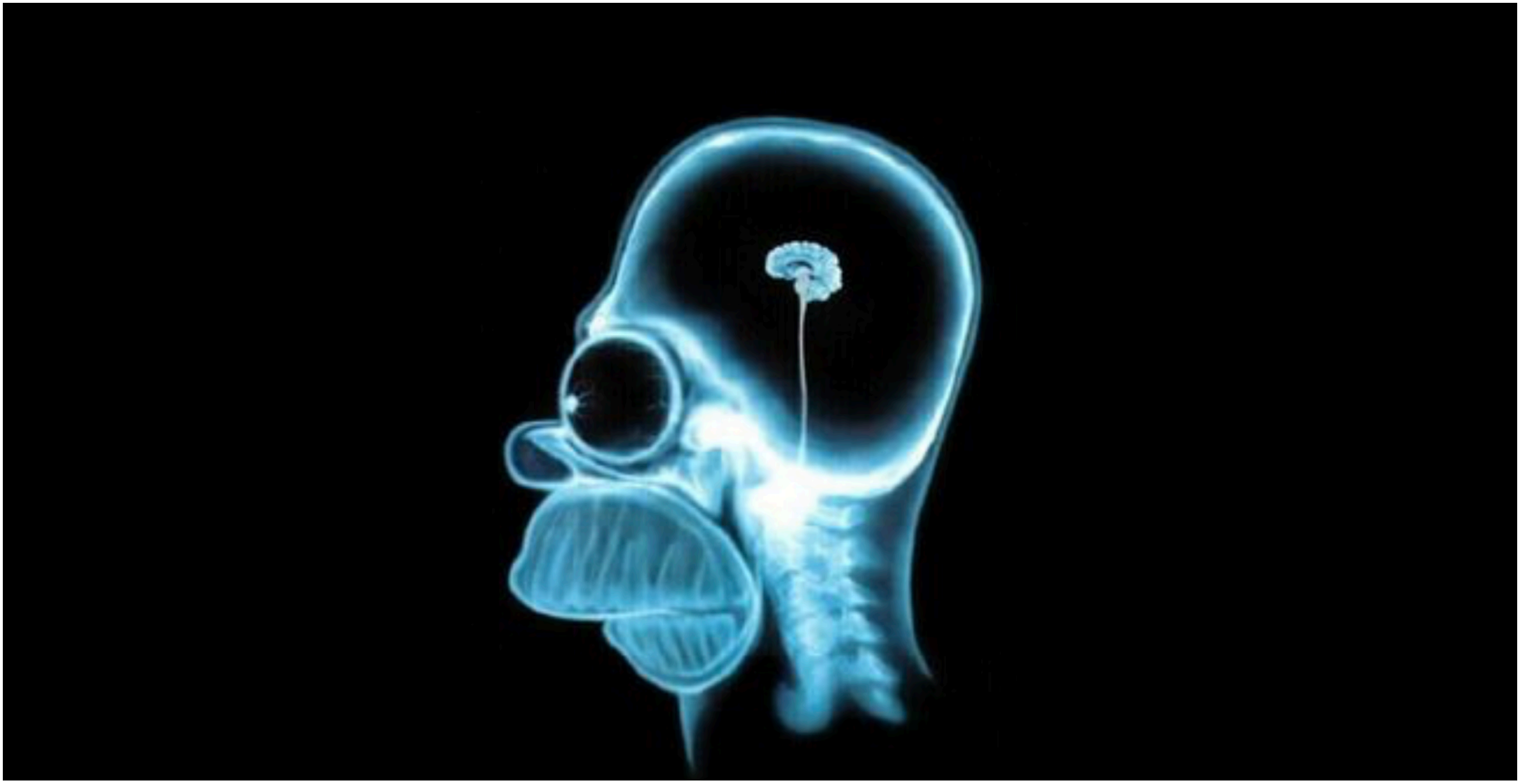

Rahoitus 2 : Behavioral Finance

Behavioral Finance :

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1 Abstract :

Behavioural finance discards the assumptions of rationality and fair pricing, seeking to explain observed behaviour in financial markets by using the principles of psychology. Irrationality can be attributed to behavioural biases, which are either cognitive or emotional, both of which can lead to poor and irrational financial decisions. Kahneman and Tversky provided the early psychological theories that constitute the foundation of behavioural finance, and they also developed prospect theory that explains loss aversion. Irrationality is readily observable when, for example, people gamble against the odds or accept higher risk for lower return. Behavioural finance seeks to explain irrationality and the presence of market anomalies such as the calendar effects and profitable trading.

Unlike neoclassical finance, behavioural finance discards the assumption of rationality by introducing and allowing a role for emotion and other psychological factors, seeking to combine finance theory with behavioural and cognitive psychology to explain why people make irrational financial decisions.

It also discards the assumption of fair pricing, allowing for the possibilities of overvaluation and undervaluation. While neoclassical finance seeks to explain the actions of the theoretical rational person, behavioural finance seeks to explain observed behaviour, which is significantly different from the behaviour of the rational decision maker envisaged by neoclassical thinking.

According to Statman (1999), "people are rational in standard [neoclassical] finance; they are normal in behavioral finance". Behavioural finance provides explanations for why market participants make irrational systematic errors, contrary to the neoclassical assumption of rationality, which implies that market participants are immune to systematic errors. Inefficiencies, such as under-reaction and overreactions to the arrival of new information, may lead to the formation of bubbles, which are bound to be followed by crashes.

Various kinds of biases lead to disproportional reactions.
Behavioural finance is based on the following assumptions: (i) investors do not simply look at mean-variance configurations to make investment decisions as they may be influenced by other non-statistical characteristics such as taste, preference and other psychological factors; (ii) investors may perceive trends even though no obvious pattern is present; (iii) imperfect information exists in the presence of trader heterogeneity; (iv) different investors tend to have different investment opportunities, depending on taste, while herd behaviour may result in a common taste; and (v) the market is not necessarily in equilibrium, and while arbitrage opportunities exist they may be subject to market sentiment. Shiller (2003) defines behavioural finance as "finance from a broader social science perspective including psychology and sociology", describing it as "one of

the most vital research programs" and that "it stands in sharp contradiction to much of efficient markets theory".

One of the earliest contributions to behavioural finance was made by Selden (1912) who suggested, long before the emergence of behavioural finance as a discipline or school of thought, that stock price movements depended crucially on the mental attitude of market participants. It took some brave mavericks to challenge the neoclassical orthodoxy, making important theoretical and empirical contributions to behavioural finance as an alternative paradigm to the orthodoxy. The most prominent names are Daniel Kahneman and Amos Tversky, two cognitive psychologists who are considered to be the founders of behavioural finance as we know it today. Their most influential piece of work pertains to the development of prospect theory and the principle of loss aversion.

While Kahneman and Tversky provided the early psychological theories that constitute the foundation of behavioural finance, this field would not be the same as it is now if it were not for the work of Richard Thaler. Inspired by Kahneman and Tversky's work on prospect theory, Thaler was quick to recognize the shortcomings of neoclassical finance and its inability to explain observed behaviour in financial markets.

Realizing that psychology can be used to explain irrational behaviour, Thaler went on to collaborate with Kahneman and Tversky, blending finance with psychology to develop concepts such as mental accounting, the endowment effect and other biases. As a result of his work, Thaler became convinced that "markets can veer off course when individuals make stupid decisions" (Hilsenrath 2004). Once he had an exchange with the most prominent opponent of behavioural finance, Eugene Fama, who is quoted by Hilsenrath (2004) as saying that behavioural economists like Thaler "haven't really established anything in more than 20 years of research". In response, Thaler describes Fama as "the only guy on earth who doesn't think there was a bubble in Nasdaq in 2000"

Another maverick is Robert Shiller who has for long argued that "efficient-market theorists made one huge mistake: just because markets are unpredictable doesn't mean they are efficient" (Hilsenrath 2004). Shiller further suggests that belief in market efficiency is a "leap in logic", which he describes as "one of the most remarkable errors in the history of economic thought". Fama responds by saying the following: "behavioral economists made the same mistake in reverse: the fact that some individuals might be irrational doesn't mean the market is inefficient". Fama also suggests that even though some anomalies cannot be explained by "modern financial theory", market efficiency should not be totally abandoned in favour of behavioural finance. Fama (1998) argues that many of the findings in behavioural finance appear to contradict each other, and that all in all, behavioural finance itself appears to be a collection of anomalies that can be explained by market efficiency.

How is that possible when no anomalies are supposed to be observed in an efficient market?

Irrationality can be attributed to behavioural biases, which are either cognitive or emotional, both of which can lead to poor and irrational financial decisions. Parker (2013) defines cognitive bias, or cognitive error, as a "rule of thumb that may or may not be factual". A cognitive process is different from an emotional process, which pertains to wanting and intending. In the finance world, investors make assumptions that are not necessarily valid, which would give rise to (among others) confirmation bias, gamblers' fallacy, status-quo bias, negativity bias and the bandwagon effect .

2 What is behavioral finance??

At its core, behavioral finance attempts to understand and explain actual investor and market behaviors versus theories of investor behavior. This idea differs from traditional (or standard) finance, which is based on assumptions of how investors and markets should behave. Wealth managers from around the world who want to better serve their clients have begun to realize that they cannot rely solely on theories or mathematical models to explain individual investor and market behavior. As Meir Statman's quote puts it, standard finance people are modeled as "rational," whereas behavioral finance people are modeled as "normal."

Fundamentally, behavioral finance is about understanding how people make financial decisions, both individually and collectively. By understanding how investors and markets behave, it may be possible to modify or adapt to these behaviors in order to improve financial outcomes.

2.1 Behavioral finance : the big picture

Behavioral finance, commonly defined as the application of psychology to finance, has become a very hot topic, generating credence with the rupture of the tech-stock bubble in March of 2000, and has been pushed to the forefront of both investors' and advisors' minds with the financial market meltdown of 2008-2009.

This section reviews two basic concepts in standard finance that behavioral finance disputes: rational markets and the rational economic man.

On Monday, October 18, 2004, a significant but mostly unnoticed article appeared in the Wall Street Journal. Eugene Fama, one of the pillars of the efficient market school of financial thought, was cited admitting that stock prices could become "somewhat irrational."

(Fama's paper, "Market Efficiency, Long-Term Returns, and Behavioral Finance," noting this concession at the Social Science Research Network, is one of the most popular investment downloads on the web site.) The Journal article also featured remarks by Roger Ibbotson, founder of Ibboston Associates: "There is a shift taking place," Ibbotson observed. "People are recognizing that markets are less efficient than we thought."9

As Meir Statman eloquently put it, "Standard finance is the body of knowledge built on the pillars of the arbitrage principles of Miller and Modigliani, the portfolio principles of Markowitz, the capital asset pricing theory of Sharpe, Lintner, and Black, and the option-pricing theory of Black, Scholes, and Merton."10 Standard finance theory is designed to provide mathematically elegant explanations for financial questions that, when posed in real life, are often complicated by imprecise, inelegant conditions. The standard finance approach relies on a set of assumptions that oversimplify reality.
For example, embedded within standard finance is the notion of Homo economicus, or rational economic man. It prescribes that humans make perfectly rational economic decisions at all times.

Standard finance, basically, is built on rules about how investors "should" behave, rather than on principles describing how they actually behave. Behavioral finance attempts to identify and learn from the human psychological phenomena at work in financial markets and within individual investors. Behavioral finance, like standard finance, is ultimately governed by basic precepts and assumptions. However, standard finance grounds its assumptions in idealized financial behavior;
behavioral finance grounds its assumptions in observed financial behavior.

2.1.1 Efficient markets versus irrational markets

During the 1970s, the standard finance theory of market efficiency became the model of market behavior accepted by the majority of academics and a good number of professionals. The efficient market hypothesis had matured in the previous decade, stemming from the doctoral dissertation of Eugene Fama. Fama persuasively demonstrated that in a securities market populated by many well-informed investors, investments will be appropriately priced and will reflect all available information.

There are three forms of the efficient market hypothesis:

1 The "Weak" form contends that all past market prices and data are fully reflected in securities prices; that is, technical analysis is of little or no value.

2 The "Semistrong" form contends that all publicly available information is fully reflected in securities prices; that is, fundamental analysis is of no value.

3 The "Strong" form contends that all information is fully reflected in securities prices; that is, insider information is of no value.

If a market is efficient, then no amount of information or rigorous analysis can be expected result in outperformance of a selected benchmark. An efficient market can basically be defined as a market wherein large numbers of rational investors act to maximize profits in the direction of individual securities. A key assumption is that relevant information is freely available to all participants. This competition among market participants results in a market wherein, at any given time, prices of individual investments reflect the total effects of all information, including information about events that have already happened, and events that the market expects to take place in the future. In sum, at any given time in an efficient market, the price of a security will match that security's intrinsic value.

In reality, active managers beat their benchmarks only roughly one-third of the time on average. This may explain why the popularity of exchange-traded funds (ETFs) has exploded in the past five years and why venture capitalists are now supporting new ETF companies, many of which are offering variations on the basic ETF theme.
The implications of the efficient market hypothesis are far-reaching. Most individuals who trade stocks and bonds do so under the assumption that the securities they are buying (selling) are worth more (less) than the prices that they are paying. If markets are truly efficient and current prices fully reflect all pertinent information, then trading securities in an attempt to surpass a benchmark is a game of luck, not skill.

Researchers have documented numerous, persistent anomalies, however, that contradict the efficient market hypothesis. There are three main types of market anomalies: Fundamental Anomalies, Technical Anomalies, and Calendar Anomalies.

2.1.2 Fundamental anomalies:

There is a large body of evidence documenting that investors consistently overestimate the prospects of growth companies and underestimate the value of out-of-favor companies.

One example concerns stocks with low price-to-book-value (P/B) ratios. Eugene Fama and Kenneth French performed a study of low price-to-book-value ratios that covered the period between 1963 and 1990. The study considered all equities listed on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), and the Nasdaq. The stocks were divided into 10 groups by book/market and were reranked annually. The lowest book/market stocks outperformed the highest book/market stocks 21.4 percent to 8 percent, with each decile performing more poorly than the previously ranked, higher-ratio decile. Fama and French also ranked the deciles by beta and found that the value stocks posed lower risk and that the growth stocks had the highest risk. Another famous value investor, David Dreman, found that for the 25-year period ending in 1994, the lowest 20 percent P/B stocks (quarterly adjustments) significantly outperformed the market; the market, in turn, outperformed the 20 percent highest P/B of the largest 1,500 stocks on Compustat.

Securities with low price-to-sales ratios also often exhibit performance that is fundamentally anomalous. Numerous studies have shown that low P/B is a consistent predictor of future value. In What Works on Wall Street, however, James P. O'Shaughnessy demonstrated that stocks with low price-to-sales ratios outperform markets in general and also outperform stocks with high price-to-sales ratios. He believes that the price/sales ratio is the strongest single determinant of excess return.

Low price-to-earnings ratio (P/E) is another attribute that tends to anomalously correlate with outperformance. Numerous studies, including David Dreman's work, have shown that low P/E stocks tend to outperform both high P/E stocks and the market in general. Ample evidence also indicates that stocks with high dividend yields tend to outperform others. The Dow Dividend Strategy, which has received a great deal of attention recently, counsels purchasing the 10 highest-yielding Dow stocks.

2.1.3 Technical anomalies:

Another major debate in the investing world revolves around whether past securities prices can be used to predict future securities prices. "Technical analysis" encompasses a number of techniques that attempt to forecast securities prices by studying past prices.

2.1.4 Calendar anomalies:

One calendar anomaly is known as "The January Effect." Historically, stocks in general and small stocks in particular have delivered abnormally high returns during the month of January. Robert Haugen and Philippe Jorion, two researchers on the subject, note that "the January Effect is, perhaps, the best-known example of anomalous behavior in security markets throughout the world." The January Effect is particularly illuminating because it hasn't disappeared, despite being well known for 25 years (according to arbitrage theory, anomalies should disappear as traders attempt to exploit them in advance). The January Effect is attributed to stocks rebounding following year-end tax selling. Individual stocks depressed near year-end are more likely to be sold for tax-loss harvesting.

Some researchers have also begun to identify a "December Effect," which stems both from the requirement that many mutual funds report holdings as well as from investors buying in advance of potential January increases.

Additionally, there is a Turn-of-the-Month Effect. Studies have shown that stocks show higher returns on the last and on the first four days of each month relative to the other days. Frank Russell Company examined returns of the Standard & Poor's (S&P) 500 over a 65-year period and found that U.S. large-cap stocks consistently generate higher returns at the turn of the month. 6 Some believe that this effect is due to end-of-month cash flows (salaries, mortgages, credit cards, etc.). Chris Hensel and William Ziemba

found that returns for the turn of the month consistently and significantly exceeded averages during the interval from 1928 through 1993 and "that the total return from the S&P 500 over this sixty-five-year period was received mostly during the turn of the month."17 The study implies that investors making regular purchases may benefit by scheduling those purchases prior to the turn of the month.

Finally, as of this writing, during the course of its existence, the Dow Jones Industrial Average (DJIA) has never posted a net decline over any year ending in a "5." Of course, this may be purely coincidental.

2.2 Rational economic man versus behaviorally biased man

Stemming from neoclassical economics, Homo economicus is a simple model of human economic behavior, which assumes that principles of perfect self-interest, perfect rationality, and perfect information govern economic decisions by individuals. Like the efficient market hypothesis, Homo economicus is a tenet that economists uphold with varying degrees of stringency. Some have adopted it in a semistrong form; this version does not see rational economic behavior as perfectly predominant but still assumes an abnormally high occurrence of rational economic traits. Other economists support a weak form of Homo economicus, in which the corresponding traits exist but are not strong. All of these versions share the core assumption that humans are "rational maximizers" who are purely self-interested and make perfectly rational economic decisions.

Economists like to use the concept of rational economic man for two primary reasons: Homo economicus makes economic analysis relatively simple. Naturally, one might question how useful such a simple model can be. Homo economicus allows economists to quantify their findings, making their work more elegant and easier to digest. If humans are perfectly rational, possessing perfect information and perfect self-interest, then perhaps their behavior can be quantified.

Most criticisms of Homo economicus proceed by challenging the bases for these three underlying assumptions-perfect rationality, perfect self-interest, and perfect information.

1 Perfect rationality.

When humans are rational, they have the ability to reason and to make beneficial judgments. However, rationality is not the sole driver of human behavior. In fact, it may not even be the primary driver, as many psychologists believe that the human intellect is actually subservient to human emotion. They contend, therefore, that human behavior is less the product of logic than of subjective impulses, such as fear, love, hate, pleasure, and pain. Humans use their intellect only to achieve or to avoid these emotional outcomes.

2 Perfect self-interest.

Many studies have shown that people are not perfectly self-interested. If they were, philanthropy would not exist. Religions prizing selflessness, sacrifice, and kindness to strangers would also be unlikely to prevail as they have over centuries. Perfect self-interest would preclude people from performing such unselfish deeds as volunteering, helping the needy, or serving in the military.
It would also rule out self-destructive behavior, such as suicide, alcoholism, and substance abuse.

3. Perfect information.

Some people may possess perfect or near-perfect information on certain subjects; a doctor or a dentist, one would hope, is impeccably versed in his or her field. It is impossible, however, for every person to enjoy perfect knowledge of every subject. In the world of investing,
there is nearly an infinite amount to know and learn; and even the most successful investors don't master all disciplines.

Many economic decisions are made in the absence of perfect information. For instance, some economic theories assume that people adjust their buying habits based on the Federal Reserve's monetary policy. Naturally, some people know exactly where to find the Fed data, how to interpret it, and how to apply it; but many people don't know or care who or what the Federal Reserve is Considering that this inefficiency affects millions of people, the idea that all financial actors possess perfect information becomes implausible.

Again, as with market efficiency, human rationality rarely manifests in black or white absolutes. It is better modeled across a spectrum of gray. People are neither perfectly rational nor perfectly irrational; they possess diverse combinations of rational and irrational characteristics, and benefit from different degrees of enlightenment with respect to different issues.

2.2.1 BB&K FIVE INVESTOR PERSONALITY TYPES

The Adventurer.

People who are willing to put it all on one bet and go for it because they have confidence. They are difficult to advise because they have their own ideas about investing They are willing to take risks, and they a volatile clients from an investment counsel point of view.

The Celebrity.

These people like to be where the action is. They are afraid of being left out. They really do not have their own ideas about investments. They may have their own ideas about other things in life, but not investing.

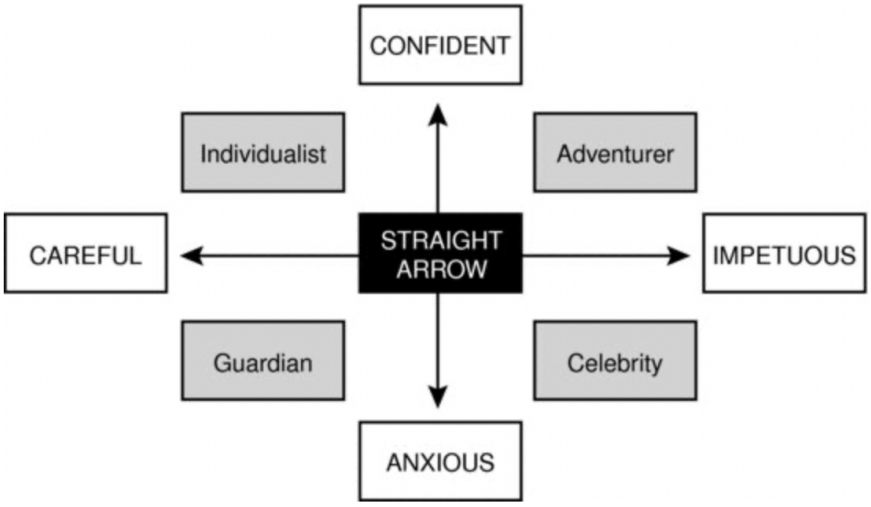
As a result they are the best prey for maximum broker turnover.
The Individualist. These people tend to go their own way and are typified by the small businessperson or an independent professional, such as a lawyer, certified public accountant (CPA), or engineer. These are people who are trying to make their own decisions in life, carefully going about things, having a certain degree of confidence about them, but also being careful, methodical, and analytical. These are clients whom everyone is looking for— rational investors with whom the portfolio manager can talk sense.

The Guardian.

Typically, as people get older and begin considering retirement, they approach this personality profile. They are careful and a little bit worried about their money. They recognize that they face a limited earning time span and have to preserve their assets. They are definitely not interested in volatility or excitement.
Guardians lack confidence in their ability to forecast the future or to understand where to put money, so they look for guidance.

The Straight Arrow.

These people are so well balanced, they cannot be placed in any specific quadrant, so they fa ear the center. On average, this group of clients is the average investor, a relatively balanced composite of each of the other four investor types, and by implication a group willing to be exposed to medium amounts of risk.



3.1 Introduction to behavioral biases

Numerous research studies have shown that when people are faced with complex decision-making problems that demand substantial time and cognitive decision-making requirements, they have difficulty devising a rational approach to developing and analyzing a proper course of action. This problem is exacerbated by the fact that many consumers need to contend with a potential overload of information to process. Have you walked down the toothpaste aisle lately? Way too many choices— how do you pick? And this is one of the easier decisions we face! For more meaningful decisions, people don't systematically describe problems, record necessary data, and/or synthesize information to create rules for making decisions, which is really the best way make complex decisions. Instead, people usually follow a more subjective path of reasoning to determine a course of action consistent with their desired outcome or general preferences.

Individuals make decisions, although typically suboptimal ones, by simplifying the choices presented to them, typically using a subset of the information available, and discarding some (usually complicated but potentially good) alternatives to get down to a more manageable number. They are content to find a solution that is "good enough" rather than arriving at the optimal decision. In doing so, they may (unintentionally) bias the decision-making process. These biases may lead to irrational behaviors and flawed decisions. In the investment realm, this happens a lot; many researchers have documented numerous biases that investors have. This chapter will introduce these biases, which we will review in the next 20 chapters and highlight the importance of understanding them and dealing with them before they have a chance to negatively impact the investment decision-making process.

3.2 Behavioral biases defined

The dictionary defines a "bias" in several different ways, including: (a) a statistical sampling or testing error caused by systematically favoring some outcomes over others; (b) a preference or an inclination, especially one that inhibits impartial judgment; (c) an inclination or prejudice in favor of a particular viewpoint; and (d) an inclination of temperament or outlook, especially, a personal and sometimes unreasoned judgment. In this book, we are naturally concerned with biases that cause irrational financial decisions due to either (1) faulty cognitive reasoning or (2) reasoning influenced by emotions which can also be considered feelings, or, unfortunately, due to both. The first dictionary definition (a) of bias is consistent with faulty cognitive reasoning or thinking while (b), (c), and (d) are more consistent with impaired reasoning influenced by feelings or emotion.

Behavioral biases are defined, essentially, the same way as systematic errors in judgment. Researchers distinguish a long list of specific biases, and have applied over 50 of these to individual investor behaviors in recent studies. When one considers the derivative and the undiscovered biases awaiting application in personal finance, the list of systematic investor errors seems very long indeed. More brilliant research seeks to categorize these biases according to a meaningful framework.

Some authors refer to biases as heuristics (rules of thumb), while others call them beliefs, judgments, or preferences.

Instead of a universal theory of investment behavior, behavioral finance research relies on a broad collection of evidence pointing to the ineffectiveness of human decision making in various economic decision-making circumstances.

3.3 Cognitive and emotional biases

Behavioral biases are classified as either cognitive or emotional biases, not only because the distinction is straightforward but also because the cognitive-emotional breakdown provides a useful framework for understanding how to effectively deal with them in practice.

Cognitive biases are basic statistical, information processing, or memory errors that cause the decision to deviate from rationality. Emotional biases are those that arise spontaneously as a result of attitudes and feelings and that cause the decision to deviate from the rational decisions of traditional finance.

Cognitive errors, which stem from basic statistical, information processing, or memory errors, are more easily corrected for than are emotional biases. Why? Investors are better able to adapt their behaviors or modify their processes if the source of the bias is illogical reasoning, even if the investor does not fully understand the investment issues under consideration.

3.4 Difference among cognitive biases (belief perseverance and information processing biases)

There are 13 cognitive biases, their implications for financial decision making, and suggestions for correcting for the biases. As previously mentioned, cognitive errors are statistical, information processing, or memory errors—a somewhat broad description.

Cognitive biases are classified into two categories. The first category contains "belief perseverance" biases.

Belief perseverance biases are closely related to the psychological concept of cognitive dissonance, a bias I will review in the next chapter. Cognitive dissonance is the mental

discomfort that one feels when new information conflicts with previously held beliefs or cognitions. To resolve this discomfort, people tend to notice only information of interest to them (called selective exposure), ignore or modify information that conflicts with existing beliefs (called selective perception), and/or
remember and consider only information that confirms existing beliefs (called selective retention).

Aspects of these behaviors are contained in the biases categorized as belief perseverance. The six belief perseverance biases covered in this book are cognitive dissonance, conservatism, confirmation, representativeness, illusion of control, and hindsight.

The second category of cognitive biases has to do with "processing errors," and describes how information may be processed and used illogically or irrationally in financial decision making. As opposed to belief perseverance biases, these are less related to errors of memory or in assigning and updating probabilities and instead have more to do with how information is processed. The seven processing errors discussed are anchoring and adjustment, mental accounting, framing, availability, self-attribution bias, outcome bias, and recency bias.

3.5 Emotional biases

Although emotion has no single universally accepted definition, it is generally agreed upon that an emotion is a mental state that arises spontaneously rather than through conscious effort.

Emotions can cause investors to make suboptimal decisions. Emotions may be undesired to the individuals feeling them, and while they may wish to control the emotion and their response to it, they often cannot.

Emotional biases are harder to correct for than cognitive errors because they originate from impulse or intuition rather than conscious calculations. In other words, a bias that is an inclination of temperament or outlook, especially a personal and sometimes unreasonable judgment, is harder to correct.

Emotional biases stem from impulse, intuition, and feelings and may result in personal and unreasoned decisions. When possible, focusing on cognitive aspects of the biases may be more effective than trying to alter an emotional response.

Emotional biases can cause investors to make suboptimal decisions. The emotional biases are rarely identified and recorded in the decision-making process because they have to do with how people feel rather than what and how they think. The six emotional biases discussed are loss

aversion, overconfidence, self-control, status quo, endowment, and regret aversion. In the discussion of each of these biases, some related biases may be discussed.

4 Cognitive dissonance bias

Bias type: cognitive, subtype: belief perseverance.

When newly acquired information conflicts with preexisting understandings, people often experience mental discomfort—a psychological phenomenon known as cognitive dissonance. Cognitions, in psychology, represent attitudes, emotions, beliefs, or values; cognitive dissonance is a state of imbalance that occurs when contradictory cognitions intersect.

The term cognitive dissonance encompasses the response that arises as people struggle to harmonize cognitions and thereby relieve their mental discomfort. For example, a consumer might purchase a certain brand of mobile phone, initially believing that it is the best mobile phone available. However, when a new cognition that favors a substitute mobile phone is introduced, representing an imbalance, cognitive dissonance occurs in an attempt to relieve the discomfort that comes with the notion that perhaps the buyer did not purchase the right mobile phone. People will go to great lengths to convince themselves that the mobile phone they actually bought is better than the one they just learned about, to avoid mental discomfort associated with their initial purchase. In essence, they persist in their belief that they are correct. In that sense, cognitive dissonance bias is the basis for all of the belief perseverance biases in this section, with different variations on the same theme.

4.1 COGNITIVE DISSONANCE BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1.Cognitive dissonance can cause investors to hold losing securities positions that they otherwise would sell because they want to avoid the mental pain associated with admitting that they made a bad decision.

2.Cognitive dissonance can cause investors to continue to invest in a security that they already own after it has gone down (average down) to confirm an earlier decision to invest in that security without judging the new investment with objectivity and rationality. A common phrase for this concept is "throwing good money after bad."

3.Cognitive dissonance can cause investors to get caught up in herds of behavior; that is, people avoid information that counters an earlier decision (cognitive dissonance) until so much counter information is released that investors herd together and cause a deluge of behavior that is counter to that decision.

4.Cognitive dissonance can cause investors to believe "it's different this time." People who purchased high-flying, hugely overvalued growth stocks in the late 1990s ignored evidence that there were no excess returns from purchasing the most expensive stocks available. In fact, many of the most high-flying companies are now far below their peaks in price.

5 Conservatism bias

Bias type: Cognitive: bias type: belief perseverance.

Conservatism bias is a mental process in which people cling to their prior views or forecasts at the expense of acknowledging new information. For example, suppose that an investor receives some bad news regarding a company's earnings and that this news negatively contradicts another earnings estimate issued the previous month. Conservatism bias may cause the investor to underreact to the new information, maintaining impressions derived from the previous estimate rather than acting on the updated information. Investors persevere in a previously held belief rather than acknowledging new information.

5.1 CONSERVATISM BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Conservatism bias can cause investors to cling to a view or a forecast, behaving too inflexibly when
presented with new information. For example, assume an investor purchases a security based on the knowledge that the company is planning a forthcoming announcement regarding a new product. The company then announces that it has experienced problems bringing the product to market. The investor may cling to the initial, optimistic impression of some imminent, positive development by the company and may fail to take action on the negative announcement.

2. When conservatism-biased investors do react to new information, they often do so too slowly. For example, if an earnings announcement depresses a stock that an investor holds, the conservative investor may be too slow to sell. The preexisting view that, for example, the company has good prospects, may linger too long and exert too much influence, causing an investor exhibiting conservatism to unload the stock only after losing more money than necessary.

3.Conservatism can relate to an underlying difficulty in processing new information. Because people experience mental stress when presented with complex data, an easy option is to simply stick to a prior belief. For example, if an investor purchases a security on the belief that the company is poised to grow and then the company announces that a series of difficult-to-interpret accounting changes may affect its growth, the investor

might discount the announcement rather than attempt to decipher it. More clear-cut and, therefore, easier to maintain is the prior belief that the company is poised to grow.

5.3 Investor Overreaction

In an important paper published in 1985, Werner De Bondt of the University of Wisconsin and Richard Thaler of the University of Chicago Graduate School of Business discovered what they claimed was evidence that investors overreact to news. Analyzing data dating back to 1933, De Bondt and Thaler found that stocks with extremely poor returns over the previous five years subsequently dramatically outperformed stocks with extremely high previous returns, even after making the standard risk adjustments.

5.4 Investor Underreaction

Barberis, Vishny, and Shleifer believe that investors sometimes also make the mistake of underreacting to certain types of financial news. Suppose a company announces quarterly earnings that are substantially higher than expected. The evidence suggests that investors see this as good news and send the stock price higher but, for some reason, not high enough. Over the next six months, this mistake is gradually corrected as the stock price slowly drifts upward toward the level it should have attained at the time of the announcement. Investors who buy the stock immediately after the announcement will benefit from this upward drift and enjoy higher returns.

6.1 Confirmation bias.

Bias type: cognitive: subtype: belief perseverance.

Confirmation bias refers to a type of selective perception that emphasizes ideas that confirm our beliefs, while devaluing whatever contradicts our beliefs. For example, it is quite typical for someone to decide, after having bought a much desired item such as a television, to look for the same television at a store that is known to have higher prices in order to confirm that he or she made a good purchase decision.

6.2 CONFIRMATION BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Confirmation bias can cause investors to seek out only information that confirms their beliefs about an investment that they have made and to not seek out information that may contradict their beliefs. This behavior can leave investors in the dark regarding, for example, the imminent decline of a stock.

2. When investors believe strongly in predetermined "screens," such as stocks breaking through a 52-week price high, confirmation bias is usually at work. These investors only use information that confirms their beliefs. They may blind themselves to information that demonstrates that a stock breaking through its 52-week high may not make a good investment.

3. Confirmation bias can cause employees to overconcentrate in company stock. As IBM and other examples demonstrate, intraoffice buzz about a company's prospects does not justify indiscriminate reliance by employees on company stock. People naturally tend to unduly emphasize evidence suggesting that the companies they work for will do well.
4. Confirmation bias can cause investors to continue to hold underdiversified portfolios. Many practitioners have seen clients become infatuated with certain stocks-not always the stocks of employer corporations. Over the course of years, such a client might accrue a large position that ultimately produces a lopsided portfolio. These clients do not want to hear anything negative about favored investments but rather seek, single-mindedly, confirmation that the position will pay off.

7.1 Representativeness bias

Bias type: cognitive: subtype: belief perseverance.

In order to derive meaning from life experiences, people have developed an innate propensity for classifying objects and thoughts. When they confront a new phenomenon that is inconsistent with any of their preconstructed classifications, they subject it to those classifications anyway, relying on a rough best-fit approximation to determine which category should house and, thereafter, form the basis for their understanding of the new element.

Similarly, people tend to perceive probabilities and odds that resonate with their own preexisting ideas-even when the resulting conclusions drawn are statistically invalid. For example, the "Gambler's Fallacy" refers to the commonly held impression that gambling luck runs in streaks.

7.2 HARMFUL EFFECTS OF REPRESENTATIVENESS BIAS

Examples of the Harmful Effects of Sample-Size Neglect for Investors

1. Investors can make significant financial errors when they examine a money manager's track record. They peruse the past few quarters or even years and

conclude, based on inadequate statistical data, that the fund' performance is the result of skilled allocation and/or security selection.

2. Investors also make similar mistakes when investigating track records of stock analysts. For example, they look at the success of an analyst's past few recommendations, erroneously assessing the analyst's aptitude based on this limited data sample.

8.1 Illusion of control bias

Bias type: cognitive: subtype: belief perseverance.

The illusion of control bias, another form of dissonant behavior, describes the tendency of human beings to believe that they can control or at least influence outcomes when, in fact, they cannot. In the casino game "craps," for example, various research has demonstrated that people actually cast the dice more vigorously when they are trying to attain a higher number or when an "important" roll is happening.

8.2 ILLUSION OF CONTROL BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Illusion of control bias can lead investors to trade more than is prudent. Researchers have found that traders, especially online traders, believe themselves to possess more control over the outcomes of their investments than they actually do. An excess of trading results, in the end, in decreased returns.

2. Illusions of control can lead investors to maintain underdiversified portfolios. Researchers have found that investors hold concentrated positions because they gravitate toward companies over whose fate they feel some amount of control. That control proves illusory, however, and the lack of diversification hurts the investors' portfolios.

3. Illusion of control bias can cause investors to use limit orders and other such techniques in order to experience a false sense of control over their investments. In fact, the use of these mechanisms can often lead to an overlooked opportunity or, worse, a detrimental, unnecessary purchase based on the occurrence of an arbitrary price. Illusion of control bias contributes, in general, to investor overconfidence. In particular, investors who have been successful in business or other professional pursuits believe that they should also be successful in the investment realm. What they find is that they may have had the ability to shape outcomes in their vocation, but investments are a different matter altogether.

9.1 Hindsight bias

Bias type: cognitive: subtype: belief perseverance.

Described in simple terms, hindsight bias is the impulse that insists: "I knew it all along!" This is perhaps the most pronounced version of belief perseverance biases. Once an event has elapsed, people afflicted with hindsight bias tend to perceive that the event was predictable- even if it wasn't.

Therefore, people tend to overestimate the accuracy of their own predictions. This is not to say, obviously, that people cannot make accurate predictions, but merely that people may believe that they made an accurate prediction in hindsight.

9.2 HINDSIGHT BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. When an investment appreciates, hindsight-biased investors tend to rewrite their own memories to portray the positive developments as if they were predictable. Over time, this rationale can inspire excessive risk taking because hindsight-biased investors begin to believe that they have superior predictive powers, when, in fact, they do not. The bursting of the technology bubble is an example of this bias in action.

2. Hindsight-biased investors also "rewrite history" when they fare poorly and block out recollections of prior, incorrect forecasts in order to alleviate embarrassment. This form of self-deception, in some ways similar to cognitive dissonance, prevents investors from learning from their mistakes. A clear example of this bias took place in the early 1980s, when energy stocks generated over 20 percent of S&P 500 returns, and lots of investors were caught up in the boom. By the 1990s, though, the energy bubble subsided, and many stockholders lost money. Most now prefer, in hindsight, to not recognize that the speculative frenzy clouded their judgments.

3. Hindsight-biased investors can unduly fault their money managers when funds perform poorly. Looking back at what has occurred in securities markets, these investors perceive every development as inevitable. How, then, could a

worthwhile manager be caught by surprise? In fact, even top-quartile managers who implement their strategies correctly may not succeed in every market cycle. Managers of small-cap value funds in the late 1990s, for example, drew a lot of criticism. However, these people weren't poor managers; their style was simply out of favor at the time.

4. Conversely, hindsight bias can cause investors to unduly praise their money managers when funds perform well. The clarity of hindsight obscures the possibility that a manager's strategy might simply have benefited from good timing or good fortune. Consider the wisdom attributed to managers of aggressive-growth tech funds in the late 1990s.

10.1 Mental accounting bias

Bias type: cognitive: subtype: information processing.

First coined by University of Chicago professor Richard Thaler, mental accounting describes peoples tendency to code, categorize, and evaluate economic outcomes by grouping their assets into a number of non-fungible (non-interchangeable) mental accounts! A completely rational person would never succumb to this sort of psychological process because mental accounting causes subjects to take the irrational step of treating various sums of money differently based on where these sums are mentally categorized, for example, the way that a certain sum has been obtained work, inheritance, gambling, bonus, etc.) or the nature of the money's intended use (leisure necessities, etc.). Money is money, regardless of the source or intended use.

10.2 Mental Accounting Bias: Behaviors That Can Cause Investment Mistakes

1. Mental accounting bias can cause people to imagine that their investments occupy separate "buckets," or accounts. These categories might include, for example, college fund or money for retirement. Envisioning distinct accounts to correspond with financial goals, however, can cause investors to neglect positions that offset or correlate across accounts. This can lead to suboptimal aggregate portfolio performance.

2. Mental accounting bias can cause investors to irrationally distinguish between returns derived from income and those derived from capital appreciation. Many people feel the need to preserve capital (i.e., principal) sums and prefer to spend interest. As a result, some investors chase income streams and can unwittingly erode principal in the process. Consider, for example, a high-income bond fund or a preferred stock that pays a high dividend yet, at times, can suffer a loss of

principal due to interest rate fluctuations. Mental accounting can make instruments like these appealing, but they may not benefit the investor in the long run.

3. Mental accounting bias can cause investors to allocate assets differently when employer stock is involved.Studies have shown that participants in company retirement plans that offer no company stock as an option tend to invest in a balanced way between equities and fixed-income instruments. However, when employer stock is an option, employees usually allocate a portion of contributions to company stock, with the remainder disbursed evenly over equity and fixed-income investments. Total equity allocation, then, could be too high when company stock was offered, causing these investors' portfolios to potentially be underdiversified. This can be a suboptimal condition because these investors do not fully comprehend the risk that exists in their portfolio.

4. In the same vein as anchoring bias, mental accounting bias can cause investors to succumb to the "house money" effect, wherein risk-taking behavior escalates as wealth grows.

11.1 Anchoring and adjustment bias

Bias type: cognitive: subtype: information processing.

When required to estimate a value with unknown magnitude, people generally begin by envisioning some initial, default number—an "anchor"-which they then adjust up or down to reflect subsequent information and analysis. The anchor, once fine-tuned and reassessed, matures into a final estimate. Numerous studies demonstrate that regardless of how the initial anchors were chosen, people tend to adjust their anchors insufficiently and produce end approximations that are, consequently, biased. People are generally better at estimating relative comparisons rather than absolute figures, which the following example illustrates.

Anchoring and adjustment is a psychological heuristic that influences the way people intuit probabilities. Investors exhibiting this bias are often influenced by purchase "points" —or arbitrary price levels or price indexes—-and tend to cling to these numbers when facing questions like "Should I buy or sell this security?" or "Is the market overvalued or undervalued right now?" This is especially true when the introduction of new information regarding the security further complicates the situation. Rational investors treat these new pieces of information objectively and do not reflect on purchase prices or target prices in deciding how to act. Anchoring and adjustment bias, however, implies that investors perceive new information through an essentially warped lens. They place undue emphasis on statistically arbitrary, psychologically determined

anchor points. Decision making therefore deviates from neoclassically prescribed "rational" norms.

11.2 ANCHORING AND ADJUSTMENT BIAS: BEHAVIORS THAT CAN CAUSE INVESTOR MISTAKES

1. Investors tend to make general market forecasts that are too close to current levels. For example, if the Dow Jones Industrial Average (DJIA) is at 10,500, investors are likely to forecast the index in a way narrower than what might be suggested by historical fluctuation. For example, an investor subject to anchoring might forecast the DJIA to fall between 10,000 and 11,000 at year-end, versus making an absolute estimate based on historical standard deviation (rational) analysis.

2. Investors (and securities analysts) tend to stick too closely to their original estimates when new information is learned about a company. For example, if an investor determines that next year's earnings estimate is $2 per share and the company subsequently falters, the investor may not readjust the $2 figure enough to reflect the change because he or she is "anchored" to the $2 figure. This is not limited to downside adjustments—the same phenomenon occurs when companies have upside surprises. (At the end of the chapter, we will review a behaviorally based investment strategy leveraging this concept that has proven to be effective at selecting investments.)

3. Investors tend to make a forecast of the percentage that a particular asset class might rise or fall based on the current level of returns. For example, if the DJIA returned 10 percent last year, investors will be anchored on this number when making a forecast about next year. Investors can become anchored on the economic states of certain countries or companies. For example, in the 1980s, Japan was an economic powerhouse, and many investors believed that they would remain so for decades. Unfortunately for some, Japan stagnated for years after the late 1980s. Similarly, IBM was a bellwether stock for decades. Some investors became anchored to the idea that IBM would always be a bellwether. Unfortunately for some, IBM did not last as a bellwether stock.

12.1 Framing bias

Bias type: cognitive: subtype: information processing.

Framing bias notes the tendency of decision makers to respond to various situations differently, based on the context in which a choice is presented (framed). This can

happen in a number of contexts, including how word problems are described, how data is presented in tables and charts, and how figures are illustrated.

12.2 FRAMING BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Depending on how questions are asked, framing bias can cause investors to communicate responses to questions about risk tolerance that are either unduly conservative or unduly aggressive. For example, when questions are worded in the "gain" frame, a risk-averse response is more likely. When questions are worded in the "loss" frame, risk-seeking behavior is the likely response.

2. The optimistic or pessimistic manner in which an investment or asset allocation recommendation is framed can affect people's willingness or lack of willingness to invest. Optimistically worded questions are more likely to garner affirmative responses, and optimistically worded answer choices are more likely to be selected than pessimistically phrased alternatives. Framing contexts are often arbitrary and uncorrelated and therefore shouldn't impact investors' judgments ... but, they do.

3. Narrow framing, a subset of framing bias, can cause even long-term investors to obsess over short-term price fluctuations in a single industry or stock. This behavior works in concert with myopic loss aversion. The risk here is that by focusing only on short-term market fluctuations, excessive trading may be the result. This trading behavior has proven to be less than optimal for investors.

4. Framing and loss aversion can work together to explain excessive risk aversion. An investor who has incurred a net loss becomes likelier to select a riskier investment, whereas a net gainer feels predisposed toward less risky alternatives.

13.1 Availability bias

Bias type: cognitive; subtype: information processing.

The availability bias is a rule of thumb, or mental shortcut, that causes people to estimate the probability of an outcome based on how prevalent or familiar that outcome appears in their lives.
People exhibiting this bias perceive easily recalled possibilities as being more likely than those prospects that are harder to imagine or difficult to comprehend.

One classic example cites the tendency of most people to guess that shark attacks more frequently cause fatalities than airplane parts falling from the sky do. However, as difficult as it may be to comprehend, the latter is actually 30 times more likely to occur. Shark attacks are probably assumed to be more prevalent because sharks invoke greater fear or because shark attacks receive a disproportionate degree of media attention.

People often inadvertently assume that readily available thoughts, ideas, or images represent unbiased indicators of statistical probabilities. People estimate the likelihoods of certain events according to the degree of ease with which recollections or examples of analogous events can be accessed from memory. Impressions drawn from imagination and past experience combine to construct an array of conceivable outcomes, whose real statistical probabilities are, in essence, arbitrary. There are several categories of availability bias, of which the four that apply most to investors are: (1) retrievability, (2) categorization, (3) narrow range of experience, and (4) resonance.

4 Retrievability. Ideas that are retrieved most easily also seem to be the most credible, though this is not necessarily the case. For example, Daniel Kahneman, Paul Slovic, and Amos Tversky performed an experiment in which subjects were read a list of names and then were asked whether more male or female names had been read.' In reality, the majority of names recited were unambiguously female; however, the subset of male names contained a much higher frequency of references to celebrities (e.g., "Richard Nixon"). In accordance with availability theory, most subjects produced biased estimates indicating, mistakenly, that more male than female names populated the list.

5 Categorization. In Chapter 5, "Representativeness Bias," we discussed how people's minds comprehend and archive perceptions according to certain classification schemes. Here, we will discuss how people attempt to categorize or summon information that matches a certain reference. The first thing that their brains do is generate a set of search terms, specific to the task at hand, that will allow them to efficiently navigate their brain's classification structure and locate the data they need. Different tasks require different search sets, however; and when it is difficult to put together a framework for a search, people often mistakenly conclude that the search simply references a more meager array of results. For example, if a French person simultaneously tries to come up with a list of high-quality U.S. vineyards and a corresponding list of French vineyards, the list of U.S. vineyards is likely to prove more difficult to create. The French person, as a result, might predict that high-quality U.S. vineyards exist with a lower probability than famous French vineyards, even if this is not necessarily the case.

6 Narrow range of experience. When a person possesses an overly restrictive frame of reference from which to formulate an objective estimate, then narrow range of experience bias often results.

For example, assume that a very successful college basketball player is drafted by a National Basketball Association (NBA) team, where he proceeds to enjoy several successful seasons.

Because this person encounters numerous other successful former college basketball players on a daily basis in the NBA, he is likely to overestimate the relative proportion of successful college basketball players that go on to play professionally. He will, likewise, probably underestimate the relative frequency of failed college basketball players, because most of the players he knows are those who have gone on to reap great rewards from their undergraduate basketball careers. In reality, only an extremely small percentage of college basketball players will ever graduate to the NBA.
4. Resonance. The extent to which certain, given situations resonate vis-à-vis individuals' own, personal situations can also influence judgment. For example, fans of classical music might be likely to overestimate the portion of the total population that also listens to classical music.
Those who dislike classical music would probably underestimate the number of people who listen to classical music.

13.2 AVAILABILITY BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Retrievability. Investors will choose investments based on information that is available to them (advertising, suggestions from advisors, friends, etc.) and will not engage in disciplined research or due diligence to verify that the investment selected is a good one.

2. Categorization. Investors will choose investments based on categorical lists that they have available in their memory. In their minds, other categories will not be easily recalled and, thus, will be ignored. For example, U.S. investors may ignore countries where potentially rewarding investment opportunities may exist because these countries may not be an easily recalled category in their memory.

3. Narrow range of experience. Investors will choose investments that fit their narrow range of life experiences, such as the industry they work in, the region they live in, and the people they associate with. For example, investors who work in the technology industry may believe that only technology investments will be profitable.

4. Resonance. Investors will choose investments that resonate with their own personality or that have characteristics that investors can relate to their own behavior. Taking the opposite view, investors ignore potentially good investments because they can't relate to or do not come in contact with characteristics of those investments. For example, thrifty people may not relate to expensive stocks (high price/earnings multiples) and potentially miss out on the benefits of owning these stocks.

14.1 Self-attribution bias

Bias type: cognitive: subtype: information processing.

Self-attribution bias refers to the tendency of individuals to ascribe their successes to innate aspects, such as talent or foresight, while more often blaming failures on outside influences such as bad luck.

Self-attribution is a cognitive phenomenon by which people attribute failures to situational factors and successes to dispositional factors. Self-serving bias can actually be broken down into two constituent tendencies or subsidiary biases.

1. Self-enhancing bias represents people's propensity to claim an irrational degree of credit for their successes.

2. Self-protecting bias represents the corollary effect-the irrational denial of responsibility for failure.

Self-enhancing bias can be explained from a cognitive perspective. Research has shown that if people intend to succeed, then outcomes in accordance with that intention-successes-will be perceived as the result of people acting to achieve what they've originally intended. Individuals, then, will naturally accept more credit for successes than failures, since they intend to succeed rather than to fail.

Self-protecting bias can also be partially explained from an emotional perspective. Some argue that the need to maintain self-esteem directly affects the attribution of task outcomes because people will protect themselves psychologically as they attempt to comprehend their failures.

14.2 Self-Attribution Bias: Behaviors that Can Cause Investment Mistakes

1. Self-attribution investors can, after a period of successful investing (such as one quarter or one year) believe that their success is due to their acumen as investors rather than to factors out of their control. This behavior can lead to taking on too much risk, as the investors become too confident in their behavior.

2. Self-attribution bias often leads investors to trade more than is prudent. As investors believe that successful investing (trading) is attributed to skill versus luck, they begin to trade too much, which has been shown to be "hazardous to your wealth."

3. Self-attribution bias leads investors to "hear what they want to hear." That is, when investors are presented with information that confirms a decision that they made

to make an investment, they will ascribe "brilliance" to themselves. This may lead to investors making a purchase or holding an investment that they should not.

4. Self-attribution bias can cause investors to hold underdiversified portfolios, especially among investors that attribute the success of an company's performance to their own contribution, such as corporate executives, board members, and so on. Often, the performance of a stock is not attributed to the skill of an individual person, but rather many factors, including chance; thus, holding a concentrated stock position can be associated with self-attribution and should be avoided.

15.1 Outcome bias

Bias type: cognitive: subtype: information processing.

Outcome bias refers to the tendency of individuals to decide to do something-such as make an investment in a mutual fund-based on the outcome of past events (such as returns of the past five years) rather than by observing the process by which the outcome came about (the investment process used by the mutual fund manager over the past five years). An investor might think, "This manager had a fantastic five years, I am going to invest with her," rather than understanding how such great returns were generated or why the returns generated by other managers might not have had good results over the past five years.

16.1 Recency bias

Bias type: cognitive: subtype: information processing.

Recency bias is a cognitive predisposition that causes people to more prominently recall and emphasize recent events and observations than those that occurred in the near or distant past.

16.2 RECENCY BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Recency bias can cause investors to extrapolate patterns and make projections based on historical data samples that are too small to ensure accuracy. Investors who forecast future returns based too extensively on only a recent sample of prior returns are vulnerable to purchasing at price peaks. These investors tend to enter asset classes at the wrong times and end up experiencing losses.

2. Recency bias can cause investors to ignore fundamental value and to focus only on recent upward price performance. When a return cycle peaks and recent performance figures are most attractive, human nature is to chase promise of a profit. Asset classes can and do become overvalued. By focusing only on price performance and not on valuation, investors risk principal loss when these investments revert to their mean or long-term averages.

3. Recency bias can cause investors to utter the words that many market veterans consider the most deceptive and damning of all: "It's different this time." In 1998 and 1999, for example, the short-term memory of recent gains influenced some investors so strongly as to overrule, in their minds, historical facts regarding rational valuations and the bubbles, peaks, and valleys that naturally occur. If your client ever seems to be yielding to this rationale, then it is time for a reality check.
4. Recency bias can cause investors to ignore proper asset allocation. Professional investors know the value of proper asset allocation, and they rebalance when necessary in order to maintain proper allocations. Recency bias can cause investors to become infatuated with a given asset class that, for example, appears in vogue.

5. They often concentrate their holdings accordingly. Proper asset allocation is crucial to long-term investment success.

17.1 Loss aversion

Bias type: emotional

“Loss aversion bias was developed by Daniel Kahneman and Amos Tversky in 1979 as part of the original prospect theory; specifically, in response to prospect theory's observation that people generally feel a stronger impulse to avoid losses than to acquire gains.

A number of studies on loss aversion have given birth to a common rule of thumb: psychologically, the possibility of a loss is, on average, twice as powerful a motivator as the possibility of making a gain of equal magnitude; that is, a loss-averse person might demand, at minimum, a $2 gain for every $1 placed at risk. In this scenario, risks that don't “pay double” are unacceptable.

Loss aversion can prevent people from unloading unprofitable investments, even when they see little to no prospect of a turnaround. Some industry veterans have coined a diagnosis of “get-even-itis” to describe this widespread affliction, whereby a person

waits too long for an investment to rebound following a loss. Get-even-itis can be dangerous because, often, the best response to a loss is to sell the offending security and to redeploy those assets.

17.2 LOSS AVERSION BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Loss aversion causes investors to hold losing investments too long. This behavior is sometimes described in the context of a debilitating “disease: get-even-itis. This is the affliction in which investors hold losing investments in the hope that they get back what they lost. This behavior has seriously negative consequences by depressing portfolio returns.
2. Loss aversion can cause investors to sell winners too early, in the fear that their profit will evaporate unless they sell. This behavior limits upside potential of a portfolio, and can lead to too much trading, which has been shown to lower investment returns.
3. Loss aversion can cause investors to unknowingly take on more risk in their portfolio than they would if they simply eliminated the investment and moved into a better one (or stayed in cash).
4. Loss aversion can cause investors to hold unbalanced portfolios. If, for example, several positions fall in value and the investor is unwilling to sell due to loss aversion, an imbalance can occur. Without proper rebalancing, the allocation is not suited to the long-term goals of the client, leading to suboptimal returns.

18.1 Overconfidence bias

In its most basic form, overconfidence can be summarized as unwarranted faith in one's intuitive reasoning, judgments, and cognitive abilities. Although the concept of overconfidence derives from psychological experiments and surveys in which subjects overestimate both their own predictive abilities and the precision of the information they've been given (essentially cognitive weaknesses), these faulty cognitions lead to emotionally charged behavior, such as excessive risk taking, and therefore overconfidence is classified as an emotional rather than cognitive bias. In short, people think they are smarter and have better information than they actually do. For example, they may get a tip from a financial advisor or read something on the Internet, and then they're ready to take action, such as making an investment decision, based on their perceived knowledge advantage.

18.2 OVERCONFIDENCE BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Overconfident investors overestimate their ability to evaluate a company as a potential investment. As a result, they can become blind to any negative information that might normally indicate a warning sign that either a stock

purchase should not take place or a stock that was already purchased should be sold.

2. Overconfident investors can trade excessively as a result of believing that they possess special knowledge that others don't have. Excessive trading behavior has proven to lead to poor returns over time.

3. Because they either don't know, don't understand, or don't heed historical investment performance statistics, overconfident investors can underestimate their downside risks. As a result, they can unexpectedly suffer poor portfolio performance.

4. Overconfident investors hold underdiversified portfolios, thereby taking on more risk without a commensurate change in risk tolerance. Often, overconfident investors don't even know that they are accepting more risk than they would normally tolerate.

19.1 Self-control bias

Bias type: emotional.

Simply put, self-control bias is a human behavioral tendency that causes people to fail to act in pursuit of their long-term, overarching goals because of a lack of self-discipline. Money is an area in which people are notorious for displaying a lack of self-control. Attitudes toward paying taxes provide a common example. Imagine that you, a taxpayer, estimate that your income this year will cause your income tax to increase by $3,600, which will be due one year from now. In the interest of conservatism, you decide to set money aside. You contemplate two choices: Would you rather contribute $300 per month over the course of the next 12 months to some savings account earmarked for tax season? Or would you rather increase your federal income tax withholding by $300 each month, sparing you the responsibility of writing out one large check at the end of the year? “Rational economic thinking suggests that you would prefer the savings account approach because your money would accrue interest and you would actually net more than $3,600. However, many taxpayers choose the withholding option because they realize that the savings account plan might be complicated in practice by a lack of self-control (i.e., one might overspend and then the tax money might not be there when one needs it.)

Self-control bias can also be described as a conflict between people's overarching desires and their inability, stemming from a lack of self-discipline, to act concretely in pursuit of those desires. For example, a college student desiring an “A” in history class might theoretically forgo a lively party to study at the library. An overweight person desperate to shed unwanted pounds might decline a tempting triple fudge sundae. Reality demonstrates, however, that plenty of people do sabotage their own long-term objectives for temporary satisfaction in situations like the ones described.

19.2 “SELF-CONTROL BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Self-control bias can cause investors to spend more today at the expense of saving for tomorrow. This behavior can be hazardous to one's wealth, because retirement can arrive too quickly for investors to have saved enough. Frequently, then, people incur inappropriate degrees of risk in their portfolios in effort to make up for lost time. This can, of course, aggravate the problem.

2. Self-control bias may cause investors to fail to plan for retirement. Studies have shown that people who do not plan for retirement are far less likely to retire securely than those who do plan. Studies have shown that people who do not plan for retirement are also less likely to invest in equity securities.

3. Self-control bias can cause asset-allocation imbalance problems. For example, some investors may prefer income-producing assets, due to a “spend today” mentality. This behavior can be hazardous to long-term wealth because too many income-producing assets can inhibit a portfolio to keep up with inflation. Other investors might favor different asset classes, such as equities over bonds, simply because they like to take risks and can't control their behavior.

4. Self-control bias can cause investors to lose sight of basic financial principles, such as compounding of interest, dollar cost averaging, and similar discipline behaviors that, if adhered to, can help create significant long-term wealth.

20.1 Status quo bias

Bias type: emotional.

Status quo bias, a term coined by William Samuelson and Richard Zeckhauser in 1988,1 is an emotional bias that predisposes people facing an array of choice options to elect whatever option ratifies or extends the existing condition (i.e., the “status quo”) in lieu of alternative options that might bring about change. In other words, status quo bias operates in people who prefer for things to stay relatively the same.

20.2 STATUS QUO BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Status quo bias can cause investors, by taking no action, to hold investments inappropriate to their own risk/return profiles. This can mean that investors take excessive risks or invest too conservatively.

2. Status quo bias can combine with loss aversion bias. In this scenario, an investor facing an opportunity to reallocate or alter an investment position may choose, instead, to maintain the status quo because the status quo offers the investor a lower probability of realizing a loss. This will be true even if, in the long run, the investor could achieve a higher return by electing an alternative path.

3. Status quo bias causes investors to hold securities with which they feel familiar or of which they are emotionally fond. This behavior can compromise financial goals, however, because a subjective comfort level with a security may not justify holding onto it despite poor performance.

4. Status quo bias can cause investors to hold securities, either inherited or purchased, because of an aversion to transaction costs associated with selling. This behavior can be hazardous to one's wealth because a commission or a tax is frequently a small price to pay for exiting a poorly performing investment or for properly allocating a portfolio.

21.1 Endowment bias

Bias type: emotional.

People who exhibit endowment bias value an asset more when they hold property rights to it than when they don’t. Endowment bias is inconsistent with standard economic theory, which asserts that a person's willingness to pay for a good or an object should always equal the person's willingness to accept dispossession of the good or the object, when the dispossession is quantified in the form of compensation. Psychologists have found, however, that the minimum selling prices that people state tend to exceed the maximum purchase prices that they are willing to pay for the same good. Effectively,

then, ownership of an asset instantaneously “endows” the asset with some added value. Endowment bias can affect attitudes toward items owned over long periods of time or can crop up immediately as the item is acquired.

21.2 ENDOWMENT BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Endowment bias influences investors to hold onto securities that they have inherited, regardless of whether retaining those securities is financially wise. This behavior is often the result of the heirs’ fear that selling will demonstrate disloyalty to prior generations or will trigger tax consequences.

2. Endowment bias causes investors to hold securities they have purchased (already own). This behavior is often the result of decision paralysis, which places an irrational premium on the compensation price demanded in exchange for the disposal of an endowed asset.

3. Endowment bias causes investors to hold securities that they have either inherited or purchased because they do not want to incur the transaction costs associated with selling the securities. These costs, however, can be a very small price to pay when evacuating an unwise investment.

4. Endowment bias causes investors to hold securities that they have either inherited or purchased because they are familiar with the behavioral characteristics of these endowed investments. Familiarity, though, does not rationally justify retaining a poorly performing stock or bond.

22.1 Regret aversion bias

Bias type: emotional.

People exhibiting regret aversion avoid taking decisive actions because they fear that, in hindsight, whatever course they select will prove less than optimal. Basically, this bias seeks to avoid the emotional pain of regret associated with poor decision making. Regret aversion makes investors, for example, unduly apprehensive about breaking into financial markets that have recently generated losses. When they experience negative investment outcomes, they feel instinctually driven to conserve, to retreat, and to lick their wounds—not to press on and snap up potentially undervalued stocks. However, periods of depressed prices often present the greatest buying opportunities. People suffering from regret aversion bias hesitate most at moments that actually merit aggressive behavior.

Regret aversion does not only come into play only following a loss; it can also affect a person's response to investment gains. People exhibiting regret aversion can be reluctant, for example, to sell a stock whose value has climbed recently—even if objective indicators attest that it's time to pull out. Instead, regret-averse investors may cling to positions that they ought to sell, pained by the prospect that a stock, once unloaded, might soar even higher.

22.2 REGRET AVERSION BIAS: BEHAVIORS THAT CAN CAUSE INVESTMENT MISTAKES

1. Regret aversion can cause investors to be too conservative in their investment choices. Having suffered losses in the past (i.e., having felt pain of a poor decision regarding a risky investment), many people shy away from making new bold investment decisions and accept only low-risk positions. This behavior can lead to long-term underperformance, and can jeopardize investment goals.

2. Regret aversion can cause investors to shy away, unduly, from markets that have recently gone down. Regret-averse individuals fear that if they invest, such a market might subsequently continue its downward trend, prompting them to regret the decision to buy in. Often, however, depressed markets offer bargains, and people can benefit from seizing, decisively, these undervalued investments.

3. Regret aversion can cause investors to hold on to losing positions too long. People don't like to admit when they're wrong, and they will go to great lengths to avoid selling (i.e., confronting the reality of) a losing investment. This behavior, similar to loss aversion, is hazardous to one's wealth.

4. Regret aversion can cause “herding behavior” because, for some investors, buying into an apparent mass consensus can limit the potential for future regret. The demise of the technology stock bubble of the late 1990s demonstrated that even the most massive herd can stampede in the wrong direction.

5. Regret aversion leads investors to prefer stocks of subjectively designated good companies, even when an alternative stock has an equal or a higher expected return. Regret-averse investors may feel that “riskier” companies require bolder decision making; hence, if the investment fails, the consequences reflect more dramatically on an individual's judgment than do the consequences of investing in a “routine,” “safe,” or “reliable” stock. With increased perception of personal responsibility, of course, comes increased potential for regret. Investing in good companies may not permit investors any more return or less return than those companies perceived to be risky.

6. Regret aversion can cause investors to hold on to winning stocks for too long. People fear that by selling a stock that has been doing well they might miss out on further imminent gains. The danger here is that in finance, as in physics, whatever goes up must come down.

22.5 Behavioral investor types

PRESERVER

Basic type: Passive
Risk tolerance level: Low
Primary bias: Emotional

Preservers are, as the name implies, passive investors who place a great deal of emphasis on financial security and preserving wealth rather than taking risk to grow

wealth. Because they have gained wealth by not risking their own capital, Preservers may not be highly financially sophisticated. A common situation is a Preserver who has gained wealth through inheritance or conservatively by working in a large company. Some Preservers are “worriers” in that they obsess over short-term performance (losses) and are slow to make investment decisions because they aren't entirely comfortable with change—which is consistent with the way they have approached their professional lives—being careful not to take excessive risks.
Many Preservers are focused on taking care of their family members and future generations, especially funding life-enhancing experiences such as education and home buying. Because the focus is on family and security, Preserver biases tend to be emotional rather than cognitive. As age and wealth level increase, this BIT becomes more common. Although not always the case, many Preservers enjoy the wealth management process—they like the idea of being catered to because of their financial status—and thus are generally good clients. Behavioral biases of Preservers tend to be emotional, security-oriented biases such as endowment bias, loss aversion, and status quo. Preservers also exhibit cognitive biases such as anchoring and mental accounting. The following is a description of the biases just discussed (this should be a review for you) and a simple diagnostic for each bias.

FOLLOWER

Basic type: Passive
Risk tolerance level: Low to medium
Primary bias: Cognitive

Followers are typically passive investors who do not have their own ideas about investing. They often follow the lead of their friends and colleagues in investment decisions, and want to be in the latest, most popular investments without regard to a long-term plan. One of the key challenges of working with Followers is that they often overestimate their risk tolerance. Advisors need to be careful not to suggest too many “hot” investment ideas—Followers will likely want to do all of them. Some don't like, or even fear, the task of investing, and many put off making investment decisions without professional advice; the result is that they maintain, often by default, high cash balances. Followers generally comply with professional advice when they get it, and they educate themselves financially, but can at times be difficult because they don't enjoy or have an aptitude for the investment process. Biases of Followers are cognitive: recency, hindsight, framing, regret, cognitive dissonance, and outcome.”

INDEPENDENT

Basic type: Active
Risk tolerance: Medium to high
Primary bias: Cognitive

With Independents, we are entering the realm of the active investor. As we reviewed in earlier articles, these investors have been actively involved in their wealth creation, typically risking their own capital in achieving their wealth objectives. Active investors have a higher tolerance for risk than they have need for security. Their tolerance for risk is high because they believe in themselves. Related to their high risk tolerance is the fact that active investors prefer to maintain at least some amount of control of their own investments. They want to get very involved in investment decision making and aren't afraid to roll up their sleeves and do due diligence on contemplated investments. Let's turn our attention to the first of two active behavioral investor types, the Independent Individualist (II).

An Independent is an active investor with medium-to-high risk tolerance who is strong-willed and an independently minded thinker. Independents are self-assured and “trust their instincts” when making investment decisions; however, when they do research on their own, they may be susceptible to acting on information that is available to them rather than getting corroboration from other sources. Sometimes advisors find that an Independent client made an investment without consulting anyone. This approach can be problematic because, due to their independent mind-set, these clients often irrationally cling to the views they had when they made an investment, even when market conditions change, making advising Independents challenging. They often enjoy investing, however, and are comfortable taking risks, but often resist following a rigid financial plan.

Some Independents are obsessed with trying to beat the market and may hold concentrated portfolios. Of all behavioral investor types, Independents are the most likely to be contrarian, which can benefit them—and lead them to continue their contrarian practices. Independent Individualist biases are cognitive: conservatism, availability, confirmation, representativeness, and self-attribution.

ACCUMULATOR

Basic type: Active
Risk tolerance: High
Primary bias: Emotional

With Accumulators, we continue within the realm of the active investor. As we reviewed in earlier articles, active investors have been actively involved in their wealth creation, typically risking their own capital in achieving their wealth objectives. Active investors

have a higher tolerance for risk than they have need for security. Their tolerance for risk is high because they believe in themselves. Related to their high risk tolerance is the fact that active investors prefer to get very involved in investment decision making and aren't afraid to roll up their sleeves and do due diligence on contemplated investments. Let's turn our attention now to the last of the two active behavioral investor types, the Accumulator.

The Accumulator is the most aggressive behavioral investor type. These clients are entrepreneurial and often the first generation to create wealth, and they are even more strong-willed and confident than Independents. At high wealth levels, they often have controlled the outcomes of noninvestment activities and believe they can do the same with investing. This behavior can lead to overconfidence in investing activities. Left unadvised, they often trade too much, which can be a drag on investment performance. Accumulators are quick decision makers but may chase higher-risk investments than their friends. If successful, they enjoy the thrill of making a good investment. Some Accumulators can be difficult to advise because they don't believe in basic investment principles such as diversification and asset allocation. They are often “hands-on,” wanting to be heavily involved in the investment decision-making process. Biases of Accumulators are overconfidence, self-control, affinity, and illusion of control.

24 The seven sins of fund management

Sin1 : Forecasting (Pride)

An enormous amount of evidence suggests that we simply cannot forecast. The core root of this inability to forecast seems to lie in the fact that we all seem to be overoptimistic and overconfident. For instance, we have found that around 75% of fund managers think they are above average at their jobs! It doesn't matter whether it is forecasting bonds, equities, earnings or pretty much anything else, we are simply far too sure about our ability to forecast the future.
Given the dreadful track records that can be seen from even a cursory glance at the data, it begs the question of why we bother to use forecasts let alone put them at the very heart of the investment process? (A mistake that probably 95% of the investment processes I've come across persist in making.)
The answer probably lies in a trait known as anchoring. That is, in the face of uncertainty, we will cling to any irrelevant number as support. Little wonder, then, that investors continue to rely on forecasts.

Sin 2 : The illusion of knowledge (Gluttony)

All too often it seems that we thirst for more and more information. Investors appear to believe that they need to know more than everyone else in order to outperform. This belief actually stems from an efficient market's view of the world. If markets are efficient, then the only way they can be beaten is by knowing something that everyone else doesn't know, i.e. knowing more information or knowing the future. It is all the more paradoxical, therefore, to find fund managers regularly displaying such a belief.
The psychological literature suggests that we have cognitive limits to our capacity to handle information. Indeed we seem to make the same decision regardless of the amount of information we have at our disposal. Beyond fairly low amounts of information, anything we gather generally seems to increase our confidence rather than improve our accuracy. So more information isn't better information, it is what you do with it, rather than how much you collect that matters.

Sin 3 : Meeting companies (Lust)

Why does meeting companies hold such an important place in the investment process of many fund managers? Is it because they provide deep insights into why we should invest in them? Or is it because we need to fill our time with something that makes us look busy?

Sin 4 : Thinking you can outsmart everyone (Envy)

One of the responses I occasionally encounter when teaching behavioural finance is 'now that I understand behavioural finance, I can outsmart everyone else'. To me this fails to learn the two most common behavioural traits mentioned earlier, overoptimism and overconfidence.

Sin 5: Short time horizons and overtrading (Avarice)

Because so many investors end up confusing noise with news, and trying to outsmart each other, they end up with ridiculously short time horizons. The average holding period for a stock on the New York Stock Exchange is 11 months! Over 11 months your return is just a function of price changes. It has nothing to do with intrinsic value or discounted cash flow. It is just people punting on stocks, speculating not investing.

Sin 6: Believing everything you read (Sloth)

We all love a story. Stock brokers spin stories that act like sirens drawing investors onto the rocks. More often than not these stories hold out the hope of growth, and investors find the allure of growth almost irresistible. The only snag is that all too often that growth fails to materialize.
Sadly, we appear to be hard-wired to accept stories at face value. In fact, evidence suggests that in order to understand something we have to believe it first.

Sin 7: Group-based decisions (Wrath)

The final sin I've covered in this collection is the generally held belief that groups are better at making decisions than individuals. The dream model of a group is that it meets, exchanges ideas and reaches sensible conclusions. The idea seems to be that group members will offset each other's biases.
Unfortunately, social psychologists have spent most of the last 30 years showing that group decisions are among the worst ever made. Far from offsetting each other's biases, groups usually end up amplifying them! Groups tend to reduce the variance of opinions, and lead members to have more confidence in their decisions after group discussions (without improving accuracy). They also tend to be very bad at uncovering hidden information. Indeed, members of groups frequently enjoy enhanced competency and credibility in the eyes of their peers if they provide information that is consistent with the group view. So using groups as the basis of asset allocation or stock selection seems to be yet another self-imposed handicap on performance.

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