

FROM BEHAVIORAL BIAS TO RATIONAL INVESTING

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Classical economics assumes individuals make rational choices, but human behavior is not always so rational. The application of psychology to economics dates to the 18th century, but not until the 1970s did Daniel Kahneman (a psychologist and winner of the 2002 Nobel Prize in Economic Sciences), Amos Tversky and others begin to compare their empirical research to economic models of rational behavior – creating the field of behavioral economics.

Behavioral finance identifies behavioral biases that can produce suboptimal financial outcomes. There are perhaps dozens of documented behavioral biases, but we have observed that a handful of them can meaningfully affect investment outcomes.

- Recency bias,
- Illusion of control,
- Loss aversion,
- Familiarity bias, and
- Mental accounting.

Recency bias is the tendency to overweight the importance of recent observations relative to the full set of observations and information. This bias shows up as chasing recent returns, hot investment funds or the latest investment fads.

For example, if you began 2016 by reducing exposure to emerging market or natural resource stocks in response to their 2015 returns, you may have a recency bias. But if new information is quickly priced in by a highly competitive (efficient) market, prior returns do not predict future returns. In this case, returns would be randomly distributed around some positive average expected return because return expectations are forward-looking and future news is unknown. This is called a random walk in securities prices, and although incomplete, it is a pretty good description of observed capital market returns for portfolio investors.

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Illusion of control is the tendency to overestimate one’s ability to control events. Investors exhibit this bias when they believe that they can consistently select securities, time markets or pick the best investment funds. But if markets are highly competitive and returns largely exhibit random walk behaviors, then such activities will not be consistently rewarded. The illusion of control is fortified by **hindsight bias**, which is the tendency to perceive past events as predictable, even if they were not. Optimal investment outcomes require knowing what you can and can’t control, and focusing your efforts and resources on what you can control. Our October 2015 commentary, “Focus on What You Can Control,” noted that asset allocation, seeking value for expenses and tax efficiency are three areas investors do control.

Loss aversion is the tendency to asymmetrically prefer avoiding losses over acquiring gains. This behavior is consistent with the marginal utility of wealth, where a dollar is valued more (less) with decreasing (increasing) levels of wealth. A diversified multi-asset class portfolio should offer an approximately symmetrical return distribution. Under this condition, a rational and informed investor would consider risk to be the uncertainty or volatility around the average expected return outcome. However, loss aversion suggests the investor weighs the negative returns differently than what the volatility around the expected return captures. This bias can result in a misalignment between the portfolio and the investor’s true risk aversion, or costly market timing, leading to a suboptimal outcome.

Familiarity bias is the tendency to favor the familiar over the unfamiliar. For investors, a good example is **home bias**, which is the preference for owning equities of companies based in one’s home country, even though a global equity allocation is more diversified. This is particularly a problem for investors domiciled in countries with small capital markets, but even U.S. investors give up a diversification benefit when they have a home bias.

Mental accounting is the tendency to separate assets or liabilities (including goals) into non-fungible groups. Investors may view their total investment portfolio as composed of different underlying sub-portfolios, with each sub-portfolio having its own purpose. Mental accounts can include goals like retirement, education and bequests – and the sub-portfolios of assets that fund them. But they can also

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COMMON BEHAVIORAL BIASES	
Recency Bias	Overweigh the importance of recent observations
Illusion of Control	Overestimate one’s ability to control events
Hindsight Bias	Perceive past events as predictable when they were not
Loss Aversion	Prefer avoiding losses over acquiring gains
Home Bias	Prefer the familiar (U.S. equity) to the unfamiliar (global equity)
Mental Accounting	Separate assets into non-fungible groups
Endowment Bias	Ascribe more value to assets already owned
Anchoring Bias	Cling to arbitrary price levels

be a concentrated asset with a psychological attachment (often the asset that generated the wealth). In this case, an **endowment bias** is also present, which is the tendency to ascribe more value to assets already owned. **Anchoring bias** is the tendency to cling to an arbitrary price level (e.g., the purchase price or a higher or lower historical price) when making a buy or sell decision. **Anchoring bias** is perhaps more common to mental accounts that are either large relative to overall wealth or have some psychological attachment, such as the family home or a concentrated asset. Mental accounting can produce a suboptimal total portfolio when the asset allocation process is inconsistent with portfolio theory. But with the right framework, mental accounts can be incorporated into the asset allocation process to produce optimal portfolios that are more highly customized to the investor's circumstances.

DO BEHAVIORAL BIASES HAVE MACRO-LEVEL EFFECTS?

The main criticism of behavioral finance is that micro-level behavioral biases do not carry into macro-level markets. Are markets highly competitive or do they exhibit systematic mispricing driven by behavioral biases and suboptimal decision-making? We can look to market anomalies and the prevalence of alpha (risk-adjusted excess return attributed to manager skill) to help answer this question.

Some documented return anomalies may be inconsistent with strict interpretations of efficient markets theory. Value and momentum are two of the most prevalent return anomalies. The value factor is the return premium of value stocks over growth stocks. The momentum factor is the continued return of stocks with higher prior return over the continued return of stocks with lower prior return. Value and momentum return premiums are robust over long periods and across different markets and asset classes. The source of value and momentum returns may be risk, behavioral or some combination of the two.

If the source of the return premiums were risk, then value and momentum premiums would be consistent with efficient markets theory. In this case, investors would be compensated on average for bearing the higher risk of value and momentum stocks, which may be related to a higher cost of capital through some form of distress or information uncertainty. If the source of the return premiums were behavioral, then these premiums would be inconsistent with efficient markets theory, as investors would be systematically mispricing these assets.

Despite significant research, there is not a consensus on whether value and momentum returns are predominately risk-based or behavioral. Regardless, these are additional sources of return available to investors, as we discuss in our November 2013 commentary, "Engineered Beta – the Benefits of Diversified Factor Investing."

But after adjusting for value, momentum and other investable factors known to explain returns, the evidence suggests that true alpha is rare. We demonstrated this in our April 2015 commentary, "Detecting True Alpha in Highly Competitive Markets," where we found that the number of high-performing funds with robust

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(statistically significant) alphas is nearly equal to the number predicted by chance (luck). Alphas were largely random, and true risk-adjusted alpha net-of-expenses is rare. The result is consistent with highly competitive capital markets that dynamically adapt to new information and price a competitive expected return to compensate for risk. This suggests that although behavioral biases are present at the micro level and certain return anomalies exist at the macro level, investors may achieve better investment outcomes in practice if they were to invest as if markets were rational and efficient.

MITIGATING BEHAVIORAL BIASES

At least three methods exist to help mitigate behavioral biases when investing: education, investment process and goals-based investing. The first step is education – recognizing that these behavioral biases exist in the human psyche and to be self-aware. When making an investment decision, consider if one or more of the biases we've discussed might influence that decision. That basic control may be sufficient to reconsider the investment decision more rationally.

When a large group of professional investors was sampled by Daniel Kahneman at a financial conference in late 2015, the results of the survey were surprisingly inconsistent with the research on behavioral biases in financial decision-making. He noted that while professional investors may now be aware of these biases and have been trained to mitigate them, their clients have not. Education is critical.

A formal investment process also mitigates behavioral biases. The benefit of a sound investment process is that it is objectively designed long before making any specific investment decisions that may be influenced by biases. A good process is structured to eliminate or reduce the potential impact of biases. For example, the investment process may entail:

- Identifying goals and investment objectives;
- Optimizing the portfolio in consideration of long-term capital market assumptions, while using the global market portfolio as a theoretically sound benchmark;
- Selecting an optimal portfolio with defined asset class targets;
- Staying within allowable asset class ranges determined by their proportionality to the target and volatility;
- Fulfilling the asset allocation with passive, engineered beta or select active solutions in consideration of value for expenses paid and tax efficiency;
- Staying the course until the process is repeated at predetermined intervals.

Goals-based investing mitigates behavioral biases holistically while also producing an optimal lifetime asset allocation. It focuses investors on the purpose of their assets, which is to efficiently fund lifetime goals, such as consumption and gifts. It exploits mental accounting bias to produce a dynamic asset allocation customized by unique goals (mental accounts), risk preferences and circumstances.

Education, investment process and goals-based investing help mitigate behavioral biases.

By employing an intuitive definition of risk preference to drive portfolio selection, the method mitigates loss-aversion bias. Recency bias and the illusion of control are mitigated by changing investor focus from short-term return and volatility (which they cannot control) to a decision-making framework based on lifetime goals, their funding status and adaptive trade-offs (which they can control). Goals-based investing provides a framework for more-informed decision-making, which leads to more-rational investing and better investment outcomes.

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