Behavioral Finance

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Introduction

According to conventional financial theory, the world and its participants are, for the most part, rational "wealth maximizers". However, there are many instances where emotion and psychology influence our decisions, causing us to behave in unpredictable or irrational ways.

Behavioral finance is a relatively new field that seeks to combine behavioral and cognitive psychological theory with conventional economics and finance to provide explanations for why people make irrational financial decisions.

By the end of this tutorial, we hope that you'll have a better understanding of some of the anomalies (i.e., irregularities) that conventional financial theories have failed to explain. In addition, we hope you gain insight into some of the underlying reasons and biases that cause some people to behave irrationally (and often against their best interests). Hopefully, this newfound knowledge will

give you an edge when it comes to making financial decisions.

Background

Before we go over the specific concepts behind behavioral finance, let's take a more general look at this branch of finance. In this section, we'll examine how it compares to conventional finance, introduce you to three important contributors to the field and take a look at what critics have to say.

Why is behavioral finance necessary?

When using the labels "conventional" or "modern" to describe finance, we are talking about the type of finance that is based on rational and logical theories, such as the capital asset pricing model (CAPM) and the efficient market hypothesis (EMH). These theories assume that people, for the most part, behave rationally and predictably.

For a while, theoretical and empirical evidence suggested that CAPM, EMH and other rational financial theories did a respectable job of predicting and explaining certain events. However, as time went on, academics in both finance and economics started to find anomalies and behaviors that couldn't be explained by theories available at the time. While these theories could explain certain "idealized" events, the real world proved to be a very messy place in which market participants often behaved very unpredictably.

Homo Economicus

One of the most rudimentary assumptions that conventional economics and finance makes is that people are rational "wealth maximizers" who seek to increase their own well-being. According to conventional economics, emotions and other extraneous factors do not influence people when it comes to making economic choices.

In most cases, however, this assumption doesn't reflect how people behave in the real world. The fact is people frequently behave irrationally. Consider how many people purchase lottery tickets in the hope of hitting the big jackpot. From a purely logical standpoint, it does not make sense to buy a lottery ticket when the odds of winning are overwhelming against the ticket holder (roughly 1 in 146 million, or 0.0000006849%, for the famous Powerball jackpot). Despite this, millions of people spend countless dollars on this activity.

These anomalies prompted academics to look to cognitive psychology to account for the irrational and illogical behaviors that modern finance had failed to explain. Behavioral finance seeks to explain our actions, whereas modern finance seeks to explain the actions of the "economic man" (*Homo economicus)*.

Important Contributors

Like every other branch of finance, the field of behavioral finance has certain

people that have provided major theoretical and empirical contributions. The following section provides a brief introduction to three of the biggest names associated with the field.

Daniel Kahneman and Amos Tversky
Cognitive psychologists Daniel Kahneman and Amos Tversky are considered the fathers of behavioral economics/finance. Since their initial collaborations in the late 1960s, this duo has published about 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 much of their research on the cognitive biases and heuristics (i.e. approaches to problem solving)that cause people to engage in unanticipated irrational behavior. Their most popular and notable works include writings about prospect theory and loss aversion - topics that we'll examine later.

Richard Thaler
While Kahneman and Tversky provided the early psychological theories that would be the foundation for behavioral finance, this field would not have evolved if it weren't for economist Richard Thaler.

During his studies, Thaler became more and more aware of the shortcomings in conventional economic theoryies as they relate to people's behaviors. After reading a draft version of Kahneman and Tversky's work on prospect theory, Thaler realized that, unlike conventional economic theory, psychological theory could account for the irrationality in behaviors.

Thaler went on to collaborate with Kahneman and Tversky, blending economics and finance with psychology to present concepts, such as mental accounting, the endowment effect and other biases.

Critics
Although behavioral finance has been gaining support in recent years, it is not without its critics. Some supporters of the efficient market hypothesis, for example, are vocal critics of behavioral finance.

The efficient market hypothesis is considered one of the foundations of modern financial theory. However, the hypothesis does not account for irrationality because it assumes that the market price of a security reflects the impact of all relevant information as it is released.

The most notable critic of behavioral finance is Eugene Fama, the founder of market efficiency theory. Professor Fama suggests that even though there are

some anomalies that cannot be explained by modern financial theory, market efficiency should not be totally abandoned in favor of behavioral finance.

In fact, he notes that many of the anomalies found in conventional theories could be considered shorter-term chance events that are eventually corrected over time. In his 1998 paper, entitled "Market Efficiency, Long-Term Returns And Behavioral Finance", Fama argues that many of the findings in behavioral finance appear to contradict each other, and that all in all, behavioral finance itself appears to be a collection of anomalies that can be explained by market efficiency.

Anomalies

The presence of regularly occurring anomalies in conventional economic theory was a big contributor to the formation of behavioral finance. These so-called anomalies, and their continued existence, directly violate modern financial and economic theories, which assume rational and logical behavior. The following is a quick summary of some of the anomalies found in the financial literature.

January Effect

The January effect is named after the phenomenon in which the average monthly return for small firms is consistently higher in January than any other month of the year. This is at odds with the efficient market hypothesis, which predicts that stocks should move at a "random walk".

However, a 1976 study by Michael S. Rozeff and William R. Kinney, called "Capital Market Seasonality: The Case of Stock Returns", found that from 1904-74 the average amount of January returns for small firms was around 3.5%, whereas returns for all other months was closer to 0.5%. This suggests that the monthly performance of small stocks follows a relatively consistent pattern, which is contrary to what is predicted by conventional financial theory. Therefore, some unconventional factor (other than the random-walk process) must be creating this regular pattern.

One explanation is that the surge in January returns is a result of investors selling loser stocks in December to lock in tax losses, causing returns to bounce back up in January, when investors have less incentive to sell. While the year-end tax selloff may explain some of the January effect, it does not account for the fact that the phenomenon still exists in places where capital gains taxes do not occur. This anomaly sets the stage for the line of thinking that conventional theories do not and cannot account for everything that happens in the real world.

The Winner's Curse

One assumption found in finance and economics is that investors and traders are

rational enough to be aware of the true value of some asset and will bid or pay accordingly.

However, anomalies such as the winner's curse - a tendency for the winning bid in an auction setting to exceed the intrinsic value of the item purchased - suggest that this is not the case.

Rational-based theories assume that all participants involved in the bidding process will have access to all relevant information and will all come to the same valuation. Any differences in the pricing would suggest that some other factor not directly tied to the asset is affecting the bidding.

According to Robert Thaler's 1988 article on winner's curse, there are two primary factors that undermine the rational bidding process: the number of bidders and the aggressiveness of bidding. For example, the more bidders involved in the process means that you have to bid more aggressively in order to dissuade others from bidding. Unfortunately, increasing your aggressiveness will also increase the likelihood in that your winning bid will exceed the value of the asset.

Consider the example of prospective homebuyers bidding for a house. It's possible that all the parties involved are rational and know the home's true value from studying recent sales of comparative homes in the area. However, variables irrelevant to the asset (aggressive bidding and the amount of bidders) can cause valuation error, oftentimes driving up the sale price more than 25% above the home's true value. In this example, the curse aspect is twofold: not only has the winning bidder overpaid for the home, but now that buyer might have a difficult time securing financing.

Equity Premium Puzzle

An anomaly that has left academics in finance and economics scratching their heads is the equity premium puzzle. According to the capital asset pricing model (CAPM), investors that hold riskier financial assets should be compensated with higher rates of returns.

Studies have shown that over a 70-year period, stocks yield average returns that exceed government bond returns by 6-7%. Stock real returns are 10%, whereas bond real returns are 3%. However, academics believe that an equity premium of 6% is extremely large and would imply that stocks are considerably risky to hold over bonds. Conventional economic models have determined that this premium should be much lower. This lack of convergence between theoretical models and empirical results represents a stumbling block for academics to explain why the equity premium is so large.

Behavioral finance's answer to the equity premium puzzle revolves around the

tendency for people to have "myopic loss aversion", a situation in which investors - overly preoccupied by the negative effects of losses in comparison to an equivalent amount of gains - take a very short-term view on an investment. What happens is that investors are paying too much attention to the short-term volatility of their stock portfolios. While it is not uncommon for an average stock to fluctuate a few percentage points in a very short period of time, a myopic (i.e., shortsighted) investor may not react too favorably to the downside changes. Therefore, it is believed that equities must yield a high-enough premium to compensate for the investor's considerable aversion to loss. Thus, the premium is seen as an incentive for market participants to invest in stocks instead of marginally safer government bonds.

Conventional financial theory does not account for all situations that happen in the real world. This is not to say that conventional theory is not valuable, but rather that the addition of behavioral finance can further clarify how the financial markets work.

Key Concepts - Anchoring

In the following section, we'll explore eight key concepts that pioneers in the field of behavioral finance have identified as contributing to irrational and often detrimental financial decision making. As you read through them, consider whether you've fallen prey to some of these biases. Chances are, at one point or another, we all have.

Key Concept No.1. Anchoring
Similar to how a house should be built upon a good, solid foundation, our ideas and opinions should also be based on relevant and correct facts in order to be considered valid. However, this is not always so. The concept of anchoring draws on the tendency to attach or "anchor" our thoughts to a reference point - even though it may have no logical relevance to the decision at hand.

Although it may seem an unlikely phenomenon, anchoring is fairly prevalent in situations where people are dealing with concepts that are new and novel.

A Diamond Anchor
Consider this classic example: Conventional wisdom dictates that a diamond engagement ring should cost around two months' worth of salary. Believe it or not, this "standard" is one of the most illogical examples of anchoring. While spending two months worth of salary can serve as a benchmark, it is a completely irrelevant reference point created by the jewelry industry to maximize profits, and not a valuation of love.

Many men can't afford to devote two months of salary towards a ring while

paying for living expenses. Consequently, many go into debt in order to meet the "standard". In many cases, the "diamond anchor" will live up to its name, as the prospective groom struggles to keep his head above water in a sea of mounting debt.

Although the amount spent on an engagement ring should be dictated by what a person can afford, many men illogically anchor their decision to the two-month standard. Because buying jewelry is a "novel" experience for many men, they are more likely to purchase something that is around the "standard", despite the expense. This is the power of anchoring.

Academic Evidence

Admittedly, the two-month standard used in the previous example does sound relatively plausible. However, academic studies have shown the anchoring effect to be so strong that it still occurs in situations where the anchor is absolutely random.

In a 1974 paper entitled "Judgment Under Uncertainty: Heuristics And Biases", Kahneman and Tversky conducted a study in which a wheel containing the numbers 1 though 100 was spun. Then, subjects were asked whether the percentage of U.N. membership accounted for by African countries was higher or lower than the number on the wheel. Afterward, the subjects were asked to give an actual estimate. Tversky and Kahneman found that the seemingly random anchoring value of the number on which the wheel landed had a pronounced effect on the answer that the subjects gave. For example, when the wheel landed on 10, the average estimate given by the subjects was 25%, whereas when the wheel landed on 60, the average estimate was 45%. As you can see, the random number had an anchoring effect on the subjects' responses, pulling their estimates closer to the number they were just shown - even though the number had absolutely no correlation at all to the question.

Investment Anchoring

Anchoring can also be a source of frustration in the financial world, as investors base their decisions on irrelevant figures and statistics. For example, some investors invest in the stocks of companies that have fallen considerably in a very short amount of time. In this case, the investor is anchoring on a recent "high" that the stock has achieved and consequently believes that the drop in price provides an opportunity to buy the stock at a discount.

While, it is true that the fickleness of the overall market can cause some stocks to drop substantially in value, allowing investors to take advantage of this short-term volatility. However, stocks quite often also decline in value due to changes in their underlying fundamentals.

For instance, suppose that XYZ stock had very strong revenue in the last year,

causing its share price to shoot up from $25 to $80. Unfortunately, one of the company's major customers, who contributed to 50% of XYZ's revenue, had decided not to renew its purchasing agreement with XYZ. This change of events causes a drop in XYZ's share price from $80 to $40.

By anchoring to the previous high of $80 and the current price of $40, the investor erroneously believes that XYZ is undervalued. Keep in mind that XYZ is not being sold at a discount, instead the drop in share value is attributed to a change to XYZ's fundamentals (loss of revenue from a big customer). In this example, the investor has fallen prey to the dangers of anchoring. (For related reading, see

Avoiding Anchoring
When it comes to avoiding anchoring, there's no substitute for rigorous critical thinking. Be especially careful about which figures you use to evaluate a stock's potential. Successful investors don't just base their decisions on one or two benchmarks, they evaluate each company from a variety of perspectives in order to derive the truest picture of the investment landscape.

For novice investors especially, it's never a bad idea to seek out other perspectives. Listening to a few "devil's advocates" could identify incorrect benchmarks that are causing your strategy to fail.

Key Concepts - Mental Accounting

Key Concept No.2: Mental Accounting
Mental accounting refers to the tendency for people to separate their money into separate accounts based on a variety of subjective criteria, like the source of the money and intent for each account. According to the theory, individuals assign different functions to each asset group, which has an often irrational and detrimental effect on their consumption decisions and other behaviors.

Although many people use mental accounting, they may not realize how illogical this line of thinking really is. For example, people often have a special "money jar" or fund set aside for a vacation or a new home, while still carrying substantial credit card debt.

In this example, money in the special fund is being treated differently from the money that the same person is using to pay down his or her debt, despite the fact that diverting funds from debt repayment increases interest payments and reduces the person's net worth. Simply put, it's illogical (and detrimental) to have savings in a jar earning little to no interest while carrying credit-card debt accruing at 20% annually.

In this case, rather than saving for a holiday, the most logical course of action would be to use the funds in the jar (and any other available monies) to pay off the expensive debt.

This seems simple enough, but why don't people behave this way? The answer lies with the personal value that people place on particular assets. For instance, people may feel that money saved for a new house or their children's college fund is too "important" to relinquish. As a result, this "important" account may not be touched at all, even if doing so would provide added financial benefit.

The Different Accounts Dilemma

To illustrate the importance of different accounts as it relates to mental accounting, consider this real-life example: You have recently subjected yourself to a weekly lunch budget and are going to purchase a $6 sandwich for lunch. As you are waiting in line, one of the following things occurs: 1) You find that you have a hole in your pocket and have lost $6; or 2) You buy the sandwich, but as you plan to take a bite, you stumble and your delicious sandwich ends up on the floor. In either case (assuming you still have enough money), would you buy another sandwich?

Logically speaking, your answer in both scenarios should be the same; the dilemma is whether you should spend $6 for a sandwich. However, because of the mental accounting bias, this isn't so.

Because of the mental accounting bias, most people in the first scenario wouldn't consider the lost money to be part of their lunch budget because the money had not yet been spent or allocated to that account. Consequently, they'd be more likely to buy another sandwich, whereas in the second scenario, the money had already been spent.

Different Source, Different Purpose

Another aspect of mental accounting is that people also treat money differently depending on its source. For example, people tend to spend a lot more "found" money, such as tax returns and work bonuses and gifts, compared to a similar amount of money that is normally expected, such as from their paychecks. This represents another instance of how mental accounting can cause illogical use of money.

Logically speaking, money should be interchangeable, regardless of its origin. Treating money differently because it comes from a different source violates that logical premise. Where the money came from should not be a factor in how much of it you spend - regardless of the money's source, spending it will represent a drop in your overall wealth.

Mental Accounting In Investing

The mental accounting bias also enters into investing. For example, some investors divide their investments between a safe investment portfolio and a speculative portfolio in order to prevent the negative returns that speculative investments may have from affecting the entire portfolio. The problem with such a practice is that despite all the work and money that the investor spends to separate the portfolio, his net wealth will be no different than if he had held one larger portfolio.

Avoiding Mental Accounting

The key point to consider for mental accounting is that money is fungible; regardless of its origins or intended use, all money is the same. You can cut down on frivolous spending of "found" money, by realizing that "found" money is no different than money that you earned by working.

As an extension of money being fungible, realize that saving money in a low- or no-interest account is fruitless if you still have outstanding debt. In most cases, the interest on your debt will erode any interest that you can earn in most savings accounts. While having savings is important, sometimes it makes more sense to forgo your savings in order to pay off debt.

Key Concepts - Confirmation and Hindsight Bias

Key Concept No.3: Confirmation and Hindsight Biases

It's often said that "seeing is believing". While this is often the case, in certain situations what you perceive is not necessarily a true representation of reality. This is not to say that there is something wrong with your senses, but rather that our minds have a tendency to introduce biases in processing certain kinds of information and events.

In this section, we'll discuss how confirmation and hindsight biases affect our perceptions and subsequent decisions.

Confirmation Bias

It can be difficult to encounter something or someone without having a preconceived opinion. This first impression can be hard to shake because people also tend to selectively filter and pay more attention to information that supports their opinions, while ignoring or rationalizing the rest. This type of selective thinking is often referred to as the confirmation bias.

In investing, the confirmation bias suggests that an investor would be more likely to look for information that supports his or her original idea about an investment rather than seek out information that contradicts it. As a result, this bias can often result in faulty decision making because one-sided information tends to skew an investor's frame of reference, leaving them with an incomplete picture of the

situation.

Consider, for example, an investor that hears about a hot stock from an unverified source and is intrigued by the potential returns. That investor might choose to research the stock in order to "prove" its touted potential is real.

What ends up happening is that the investor finds all sorts of green flags about the investment (such as growing cash flow or a low debt/equity ratio), while glossing over financially disastrous red flags, such as loss of critical customers or dwindling markets.

Hindsight Bias

Another common perception bias is hindsight bias, which tends to occur in situations where a person believes (after the fact) that the onset of some past event was predictable and completely obvious, whereas in fact, the event could not have been reasonably predicted.

Many events seem obvious in hindsight. Psychologists attribute hindsight bias to our innate need to find order in the world by creating explanations that allow us to believe that events are predictable. While this sense of curiosity is useful in many cases (take science, for example), finding erroneous links between the cause and effect of an event may result in incorrect oversimplifications.

For example, many people now claim that signs of the technology bubble of the late 1990s and early 2000s (or any bubble from history, such as the Tulip bubble from the 1630s or the South Sea bubble of 1711) were very obvious. This is a clear example of hindsight bias: If the formation of a bubble had been obvious at the time, it probably wouldn't have escalated and eventually burst.

For investors and other participants in the financial world, the hindsight bias is a cause for one of the most potentially dangerous mindsets that an investor or trader can have: overconfidence. In this case, overconfidence refers to investors' or traders' unfounded belief that they possess superior stock-picking abilities.

Avoiding Confirmation Bias

Confirmation bias represents a tendency for us to focus on information that confirms some pre-existing thought. Part of the problem with confirmation bias is that being aware of it isn't good enough to prevent you from doing it. One solution to overcoming this bias would be finding someone to act as a "dissenting voice of reason". That way you'll be confronted with a contrary viewpoint to examine.

Key Concepts - Gambler's Fallacy

Key Concept No. 4: Gambler's Fallacy
When it comes to probability, a lack of understanding can lead to incorrect assumptions and predictions about the onset of events. One of these incorrect assumptions is called the gambler's fallacy.

In the gambler's fallacy, an individual erroneously believes that the onset of a certain random event is less likely to happen following an event or a series of events. This line of thinking is incorrect because past events do not change the probability that certain events will occur in the future.

For example, consider a series of 20 coin flips that have all landed with the "heads" side up. Under the gambler's fallacy, a person might predict that the next coin flip is more likely to land with the "tails" side up. This line of thinking represents an inaccurate understanding of probability because the likelihood of a fair coin turning up heads is always 50%. Each coin flip is an independent event, which means that any and all previous flips have no bearing on future flips.

Another common example of the gambler's fallacy can be found with people's relationship with slot machines. We've all heard about people who situate themselves at a single machine for hours at a time. Most of these people believe that every losing pull will bring them that much closer to the jackpot. What these gamblers don't realize is that due to the way the machines are programmed, the odds of winning a jackpot from a slot machine are equal with every pull (just like flipping a coin), so it doesn't matter if you play with a machine that just hit the jackpot or one that hasn't recently paid out.

Gambler's Fallacy In Investing
It's not hard to imagine that under certain circumstances, investors or traders can easily fall prey to the gambler's fallacy. For example, some investors believe that they should liquidate a position after it has gone up in a series of subsequent trading sessions because they don't believe that the position is likely to continue going up. Conversely, other investors might hold on to a stock that has fallen in multiple sessions because they view further declines as "improbable". Just because a stock has gone up on six consecutive trading sessions does not mean that it is less likely to go up on during the next session.

Avoiding Gambler's Fallacy
It's important to understand that in the case of independent events, the odds of any specific outcome happening on the next chance remains the same regardless of what preceded it. With the amount of noise inherent in the stock market, the same logic applies: Buying a stock because you believe that the prolonged trend is likely to reverse at any second is irrational. Investors should instead base their decisions on fundamental and/or technical analysis before determining what will happen to a trend.

Key Concepts - Herd Behavior

Key Concept No.5: Herd Behavior

One of the most infamous financial events in recent memory would be the bursting of the internet bubble. However, this wasn't the first time that events like this have happened in the markets.

How could something so catastrophic be allowed to happen over and over again?

The answer to this question can be found in what some people believe to be a hardwired human attribute: herd behavior, which is the tendency for individuals to mimic the actions (rational or irrational) of a larger group. Individually, however, most people would not necessarily make the same choice.

There are a couple of reasons why herd behavior happens. The first is the social pressure of conformity. You probably know from experience that this can be a powerful force. This is because most people are very sociable and have a natural desire to be accepted by a group, rather than be branded as an outcast. Therefore, following the group is an ideal way of becoming a member.

The second reason is the common rationale that it's unlikely that such a large group could be wrong. After all, even if you are convinced that a particular idea or course or action is irrational or incorrect, you might still follow the herd, believing they know something that you don't. This is especially prevalent in situations in which an individual has very little experience.

The Dotcom Herd

Herd behavior was exhibited in the late 1990s as venture capitalists and private investors were frantically investing huge amounts of money into internet-related companies, even though most of these dotcoms did not (at the time) have financially sound business models. The driving force that seemed to compel these investors to sink their money into such an uncertain venture was the reassurance they got from seeing so many others do the same thing.

A strong herd mentality can even affect financial professionals. The ultimate goal of a money manager is to follow an investment strategy to maximize a client's invested wealth. The problem lies in the amount of scrutiny that money managers receive from their clients whenever a new investment fad pops up. For example, a wealthy client may have heard about an investment gimmick that's gaining notoriety and inquires about whether the money manager employs a similar "strategy".

In many cases, it's tempting for a money manager to follow the herd of investment professionals. After all, if the aforementioned gimmick pans out, his clients will be happy. If it doesn't, that money manager can justify his poor decision by pointing out just how many others were led astray.

The Costs of Being Led Astray

Herd behavior, as the dotcom bubble illustrates, is usually not a very profitable investment strategy. Investors that employ a herd-mentality investment strategy constantly buy and sell their investment assets in pursuit of the newest and hottest investment trends. For example, if a herd investor hears that internet stocks are the best investments right now, he will free up his investment capital and then dump it on internet stocks. If biotech stocks are all the rage six months later, he'll probably move his money again, perhaps before he has even experienced significant appreciation in his internet investments.

Keep in mind that all this frequent buying and selling incurs a substantial amount of transaction costs, which can eat away at available profits. Furthermore, it's extremely difficult to time trades correctly to ensure that you are entering your position right when the trend is starting. By the time a herd investor knows about the newest trend, most other investors have already taken advantage of this news, and the strategy's wealth-maximizing potential has probably already peaked. This means that many herd-following investors will probably be entering into the game too late and are likely to lose money as those at the front of the pack move on to other strategies.

Avoiding the Herd Mentality

While it's tempting to follow the newest investment trends, an investor is generally better off steering clear of the herd. Just because everyone is jumping on a certain investment "bandwagon" doesn't necessarily mean the strategy is correct. Therefore, the soundest advice is to always do your homework before following any trend.

Just remember that particular investments favored by the herd can easily become overvalued because the investment's high values are usually based on optimism and not on the underlying fundamentals.

Key Concepts - Overconfidence

Key Concept No.6: Overconfidence

In a 2006 study entitled "Behaving Badly", researcher James Montier found that 74% of the 300 professional fund managers surveyed believed that they had delivered above-average job performance. Of the remaining 26% surveyed, the majority viewed themselves as average. Incredibly, almost 100% of the survey

group believed that their job performance was average or better. Clearly, only 50% of the sample can be above average, suggesting the irrationally high level of overconfidence these fund managers exhibited.

As you can imagine, overconfidence (i.e., overestimating or exaggerating one's ability to successfully perform a particular task) is not a trait that applies only to fund managers. Consider the number of times that you've participated in a competition or contest with the attitude that you have what it takes to win - regardless of the number of competitors or the fact that there can only be one winner.

Keep in mind that there's a fine line between confidence and overconfidence. Confidence implies realistically trusting in one's abilities, while overconfidence usually implies an overly optimistic assessment of one's knowledge or control over a situation.

Overconfident Investing

In terms of investing, overconfidence can be detrimental to your stock-picking ability in the long run. In a 1998 study entitled "Volume, Volatility, Price, and Profit When All Traders Are Above Average", researcher Terrence Odean found that overconfident investors generally conduct more trades than their less-confident counterparts.

Odean found that overconfident investors/traders tend to believe they are better than others at choosing the best stocks and best times to enter/exit a position. Unfortunately, Odean also found that traders that conducted the most trades tended, on average, to receive significantly lower yields than the market.

Avoiding Overconfidence

Keep in mind that professional fund managers, who have access to the best investment/industry reports and computational models in the business, can still struggle at achieving market-beating returns. The best fund managers know that each investment day presents a new set of challenges and that investment techniques constantly need refining. Just about every overconfident investor is only a trade away from a very humbling wake-up call.

Key Concepts - Overreaction and Availability Bias

Key Concept No.7: Overreaction and the Availability Bias

One consequence of having emotion in the stock market is the overreaction toward new information. According to market efficiency, new information should more or less be reflected instantly in a security's price. For example, good news should raise a business' share price accordingly, and that gain in share price

should not decline if no new information has been released since.

Reality, however, tends to contradict this theory. Oftentimes, participants in the stock market predictably overreact to new information, creating a larger-than-appropriate effect on a security's price. Furthermore, it also appears that this price surge is not a permanent trend - although the price change is usually sudden and sizable, the surge erodes over time.

Winners and Losers

In 1985, behavioral finance academics Werner De Bondt and Richard Thaler released a study in the *Journal of Finance* called "Does the Market Overreact?" In this study, the two examined returns on the New York Stock Exchange for a three-year period. From these stocks, they separated the best 35 performing stocks into a "winners portfolio" and the worst 35 performing stocks were then added to a "losers portfolio". De Bondt and Thaler then tracked each portfolio's performance against a representative market index for three years.

Surprisingly, it was found that the losers portfolio consistently beat the market index, while the winners portfolio consistently underperformed. In total, the cumulative difference between the two portfolios was almost 25% during the three-year time span. In other words, it appears that the original "winners" would became "losers", and vice versa.

So what happened? In both the winners and losers portfolios, investors essentially overreacted. In the case of loser stocks, investors overreacted to bad news, driving the stocks' share prices down disproportionately. After some time, investors realized that their pessimism was not entirely justified, and these losers began rebounding as investors came to the conclusion that the stock was underpriced. The exact opposite is true with the winners portfolio: investors eventually realized that their exuberance wasn't totally justified.

According to the availability bias, people tend to heavily weight their decisions toward more recent information, making any new opinion biased toward that latest news.

This happens in real life all the time. For example, suppose you see a car accident along a stretch of road that you regularly drive to work. Chances are, you'll begin driving extra cautiously for the next week or so. Although the road might be no more dangerous than it has ever been, seeing the accident causes you to overreact, but you'll be back to your old driving habits by the following week.

Avoiding Availability Bias

Perhaps the most important lesson to be learned here is to retain a sense of perspective. While it's easy to get caught up in the latest news, short-term

approaches don't usually yield the best investment results. If you do a thorough job of researching your investments, you'll better understand the true significance of recent news and will be able to act accordingly. Remember to focus on the long-term picture.

Key Concepts - Prospect Theory

Key Concept No.8: Prospect Theory
Traditionally, it is believed the net effect of the gains and losses involved with each choice are combined to present an overall evaluation of whether a choice is desirable. Academics tend to use "utility" to describe enjoyment and contend that we prefer instances that maximize our utility.

However, research has found that we don't actually process information in such a rational way. In 1979, Kahneman and Tversky presented an idea called prospect theory, which contends that people value gains and losses differently, and, as such, will base decisions on perceived gains rather than perceived losses. Thus, if a person were given two equal choices, one expressed in terms of possible gains and the other in possible losses, people would choose the former - even when they achieve the same economic end result.

According to prospect theory, losses have more emotional impact than an equivalent amount of gains. For example, in a traditional way of thinking, the amount of utility gained from receiving $50 should be equal to a situation in which you gained $100 and then lost $50. In both situations, the end result is a net gain of $50.

However, despite the fact that you still end up with a $50 gain in either case, most people view a single gain of $50 more favorably than gaining $100 and then losing $50.

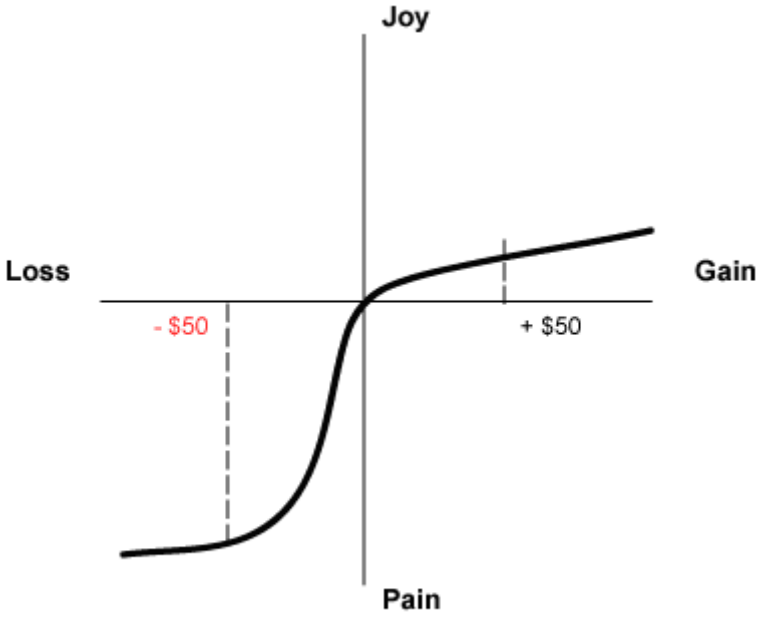
Evidence for Irrational Behavior
Kahneman and Tversky conducted a series of studies in which subjects answered questions that involved making judgments between two monetary decisions that involved prospective losses and gains. For example, the following questions were used in their study:

1. You have $1,000 and you must pick one of the following choices:
   Choice A: You have a 50% chance of gaining $1,000, and a 50% chance of gaining $0.
   Choice B: You have a 100% chance of gaining $500.

2. You have $2,000 and you must pick one of the following choices:
   Choice A: You have a 50% chance of losing $1,000, and 50% of losing $0.
   Choice B: You have a 100% chance of losing $500.

If the subjects had answered logically, they would pick either "A" or "B" in both situations. (People choosing "B" would be more risk adverse than those choosing "A"). However, the results of this study showed that an overwhelming majority of people chose "B" for question 1 and "A" for question 2. The implication is that people are willing to settle for a reasonable level of gains (even if they have a reasonable chance of earning more), but are willing to engage in risk-seeking behaviors where they can limit their losses. In other words, losses are weighted more heavily than an equivalent amount of gains.

It is this line of thinking that created the asymmetric value function:



This function is a representation of the difference in utility (amount of pain or joy) that is achieved as a result of a certain amount of gain or loss. It is key to note that not everyone would have a value function that looks exactly like this; this is the general trend. The most evident feature is how a loss creates a greater feeling of pain compared to the joy created by an equivalent gain. For example, the absolute joy felt in finding $50 is a lot less than the absolute pain caused by losing $50.

Consequently, when multiple gain/loss events happen, each event is valued

separately and then combined to create a cumulative feeling. For example, according to the value function, if you find $50, but then lose it soon after, this would cause an overall effect of -40 units of utility (finding the $50 causes +10 points of utility (joy), but losing the $50 causes -50 points of utility (pain). To most of us, this makes sense: it is a fair bet that you'd be kicking yourself over losing the $50 that you just found.

Financial Relevance

The prospect theory can be used to explain quite a few illogical financial behaviors. For example, there are people who do not wish to put their money in the bank to earn interest or who refuse to work overtime because they don't want to pay more taxes. Although these people would benefit financially from the additional after-tax income, prospect theory suggests that the benefit (or utility gained) from the extra money is not enough to overcome the feelings of loss incurred by paying taxes.

Prospect theory also explains the occurrence of the disposition effect, which is the tendency for investors to hold on to losing stocks for too long and sell winning stocks too soon. The most logical course of action would be to hold on to winning stocks in order to further gains and to sell losing stocks in order to prevent escalating losses.

When it comes to selling winning stocks prematurely, consider Kahneman and Tversky's study in which people were willing to settle for a lower guaranteed gain of $500 compared to choosing a riskier option that either yields a gain of $1,000 or $0. This explains why investors realize the gains of winning stocks too soon: in each situation, both the subjects in the study and investors seek to cash in on the amount of gains that have already been guaranteed. This represents typical risk-averse behavior.

The flip side of the coin is investors that hold on to losing stocks for too long. Like the study's subjects, investors are willing to assume a higher level of risk in order to avoid the negative utility of a prospective loss. Unfortunately, many of the losing stocks never recover, and the losses incurred continued to mount, with often disastrous results.

Avoiding the Disposition Effect

It is possible to minimize the disposition effect by using a concept called hedonic framing to change your mental approach.

For example, in situations where you have a choice of thinking of something as one large gain or as a number of smaller gains (such as finding $100 versus finding a $50 bill from two places), thinking of the latter can maximize the amount of positive utility.

For situations where you have a choice of thinking of something as one large loss or as a number of smaller losses (losing $100 versus losing $50 twice), framing the situation as one large loss would create less negative utility because the marginal difference between the amount of pain from combining the losses would be less than the total amount of pain from many smaller losses.

For situations where you have a choice of thinking as something as one large gain with a smaller loss or a situation where you net the two to create a smaller gain ($100 and -$55, versus +$45), you would receive more positive utility from the sole smaller gain.

Finally, for situations where you have a choice of thinking as something as one large loss with a smaller gain or a situation where you have a smaller loss (-$100 and +$55, versus -$45), it would be best to try to frame the situation as separate gains and losses.

Trying these methods of framing your thoughts should make your experience more positive and if used properly, it can help you minimize the dispositional effect.

Conclusion

Whether it's mental accounting, irrelevant anchoring or just following the herd, chances are we've all been guilty of at least some of the biases and irrational behavior highlighted in this tutorial. Now that you can identify some of the biases, it's time to apply that knowledge to your own investing and if need be take corrective action. Hopefully, your future financial decisions will be a bit more rational and lot more lucrative as well.
Here is a summary of what we've covered:

- Conventional finance is based on the theories which describe people for the most part behave logically and rationally. People started to question this point of view as there have been anomalies, which are events that conventional finance has a difficult time in explaining.
- Three of the biggest contributors to the field are psychologists, Drs. Daniel Kahneman and Amos Tversky, and economist, Richard Thaler.
- The concept of anchoring draws upon the tendency for us to attach or "anchor" our thoughts around a reference point despite the fact that it may not have any logical relevance to the decision at hand.
- Mental accounting refers to the tendency for people to divide their money into separate accounts based on criteria like the source and intent for the money. Furthermore, the importance of the funds in each account also varies depending upon the money's source and intent.

- Seeing is not necessarily believing as we also have confirmation and hindsight biases. Confirmation bias refers to how people tend to more attentive towards new information that confirms their own preconceived options about a subject. The hindsight bias represents how people believe that after the fact, the occurrence of an event was completely obvious.
- The gambler's fallacy refers to an incorrect interpretation of statistics where someone believes that the occurrence of a random independent event would somehow cause another random independent event less likely to happen.
- Herd behavior represents the preference for individuals to mimic the behaviors or actions of a larger sized group.
- Overconfidence represents the tendency for an investor to overestimate his or her ability in performing some action/task.
- Overreaction occurs when one reacts to a piece of news in a way that is greater than actual impact of the news.
- Prospect theory refers to an idea created by Drs. Kahneman and Tversky that essentially determined that people do not encode equal levels of joy and pain to the same effect. The average individuals tend to be more loss sensitive (in the sense that a he/she will feel more pain in receiving a loss compared to the amount of joy felt from receiving an equal amount of gain).