# Harnessing the Insights of Behavioral Finance

*"The love of money is the root of all evil."*
*-New Testament, 1 Timothy, 6:10*

*"The lack of money is the root of all evil."*
*-George Bernard Shaw*

*"Money is power, freedom, a cushion, the root of all evils, the sum of all blessings."*
*-Carl Sandburg*

In recent years, investors may have heard a rising chorus of voices from the financial world praising the work of behavioral economists or touting the newest academic insights from the world of behavioral finance. People who don't specialize in finance, however, may wonder what is so different about behavioral finance — and more importantly, why we as investors should even care. After all, many investors might wonder, is there anything useful we can actually ***do*** with this new found knowledge?

This article explains what all the fuss is about[1]. It is divided into three sections:

**I. Traditional academic finance: Theory vs. real life**

**II. Behavioral finance: Looking at the real world**

**III. Learning to be a better investor**

## I. Traditional Academic Finance

Before we can understand what is new and compelling about the study of financial behavior and its decision-making implications, we need to establish the historical framework. For perspective, let's begin with an explanation of "traditional academic finance."

For those who never sat through a college class in finance[2], traditional academic finance grew out of attempts by a group of brilliant market theorists and economists, starting in the 1950s, to develop equations and mathematical models to explain why markets go up and down the way they do.

They came up with a set of three related concepts; 1. The ***Capital Asset Pricing Model*** describes how individual assets [theoretically[3]] behave. 2. The ***Efficient Market Hypothesis*** describes how the community of investors, otherwise known collectively as "the market", [theoretically[3]] behaves. 3. ***Modern Portfolio Theory*** describes how portfolios can [theoretically[3]] be put together so as to maximize expected return per unit of risk.

In order to make their models and equations work, the theorists had to make some simplifying assumptions. For instance, they assumed that the market was composed of investors who are all rational and risk-averse; who all understand and can calculate the probabilities and magnitudes of expected future returns; and who all can identify the risks of various kinds of assets. They also assumed that capital markets are "frictionless"—that is, that there are no taxes, transactions costs, or legal impediments preventing investors from executing any trades they wish. They also assumed that statistics about the past price actions of various kinds of assets are predictive of how those assets will behave in the future.

Based on those and other assumptions, the ***Capital Asset Pricing Model*** posits, effectively, that investors only commit money to investments that have an expected return sufficient to compensate for the risk they are assuming[4].

The ***Efficient Market Hypothesis*** posits that, since market prices are set by the interactions of millions of knowledge-

[1] The writer is a practitioner, not an academic. This article is intended to provide useful insights rather than a rigorous grounding in finance theory.

[2] Or didn't stay awake if they did.

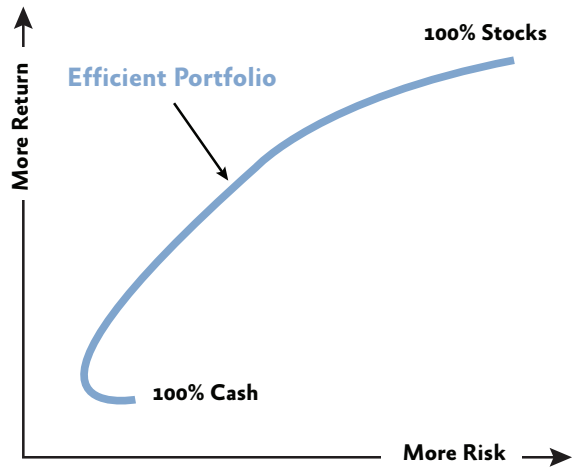
[3] Real life has an unfortunate habit of not conforming to theory.

[4] This is described by the model **Expected return = Rf + β (Rm – Rf)**
Where:
**Rf** = the return on a risk-free asset (Treasury bills)
**Rm** = the return on the market
**β** = the variability of the particular asset versus the variability of the market
This means, conceptually, that people will invest in a risky asset only if they expect a return that is at least as much as they could earn by investing in Treasury bills (the ***Rf*** term in the equation), plus enough of a premium to compensate for (a) being in the market at all (the ***Rm*** – ***Rf*** term); and (b) holding the particular risky asset chosen (the ***β*** term; this is the Greek letter beta).

able, rational, risk-averse participants, all of whom have access to new information as soon as it becomes available, nobody has a sustainable information edge. Moreover, market prices are fair and are based on the fundamental investment attributes of each security. Any asset prices that strayed from fair value would quickly be brought back, because investors would buy too-cheap assets and sell too-expensive assets.

***Modern Portfolio Theory*** posits that each asset class has an expected long-term rate of return, a standard deviation of shorter-term returns around that long-term average rate, and correlations to other asset classes[5]; and that risk is appropriately defined as uncertainty of returns, as quantified by standard deviation of returns. It further assumes that investors know and understand these statistics and can use them to put together portfolios of assets that either maximize expected return per unit of risk, or minimize expected risk per unit of return.

The set of these portfolios is called the ***Efficient Frontier.*** Academics suggest that investors will logically prefer to choose a portfolio that lies on the Efficient Frontier, rather than below it. Efficient Frontiers are usually depicted with a graphic that looks something like this:




The line of the curve generally bends up and to the right, indicating that there is a mathematically direct relationship between risk and return (they move in the same direction). Conceptually, more return is gained by moving away from cash and assuming more investment risk.

However, two points should be noted. One, the curve initially bends backwards a bit, indicating that investors initially can get more return and ***less*** risk. This is because as you add assets which are slightly riskier than cash on a stand-alone basis (e.g., shorter-term bonds) to a portfolio that is and therefore otherwise entirely in cash, this provides diversification, lowers risk as well as raising return ***at the portfolio level.*** Second, adding more risk initially causes return to rise steeply, but incremental return diminishes as more and more risk is added. That is why the Efficient Portfolio line flattens out as you approach 100% risky assets (such as stocks).

This ***de***scription of markets carries along with it a ***pre***scription for how investors should behave in response: If nobody has an information edge, it makes no sense to pay the higher fees of active managers. Investors should instead index (i.e. invest passively relative to a benchmark), diversify broadly, rebalance frequently to an "efficient" target asset allocation, focus only on the long term, and grit their teeth while waiting out market downturns. Finally, bubbles and crashes need not concern investors, since prices are rational based on available information.

There's a problem here, though: Real life doesn't look like this. In real life, taxes and transactions costs ***do*** exist, and they often prevent real investors from undertaking theoretically appropriate actions, such as selling a highly appreciated asset (which would generate a capital gains tax bill). Bubbles and crashes, as we have witnessed and suffered through, do occur.

Real investors don't act like this, either. Real people can and do invest emotionally, and sometimes without fully or accurately weighing the tradeoff of the potential upside return and downside risk of what they are doing. Very few real people define risk as the standard deviation of returns. And finally, not all market participants are motivated by concerns of profit maximization. Governments, for example, may intervene in markets to further social goals, such as encouraging home ownership or stabilizing financial markets, rather than to make money.

[5] Definitions of asset class, standard deviation, correlation, active management and other technical terms can be found on www.beekmanwealth.com, in the Glossary, under the tab titled Useful Resources.

The shortcomings of this early traditional finance academic work pushed researchers to explore more realistically how ***actual*** market and investor behavior could be better understood. At the end of the day, the academic models just hadn't proven very useful for making money or avoiding losses in the real world. As a result, a new field of inquiry, coined "behavioral finance," sought out better ways to understand and document how investors and markets *actually* behave, and to explain why.

## II. Behavioral Finance

The early roots of behavioral finance can be traced back to the 1960s, and much like the music of the Beatles, brought on a powerful new trend. Over the course of three decades into the 90's, groups of academic psychologists, mathematicians, and economists[6], began studying the "why" and "how" of economic decision-making under different conditions of risk and uncertainty. Their findings suggested that decisions are influenced by emotions and psychological factors, and that real-world investor behavior differs greatly from the predictions of economic models of rational behavior.

For example, real-world investors habitually act upon biases – mental shortcuts and rules of thumb – in their thinking. The two main kinds are termed "heuristics-driven" biases and "frame-dependence" biases. In less technical words, these are perceptual biases about the way things *are* (heuristics-driven biases) and about the way things *look* (frame-dependence biases).

The most prevalent types of ***heuristics-driven biases*** include:

- **Availability bias:** *It must be true: I saw it on TV!* Availability bias is a mental shortcut that occurs when people make judgments about the probability of events based on how easy it is to think of examples. For example, after seeing many news stories about brilliant young people founding successful companies even before finishing school, investors (and parents) may wonder why their own tech-savvy offspring haven't managed to get rich.

- **Gambler's Fallacy:** *I'm due for a winner.* Gambler's Fallacy is the belief that if deviations from expected behavior are observed in repeated iterations of a random process, future deviations in the opposite direction are then more likely. In the financial world, this may take the form of believing that, if several investments in a row have lost money, the next must surely be a winner. In reality, of course, several losing investments in a row may imply lack of skill in the selection process.

- **Overconfidence** and **Expert Judgment:** *My broker is E.F. Hutton and…* Readers of a certain age may recognize the beginning of a television commercial from the 1970s and 1980s, for a then-well-regarded stock brokerage firm first founded in 1904. The commercial took place in a crowded, noisy restaurant. One diner began telling his companions that E.F. Hutton was his broker — at which point the restaurant went completely silent, as everyone stopped eating and leaned in to hear the presumed wisdom of E.F. Hutton's brokers. The diners were falling into the Expert Judgment bias — the belief that people portrayed as experts know more than they actually do. The commercials might also have predisposed brokers *working* at E.F. Hutton to Overconfidence bias — the belief that they, themselves, knew more than they actually did[7].

- **Anchoring:** *Can't-lose investment tip, 2005 version: Real estate will never go down. Can't-lose investment tip, 2009 version: Real estate will never go up.* Anchoring is the tendency to use the most recent information as the appropriate "base case" in setting the probabilities of future events. This can fuel for the next bubble or crash, as investors pursue recent trends beyond the point of sustainability[8].

- **Aversion to ambiguity:** *I want my blankie.* Ambiguity is uncomfortable for most people; certainty

[6] Amos Tversky and Daniel Kahneman are probably the best-known behavioral finance theorists, but many others have contributed to the field.

[7] In reality, E.F. Hutton lacked sufficient expert judgment to keep itself in business: The company engaged in a check-kiting scheme for years, and in May of 1985 pled guilty to mail and wire fraud. Although the firm was allowed to stay in business after its guilty plea and fine, two years later a Rhode Island branch office was found to have laundered money for the Patriarca crime family. This, along with the 1987 stock market crash and a downgrade in Hutton's commercial paper rating, caused a near-collapse and the sale of the firm to Shearson Lehman.

[8] See, for example, internet stocks in 1999.

— including certainty about risks — is prized. Thus, investors may discard opportunities for which the risks are not familiar or easily calculable.[9]

***Frame-dependence biases*** include:

- **Loss aversion:** *Get even and get out.* Most investors—indeed, most people in general—hate to lose. Academic studies indicate that the pain of an economic loss is roughly twice as intense as the pleasure of a gain. Investors may, therefore, hang onto a losing position long past the point where this makes economic sense, waiting for it to rise back to "even" so they can exit without realizing a loss.
- **Mental accounting:** *Never touch principal.* Mental accounting is the tendency to value dollars differently, depending on where they came from or the use to which they will be put. So, for example, $1,000 (or $100, or $1,000,000) earned as a bonus from working at a job will probably feel, and be treated, differently from the same amount of dollars received as an inheritance[10].
- **Money illusion:** *My first car only cost $5,000.* Money illusion refers to the tendency to think in terms of nominal dollars, rather than real, inflation-adjusted dollars.

The common ground beneath many of the cognitive biases described is the desire to make sense of the world in a way that feels simple and comfortable. In particular, there seems to be a normal human ***will to believe:***

- In the wisdom of others.
- In the altruism of others.
- That we are in control.
- That we understand what is going on.

Harnessing the insights of behavioral finance generally requires a conscious effort to combat this pervasive will to believe.

## III. Becoming a Better Investor

Becoming a better investor requires, above all, the willingness to step back and evaluate critically one's own prospective investment decisions. The goal of this evaluation is to promote a pattern of ***acting rationally, rather than reacting emotionally.***

Let's explore a few examples.

**Case #1:** Consider a hypothetical investor holding stock in XYZ company, purchased at $50 per share and currently trading at $40 per share. That is, this investor is holding a security with an unrealized loss of -20%.

This situation is likely to trigger the heuristics-driven bias of **loss aversion.** The investor's likely action is to hang on in hopes of a stock price rebound, so as to avoid the emotional pain of confronting a realized loss.

The investor striving to act rationally, on the other hand, has a lengthier and much more deliberate mental process to work through. This process will attempt to calculate the expected relative value of selling versus holding the losing position.

If the investor sells, s/he will lock in a loss, but it will be less than -20% after taxes, because the loss, once realized, can be used to offset the taxable gains on winning securities. For example, at a capital gains tax rate of 20%, the after-tax loss will be -16%, rather than -20% (the value of the tax offset benefit is 20% X 20% = 4%). Therefore, after the tax benefit, the value of selling the position is $42 of effective after-tax proceeds generated for reinvestment.

The investor acting rationally would then try to determine whether holding the current $40 stock is likely to yield a better result than reinvesting these after-tax proceeds. This depends critically on the likelihood and magnitude of the price recovery in the current stock. That, in turn, depends on questions such as why the stock price declined

[9] For example, consider the PPIP (public-private investment partnerships) funds raised in 2009 as part of the U.S. Treasury's Troubled Asset Relief Program (TARP). These were funds raised by nine large investment firms, with financing and guarantees provided by the federal government, to purchase troubled assets out of financial institutions, typically at steep discounts. The investment premise appeared compelling, and yet—because such a program had never before been created-- the risks were unfamiliar. Investors uncomfortable with ambiguity, passed. Those who took the plunge were well-rewarded.

[10] This can sometimes be a useful tendency. Trustees and other advisors may, for example, find it helpful to create a "no-touch" mindset about a set of assets—even if they are not in a legally distinct vehicle — for clients who tend to overspend.

in the first place, and what would need to happen for it to rise again.

A -20% decline in the stock price of a bank during the fourth quarter of 2008 would have implied an unusually strong bank, in an environment in which many bank stocks fell -50% or more. A -20% decline in the stock price of a struggling consumer electronics company during a strong bull market, on the other hand, might be a sign of poor management or obsolescence in the product line. Holding onto the bank stock, but selling the electronics stock, might be the appropriate responses of an investor acting rationally.

**Case #2:** Consider an investor whose entire portfolio is dominated by the securities of one company. She owns shares outright; she owns options to buy more shares; and her 401(k) plan at work is stuffed with the same shares. And depending on the future path of the stock price, she might keep her job — or not.

This may sound extreme, but this hypothetical describes many real-life investors during the late-1990s technology bubble. They were employees of recently-public technology companies, and their compensation, the value of their financial assets, and their livelihoods all depended on the future success of those companies, some of which weren't much more than an idea.

A primary reason many employees held onto large proportions of employer securities rather than diversifying into other securities was the greater familiarity they had with their employers, versus other companies. That is, these investors, who were often young and without investment experience, fell into the frame-dependent bias of **aversion to ambiguity.**

An investor acting rationally, on the other hand, might profitably use a technique called "reframing", which refers to the deliberate attempt to change one's mental starting point. Rather than a mental starting point of, say, $10 million worth of *pets.com* stock and stock options, she might ask herself what she would do if she were instead starting from a pile of $7 million in cash (or whatever the after-tax proceeds of cashing in the stock and options would be). Would she, in that circumstance, choose to put her entire portfolio into that one stock?

For most people, this reframing of the issue will be sufficient to move them towards a rational investment decision, which is to sell off at least some of the employer securities in order to diversify into other assets.

**Case #3:** Consider a wealthy heir who has recently hired a well-known accounting firm to provide tax accounting, tax planning, and bill-paying services. The accounting partner in charge of the relationship with this heir recommends that he invest in a new real estate fund being raised by a firm that has made some very lucrative investments in the past. The track record does, in fact, show some very high returns on past investments — one of more than 600%.

It would be understandable for this investor to take the advice of his accountant and buy into the real estate fund. Doing so would be an indication that the investor was relying on the **expert judgment** of his accountant. However, an investor attempting to act rationally might take a step backwards and apply some appropriate skepticism before falling into this heuristics-driven bias.

The wise investor — or his financial advisor — might ask, for example, whether a professional selected primarily to provide tax advice and compliance had the requisite expertise to be recommending investments. He might question whether there were any ulterior motives or conflicts of interest in the advice given. He might wonder, also, how realistic the track record was, and whether it was indicative of likely future results.

This case describes the actual experience of a BWA client, who asked us for our take on the proposed investment in a fund being raised in mid-2007. We quickly determined that the track record in question was based on highly-leveraged investments in an unsustainably frothy real estate market, and that the fund in question was paying out commissions of 3% of assets raised to referral sources (such as the accountant). We recommended against investing; the fund in question subsequently lost nearly all of the investor capital entrusted to it.

Savvy readers will note a similarity between these three situations: Decision-making based on rational actions is likely to be much more successful than decision-making

based on emotional reactions. It is also, however, harder and more time-consuming to accomplish, and may require skills that most investors simply don't possess.

## IV. Making Sense of It All

Real-life experience suggests that markets are mostly efficient on average and over long time periods, but are subject to herding and irrational investor behavior over shorter terms. The insights from behavioral finance can be used by smart investors to lean against the herd and against *their own emotions:* This can be helpful in investment decision-making, and may be especially useful in helping to preserve existing wealth.

Those investors who are unsure of their abilities to act rationally about investment decision-making would be wise to seek help. Beekman Wealth Advisory has been providing high-quality portfolio management and wealth education services to investors since 2003. If you would like to learn more about how our experience and perspective might benefit you, please do not hesitate to contact us.

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Publication Date: October, 2013