Investment Planning Answer Book by Jay L. Shein, Behavioral Finance

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Traditional finance theory assumes that investors use a rational decision-making process to maximize their wealth in the face of risk and uncertainty. The field of behavioral finance tests traditional finance theory by taking a closer look at the way investors actually behave, the reasons and causes of why they behave the way that they do, the impact that behavior can have on their wealth, and what investors can do about these behavior traits. This chapter will attempt to answer some questions surrounding the topic of behavioral finance and address how investors can benefit from the research that has been done in this field.

Investment Planning Answer Book by Jay L. Shein, Q 11:1, What is behavioral finance?

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Behavioral finance moves beyond some of the traditional theories of market efficiency by taking into consideration the cognitive, social, and emotional factors of people's decisions and their effects on market prices, returns, and allocation of investor's resources.

Investment Planning Answer Book by Jay L. Shein, Q 11:2, Who are some of the key contributors in the field of behavioral finance?

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Daniel Kahneman and Amos Tversky are cognitive psychologists that are considered by many to be the fathers of behavioral economics/finance. These two psychologists have published nearly 200 works, most of which relate to psychological concepts with implications for behavioral finance. In 2002, Kahneman received the Nobel Memorial Prize in Economic Sciences for his contributions to the study of rationality in economics.

Kahneman and Tversky have focused a significant part of their research on heuristics and the cognitive biases that cause people to engage in unanticipated irrational behavior. Their most popular and notable works include writings about prospect theory and loss aversion which will be expanded more upon in this chapter.

While Kahneman and Tversky helped to provide the early psychological theories that would be the foundation for behavioral finance, this field evolved considerably due to the work of economist Richard Thaler. Over time and through his studies, Thaler identified a number of flaws in conventional economic theories as they relate to the way that people behave. After reviewing a draft version of Kahneman and Tversky's work on prospect theory, Thaler came to the conclusion that investors do not always act rationally and that investor psychology could provide insight into the irrationality in human behavior. Thaler went on to work with Kahneman and Tversky, blending economics and finance with psychology to present concepts, such as mental accounting, the endowment effect, and other biases.

Investment Planning Answer Book by Jay L. Shein, Q 11:3, How does behavioral finance differ from the Efficient Market Hypothesis?

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The Efficient-Market Hypothesis (EMH) states that financial markets are efficient and that prices adjust rapidly based on known information. EMH has some basic assumptions upon which it operates. First, it assumes that there are a large number of market participants seeking to maximize their profit by analyzing and valuing securities. It also assumes that new information comes to the markets in random fashion and that the timing of this information is independent of other information. It also operates on the premise that investors base their decisions on rational expectations, and whenever new and material information is available, investors quickly adjust their expectations accordingly. Although the EMH does not assume that all investors respond in exactly the same manner, the random distribution of responses creates a normal bell-shaped distribution curve in which the aggregate response of new and relevant information is accurately reflected in market prices. Therefore, under this theory, although individuals may (and do) inaccurately interpret new information, the market as a whole is always correct. True believers in EMH find no value in actively managing investments.

Behavioral finance, on the other hand, assumes that market imperfections do exist. Behavioral finance attributes these imperfections to a combination of investor biases and other predictable human mistakes when reasoning and processing information. Research in this area has brought about some conclusion that investors tend to buy overpriced growth stocks and neglect value stocks.

Investment Planning Answer Book by Jay L. Shein, Q 11:4, What are the different forms of the Efficient Market Hypothesis?

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The following section highlights the three forms in which the efficient-market hypothesis is commonly stated and briefly discusses each form:

1. Weak-form EMH

   The weak-form EMH assumes that current stock prices reflect all historical security market information. This includes historical pricing data, trading volume information, and other market generated information such as odd-lot transactions, block trades, and transactions by exchange specialists. This theory would lead investors to believe that it is not possible to outperform the market based on any historical information or by any trading rule that decides whether to buy or sell a security based on historical information.
2. Semistrong-form EMH

   The semistrong-form EMH states that security prices adjust quickly to the release of all public information. This goes a step further than the weak-form EMH with this definition since all historical data is already public information. Public information would also include earnings and dividend announcements, price-to-earnings ratios, dividend-yield ratios, price-book value ratios, stock splits, news about the economy, and political news. This theory would lead investors to believe that it is not possible to outperform the market if their decisions are based on any new and important information after it is public.
3. Strong-form

   The strong-form EMH asserts that stock prices fully reflect all information from both public and private information. This form essentially views the market as perfectly efficient with no individual investor or group of investors being able to take advantage of mispricing opportunities. This is the strongest form of EMH and assumes that even if investors have material, non-public (inside) information, they will not be able to outperform the market with this information.

Although there are ongoing disputes about the validity of the weak and the semistrong forms of EMH, there has been considerable evidence against the strong form of EMH. Since behavioral finance argues that market imperfections do exist and investment psychology does have an impact on how investors behave, other investment strategies may make sense for investors. These other strategies may include, but are not limited to, tactical, macro and alternative investment strategies. These other strategies may help to address some of the behavioral aspects of investors in order to keep them on track to meet their long-term objectives. Even though some of these strategies may or may not improve the long-term portfolio performance, they may keep investors focused on the long-term goal which would be a better result than having their behavioral biases cause them to stray too much from their ultimate goal.

Investment Planning Answer Book by Jay L. Shein, Q 11:5, What influences our decision-making abilities?

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While there are a number of outside forces that can influence the human's rational decision making process, one such force is designed to trump that rational and sometimes methodical decision process. Within our brains—at least for normal functioning humans—are a pair of almond shaped structures known as the amygdala that are involved in emotional processing and memory. This amygdala often has a significant impact on our response to fear and is often manifested by our immediate response to go into a "fight or flight" mode if we are exposed to danger.

Assume for example that you were visiting the zoo and were asked to concentrate on the lion that is resting in his enclosed cage. If the lion were to immediately leap in your direction with claws extended and teeth bared, your immediate reaction would very likely be to jump back. While the logical part of your brain might be able to make an argument that you are not at risk since the lion is in an enclosed cage, your amygdala reacts faster and forces your body to jerk back as a form of self-preservation.

While this instinctive reaction serves us well when attacked by a lion or a bear, it may not serve an investor well when "attacked" by a bear market. To further expand on this notion, an investor who is controlled by his fear of the danger of falling prices may err on the side of being too conservative and could miss out on significant investment opportunities.

Investment Planning Answer Book by Jay L. Shein, Q 11:6, What is the Cognitive Reflection Task (CRT) and what can it tell us?

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The Cognitive Reflection Task (CRT) is a set of three questions that Shane Frederick identified as a way in which to assess a specific cognitive ability. It assesses the ability of an individual to suppress an intuitive and spontaneous wrong answer in favor of a reflective and deliberate right answer. [Shane Frederick, *Cognitive Reflection and Decision Making*, 19 J. of Economic Perspectives 25 (2005)]

The three questions that make up the CRT are as follows:

1. A bat and a ball together cost $1.10 in total. The bat costs a dollar more than the ball. How much does the ball cost?
2. If it takes five minutes for five machines to make five widgets, how long would it take 100 machines to make 100 widgets?
3. In a lake there is a patch of lily pads. Every day the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long will it take to cover half the lake?

The answer to Question #1 is $.05, but many people jump to the conclusion that it is $.10 since this seems to fit. However, since the bat is $1.00 more than the ball, if the ball was $.10, the bat would have to be $1.10, bringing the total of the bat and the ball to $1.20.

The correct response to Question #2 is 5 minutes. A common mistake to this question is to answer 100 minutes. However, each machine can make a widget in 5 minutes, so if there are 100 machines that each can produce 1 widget in 5 minutes, you would have 100 widgets in 5 minutes.

The solution to Question #3 is 47 days. When this question is asked, many people take a mental shortcut that says half the lake will be covered in ½ the days—or 24 days. However, since the lake will be completely covered by the lily patch on day 48 and it doubled in size from the prior day, then half the lake would be covered after 47 days.

While these questions on their own are not difficult questions, they are often answered incorrectly and highlight the way that we can make errors in judgments and decisions when we take mental shortcuts or do not adequately evaluation the information at hand.

Investment Planning Answer Book by Jay L. Shein, Q 11:7, What are heuristics and what impact do they have on the investor's decision making process?

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Heuristics describes a process by which individuals learn. From an investment standpoint, investors develop for themselves some decision-making rules. These rules may come from trial and error, from experiments, or from their own personal experiences. Once investors develop these heuristics, or "rules of thumb" as they are sometimes called, they then rely on them to make decisions based on the information that is then available to them. These rules of thumb can lead to errors in judgment since the rules are imperfect and are often applied to whatever information is readily available. This may include information from the media or newspapers that may be inaccurate or incomplete. Investors should be cautious about taking shortcuts to draw faster conclusions about an investment. They should not sacrifice the necessary due diligence to expedite a decision.

Investment Planning Answer Book by Jay L. Shein, Q 11:8, What are some examples of heuristic-driven biases?

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Heuristic-driven biases include overconfidence, anchoring and adjustment, representativeness, and aversion to ambiguity. Each of these biases will be described in more detail in the following sections.

Investment Planning Answer Book by Jay L. Shein, Q 11:9, How does overconfidence affect investors and their decisions?

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Overconfidence is a behavior trait that causes people to underestimate risk and to place too much confidence in their ability to predict or control future events. To illustrate an example of overconfidence, consider the group of nearly 3,000 individuals who were surveyed when starting their new business. Keep in mind the riskiness of starting a new business and that many new businesses fail in the first five years. When this group of surveyed participants were asked what they felt would be the probability of their business success, the average response estimated that they had a 70 percent chance of success. However, when asked about the probability of someone else successfully starting a business comparable to their own, they only estimated the probability of the other party's success at 39 percent. [Richard Thaler & Hersh Shefrin, *An Economic Theory of Self-Control,* 89 J. Pol. Econ. 392 (1981)]

Another study in which a group of college students were asked about their driving skills is referred to in Olva Svenson's discussion *Are We All Less Risky and More Skillful than Our Fellow Drivers?* [47 Acta Psychologica 143 (1981)] The college students were asked to rate themselves as above average, average, or below average in regards to their driving skills. Of the participants polled, 82 percent rated themselves as above average. Obviously, some of these students were mistaken.

Investors who are overconfident tend to overestimate their skill in being able to interpret and analyze information. This often leads to poor investment decisions which are often characterized by portfolios with excessive risk taking, high levels of turnover, and ultimately portfolio losses.

Overconfident investors often make misjudgments about the actual amount of risk that is held in their portfolio. They tend to perceive their portfolios to be much less risky than they actually are. This is manifested by portfolios that are not well diversified and have a concentration in higher risk securities. Due to their level of confidence in their future stock projections, these investors tend to trade frequently.

Overconfidence is a learned behavior that is often fueled through previous successes. Investors gain confidence in their decision-making ability with each good investment decision that they make. Overconfident investors also frequently exhibit selective memory by forgetting or justifying their poor decisions and focusing only on their good decisions. The more successes an individual has, the more they attribute this to their ability, when in reality it may just be luck. Bull markets tend to produce many overconfident investors that really had very little skill, but just happened to be in the market at the right time. As the old saying goes, "A rising tide lifts all boats."

Investment Planning Answer Book by Jay L. Shein, Q 11:10, What are anchoring and confirmation biases and can you avoid falling into these biases?

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Anchoring occurs when individuals attach or "anchor" their thoughts to a reference point—even though there may not be a rational relevance to the decision at hand. Anchoring can cause individuals to fail to fully take into account the impact of new information. Suppose, for example, after a fundamental analysis of a company, an individual determines the expected future growth rate of that company. Later, that same individual is presented with new information that would significantly reduce the expected growth rate for the company. If the individual suffers from anchoring bias, they would likely reduce their expected growth rate for the company, but not as significantly as the new information might suggest, since their adjusted forecast has been "anchored" to their original forecast.

Confirmation bias occurs when an individual holds a preconceived conclusion about a particular investment and then proceeds to research the investment to prove their preconceived notion. They tend to focus on any attributes that confirm their initial conclusion and ignore attributes that are not in line with their original thinking.

Successfully avoiding anchoring may be difficult to do since it is common for us to draw conclusions based on some reference point. However, when evaluating a stock's potential, make sure to look at the company from multiple angles to reduce the risk of falling into an anchoring trap. It is also beneficial to look at a contrarian's point of view to get a different perspective and allow you to identify any weaknesses in your conclusions. This can help avoid both anchoring and confirmation biases.

Investment Planning Answer Book by Jay L. Shein, Q 11:11, What is representativeness?

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Investors that base expectations on past experience and apply stereotypes to new situations exhibit a behavioral trait known as representativeness. As individuals, our brains often use shortcuts to reduce the complexity of analyzing information. Investors may make inaccurate assumptions when using this decision-making process. For example, a company that has had good earnings, strong growth, and a quality management team may be considered a good investment when in reality, one does not necessarily equate to the other. In fact, these companies are often overvalued due to the recognition of such good fundamentals that has already been reflected in the current price.

Investment Planning Answer Book by Jay L. Shein, Q 11:12, What is aversion to ambiguity?

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Aversion to ambiguity is a bias that has to do with fear of the unknown. Studies show that individuals are more likely to take a risk on the outcome if they know the odds. The odds of flipping a coin and coming up heads or tails are 50/50: a known risk which investors would be willing to bet on. However, if an investor feels that the odds of an outcome are uncertain, they will be more reluctant to bet on the outcome. From an investing perspective, this can be seen with momentum investing. When following a momentum strategy, investors buy in an up-trending market and sell in a down-trending market since they hold the perception that the odds of the market trend continuing are greater than 50/50. However, in a market that is non-trending, investors are presented with ambiguity. They may decide not to invest altogether since they are unable to base their expected odds on anything.

Investment Planning Answer Book by Jay L. Shein, Q 11:13, What impact can an investor's framework have on his decision-making process?

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If there was no human or emotional element in an investor's framework, investors would make decisions purely on the economic information and would be acting with frame independence. Behavioral finance argues that there is a human element whereby the investor's decision-making process is one of frame dependence and is effected by the individual's current circumstances (emotional state), the information available to him, past experiences, etc. Some characteristics that can be attributed to frame dependence include loss aversion, self-control, regret minimization, and money illusion.

Investment Planning Answer Book by Jay L. Shein, Q 11:14, What is loss aversion and how does that differ from risk aversion?

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Loss aversion is the reluctance of an investor to accept a loss. Risk aversion is the reluctance of an investor to accept risk. Most individuals are loss averse while fewer are risk averse. An example of a risk averse investor would be an investor that is more willing to put her money in a bank than to invest in stocks. Her aversion to risk makes her willing to accept the low rate of return at the bank where she feels that she has safety of principal, rather than take the risk of investing in a stock that has the potential for much greater return, but also the possibility of becoming worthless. A risk averse investor will typically attempt to minimize the amount of risk for a desired level of return. When an investor who has an aversion to risk has a negative experience with an investment where he loses money, he often becomes more risk averse by avoiding that investment altogether. This is sometimes referred to as the snakebite effect.

A loss averse investor feels such a sting of pain from incurring a loss it may cause her to act irrationally or outside of her normal behavior. An example of this would be when an investor increases her risk after a loss. Some investors who have recently experienced losses in their portfolio may begin taking riskier investment positions in the hopes of at least breaking even.

Daniel Kahneman makes several observations on risk-taking that demonstrate how behavioral issues of risk aversion and loss aversion affect investment decisions:

1. Risk aversion example with positive outcomes: Investors that were given the choice of a 90-percent chance to win $10,000 or 100-percent chance of winning $8,500 were more likely to choose the sure bet even with equal odds.
2. Loss aversion example with unknown outcome: Investors were presented with a scenario in which they were offered a gamble with a stake of $10,000 on one toss of a coin. If tails, they would lose the full $10,000, but if heads they would win $X. Investors were then asked what would be the minimum value of X at which they would accept this gamble. Research has shown that a 2:1 return is the minimum value that most investors would accept.
3. Risk seeking in bad situations: With a 90-percent chance of losing $10,000 or a 100-percent chance of losing $8,500. Which would you choose? In situations where investors are forced to choose between negative outcomes, investors are risk seeking. They will accept higher risk to avoid loss. This is the opposite of choices made in example one.

[Daniel Kahneman, Paul Slovic & Amos Tversky, *Judgment under Uncertainty: Heuristics and Biases*, Cambridge University Press (1982).]

Investment Planning Answer Book by Jay L. Shein, Q 11:15, Can attempting to minimize regret negatively impact investment performance?

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In short answer, yes it can. From an investor's framework, regret is the feeling (in hindsight) associated with making a bad decision. Investors often avoid actions that create regret and seek actions that give them a sense of pride. Regret minimization is the investor's attempt to eliminate or at least minimize those negative feelings of regret. Investors often do this by holding only investments with which they are comfortable. This can lead to portfolios that are lacking in variety and possibly in diversification in their investments. In some cases this may actually increase the riskiness of their portfolio. In other cases it may increase the risk of them not being able to meet their investment objectives. Research done by Hersh Shefrin and Meir Statman [*The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence,* 40 J. Fin. 777 (1985)] showed that another common characteristic of regret minimizing investors is that they have a tendency to sell their winners too early and hold on to their losers for too long. They refer to this behavior as the disposition effect.

Investment Planning Answer Book by Jay L. Shein, Q 11:16, How does the disposition effect relate to wealth maximization?

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One of the assumptions of the efficient market hypothesis is that there are a large number of market participants seeking to maximize their profit by analyzing and valuing securities. The disposition effect is the behavior exhibited by regret minimizing investors who tend to sell their winners too early and hold their losers too long.

From a purely economic standpoint, if an investor was forced to raise cash for some reason and he had a choice of selling a stock with a gain or selling a stock with a loss, it would make more sense from a wealth maximizing standpoint to sell the stock with the loss. This is true at least for investors under the U.S. tax code since gains on the stock would be subject to capital gains tax, where the loss would actually provide a tax benefit by being able to be used to offset other capital gains (or possibly offset a small amount of ordinary income). In spite of this, investors still tend to sell the position with the gain since selling the stock with a gain locks in their profit and validates their decision to purchase the position. On the other hand, the regret minimizing investor views selling the stock that has a loss as an acknowledgement that his decision to purchase it was bad.

Investment Planning Answer Book by Jay L. Shein, Q 11:17, Can investors avoid the disposition effect?

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Since the disposition effect is tied to people's perception of the gains or losses in their investment holdings, the first step to avoiding the disposition effect is to be aware of the biases that it causes. When an investor must raise cash and is evaluating what position to sell, they should first ask themselves if they would be buying that same position today. If after rationally evaluating a position and determining they would not purchase that security today, then this may address the question as to where cash can be raised. As a side note, this rational evaluation of the position should not be biased by any historical gain or loss in the position. Investors should be aware of the tax ramifications as well, but this should not be the driver of the investment decision to sell a position.

As discussed earlier, many investors are loss averse, which may make it difficult for them to sell a position with a loss since that seems to confirm the bad investment decision that they made in purchasing the security in the first place. Since an investor's aversion to loss is tied to the negative feelings he has with losses, a way to overcome the aversion to selling the losers is by intentionally altering the thought process. This is sometimes referred to as hedonic framing.

For example, in a case where you have a choice of thinking of something as one large gain or as a number of smaller gains (i.e., a $1,500 gain from one source versus a $750 gain from two sources), thinking of the latter can maximize the amount of positive utility. In other words, you "won" two times instead of just once.

In a separate case where you have a choice of thinking of something as one large loss or as a number of smaller losses (i.e., losing $1,500 versus losing $750 twice), framing the situation as one large loss would create less negative utility since the marginal difference between the amount of pain from combining the losses would be less than the total amount of pain from multiple smaller losses. In this case, when you frame your thought process as having only "lost" once, you feel less pain that if you felt you had "lost" twice.

Investment Planning Answer Book by Jay L. Shein, Q 11:18, What is the prospect theory and how was it developed?

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Before discussing prospect theory, a brief comment on expected utility theory is appropriate. Expected utility theory attempts to quantify individuals preference with regard to certain unknown outcomes based on their expected utility (or satisfaction) from such a choice. It states that rational people will make choices that will maximize their expected utility. Prospect theory was developed by Daniel Kahneman and Amos Tversky in 1979 as a psychologically realistic alternative to expected utility theory. Prospect theory addresses how people make choices in situations where they have to decide between alternatives that involve risk, such as the case in financial decisions. At its premise, it focuses on how individuals evaluate decisions as they relate to potential gains and losses.

Prospect theory has similarities to expected utility theory, but it also differs from expected utility theory in a number of ways. Unlike expected utility theory, prospect theory distinguishes two phases in the decision-making process: an editing phase and an evaluation phase. The editing phase is a preliminary analysis of the available prospects. The evaluation phase is when the prospect with the highest value is chosen from among the edited prospects. In the editing phase, individuals use heuristics to classify the different alternatives as gains or losses. Individuals first form some reference point and then frame choices in terms of potential gains and losses. Although the reference point is not the same point for every individual, it often has some relation to the purchase price. In the evaluation phase, individuals re-examine the potential outcomes according to the classification done in the editing stage and choose the prospect with the highest value.

The formula that Kahneman and Tversky assume for the evaluation phase states that the Prospect Theory Utility (U) is equal to the summation of the weighted (w) value (v) of each probability (p). In written form, the formula appears as follows:

$U = w(p_1)v(x_1) + w(p_2)v(x_2) + \ldots + w(p_n)v(x_n)$

Where:

$w(p_1)$ = weight of probability 1

$v(x_1)$ = assigned value of the potential outcome

n = number of potential outcomes (and respective probabilities)

In graph form, the value function of prospect theory utility which passes through the reference point (Y axis) is somewhat s-shaped and reflects that for each change in value, there is a bigger impact of losses than of gains. In other words, since investors are typically loss averse, the pain associated with the loss is greater than the satisfaction associated with a gain. Rational thinking would indicate that investors should receive the same utility from receiving $500 or from receiving $1,000 and then losing $500. The net effect in both scenarios is a gain of $500, but according to prospect theory, most people view a single gain of $500 as more favorable than gaining $1,000 and then losing $500.

Prospect theory also illustrates the law of diminishing marginal returns as the marginal utility decreases over time. In other words, although a gain of $2,000 gives an investor more satisfaction than a gain of $1,000, the satisfaction (utility) is less than twice the satisfaction experienced with the gain of $1,000.

While prospect theory does have similarities to the expected utility theory, one of the key differences with prospect theory is that while it measures losses and gains, it does not measure absolute wealth. Prospect theory also differs from utility theory in that the decision weights do not need to coincide with probabilities. Problems related to first-order stochastic dominance were identified in the original version of prospect theory. First-order stochastic dominance deals with the fact that one prospect might be preferred to another even if it in some cases it yielded a worse outcome. In 1992, Kahneman and Tversky developed an updated form of prospect

theory, which they called *Cumulative Prospect Theory*. The theory addressed some of the stochastic dominance issues that arose in the original prospect theory by incorporating rank-dependent functionals which account for cumulative, rather than individual probabilities. Further discussion can be found in the following two articles: *Prospect Theory: An Analysis of Decision under Risk* [Daniel Kahneman & Amos Tversky, 47 Econometrica, p. 263 (1979)] and *Advances in Prospect Theory: Cumulative Representation of Uncertainty.* [Amos Tversky & Daniel Kahneman, 5 J. Risk & Uncertainty 297 (1992)]

Investment Planning Answer Book by Jay L. Shein, Q 11:19, What effect does selling your winning stocks too soon and holding your losing stocks too long have on a portfolio?

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Research reveals that selling winning stocks too soon while holding losing stocks too long negatively affects portfolio returns. While this may seem like an obvious conclusion, investor behavior shows that it is common for investors to behave in this manner. Terrance Odean conducted research and found that during his test periods, when an investor sold a winning stock, the stock generally beat the market during the next year by over two percent. During the same year, the loser stocks that the investors continued to hold generally underperformed the market by more than one percent. [Terrance Odean, *Are Investors Reluctant to Realize Their Losses?,* 53 J. Fin. p. 1775 (1998)]

Therefore, investors are negatively affected in two ways when they sell their winners and not their losers. Not only are they are subject to paying more in taxes by selling the stocks with gains, but they also tend to earn a lower return on their remaining portfolio since they are holding onto the stocks that continue to perform poorly.

Investment Planning Answer Book by Jay L. Shein, Q 11:20, Should investors focus on the nominal returns or the real returns of an investment?

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Nominal returns reflect the total return of an investment over a given period. Real returns are determined by subtracting inflation from the nominal returns. Therefore, if an individual stock had a 10 percent return in a given year when inflation was 3 percent, the stock's real return was 7 percent. Since inflation erodes the purchasing power of an investor's portfolio, rational investors should be concerned about the real return rather than the nominal return of the portfolio.

Given a choice of 10 percent nominal return during a year when inflation was 8 percent or a 5 percent nominal return in a year when inflation was 1 percent, investors should prefer the latter option since this alternative provides them with a real return of 4 percent—double the real return they would have received in the first scenario. However, studies have shown that people react more positively to high nominal returns and react negatively to low nominal returns regardless of the current inflationary environment. This investor behavior is referred to as money illusion.

Investment Planning Answer Book by Jay L. Shein, Q 11:21, What influence does the public have on investors?

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Some investors are more susceptible to outside influence than others, but those that are influenced by the masses may invest according to what they perceive others around them are doing. This is known as herding behavior. People have a tendency to mimic the actions of a larger group based on their natural desire to be accepted by the group. People may even follow the crowd if they don't agree with them because they feel that the crowd may know something that they don't.

Greed and fear are considered to be two of the primary drivers of market returns and many people do not want to feel left out on the next big investment opportunity. Whether that perceived opportunity be technology stocks, real estate, commodities, or something else, the disciplined investor should resist the temptation to justify an irrational decision of becoming too concentrated in any given investment strategy. An investor should exercise additional caution when evaluating an investment that is in favor by the herd since the price of that position may already reflect the optimism shared by the herd and is often already overvalued. Warren Buffet has warned about being drawn into following the crowd.

> *Occasional outbreaks of those two super-contagious diseases, fear and greed, will forever occur in the investment community. The timing of these epidemics is equally unpredictable, both as to duration and degree. Therefore we never try to anticipate the arrival or departure of either. We simply attempt to be fearful when others are greedy and to be greedy only when others are fearful.*
>
> - Warren Buffett, 2001

Investment Planning Answer Book by Jay L. Shein, Q 11:22, What is cognitive dissonance and what role does this play in investor's justification of their inaccurate forecasts?

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Cognitive dissonance occurs when the brain experiences a conflict of observations. Individual investors are faced with this at times when they look at their past forecasts that were inaccurate and then try to reconcile that with the fact that they have a good image about their investment decision-making ability. Cognitive dissonance can go hand in hand with the behavior trait of overconfidence that was discussed earlier. Investing is not a science and no investor has perfect foresight and accuracy in selecting investments, yet despite a considerable amount of research showing that the majority of active investors underperform the market, many investors overrate their personal ability in selecting investments and are confident that they are able to outperform because of their ability. Individuals often address the cognitive dissonance by filtering out the negative aspect of the conflicting observations. This allows them to avoid addressing the conflict and putting their ability to analyze and select securities in question. This filtering process is often accomplished by attributing their bad decisions to something that will not affect the positive image they hold about their forecasting ability. Below are listed some common defense mechanisms that are used to justify inaccurate forecasts.

1. The "if only"defense: Here the forecaster claims that if only something had or had not happened, their prediction would have been accurate. Since this can't necessarily be disproved, the forecaster could have been correct if this other variable had occurred or not occurred.
2. The "ceteris paribus" defense: This defense says that if everything else had been the same and the fundamentals or other factors had not changed, the forecast would have been accurate. This defense deals with unexpected actions that affected the forecaster's initial projection.
3. The "almost right" defense: This defense holds that the outcome was close to the projection or that it almost happened.
4. The "it hasn't happened yet" defense: This defense states that although it hasn't happened yet, it eventually will.
5. The "single predictor" defense: This defense holds that even though this forecast was inaccurate, it does not hold true that all of the forecasts of this individual are inaccurate.

Further discussion of the defenses and their involvement in forecasting can be found in *The Folly of Forecasting: Ignore All Economists, Strategists, and Analysts.* [James Montier, Reading 12, 2009 Level 3 Curriculum, CFA Institute.]

Investment Planning Answer Book by Jay L. Shein, Q 11:23, What is self-attribution bias?

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As discussed earlier, investors often attempt to avoid or minimize the regret associated with making poor investment decisions. When they do make poor investment choices, they often justify their decisions by placing the blame elsewhere. Another such opportunity for them to do this is when an individual investor is working with a financial advisor. This relationship gives the individual the ability to shift the blame to the advisor when a poor investment decision is made and avoid the feelings of regret. On the other hand, when an investment performs well, the investor can still allow herself to feel the pride associated with making a good investment decision. This behavioral characteristic is referred to as self-attribution bias. This bias is actually common to both individuals and professionals.

Investment Planning Answer Book by Jay L. Shein, Q 11:24, What are some of the behavior traits exhibited by investors allocating funds in their defined contribution plans?

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A common practice for investors when allocating their investment choices into their defined contribution plans is to make their original allocation and then never make changes to this in the future. This "do nothing"approach is known as status quo bias. Participants may fail to make adjustments to their allocations even though changes may be warranted based on new information, changing macroeconomic variables, etc. This status quo bias is also evident at times when investors are overwhelmed by the large number of choices in their defined contribution plans.

Another perceived behavior of investors in defined contribution plans is that rather than selecting investments that may be appropriate for their specific needs, they will allocate an equal proportion to each available investment option. In other words, if there are only 5 available investment options, the investor would allocate 20 percent to each of these options. This is known as 1/n diversification or naïve diversification. Since many defined contribution plans have the majority of available investment options as stock related positions, an investor could have more risk than appropriate due to the heavy allocation to equity positions.

While naïve diversification may expose investors to too much risk, a behavior known as myopic loss aversion may expose them to too little risk. Myopic loss aversion refers to investors' focus on short-term performance and their aversion to losses. This occurs when defined contribution plan participants are shown the short-term performance of the available investment options in the plan. The short-term variability of equity returns increases the investor's aversion to loss and causes them to allocate a higher percentage to less volatile asset classes, such as fixed income. Had these same investors been presented with a longer-term performance report, they may have increased the risk of the allocation. Although an increased level of risk may not be appropriate for all investors, investors with long-time horizons must balance the need to take additional risk to meet their long-term retirement objectives.

A common misconception of plan participants is that the company is endorsing the investment choices available in the plan. This is especially prevalent when a company adds a new alternative to the plan because participants have a tendency to think that the company would not include a new alternative that they did not feel was a good alternative. This is known as the endorsement effect.

A mistake that plan participants often make is to underestimate the risk inherent in the company stock. People like familiarity and employees like to invest in their own company's stock since they feel they are familiar with the company. Since an employee already has his labor capital tied to the company, he should not also tie his financial capital to the same company. Issues with the company could create two problems at once—loss of employment and decrease in wealth as the company's stock price falls.

This bias of familiarity is not limited to employee's investments in his own company stock. Another common manifestation of this biasness is seen with a domestic home bias. An investor in the United States often has a large portion of his portfolio allocated to U.S. securities, where an investor located in Japan would likely have a much larger portfolio weighting to Japan. The familiarity and preference to the country in which he lives may lead an investor to overweight his home country in his portfolio when this may not be the most prudent allocation.

Investment Planning Answer Book by Jay L. Shein, Q 11:25, What impact do different investor philosophies have on market efficiency?

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Most investors can be placed into categories according to their investment philosophy although some investors may have characteristics of more than one of these categories. From a broad standpoint, most investors fall into one of the following four categories: holders, rebalancers, valuators, or shifters.

Just as the name implies, holders tend to implement a buy and hold strategy with few changes to the portfolio regardless of the market environment or new information. Holders tend to have little impact on the market due to their relative inactivity.

Rebalancers have strict portfolio allocations which are adjusted to maintain the desired allocation. As investments grow or shrink and deviate from the targeted allocation, portfolio adjustments are made to bring the portfolio back in line with the specified targets. This group of investors tends to smooth out market returns since they are selling the assets that have appreciated the most and are buying the assets that have fallen (or not grown as rapidly).

Valuators make portfolio adjustments based on their valuation of the market. After determining whether they feel an investment is overvalued or undervalued, they may take a contrarian approach (buying in a down-trending market) or they may act as a momentum player (buying or selling with the trend). When acting as contrarians, they will smooth out market movements, but when acting as momentum players, they will further exacerbate market movements.

Shifters make rebalancing or other adjustments to their portfolio based on non-market value related event. An example of this would be an individual who recently lost his job and re-allocated his portfolio to low-risk, fixed income securities only. Conversely, an investor whose situation improved dramatically may increase his risk allocation by rebalancing into equities. Shifters tend to exacerbate market movements.

Investment Planning Answer Book by Jay L. Shein, Q 11:26, When managing individual investor portfolios, how might you characterize the different types of investors to gain a better understanding of their personality and how they relate to their attitudes about risk and decision making process?

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Investors can be classified by personality types into the following four categories: cautious, methodical, spontaneous, or individualist. Cautious investors are often slow to make decisions due to their in-depth analysis of a position and their focus on safety and preservation of principal. Cautious investor portfolios are characterized by low turnover and low volatility. These are the most risk averse investors.

Methodical investors like to spend a considerable amount of time researching before making an investment decision. These clients often suffer from overconfidence in their abilities and are sometimes difficult to advise due to the confidence in their methodical investment process. Although less risk averse than the cautious investor, they still have relatively low turnover due to their extensive research before investing.

Individualistic investors will also do their own homework and are confident in their abilities. They may question inconsistencies in recommendations or conclusions made by the advisor although they are willing to take more risk than the cautious and methodical investors.

Spontaneous investors are characterized by high trading activity and a need for the latest hot stock. Risk is generally just an afterthought in their decision making process. Spontaneous investors often experience below average performance due to the high trading costs.

Investment Planning Answer Book by Jay L. Shein, Q 11:27, What is mental accounting?

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Mental accounting is the inclination to categorize and treat money differently depending on where it comes from, where it is kept, or how it is spent. While a logical argument could be made that $100 should be considered as $100 regardless of where it came from, individuals often allocate those $100 amounts into different buckets or mental accounts depending on its source or expected use. For example, an investor may be more prone to spend freely if they feel they unexpectedly received $100—such as in the form of a tax refund or lottery winnings—than if they just brought home a $100 pay check. They may also be less likely to touch $100 that they have mentally segregated as college savings or retirement funds. While mental accounting is not always a negative, investors should be cautious to not adjust their appropriate level of portfolio risk based on the "mental account" in which they have placed some portion of their portfolio.

Investment Planning Answer Book by Jay L. Shein, Q 11:28, How do investors use mental accounting to build a pyramid-like portfolio?

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Modern Portfolio Theory, which was introduced over 50 years ago by Harry Markowitz, taught the value of looking at a portfolio as a whole to consider the overall investment risk rather than looking at any individual security. According to Modern Portfolio Theory, portfolio risk focuses on both the risk and returns of the underlying investments, but also the correlation between those investments.

Individual investors however, often exhibit a behavior known as mental accounting in which they measure the performance of individual positions or various buckets of the portfolio that they have earmarked for certain goals. In this manner, investors may structure their portfolio similar to that of a pyramid. The bottom layer of the pyramid is used to meet the necessities and is usually invested in a conservative manner. Once this secure layer is established, investors then begin to add additional layers which they have mentally tied to specific goals. The higher the investor climbs on the pyramid, the more risky the investment choices with the top of the pyramid made up of the highest risk investments. The highest risk / speculative tier is designed to have the potential for significant appreciation with the knowledge that if it does not materialize, at least the other layers have provided security for the investor to make sure that they meet their more critical goals. This approach to investing can leave investors with an uncoordinated investment portfolio since investment choices are made at random with little thought as to how a new mental account will react with the other mental accounts already in existence. This lack of coordination can negatively affect their ability to meet their goals. Investors would be better served to develop one coordinated portfolio to maximize the achievement of their goals.

Investment Planning Answer Book by Jay L. Shein, Q 11:29, What is the endowment effect?

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The endowment effect is the pattern by which people demand more to give up an object that they own than they would be willing to pay to acquire it. Once an individual becomes an owner of some property, there is a tendency for them to assign a greater value to that good. This biasness on the part of individuals is not consistent with the standard economic theory that says the amount a person is willing to pay for a good should equal the amount they are willing to accept to sell that good.

Investors should be wary of this bias since it can create a desire to keep a security that they already own rather than reallocating those funds into a more appropriate investment. Investors that suffer from this bias may have portfolios that suffer from lack of diversification since they tend to hold onto the investments they already own and are familiar with. This may be a detriment to investors obtaining their objectives because the desire to retain their existing holdings could have a negative impact on their risk-adjusted returns.

Investment Planning Answer Book by Jay L. Shein, Q 11:30, What is the sunk cost effect and how important is the size and timing of the sunk costs?

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A sunk cost is a cost that has already been incurred in the past and cannot be recovered. Traditional economics tells us that sunk costs should not be a factor in the decision-making process since those costs are non-recoverable and have already occurred. However, people's behavior does appear to take these costs into consideration when making a decision.

EXAMPLE 11-1

John and Jane have tickets to an upcoming NFL football game. The tickets are worth $100. On the day of the game, the weather is terrible and John and Jane are debating if they want to still make the trip to the game and be exposed to the bad weather. Will their decision be effected by whether they had been given the tickets as a gift or if they had paid for the tickets themselves?

In most cases, the individuals who purchased the tickets themselves would be more likely to attend the game than if they had been given the tickets as a gift. Even though the ticket cost doesn't affect the bad weather, they created a mental account in which they paid money, but have not received any benefit. Therefore, if they do not attend the game, they will perceive this as a loss. Had they been given the tickets, they could close the mental account without a gain or a loss.

Studies have also shown that the timing of the sunk cost also plays a role in people's decision-making process. The negative impact of sunk costs decreases over time. To illustrate, if we return to the prior example and assume that John purchased the tickets 1 year ago, he would be less likely to attend the game than if he had purchased the tickets yesterday. This is due to the fact that the pain associated with closing a mental account without a benefit decreases over time. This discussion is adapted from Payment Depreciation. [John Gourville & Dilap Soman, 25 J. Consumer Research 160 (1998)]

Investment Planning Answer Book by Jay L. Shein, Q 11:31, What psychological considerations should be taken into an account regarding an investor that holds low-basis stock?

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When dealing with an individual who holds a concentrated investment position that has very low (or even zero) cost basis, an advisor is presented with the challenge of managing the position to reduce the portfolio risk and gain the desired portfolio diversification while minimizing the tax impact of any sale. Individuals that hold such positions usually fall into one of three categories: entrepreneur, executive, or investor. Each of these individual's have different issues regarding their attachment to the stock and risk considerations.

The entrepreneur has typically accumulated his wealth by not diversifying, but rather starting a business and placing the bulk (if not all) of his personal and financial resources into the company. As the company has become successful, the entrepreneur's wealth has increased significantly but is dominated by this concentrated stock position. The entrepreneur has a high degree of loyalty to the firm and does not mind having all his wealth tied up in the firm—at least while the individual remains in control of the firm. Once control of the firm is being relinquished or transitioned to other parties, the entrepreneur begins to feel a stronger need for diversification. The entrepreneur holds a considerable amount of company specific risk with the concentrated position.

Executives often exhibit similar characteristics of entrepreneurs—especially the higher their rank in the firm. Like the entrepreneur, the greater control the executive has, the less need they feel to diversify. As their control is reduced, their desire to diversify increases.

The individual investor may have accumulated the concentrated position over time or by investing in a venture capital company that appreciated considerably in value. Although they may feel some appreciation towards the company for the creation of their wealth, they do not have the same emotional attachment as the entrepreneur or executive. This is mainly due to the fact that they have much less control than the entrepreneur and the executive.

As an advisor works to diversify the investment portfolio, they should consider the advantages and disadvantages of the various options available to them. These options could include outright sale of the stock, public or private exchange funds, allocating around the concentrated position to form a completion portfolio or implementation of hedging strategies. Each strategy has pros and cons that should be evaluated when looking at the individual's specific circumstances.

Investment Planning Answer Book by Jay L. Shein, Q 11:32, What are some of the criticisms of behavioral finance?

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Although behavioral finance has gained acceptance over the past decade, there are still a number of critics that consider behavioral finance to be more like voodoo economics. Criticisms of this form of economics often return to the basis that market participants as a whole do act rationally in spite of how any individual investor may act and that aggregate prices are reflective of the market participants as a whole. They also argue that much of the evidence for behavioral finance is based on experimental environments that are not truly applicable to market situations and that investor's learning and competition will ensure at least a close resemblance of rational market behavior.

Others note that cognitive theories, such as prospect theory, are just models for decision making and although they may apply to the specific set of circumstances presented to experiment participants or survey respondents, these models do not apply to general economic behavior. Still others question the statistical significance of experiments and surveys conducted since they feel that these experiments and surveys are also subject to biases that are difficult to eliminate, leaving the results subject to skepticism.

Investment Planning Answer Book by Jay L. Shein, Q 11:33, How can one use behavioral finance with respect to investors?

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This chapter has presented a look into the way investors think during the investment decision making process and has discussed a number of biases that may appear in investor's behavior. Just having an understanding of these biases can better equip you to avoid them. Behavioral finance also highlights the importance of setting specific goals so you will have a target to work towards. This will help allow you to stay on track with your long-term objectives, monitor your progress along the way, and determine whether or not your behavior is consistent with your goals.