ALLODIUM®
INVESTMENT CONSULTANTS

March 1, 2019

The ABCs of Behavioral Biases

EXECUTIVE SUMMARY

Learn how you can potentially avoid the pitfalls of behavioral biases. Your own behavioral biases are some of the most insidious dangers to your financial well-being. This white paper describes many of the common behavioral biases that often plague investors. These behavioral biases include anchoring bias, blind spot bias, confirmation bias and the list goes on alphabetically to tracking error regret. This paper shows how some of these behaviors can be both helpful at times and harmful at other times. A helpful chart that summarizes the symptoms and damage of each of the behavioral biases is included at the end.

Allodium Investment Consultants • 500 Washington Avenue South • Suite 4400 • Minneapolis, MN 55415 • 612-230-3700 • www.allodium.com

Introduction

By now, you've probably heard the news: ***Your own behavioral biases are often the greatest threat to your financial well-being.*** As investors, we leap before we look. We stay when we should go. We cringe at the very risks that are expected to generate our greatest rewards. All the while, we rush into nearly every move, only to fret and regret them long after the deed is done.

Why Do We Have Behavioral Biases?

Most of the behavioral biases that influence your investment decisions come from myriad mental shortcuts we depend on to think more efficiently and act more effectively in our busy lives. Usually (but not always) these short-cuts work well for us. They can be powerful allies when we encounter physical threats that demand reflexive reaction, or even when we're simply trying to stay afloat in the rushing roar of deliberations and decisions we face every day.

What Do They Do To Us?

Those same survival-driven instincts that are otherwise so helpful can turn deadly in investing. They overlap with one another, gang up on us, confuse us and contribute to multiple levels of damage done.

Friend or foe, behavioral biases are a formidable force. Even once you know they're there, you'll probably still experience them. It's what your brain does with the chemically induced instincts that fire off in your head long before your higher functions kick in. They trick us into wallowing in what financial author and neurologist William J. Bernstein, MD, PhD, describes as a "Petrie dish of financially pathologic behavior," including:

- **Counterproductive trading**: incurring more trading expenses than are necessary, buying when prices are high and selling when they're low.
- **Excessive risk-taking:** rejecting the "risk insurance" that global diversification provides, instead over-concentrating in recent winners and abandoning recent losers.
- **Favoring emotions over evidence**: disregarding decades of evidence-based advice on investment best practices.

What Can We Do About Them?

In the "ABCs of Behavioral Biases," we'll offer an alphabetic introduction to investors' most damaging behavioral biases, so you can more readily recognize and defend against them the next time they're happening to you. Here are a few additional ways you can defend against the behaviorally biased enemy within:

Anchor your investing in a solid plan: By anchoring your trading activities in a carefully constructed plan (with predetermined asset allocations that reflect your personal goals and risk tolerances), you'll stand a much better chance of overcoming the bias-driven distractions that rock your resolve along the way.

Increase your understanding: Don't just take our word for it. Here is an entertaining and informative library on the fascinating relationship between your mind and your money:

- "Predictably Irrational," Dan Ariely
- "Why Smart People Make Big Money Mistakes," Gary Belsky, Thomas Gilovich
- "Stumbling on Happiness," Daniel Gilbert
- "Thinking, Fast and Slow," Daniel Kahneman
- "The Undoing Project," Michael Lewis
- "Nudge," Richard Thaler, Cass Sunstein
- "Your Money & Your Brain," Jason Zweig

Don't go it alone: Just as you can't see your face without the benefit of a mirror, your brain has a difficult time "seeing" its own biases. Having an objective advisor well-versed in behavioral finance, dedicated to serving your highest financial interests, and unafraid to show you what you cannot see for yourself, is among your strongest defenses against the biases we'll present throughout the rest of this white paper.

As you learn and explore, we hope you'll discover: You may be unable to prevent your behavioral biases from staging attacks on your financial resolve. But, forewarned is forearmed. You stand a much better chance of thwarting them once you know they're there!

The ABCs of Behavioral Biases A–F

We'll get started by introducing you to four self-inflicted biases that knock a number of investors off-course: anchoring, blind spot, confirmation and familiarity bias.

Anchoring Bias

What is it? Anchoring bias occurs when you fix on or "anchor" your decisions to a reference point, whether or not it's a valid one.

When is it helpful? An anchor point can be helpful when it is relevant and contributes to good decision-making. For example, if you've set a 10:00 p.m. curfew for your son or daughter and it's now 9:55 p.m., your offspring would be wise to panic a bit, and step up the homeward pace.

When is it harmful? In investing, people often anchor on the price they paid when deciding whether to sell or hold a security: *"I paid $11 /share for this stock and now it's only worth $9/share. I'll hold off selling it until I've broken even."* This is an example of anchoring bias in disguise. Evidence-based investing informs us, the best time to sell a holding is when it's no longer serving your ideal total portfolio, as prescribed by your investment plans. What you paid is irrelevant to that decision, so anchoring on that arbitrary point creates a dangerous distraction.

Blind Spot Bias

What is it? Blind spot bias occurs when you can objectively assess others' behavioral biases, but you cannot recognize your own.

When is it helpful? Blind spot bias helps you avoid over-analyzing your every imperfection, so you can get on with your one life to live. It helps you tell yourself, "I can do this," even when others may have their doubts.

When is it harmful? It's hard enough to root out all your deep-seated biases once you're aware of them, let alone the ones you remain blind to. In "Thinking, Fast and Slow," Nobel laureate Daniel Kahneman describes (emphasis ours): "We are often confident ***even when we are wrong***, and an objective observer is more likely to detect our errors than we are." (Hint: This is where second opinions from an independent advisor can come in especially handy.)

Confirmation Bias

What is it? We humans love to be right and hate to be wrong. This manifests as confirmation bias, which tricks us into being extra sympathetic to information that supports our beliefs and especially suspicious of—or even entirely blind to—conflicting evidence.

When is it helpful? When it's working in our favor, confirmation bias helps us build on past insights to more readily resolve new, similar challenges. Imagine if you otherwise had to approach each new piece of information with no opinion, mulling over every new idea from scratch. While you'd be a most open-minded person, you'd also be a most indecisive one.

When is it harmful? Once we believe something— such as an investment is a good/bad idea, or a market is about to tank or soar—we want to keep believing it. To remain convinced, we'll tune out news that contradicts our beliefs and tune into that which favors them. We'll discount facts that would change our mind, find false affirmation in random coincidences, and justify fallacies and mistaken assumptions that we would otherwise recognize as inappropriate. And we'll do all this without even knowing it's happening. Even stock analysts may be influenced by this bias.

Familiarity Bias

What is it? Familiarity bias is another mental shortcut we use to more quickly trust (or more slowly reject) an object that is familiar to us.

When is it helpful? Do you cheer for your home-town team? Speak more openly with friends than strangers? Favor a job applicant who (all else being equal) has been recommended by one of your best employees? Congratulations, you're making good use of familiarity bias.

When is it harmful? Considerable evidence tells us that a broad, globally diversified approach best enables us to capture expected market returns while managing the risks involved. Yet studies like this one have shown investors often instead overweight their allocations to familiar vs. foreign investments. We instinctively assume familiar holdings are safer or better, even though, clearly, we can't *all* be correct at once. We also tend to be more comfortable than we should be bulking up on company stock in our retirement plan.

Ready to learn more? Next, we'll continue through the alphabet, introducing a few more of the most suspect financial behavioral biases.

The ABCs of Behavioral Biases F–H

Let's continue our alphabetic tour of common behavioral biases that distract otherwise rational investors from making best choices about their wealth. Now, we'll tackle: fear, framing, greed and herd mentality.

Fear

What is it? You know what fear is, but it may be less obvious how it works. As Jason Zweig describes in "Your Money & Your Brain," if your brain perceives a threat, it spews chemicals like corticosterone that "flood your body with fear signals before you are consciously aware of being afraid." Some suggest this isn't really "fear," since you don't have time to think before you act. Call it what you will, this bias can heavily influence your next moves—for better or worse.

When is it helpful? Of course there are times you probably *should* be afraid, with no time for studious reflection about a life-saving act. If you are reading this today, it strongly suggests you and your ancestors have made good use of these sorts of survival instincts many times over.

When is it harmful? Zweig and others have described how our brain reacts to a plummeting market in the same way it responds to a physical threat like a rattlesnake. While you may be well-served to leap before you look at a snake, doing the same with your investments can bite you. Also, our financial fears are often misplaced. We tend to overcompensate for more memorable risks (like a flash crash), while ignoring more subtle ones that can be just as harmful or much easier to prevent (like inflation, eroding your spending power over time).

Framing

What is it? "Thinking, Fast and Slow," Nobel laureate Daniel Kahneman defines the effects of framing as follows: "Different ways of presenting the same information often evoke different emotions." For example,

he explains how consumers tend to prefer cold cuts labeled "90% fat-free" over those labeled "10% fat." By narrowly framing the information (fat-free = good, fat = bad; never mind the rest), we fail to consider all the facts as a whole.

When is it helpful? Have you ever faced an enormous project or goal that left you feeling overwhelmed? Framing helps us take on seemingly insurmountable challenges by focusing on one step at a time until, over time, the job is done. In this context, it can be a helpful assistant.

When is it harmful? To achieve your personal financial goals, you've got to do more than score isolated victories in the market; you've got to "win the war." As UCLA's Shlomo Benartzi describes in a *Wall Street Journal piece*, this demands strategic planning and unified portfolio management, with individual holdings considered within the greater context. Investors who instead succumb to narrow framing often end up falling off-course and incurring unnecessary costs by chasing or fleeing isolated investments.

Greed

What is it? Like fear, greed requires no formal introduction. In investing, the term usually refers to our tendency to (greedily) chase hot stocks, sectors or markets, hoping to score larger-than-life returns. In doing so, we ignore the oversized risks typically involved as well.

When is it helpful? In Oliver Stone's Oscar-winning "Wall Street," Gordon Gekko (based on the notorious real-life trader Ivan Boesky) makes a valid point …to a point: "[G]reed, for lack of a better word, is good. … Greed, in all of its forms; greed for life, for money, for love, knowledge has marked the upward surge of mankind." In other words, there are times when a little greed—call it ambition—can inspire greater achievements.

When is it harmful? In our cut-throat markets (where you're up against the Boeskys of the world), greed and fear become a two-sided coin that you flip at your own peril. Heads or tails, both are accompanied by chemical responses to stimuli we're unaware of and have no control over. Overindulging in either extreme leads to unnecessary trading at inopportune times.

Herd Mentality

What is it? Mooove over, cows. You've got nothing on us humans, who instinctively recoil or rush headlong into excitement when we see others doing the same. "[T]he idea that people conform to the behavior of others is among the most accepted principles of psychology," say Gary Belsky and Thomas Gilovich in "Why Smart People Make Big Money Mistakes."

When is it helpful? If you've ever gone to a hot new restaurant, followed a fashion trend, or binged on a hit series, you've been influenced by herd mentality. "Mostly such conformity is a good thing, and it's one of the reasons that societies are able to function," say Belsky and Gilovich. It helps us create order out of chaos in traffic, legal and governmental systems alike.

When is it harmful? Whenever a piece of the market is on a hot run or in a cold plunge, herd mentality intensifies our greedy or fearful chain reaction to the random event that generated the excitement to begin with. Once the dust settles, those who have reacted to the near-term noise are usually the ones who end upoverpaying for the "privilege" of chasing or fleeing temporary trends instead of staying the course toward their long-term goals. As Warren Buffett has famously said, "Investors should remember that excitement and expenses are their enemies. And if they insist on trying to time their participation in equities, they should try to be fearful when others are greedy and greedy only when others are fearful."

Allodium Investment Consultants • 500 Washington Avenue South • Suite 4400 • Minneapolis, MN 55415 • 612-230-3700 • www.allodium.com

The ABCs of Behavioral Biases H–O

There are so many investment-impacting behavioral biases, we could probably identify at least one for nearly every letter in the alphabet. Today, we'll continue with the most significant ones by looking at: hindsight, loss aversion, mental accounting and outcome bias .

Hindsight

What is it? In "Thinking, Fast and Slow," Nobel laureate Daniel Kahneman credits Baruch Fischhoff for demonstrating hindsight bias—the "I knew it all along" effect—when he was still a student. Kahneman describes hindsight bias as a "robust cognitive illusion" that causes us to believe our memory is correct when it is not. For example, say you expected a candidate to lose, but she ended up winning. When asked *afterward* how strongly you predicted the actual outcome, you're likely to recall giving it higher odds than you originally did. This seems like something straight out of a science fiction novel, but it really does happen!

When is it helpful? Similar to blind spot bias (one of the first biases we covered) hindsight bias helps us assume a more comforting, upbeat outlook in life. As "Why Smart People Make Big Money Mistakes" authors Gary Belsky and Thomas Gilovich describe it, "We humans have developed sneaky habits to look back on ourselves in pride." Sometimes, this causes no harm, and may even help us move past prior setbacks.

When is it harmful? Hindsight bias is hazardous to investors, since your best financial decisions come from realistic assessments of market risks and rewards. As Kahneman explains, hindsight bias "leads observers to assess the quality of a decision not by whether the process was sound but by whether its outcome was good or bad." If a high-risk investment happens to outperform, but you conveniently forget how risky it truly was, you may load up on too much of it and not be so lucky moving forward. On the flip side, you may too quickly abandon an underperforming holding, deceiving yourself into dismissing it as a bad bet to begin with.

Loss Aversion

What is it? "Loss aversion" is a fancy way of saying we often fear losing more than we crave winning, which leads to some interesting results when balancing risks and rewards. For example, in "Stumbling on Happiness," Daniel Gilbert describes: "[M]ost of us would refuse a bet that gives us an 85 percent chance of doubling our life savings and a 15 percent chance of losing it." Even though the odds favor a big win, imagining that slight chance that you might go broke leads most people to decide it's just not worth the risk.

When is it helpful? To cite one illustration of when loss aversion plays in your favor, consider the home and auto insurance you buy every year. It's unlikely your house will burn to the ground, your car will be stolen, or an act of negligence will cost you your life's savings in court. But loss aversion reminds us that *unlikely* does not mean *impossible*. It still makes good sense to protect against worst-case scenarios when we know the recovery would be very painful indeed.

When is it harmful? One way loss aversion plays against you is if you decide to sit in cash or bonds during bear markets—or even when all is well, but a correction feels overdue. The evidence demonstrates that you are expected to end up with higher long-term returns by at least staying put, if not bulking up on stocks when they are "cheap." And yet, the *potential* for future loss can frighten us into abandoning our carefully planned course toward the *likelihood* of long-term returns.

Mental Accounting

What is it? If you've ever treated one dollar differently from another when assessing its worth, that's mental accounting at play. For example, if you assume inherited money must be more responsibly managed than

When is it helpful? In his early paper, "Mental Accounting Matters," Nobel laureate Richard Thaler (who is credited for having coined the term), describes how people use mental accounting "to keep trace of where their money is going, and to keep spending under control." For example, say you set aside $250/month for a fun family outing. This does not actually obligate you to spend the money as planned or to stick to your budget. But by effectively assigning *this* function to *that* money, you're better positioned to enjoy your leisure time, without overdoing it.

When is it harmful? While mental accounting can foster good saving and spending habits, it plays against you if you instead let it undermine your rational investing. Say, for example, you're emotionally attached to a stock you inherited from a beloved aunt. You may be unwilling to unload it, even if reason dictates that you should. You've just mentally accounted your aunt's bequest into a place that detracts from rather than contributes to your best financial interests.

Outcome Bias

What is it? Sometimes, good or bad outcomes are the result of good or bad decisions; other times (such as when you try to forecast future market movements), it's just random luck. Outcome bias is when you mistake that luck as skill.

When is it helpful? This may be one bias that is never really helpful in the long run. If you've just experienced good or bad luck rather than made a smart or dumb decision, when *wouldn't* you want to know the difference, so you can live and learn?

When is it harmful? As Kahneman describes in "Thinking, Fast and Slow," outcome bias "makes it almost impossible to evaluate a decision properly – in terms of the beliefs that were reasonable when the decision was made." It causes us to be overly critical of sound decisions if the results happen to disappoint. Conversely, it generates a "halo effect," assigning undeserved credit "to irresponsible risk seekers… who took a crazy gamble and won." In short, especially when it's paired with hindsight bias, this is dangerous stuff in largely efficient markets. The more an individual happens to come out ahead on lucky bets, the more they may mistakenly believe there's more than just luck at play.

You're now more than halfway through our alphabetic series of behavioral biases.

The ABCs of Behavioral Biases O–R

So many financial behavioral biases, so little time! Let's take a few minutes to cover our next batch of biases: overconfidence, pattern recognition and recency.

Overconfidence

What is it? No sooner do we recover from one debilitating bias, our brain can whipsaw us in an equal but opposite direction. For example, we've already seen how fear on the one hand and greed on the other can knock investors off course either way. Similarly, overconfidence is the flip side of loss aversion. Once we've *got* something, we don't want to lose it and will overvalue it compared to its going rate. But when we are *pursuing* fame or fortune, or even going about our daily lives, we tend to be overconfident about our odds of success.

When is it helpful? In "Your Money & Your Brain," Jason Zweig cites several sources that describe overconfidence in action and why it's the norm rather than the exception in our lives. "How else could we ever get up the nerve to ask somebody out on a date, go on a job interview, or compete in a sport?" asks Zweig, and adds: "There is only one major group whose members do not consistently believe they are above average: people who are clinically depressed."

When is it harmful? While overconfidence can be generally beneficial, it becomes dangerous when you're investing. Interacting with a host of other biases (such as greed, confirmation bias and familiarity bias) overconfidence puffs up our belief that we can consistently beat the market by being smarter or luckier than average. In reality, when it's you, betting against the trillions and trillions of other dollars at play in our global markets, it's best to be brutally realistic about how to patiently participate in the market's expected returns, instead of trying to go for broke — potentially literally.

Pattern Recognition

What is it? Is that a zebra, a cheetah or a light breeze moving through the grass? Since prehistoric times when our ancestors depended on getting the right answer, right away, evolution has been conditioning our brains to find and interpret patterns — or else. That's why, our pattern-seeking impulses tend to treat even random events (like 10 coin flips, all heads) as if they're orderly outcomes suggesting a predictive pattern. "Just as nature abhors a vacuum, people hate randomness," says Zweig, as a result of our brain's dopamine-induced "prediction addiction."

When is it helpful? Had our ancestors failed at pattern recognition, we wouldn't be here to speak of it, and we still make good use of it today. For example, we stop at red lights and go when they're green. Is your spouse or partner giving you "that look"? You know just what it means before they've said a single word. And whether you enjoy a good jigsaw puzzle, Sudoku, or Rubik's Cube, you're giving your pattern recognition skills a healthy workout.

When is it harmful? Speaking of seeing red, Zweig recently published a fascinating piece on how simply presenting financial numbers in red instead of black can make investors more fearful and risk-averse. That's a powerful illustration of how pattern recognition can influence us— even if the so-called pattern (red = danger) is a red herring. Is any given stream of breaking financial news a predictive pattern worth pursuing? Or is it simply a deceptive mirage? Given how hard it is to tell the difference (until hindsight reveals the truth), investors are best off ignoring the market's many glittering distractions and focusing instead on their long-term goals.

Recency

What is it? Recency causes you to pay more attention to your most recent experiences, and to downplay the significance of long-term conditions. For example, in "Nudge," Nobel laureate Richard Thaler and co-author Cass Sunstein observe: "If floods have not occurred in the immediate past, people who live on floodplains are far less likely to purchase insurance." That's recency, tricking people into ascribing more importance to the lack of recent flooding than to the bigger context of being located on a flood plain.

When is it helpful? In "Stumbling on Happiness," Daniel Gilbert describes how we humans employ recency to accurately interpret otherwise ambiguous situations. For example, someone says to you, "Don't run into the bank!" Whether your most recent experience has been floating down a river or driving toward the commerce district helps you quickly decide whether to paddle harder or walk more carefully through the door.

When is it harmful? Of course buying *high* and selling *low* is exactly the opposite of investors' actual aspirations. And yet, no matter how many times our capital markets have moved through their bear-and bull cycles, recency causes droves of investors to stumble every time. By reacting to the most recent jolts instead of remaining positioned as planned for long-term expected growth, they end up piling into high-priced hot holdings and locking in losses by selling low during the downturns. They allow recency to get the better of them… and their most rational, evidence-based investment decisions.

Now, we're on the home stretch of our series on behavioral biases.

Allodium Investment Consultants • 500 Washington Avenue South • Suite 4400 • Minneapolis, MN 55415 • 612-230-3700 • www.allodium.com

The ABCs of Behavioral Biases S–Z

Now let's look at the final line-up: sunk cost fallacy and tracking error regret.

Sunk Cost Fallacy

What is it? Sunk cost fallacy makes it harder for us to lose something when we also face losing the time, energy or money we've already put into it. In "Why Smart People Make Big Money Mistakes," Gary Belsky and Thomas Gilovich describe: "[Sunk cost fallacy] is the primary reason most people would choose to risk traveling in a dangerous snowstorm if they had paid for a ticket to an important game or concert, while passing on the trip if they had been given the ticket for free." You're missing or attending the same event either way. But if a sunk cost is involved, it somehow makes it more difficult to let go, *even if you would be better off without it*.

When is it helpful? When a person, project or possession is truly worth it to you, sunk costs—the blood, sweat, tears and/or legal tender you've already poured into them—can help you take a deep breath and soldier on. Otherwise, let's face it. There might be those days when you'd be tempted to help your kids pack their "run away from home" bags yourself.

When is it harmful? Falling for financial sunk cost fallacy is so common, there's even a cliché for it: *throwing good money after bad*. There's little harm done if the toss is a small one, such as attending a prepaid event you'd rather have skipped. But in investing, adopting a sunk cost mentality—*"I can't unload this until I've at least broken even"*—can cost you untold real dollars by blinding you from selling at a loss when it is otherwise the right thing to do. The most rational investment strategy acknowledges we cannot control what already has happened to our investments; we can only position ourselves for future expected returns, according to the best evidence available to us at the time.

Tracking Error Regret

What is it? If you've ever decided the grass is greener on the other side, you've experienced tracking error regret—that gnawing envy you feel when you compare yourself to external standards and you wish you were more like them.

When is it helpful? If you're comparing yourself to a meaningful benchmark, tracking error-regret can be a positive force, spurring you to try harder. Say, for example, you're a professional athlete and you've been repeatedly losing to your peers. You may be prompted to embrace a new fitness regimen, rethink your equipment, or otherwise strive to improve your game.

When is it harmful? If you've structured your investment portfolio to reflect *your* goals and risk tolerances, it's important to remember that your near-term results may frequently march out of tune with "typical" returns …***by design***. It can be deeply damaging to your long-range plans if you compare your own performance to irrelevant, apples-to-oranges benchmarks such as the general market, the latest popular trends, or your neighbor's seemingly greener financial grass. Stop playing the *shoulda, woulda, coulda* game, chasing past returns you wish you had received based on random outperformance others (whose financial goals differ from yours) may have enjoyed. You're better off tending to your own fertile possibilities, guided by personalized planning, evidence-based investing, and accurate benchmark comparisons.

We've now reached the end of our alphabetic overview of the behavioral biases that most frequently lead investors astray.

The ABCs of Behavioral Biases Conclusion

We'll wrap the ABCs of Behavioral Biases by repeating our initial premise: ***Your own behavioral biases are often the greatest threat to your financial well-being.***

We hope we've demonstrated the many ways this single statement can play out, and how often our survival-mode brains trick us into making financial calls that foil our own best interests.

Evidence-Based Behavioral Finance

But don't take our word for it. Just as we turn to robust academic evidence to guide our disciplined investment strategy, so too do we turn to the work of behavioral finance scholars, to understand and employ effective defenses against your most aggressive behavioral biases.

If there weren't so much damage done, behavioral finance might be of merely academic interest. But given how often—and in how many ways—your fight-or-flight instincts collide with your rational investment plans, it's worth being aware of the tell-tale signs, so you can detect when a behavioral bias may be running roughshod over your higher reasoning.

Next Steps: Think Slow

Even once you're familiar with the behavioral biases that stand between you and clear-heading thinking, you'll probably still be routinely tempted to react to the fear, greed, doubt, recklessness and similar hot emotions they generate.

Nobel laureate Daniel Kahneman helps us understand why in his book, "Thinking, Fast and Slow," where he describes how we engage in System 1 (fast) and System 2 (slow) thinking: "In the picture that emerges from recent research, the intuitive System 1 is more influential than your experience tells you, and it is the secret author of many of the choices and judgments you make."

In other words, we can't help ourselves. When we think fast, our instincts tend to run the show; for better or worse, they're the first thoughts that come to mind.

This is one reason an objective advisor can be such a critical ally, helping you move past your System 1 thinking into more deliberate decision-making for your long-term goals. (On the flip side, financial providers who are themselves fixated on picking hot stocks or timing the market on your behalf are more likely to exacerbate than alleviate your most dangerous biases.)

Investors of "Ordinary Intelligence"

Berkshire Hathaway Chairman and CEO Warren Buffett is a businessman, not a behavioral economist. But he does have a way with words. We'll wrap with a bit of his timeless wisdom:

> "Success in investing doesn't correlate with I.Q. once you're above the level of 25. Once you have ordinary intelligence, what you need is the temperament to control the urges that get other people into trouble in investing."

If you can remember this cool-headed thinking the next time you're tempted to act on your investment instincts, Mr. Buffett's got nothing on you (except perhaps a few billion dollars). But if you could use some help managing the behavioral biases that are likely lurking in your blind spot, give us a call. In combatting that which you cannot see, two views are better than one.

© 2019 Allodium Investment Consultants

The information provided is for educational purposes only and is not intended to be, and should not be construed as, investment, legal or tax advice. Allodium makes no warranties with regard to the information or results obtained by its use and disclaim any liability arising out of your use of or reliance on the information. The information is subject to change and, although based upon information that Allodium considers reliable, is not guaranteed as to accuracy or completeness. Past performance is not a guarantee or a predictor of future results of either the indices or any particular investment.

Allodium Investment Consultants • 500 Washington Avenue South • Suite 4400 • Minneapolis, MN 55415 • 612-230-3700 • www.allodium.com

The ABCs of Behavioral Biases Summary

The Bias	Its Symptoms	The Damage Done
Anchoring	*Going down with the proverbial ship* by fixing on rules of thumb or references that don't serve your best interests.	"I paid $11/share for this stock and now it's only worth $9. I won't sell it until I've broken even."
Blind Spot	*The mirror might lie after all*. We can assess others' behavioral biases, but we often remain blind to our own.	"We are often confident even when we are wrong, and an objective observer is more likely to detect our errors than we are." (Daniel Kahneman)
Confirmation	*This "I thought so" bias* causes you to seek news that supports your beliefs and ignore conflicting evidence.	After forming initial reactions, we'll ignore new facts and find false affirmations to justify our chosen course . . . even if it would be in our best financial interest to consider a change.
Familiarity	*Familiarity breeds complacency*. We forget that "familiar" doesn't always mean "safer" or "better."	By overconcentrating in familiar assets (domestic vs. foreign, or a company stock) you *decrease* global diversification and *increase* your exposure to unnecessary market risks.
Fear	*Financial fear is that "Get me out, NOW" panic* we feel whenever the markets turn brutal.	"We'd never buy a shirt for full price then be O.K. returning it in exchange for the sale price. 'Scary' markets convince people this unequal exchange makes sense." (Carl Richards)
Framing	*Six of one or half a dozen of another?* Different ways of considering the same information can lead to illogically different conclusions.	Narrow framing can trick you into chasing or fleeing individual holdings, instead of managing everything you hold within the greater framework of your total portfolio.
Greed	*Excitement is an investor's enemy* (to paraphrase Warren Buffett.)	You can get burned in high-flying markets if you forget what really counts: managing risks, controlling costs, and sticking to plan.
Herd Mentality	*"If everyone jumped off a bridge . . ."* Your mother was right. Even if "everyone is doing it," that doesn't mean *you* should.	Herd mentality intensifies our greedy or fearful financial reactions to the random events that generated the excitement to begin with.
Hindsight	*"I knew it all along" (even if you didn't)*. When your hindsight isn't 20/20, your brain may subtly shift it until it is.	If you trust your "gut" instead of a disciplined investment strategy, you may be hitching your financial future to a skewed view of the past.
Loss Aversion	*No pain is even better than a gain.* We humans are hardwired to abhor losing even more than we crave winning.	Loss aversion causes investors to try to dodge bear markets, despite overwhelming evidence that market timing is more likely to increase costs and decrease expected returns.
Mental Accounting	*Not all money is created equal.* Mental accounting assigns different values to different dollars – such as inherited assets vs. lottery wins.	Reluctant to sell an inherited holding? Want to blow a windfall as "fun money"? Mental accounting can play against you if you let it overrule your best financial interests.
Outcome	*Luck or skill?* Even when an outcome is just random luck, your biased brain still may attribute it to special skills.	If you misattribute good or bad investment outcomes to a foresight you couldn't possibly have had, it imperils your ability to remain an objective investor for the long haul.
Overconfidence	*A "Lake Wobegon effect,"* overconfidence creates a statistical impossibility: *Everyone* thinks they're above average.	Overconfidence puffs up your belief that *you've* got the rare luck or skill required to consistently "beat" the market, instead of patiently participating in its long-term returns.
Pattern Recognition	*Looks can deceive*. Our survival instincts strongly bias us toward finding predictive patterns, even in a random series.	By being predisposed to mistake random market runs as reliable patterns, investors are often left chasing expensive mirages.
Recency	*Out of sight, out of mind.* We tend to let recent events most heavily influence us, even for our long-range planning.	If you chase or flee the market's most recent returns, you'll end up piling into high-priced hot holdings and selling low during the downturns.
Sunk Cost Fallacy	*Throwing good money after bad.* It's harder to lose something if you've already invested time, energy or money into it.	Sunk cost fallacy can stop you from selling a holding at a loss, even when it is otherwise the right thing to do for your total portfolio.
Tracking Error Regret	*Shoulda, coulda, woulda.* Tracking error regret happens when you compare yourself to external standards and wish you were more like them.	It can be deeply damaging to your investment returns if you compare your own performance against apples-to-oranges measures, and then trade in reaction to the mismatched numbers.

About Allodium Investment Consultants

Allodium Investment Consultants is a fee-only investment management consulting firm that provides investment management services to both individual and institutional investors. Advisory services include Wealth Management, Fiduciary Management, Investment Management Consulting, Financial Planning and Fiduciary Consulting. The firm is a member of the National Association of Personal Financial Advisors (NAPFA) and provides fee-only financial advice that supports the fiduciary standard of care. Allodium is the first Minneapolis-based investment advisor to be certified by CEFEX to follow the fiduciary best practices in the Prudent Practices for Investment Advisors. The firm was established as an independent Registered Investment Advisor in 2005. Learn more at www.allodium.com.

Allodium Investment Consultants • 500 Washington Avenue South • Suite 4400 • Minneapolis, MN 55415 • 612-230-3700 • www.allodium.com