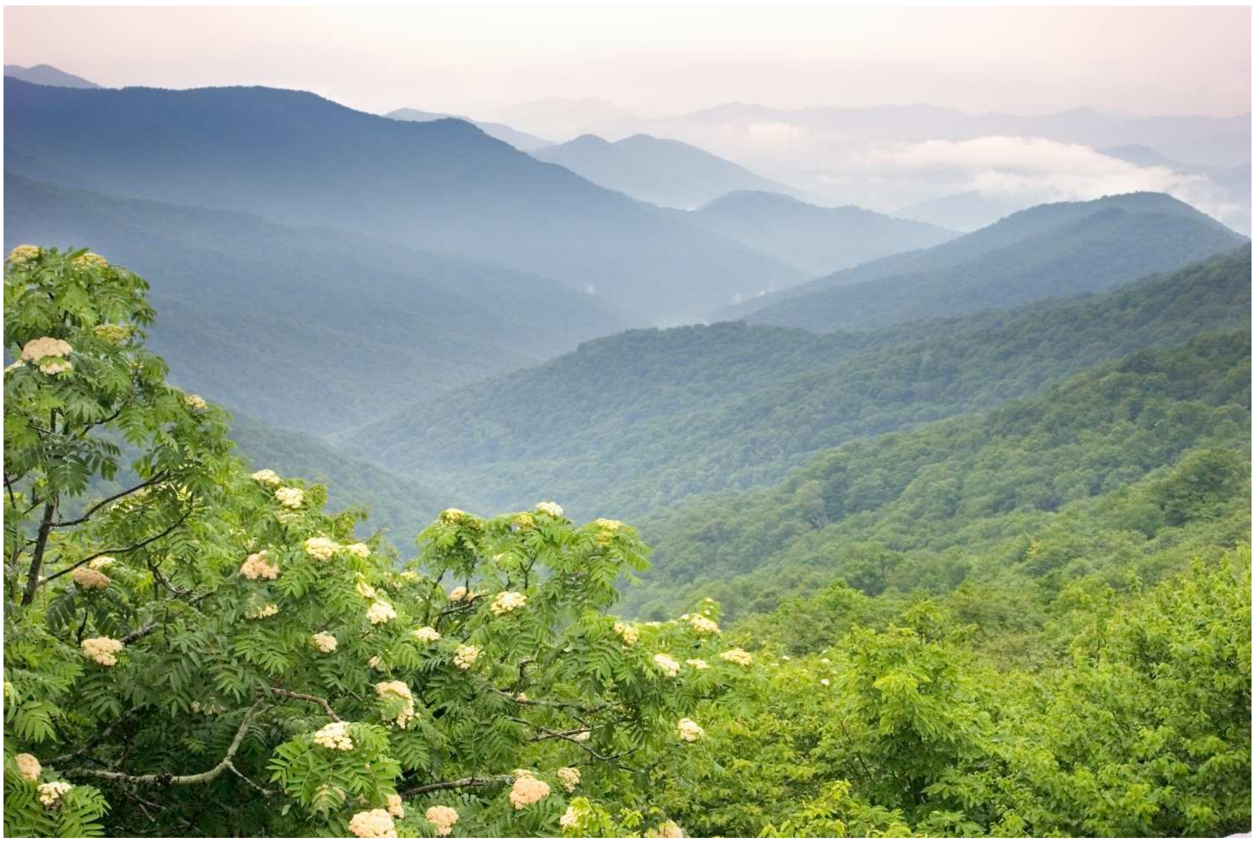
SENSENIG
Capital Advisors



Evidence-Based Investment Insights

12 Essential Ideas for Building Wise Wealth

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Introduction

Are you ready to become a better investor – to enhance your understanding of the most important principles that drive the creation of wealth – without it hurting a bit? Then **WELCOME** to our overview, "**Evidence-Based Investment Insights**."

As you begin reading, you'll find 12 essential insights for building wise wealth, each of which will take only a minute or two of your time. In exchange, you'll learn how to invest with greater confidence – with evidence, not emotion, guiding your way. That's because our insights are based on a dozen solid principles formed by more than a half-century of peer-reviewed inquiry into how capital markets efficiently and effectively deliver long-term wealth to patient investors.

Don't worry, unless you specifically ask us about it, we'll skip the Greek calculations and multi-factor modeling. Instead, we'll translate each insight into its meaningful essence: the *"What's in it for me?"* you need to know, so you can apply the science of investing into your own portfolio.

You see, being a better investor doesn't mean you must have an advanced degree in financial economics, or that you have to be smarter, faster or luckier than the rest of the market. It means:

- Knowing and heeding the insights available from those who *do* have advanced degrees in financial economics
- Structuring your portfolio so that you're playing *with* rather than *against* the market and its expected returns
- Avoiding your own most dangerous behaviors – ingrained through eons of evolution – that tempt you to make the worst financial decisions at all the wrong times

Are you ready to begin building your own wise wealth accordingly? Turn the page, and read on.

Evidence-Based Investment Insights
Part I: Market Pricing

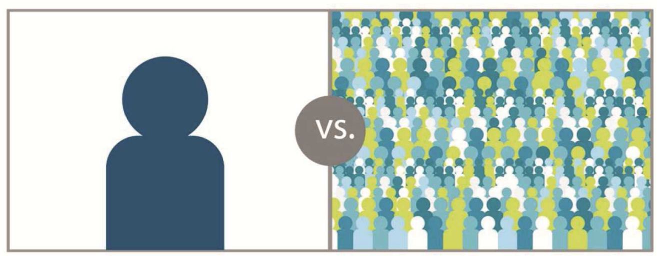
Insight #1: You, the Market and the Prices You Pay

When it comes to investing (or anything in life worth doing well) it helps to know what you're facing. In this case, that's "the market." How do you achieve every investor's dream of buying low and selling high in a crowd of highly resourceful and competitive players? The answer is to play with rather than against the crowd, by understanding how market pricing occurs.

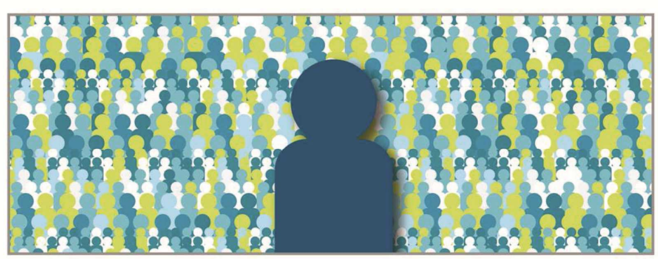
The Market: A Working Definition
Technically, "the market" is a plural, not a singular place. There are markets for trading stocks, bonds, sectors, commodities, real estate and more, in the U.S. and around the globe. For now, you can think of these markets as a single place, where opposing players are competing against one another to buy low and sell high.

Granted, this "single place" is huge, representing an enormous crowd of participants who are individually AND collectively helping to set fair prices every day. That's where things get interesting.

When you try to outwit the market, you compete with the collective knowledge of all investors.



By harnessing the market's power, you put their knowledge to work in your portfolio.



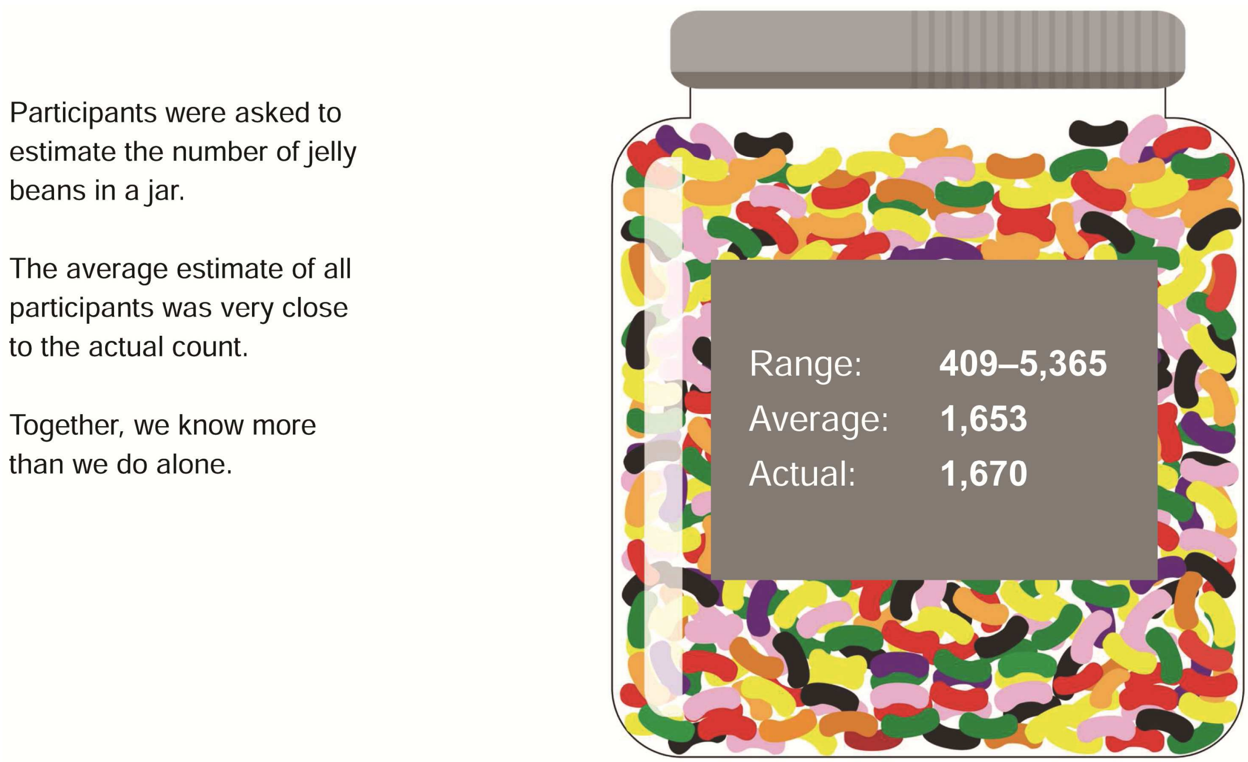
Group Intelligence: We Know More Than You and I
Before the academic evidence showed us otherwise, it was commonly assumed that the best way to make money in what seemed like an ungoverned market was by outwitting others at forecasting future prices and trading accordingly.

Unfortunately for those who are still trying to operate by this outdated strategy, a simple jar of jelly beans illustrates why it's an inherently flawed approach. Academia has revealed that the market is not so ungoverned after all. Yes, it's chaotic, messy and unpredictable when viewed up close. But it's also subject to a number of important forces over the long run.

One of these forces is group intelligence. The term refers to the notion that, at least on questions of fact, groups are better at consistently arriving at accurate answers than even the smartest individuals in that same group … with a caveat: ***each participant must be free to think independently, as is the case in our free markets.*** (Otherwise peer pressure can taint the results.)

Writing the Book on Group Intelligence
In his landmark book "The Wisdom of Crowds," James Surowiecki presented and popularized the enormous body of academic insights on group intelligence.

Take those jelly beans, for example. In one experiment, 56 students guessed how many jelly beans were in a jar that held 850 beans. The group's guess – i.e., the aggregated average of the students' individual guesses – came relatively close at 871. Only one student in the class did better than that. Similarly structured experiments have been repeated under various conditions; time and again the group consensus was among the most reliable counts.



Now apply group wisdom to the market's multitude of daily trades. Each trade may be spot on or wildly off from a "fair" price, but the aggregate average incorporates all known information contributed by the intelligent, the ignorant, the lucky and the lackluster. Thus the current prices set by the market are expected to yield the closest estimate for guiding one's next trades. It's not perfect mind you. But it's assumed to represent the most reliable estimate in an imperfect world.

Insight #2: Ignoring the Siren Song of Daily Market Pricing

In "**You, the Market and the Prices You Pay**," we explored how group intelligence governs relatively efficient markets (as well as jelly bean jars) in an imperfect world. Next, let's look at how prices are set moving forward. This, too, helps us understand how to play with rather than against the wisdom of the market, as you seek to buy low and sell high.

News, Inglorious News
What causes market prices to change? It begins with the never-ending stream of news informing us of the good, bad and ugly events that are forever taking place. For example, when there are reports that a fungicide is attacking Florida trees, orange juice futures may soar, as the market predicts that there's going to be less supply than demand.

But what does this mean to you and your investment portfolio? Should you buy, sell or hold tight? Before the news tempts you to jump into or flee from breaking trends, it's critical to be aware of the evidence that tells us the most important thing of all: ***You cannot expect to consistently improve your outcomes by reacting to breaking news.***

Great Expectations
How the market adjusts its pricing is why there's not much you can do in reaction to breaking news. There are two principles to bear in mind here.

First, it's not the news itself; it's whether we saw it coming. When a security's price changes, it's not whether something good or bad has happened. It's whether the next piece of good or bad news is better or worse than expected. If it's reported that the aforementioned orange tree disease is continuing to spread, pricing changes may be minimal; everyone was already expecting doom and gloom. On the other hand, if an ingenious new fungicidal treatment is released, prices may change dramatically in reaction to the unexpected resolution.

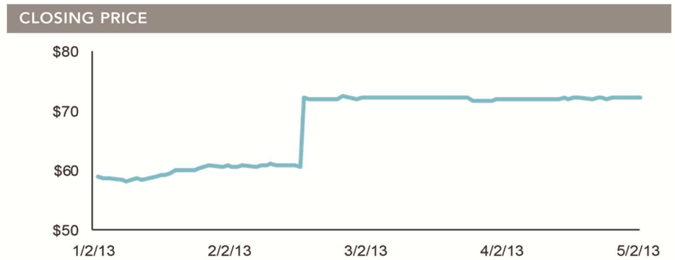
Thus, it's not just news, but unexpected news that alters future pricing. By definition, the unexpected is impossible to predict, as is how dramatically (or not) the market will respond to it. Once again, group intelligence gets in the way of those who might still believe that they can outwit others by consistently forecasting future prices.

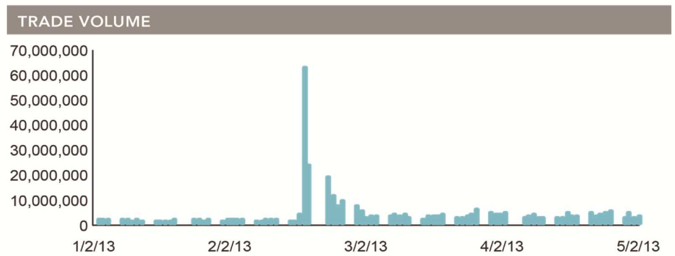
The Barn Door Principle
The second reason to consider breaking news irrelevant to your investing is what we'll call "The Barn Door Principle." ***By the time you hear the news, the market already has incorporated it into existing prices, well ahead of your ability to do anything about it.*** The proverbial horses have already galloped past your open trading door.

This is especially so in today's micro-second electronic trading world. In his article, "The impact of news events on market prices," CBS MoneyWatch columnist Larry Swedroe explored how fast global markets respond to breaking news. Pointing to evidence from a number of studies among several developed markets, the universal response was nearly instantaneous price-setting during the first handful of post-announcement trades. In the U.S. markets, it was even faster than that.

"Heinz agrees to buyout by Berkshire Hathaway, 3G"
–*USA Today*, February 14, 2013

News travels quickly, and prices can adjust in an instant.





In other words, unless you happen be among the very first to respond to breaking news (competing, mind you, against automated traders who often respond in fractions of milliseconds), you're setting yourself up to buy higher or sell lower than those who already have set new prices based on the news – exactly the opposite of your goal.

Insight #3: Financial Gurus and Other Unicorns

In "**Ignoring the Siren Song of Daily Market Pricing**," we explored how price-setting occurs in capital markets, and why investors should avoid reacting to breaking news. The cost and competition hurdles are just too tall. Now, let's explain why you're also ill-advised to seek a pinch-hitting expert to compete for you. As Morningstar strategist Samuel Lee has described, managers who have persistently outperformed their benchmarks are "rarer than rare."

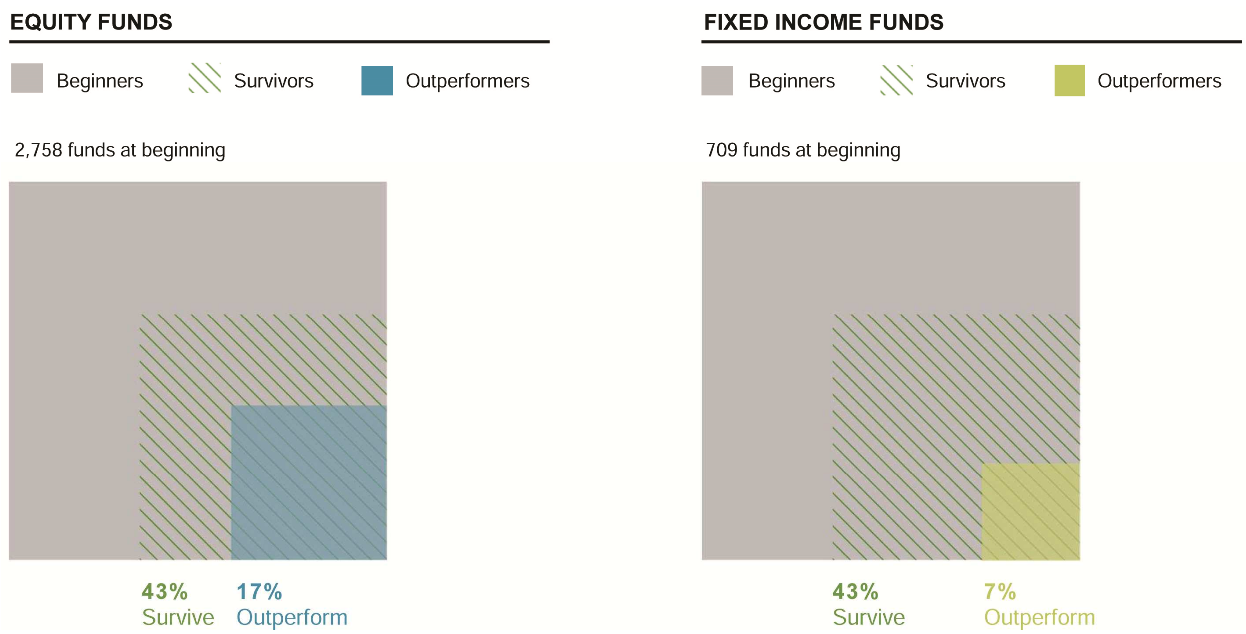
Group Intelligence Wins Again
As we covered in "**You, the Market and the Prices You Pay**," independently thinking groups (like capital markets) are better at arriving at accurate answers than even the smartest individuals in the group. That's in part because their wisdom is already bundled into prices, which adjust with fierce speed and relative accuracy to any new, unanticipated news.

Thus, even experts who specialize in analyzing business, economic, geopolitical or any other market-related information face the same challenges you do if they try to beat the market by successfully predicting an uncertain reaction to unexpected news that is not yet known. For them too, particularly after costs, group intelligence remains a prohibitively tall hurdle to overcome.

The Proof Is in the Pudding
But maybe you know of an extraordinary stock broker or fund manager or TV personality who strikes you as being among the elite few who can make the leap. Maybe they have a stellar track record, impeccable credentials, a secret sauce or brand-name recognition. Should you turn to them for the latest market tips, instead of settling for "average" returns?

Let's set aside market theory for a moment and consider what has actually been working. Bottom line, if investors who did their homework were able to depend on outperforming experts, we should expect to see credible evidence of it.

Not only is such data lacking, the body of evidence to the contrary is overwhelming. Star performers – "active managers" – often fail to survive, let alone persistently beat comparable market returns. A 2013 Vanguard Group analysis found that only about half of some 1,500 actively managed funds available in 1998 still existed by the end of 2012, and only 18% had outperformed their benchmarks. Dimensional Fund Advisors found similar results in its independent analysis of 10-year mutual fund performance through year-end 2013.



Across the decades and around the world, a multitude of academic studies have scrutinized active manager performance and consistently found it lacking.

- Among the earliest such studies is Michael Jensen's 1967 paper, "The Performance of Mutual Funds in the Period 1945–1964." He concluded, there was "very little evidence that any individual fund was able to do significantly better than that which we expected from mere random chance."
- A more recent landmark study is Eugene Fama's and Kenneth French's 2009, "Luck Versus Skill in the Cross Section of Mutual Fund Returns." They demonstrated that "the high costs of active management show up intact as lower returns to investors."
- In the decades between, there have been as many as 100 similar studies published by a who's who list of academic luminaries, echoing Jensen, Fama and French. In 2011, the Netherlands Authority for the Financial Markets (AFM) scrutinized this body of research and concluded: "Selecting active funds in advance that will achieve outperformance after deduction of costs is therefore exceptionally difficult."

Lest you think hedge fund managers and similar experts can fare better in their more rarified environments, the evidence dispels that notion as well. For example, a March 2014 Barron's column took a look at hedge fund survivorship. The author reported that nearly 10% of hedge funds existing at the beginning of 2013 had closed by year-end, and nearly half of the hedge funds available five years prior were no longer available (presumably due to poor performance).

Evidence-Based Investment Insights
Part II: Diversification

Insight #4: The Full-Meal Deal of Diversification

With "**Financial Gurus and Other Unicorns**," we concluded our exploration of the formidable odds you face if you (or your hired help) try to outsmart the market's lightning-fast price-setting efficiencies. Now, we turn our attention to the many ways you can harness these and other efficiencies to work for, rather than against you.

Among your most important financial friends is **diversification**. After all, what other single action can you take to simultaneously dampen your exposure to a number of investment risks while potentially improving your overall expected returns? While they may seem almost magical, the benefits of diversification have been well-documented and widely explained by some 60 years of academic inquiry. Its powers are both evidence-based and robust.

Global Diversification: Quantity AND Quality

What is diversification? In a general sense, it's about spreading your risks around. In investing, that means that it's more than just ensuring you have many holdings, it's also about having many different kinds of holdings. If we compare this to the adage about not putting all your eggs in one basket, an apt comparison would be to ensure that your multiple baskets contain not only eggs but also a bounty of fruits, vegetables, grains, meats and cheese.

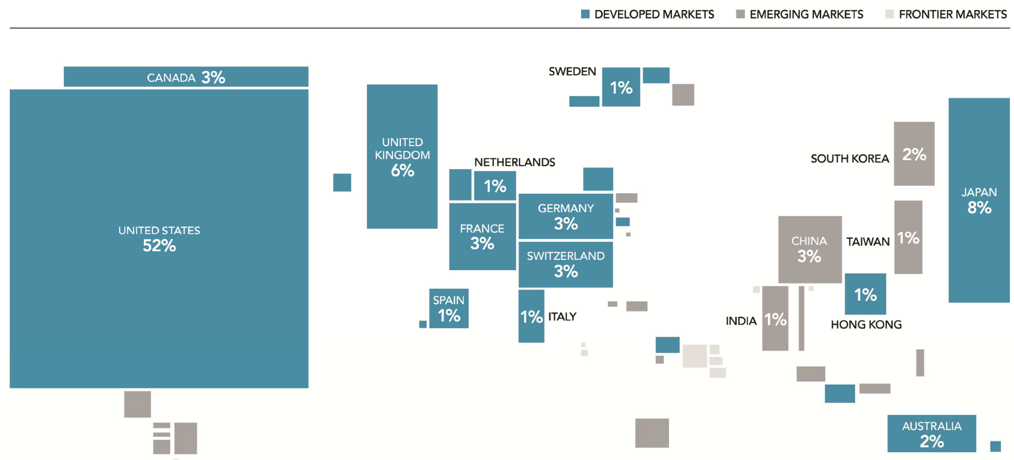
While this may make intuitive sense, many investors come to us believing they are well-diversified when they are not. They may own a large number of stocks or stock funds across numerous accounts. But upon closer analysis, we find that the bulk of their holdings are concentrated in large-company U.S. stocks.

In the pages ahead, we'll explore what we mean by different kinds of investments. But for now, think of a concentrated portfolio as the undiversified equivalent of many basketsful of plain, white eggs. Over-exposure to what should be only one ingredient among many in your financial diet is not only unappetizing, it can be detrimental to your financial health. Lack of diversification:

1. Increases your vulnerability to specific, avoidable risks
2. Creates a bumpier, less reliable overall investment experience
3. Makes you more susceptible to second-guessing your investment decisions

Combined, these three strikes tend to generate unnecessary costs, lowered expected returns and, perhaps most important of all, increased anxiety. You're back to trying to beat instead of play along with a powerful market.

A World of Opportunities
Instead, consider that there is a wide world of investment opportunities available these days from tightly managed mutual funds intentionally designed to facilitate meaningful diversification. They offer efficient, low-cost exposure to capital markets found all around the globe.



- 44 countries
- Approximately 12,000 publicly traded stocks

Insight #5: Managing the Market's Risky Business

In "**The Full-Meal Deal of Diversification**," we described how effective diversification means more than just holding a large number of accounts or securities. It also calls for efficient, low-cost exposure to a variety of capital markets from around the globe. Now let's expand on the benefits of diversification, beginning with its ability to help you better manage investment risks.

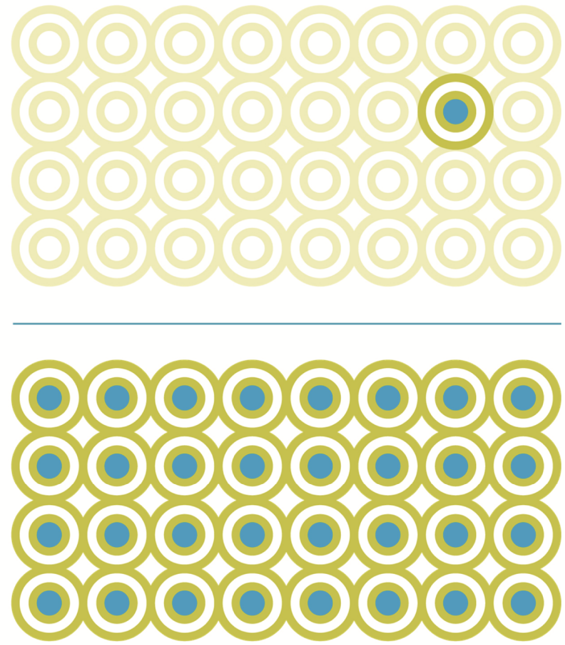
There's Risk, and Then There's Risk
Before we even have words to describe it, most of us learn about life's general risks when we tumble into the coffee table or reach for that pretty cat's tail. Investment risks aren't as straightforward. Here, it's important to know that there are two, broadly different kinds of risks: ***avoidable, concentrated risks and unavoidable market risks.***

Avoidable Concentrated Risks
Concentrated risks are the ones that wreak targeted havoc on particular stocks, bonds or sectors. Even in a bull market, one company can experience an industrial accident, causing its stock to plummet. A municipality can default on a bond even when the wider economy is thriving. A natural disaster can strike an industry or region while the rest of the world thrives.

In the science of investing, concentrated risks are considered avoidable. Bad luck still happens, but you can dramatically minimize its impact on your investments by diversifying your holdings widely and globally, as we described in our last post. When you are well diversified, if some of your holdings are affected by a concentrated risk, you are much better positioned to offset the damage done with plenty of other, unaffected holdings.

Concentrating in one stock exposes you to unnecessary risks.

Diversification reduces the impact of any one company's performance on your wealth.



Unavoidable Market Risks
If concentrated risks are like bolts of lightning, market risks are encompassing downpours in which everyone gets wet. They are the persistent risks that apply to large swaths of the market. At their highest level, market risks are those you face by investing in capital markets in any way, shape or form. If you stuff your cash in a safety deposit box, it will still be there the next time you visit it. (It may be worth less due to inflation, but that's a different risk, for discussion on a different day.) Invest in the market and, presto, you're exposed to market risk.

Risks and Expected Rewards
Hearkening back to our past conversations on group intelligence, the market as a whole knows the differences between avoidable and unavoidable investment risks. Heeding this wisdom guides us in how to manage our own investing with a sensible, evidence-based approach.

Managing concentrated risks – If you try to beat the market by chasing particular stocks or sectors, you are exposing yourself to higher concentrated risks that could have been avoided with diversification. As such, you cannot expect to be consistently rewarded with premium returns for taking on concentrated risks.

Managing market risks – Every investor faces market risks that cannot be "diversified away." Those who stay invested when market risks are on the rise can expect to eventually be compensated for their steely resolve with higher returns. But they also face higher odds that results may deviate from expectations, especially in the near-term. That's why you want to take on as much, but no more market risk than is personally necessary. Diversification becomes a "dial" for reflecting the right volume of market-risk exposure for your individual goals.

Insight #6: Get Along, Little Market

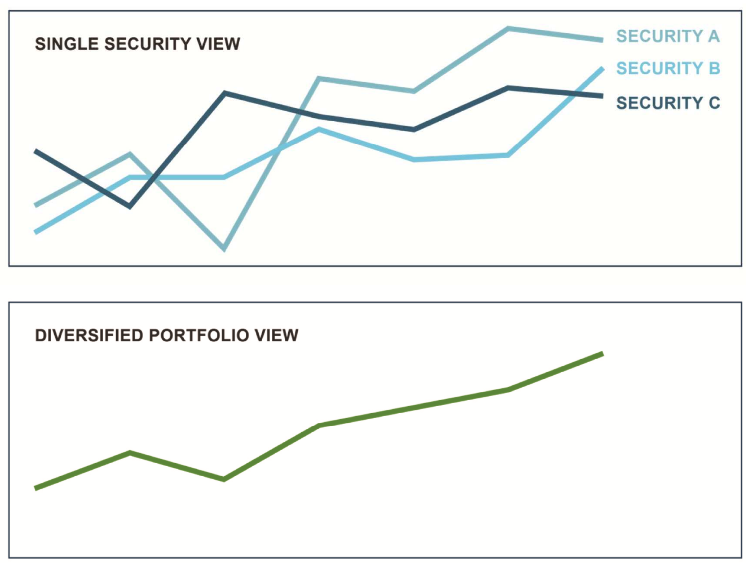
In "**Managing the Market's Risky Business**," we described how diversification plays a key role in minimizing unnecessary risks and helping you better manage those that remain. To round out the conversation, we'll cover one more benefit to be gained from a well-diversified stable of investments: creating a smoother ride toward your goals.

Diversifying for a Smoother Ride

Like a bucking bronco, near-term market returns are characterized more by periods of wild volatility than by a steady-as-she-goes trot. Diversification helps you tame the beast, because, as any rider knows, it doesn't matter how high you can jump. If you fall out of the saddle, you're going to get left in the dust.

When you crunch the numbers, diversification is shown to help minimize the leaps and dives you must endure along the way to your expected returns. Imagine several rough-and-tumble, upwardly mobile lines that represent several kinds of holdings. Individually, each represents a bumpy ride. Bundled together, the upward mobility by and large remains, but the jaggedness along the way can be dampened (albeit never completely eliminated).

A well-diversified portfolio can provide the opportunity for a more stable outcome than a single security.



If you'd like to see a data-driven illustration of how this works, check out this post by CBS MoneyWatch columnist Larry Swedroe, "How to diversify your investments."

Covering the Market

A key reason diversification works is related to how different market components respond to price-changing events. When one type of investment may *zig* due to particular news, another may *zag*. Instead of trying to move in and out of favored components, the goal is to remain diversified across a wide variety of them. This increases the odds that, when some of your holdings are underperforming, others will outperform or at least hold their own.

The results of diversification aren't perfectly predictable. But positioning yourself with a blanket of coverage for capturing market returns where and when they occur goes a long way toward replacing guesswork with a coherent, cost-effective strategy for managing desired outcomes.

The Crazy Quilt Chart is a classic illustration of this concept. After viewing a color-coded layout of which market factors have been the winners and losers in past years, it's clear that the only discernible pattern is that there is none. If you can predict how each column of best and worst performers will stack up in years to come, your psychic powers are greater than ours.

You never know which markets will outperform from year to year.

By holding a globally diversified portfolio, investors are positioned to capture returns wherever they occur.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Higher Return	12.3	7.6	62.6	33.2	34.5	36.0	39.8	8.8	79.0	28.1	9.4	18.6	38.8	32.0	5.8
	8.4	5.1	56.3	29.9	25.5	32.6	8.2	6.6	51.4	26.9	3.4	17.9	32.4	13.7	4.5
	7.3	3.6	47.3	26.0	13.8	19.8	6.3	4.7	28.5	24.9	2.3	17.1	26.0	4.9	1.4
	6.4	3.4	36.2	18.3	4.9	18.4	5.9	-33.8	27.2	19.2	2.1	16.3	1.2	1.9	1.0
	2.5	-6.0	28.7	10.9	4.6	15.8	5.5	-37.0	26.5	15.1	0.6	16.0	0.6	1.2	0.9
	-2.4	-7.1	2.0	2.7	3.1	4.3	3.6	-39.2	2.3	3.7	-4.2	2.1	0.3	0.2	0.2
	-10.2	-20.5	1.9	1.3	2.4	4.1	-1.6	-47.8	0.8	2.0	-15.5	0.9	-0.1	-1.8	-4.4
Lower Return	-11.9	-22.1	1.5	0.8	1.3	3.8	-17.6	-53.2	0.2	0.8	-18.2	0.2	-2.3	-5.0	-14.6

- S&P 500 Index
- Russell 2000 Index
- Dow Jones US Select REIT Index
- Dimensional International Small Cap index
- MSCI Emerging Markets Index (gross div.)
- BofA Merrill Lynch One-Year US Treasury Notes Index
- Barclays Treasury Bond Index 1-5 Years
- Citigroup World Government Bond Index 1-5 Years (hedged to USD)

Evidence-Based Investment Insights
Part III: Return Factors

Insight #7: What Drives Market Returns?

In "**Get Along, Little Market**," we wrapped up a discussion about the benefits of diversifying your investments to minimize avoidable risks, manage the unavoidable ones that are expected to generate market returns, and better tolerate market volatility along the way. The next step is to understand how to build your diversified portfolio for effectively capturing those expected returns. This in turn calls for understanding where those returns actually come from.

The Business of Investing

With all the excitement over stocks and bonds and their ups and downs in headline news, there is a key concept often overlooked. ***Market returns are compensation for providing the financial capital that feeds the human enterprise going on all around us, all the time.***

When you buy a stock or a bond, your capital is ultimately put to hard work by businesses or agencies who expect to succeed at whatever it is they are doing, whether it's growing oranges, running a hospital or selling virtual cloud storage. You, in turn, are not giving your money away. You mean to receive your capital back, and then some.

Investor Returns vs. Company Profits

A company hopes to generate profits. A government agency hopes to complete its work with budget to spare. Investors hope to earn generous returns. You would think that, when a company or agency succeeds, its investors would too. But actually, a company's or agency's success is only one factor, at best, among many others that influence its investors' expected returns.

At first, this seems counterintuitive. It means, for example, that even if business is booming, you cannot necessarily expect to reap the rewards simply by buying stock in that same, booming company. (As we've covered before, by the time good or bad news is apparent, it's already reflected in higher-priced share prices, with less room for future growth.)

The Fascinating Facts About Market Returns

So what *does* drive expected returns? There are a number of factors involved, but among the most powerful ones spring from those unavoidable market risks we introduced earlier. As an investor, you can expect to be rewarded for accepting the market risks that remain after you have diversified away the avoidable, concentrated ones.

Consider two of the broadest market factors: **stocks (equities)** and **bonds (fixed income)**. Most investors start by deciding what percentage of their portfolio to allocate to each. Regardless of the split, you are still expecting to be compensated for all of the capital you have put to work in the market. So why does the allocation matter?

When you buy a bond …

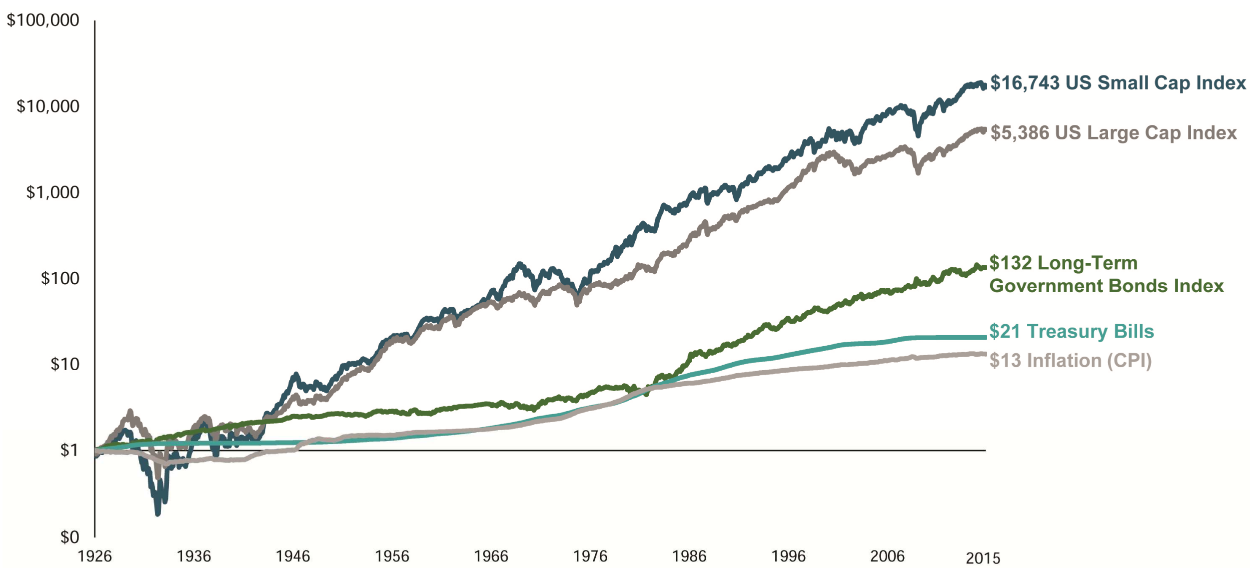
- You are **lending** money to a business or government agency, with no ownership stake.
- Your returns come from **interest** paid on your loan.
- If a business or agency defaults on its bond, you are closer to the **front** of the line of creditors to be repaid with any remaining capital.

When you buy a stock …

- You become a **co-owner** in the business, with voting rights at shareholder meetings.
- Your returns come from **increased share prices** and/or **dividends**.
- If a company goes bankrupt, you are closer to the **end** of the line of creditors to be repaid.

In short, stock owners face higher odds that they may not receive an expected return, or may even lose their investment. There are exceptions. A junk bond in a dicey venture may well be riskier than a blue-chip stock in a stable company. But this is why stocks are *generally* considered riskier than bonds and have *generally* delivered higher returns than bonds over time.

This outperformance of stocks is called the **equity premium**. The precise amount of the premium and how long it takes to be realized is far from a sure bet. That's where the risk comes in. But viewing stock-versus-bond performance in a line chart over time, it's easy to see that stock returns have handily pulled ahead of bonds over the long-run … but also have exhibited a bumpier ride along the way. Higher risks AND higher returns show up in the results.



Insight #8: The Essence of Evidence-Based Investing

In "**What Drives Market Returns?**" we explored how markets deliver wealth to those who invest their financial capital in human enterprise. But, as with any risky venture, there are no guarantees that you'll earn the returns you're aiming for, or even recover your stake. This leads us to why we so strongly favor **evidence-based investing**. Grounding your strategy in rational methodology helps you best determine and stay on a course toward the financial goals you have in mind, especially when your emotional reactions threaten to take over the wheel.

So what does evidence-based investing entail?

Market Return Factors: The Essence of Evidence-Based Investing
Since at least the 1950s, a "Who's Who" body of scholars has been studying financial markets to answer key questions such as:

- **What drives returns?** Which return-yielding factors appear to be persistent over time, around the world and across a range of market conditions?
- **How does it work?** Once identified, can we explain why particular return-yielding factors exist, or at least narrow it down to the most likely causes?

Financial Scholar vs. Financial Professional
Building on this level of academic inquiry, fund companies and other financial professionals are tasked with an equally important charge: ***Even if a relatively reliable return premium exists in theory, can we capture it in the real world – after the implementation and trading costs involved?***

As in any discipline from finance to medicine to quantum physics, it's academia's interest to discover the possibilities; it's our interest to figure out what to do with the understanding. This is in part why it's important to maintain the bifurcated roles of financial scholar and financial professional, to ensure each of us are doing what we can do best in our field.

The Rigors of Academic Inquiry
In academia, rigorous research calls for considerably more than an arbitrary sampling or a few in-house spreadsheets. It typically demands:

A Disinterested Outlook – Rather than beginning with a point to prove and then figuring out how to prove it, ideal academic inquiry is conducted with no agenda other than to explore intriguing phenomena and report the results of the exploration.

Robust Data Analysis – The analysis should be free from weaknesses such as:
- **Suspect data** that is too short-term, too small of a sampling to be significant, or otherwise tainted
- **"Survivorship bias,"** in which the returns from funds that were closed during the study (usually because of poor performance) are omitted from the results
- **Comparing apples to oranges**, such as using the wrong benchmark against which to assess a fund's or strategy's "success" or "failure"
- **Insufficient use of advanced mathematics** like multi-factor regression, which helps pinpoint the critical factors from among an otherwise confusing, noisy mix of possibilities

Repeatability and Reproducibility – Academic research requires results to be repeatable and reproducible by the author and others, across multiple, comparable environments. This strengthens the reliability of the results and helps ensure they weren't just random luck.

Peer Review – Last but hardly least, scholars must publish their detailed results and methodology, typically within an appropriate academic journal, so similarly credentialed peers can review their work and agree that the results are sound or rebut them with counterpoints.

Insight #9: Factors That Figure in Your Evidence-Based Portfolio

In "**The Essence of Evidence-Based Investing**" we explored what we mean by "evidence-based investing." Grounding your investment strategy in rational methodology strengthens your ability to stay on course toward your financial goals, as we:

1. **Assess** existing factors' capacities to offer expected returns and diversification benefits
2. **Understand** why such factors exist, so we can most effectively apply them
3. **Explore** additional factors that may complement our structured approach

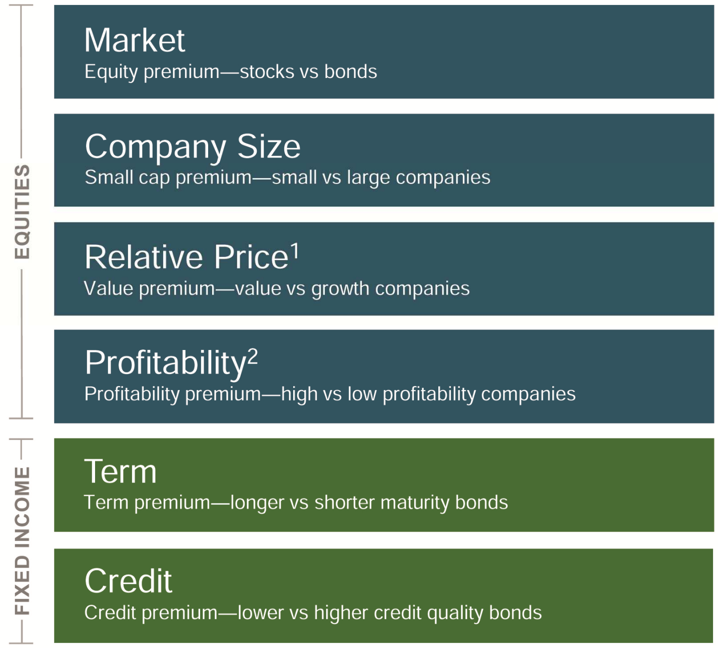
Assessing the Evidence (So Far)
An accumulation of studies dating back to the 1950s through today has identified **three stock market factors** that have formed the backbone for evidence-based portfolio construction over the long-run:

1. **The equity premium** – Stocks (equities) have returned more than bonds (fixed income), as we described in "**What Drives Market Returns?**"
2. **The small-cap premium** – Small-company stocks have returned more than large-company stocks.
3. **The value premium** – Value companies (with lower ratios between their stock price and various business metrics such as company earnings, sales and/or cash flow) have returned more than growth companies (with higher such ratios). These are stocks that, based on the empirical evidence, appear to be either undervalued or more fairly valued by the market, compared with their growth stock counterparts.

If you ever hear financial professionals talking about "three-factor modeling," this is the trio involved. Similarly, academic inquiry has identified two primary factors driving fixed income (bond) returns:

1. **Term premium** – Bonds with distant maturities or due dates have returned more than bonds that come due quickly.
2. **Credit premium** – Bonds with lower credit ratings (such as "junk" bonds) have returned more than bonds with higher credit ratings (such as U.S. treasury bonds).

Academic research has identified these dimensions, which are well documented in markets around the world and across different time periods.



Understanding the Evidence

Scholars and practitioners alike strive to determine not only *that* various return factors exist, but *why* they exist. This helps us determine whether a factor is likely to persist (so we can build it into a long-term portfolio) or is more likely to disappear upon discovery.

Explanations for why persistent factors linger often fall into two broad categories: **risk-related** and **behavioral**.

A Tale of Risks and Expected Rewards

It appears that persistent premium returns are often explained by accepting market risk (the kind that cannot be diversified away) in exchange for expected reward.

For example, it's presumed that value stocks are riskier than growth stocks. In "Do Value Stocks Outperform Growth Stocks?" CBS MoneyWatch columnist Larry Swedroe explains: "Value companies are typically more leveraged (have higher debt-to-equity ratios); have higher operating leverage (making them more susceptible to recessions); have higher volatility of dividends; and have more 'irreversible' capital (more difficulty cutting expenses during recessions)."

A Tale of Behavioral Instincts

There may also be behavioral foibles at play. That is, our basic-survival instincts often play against otherwise well-reasoned financial decisions. As such, the market may favor those who are better at overcoming their impulsive, often damaging gut reactions to breaking news. Once we complete our exploration of market return factors, we'll explore the fascinating field of behavioral finance in more detail, as this "human factor" contributes significantly to your ultimate success or failure as an evidence-based investor.

Insight #10: What Has Evidence-Based Investing Done for Me Lately?

In "**Factors That Figure in Your Evidence-Based Portfolio,**" we introduced three key stock market factors (**equity**, **value** and **small-cap**) plus a couple more for bonds (**term** and **credit**) that have formed a backbone for evidence-based portfolio construction.

Continued inquiry has found additional market factors at play, with additional potential premiums (which also seem to result from accepting added market risk, avoiding ill-advised investor behaviors or both). In academic circles, the most prominent among these are **profitability** and **momentum**:

- **The Profitability Factor** – Highly profitable companies have delivered premium returns over low-profitability companies.
- **The Momentum Factor** – Stocks that have done well or poorly in the recent past tend to continue to do the same for longer than random chance seems to explain.

A Closer Look at Newer Factors
Before we get ahead of ourselves, let's discuss a few caveats.

- **Wet Paint Warning** – While these "new" factors may or may not have existed for some time, our ability to isolate them is more recent. As the ink still dries on the research papers, some among the evidence-based community are still assessing their staying power.
- **Cost versus Reward** – Just because a factor exists in theory, doesn't mean it can be implemented in real life. We must be able to capture an expected premium without generating costs beyond its worth.
- **Dueling Factors** – Sometimes, it can be difficult to build one factor into a portfolio without sacrificing another. For example, as Jared Kizer explains in his Multifactor World blog post, "One generally can't tilt toward both value and momentum at the same time, because the two strategies tend to be highly negatively correlated." Benefits and tradeoffs must be carefully considered at the fund level as well as for your individual goals.

As a result, opinions vary on when, how or even if profitability, momentum and other newer factors should play a role in current portfolio construction. We would be happy to speak with you individually about our evolving approach. To help you assess whether they may make sense for you, let's explore how to think about investment information.

Investment Information: A Double-Edged Sword
As time marches on, relentless questioning from scholars and practitioners alike has been essential to evidence-based investment theory and application, dispelling illusions and laying the foundation for the insights we now routinely harness.

Similar inquiry must continue to pave the way to future improvements. But one need only glance at daily headlines to notice a never-ending stream of ideas from competing, often conflicting voices of authority. While being informed is helpful, being overloaded by it can do as much harm as good to well-intended investors. Even when the news is solid (which is never a given), hyperactive reaction can strip away all the advantages of an enlightened investment approach.

Investment Reality: Choose Your Allies Carefully

So, how do you know what to heed and who to ignore? ***This is where we believe an evidence-based advisor relationship is critical to your wealth and your well-being.*** Calls to action that erupt overnight based on scant evidence and concentrated events are unlikely candidates for building into a durable investment discipline. As we outlined in, "The Essence of Evidence-Based Investing," whenever we assess the validity of existing and emerging market insights, we ask pointed questions that can take years to resolve:

- Have the results been replicated across factors, over time and around the world?
- Is there robust analysis, not only from industry insiders but from disinterested academics?
- Has it survived extensive peer review, if not unscathed, at least free of mortal wounds?

Evidence-Based Investment Insights
Part IV: Behavioral Influences

Insight #11: The Human Factor in Evidence-Based Investing

In "**What Has Evidence-Based Investing Done for Me Lately?**" we wrapped up our conversation about ways to employ stock and bond market factors within a disciplined investment strategy, as well as how to extract the diamonds of promising new evidence-based insights from the larger piles of misinformation. We turn now to the final and arguably most significant factor in your evidence-based investment strategy: **the human factor**. In short, your own impulsive reactions to market events can easily trump any other market challenges you face.

Exploring the Human Factor
Despite everything we know about efficient capital markets and all the solid evidence available to guide our rational decisions … we're still human. We've got things going on in our heads that have nothing to do with solid evidence and rational decisions – a brew of chemically generated instincts and emotions that spur us to leap long before we have time to look.

Rapid reflexes often serve us well. Our prehistoric ancestors depended on snap decisions when responding to predator and prey. Today, our child's cry still brings us running without pause to think; his or her laughter elicits an instant outpouring of love (and oxytocin).

But in finance, where the coolest heads prevail, many of our base instincts cause more harm than good. If you don't know that they're happening or don't manage them when they do, your brain signals can trick you into believing you're making entirely rational decisions when you are in fact being overpowered by ill-placed, "survival of the fittest" reactions.

Put another way by neurologist and financial theorist William J. Bernstein, MD, PhD, "Human nature turns out to be a virtual Petrie dish of financially pathologic behavior."

Behavioral Finance, Human Finance
To study the relationships between our heads and our financial health, there is another field of evidence-based inquiry known as **behavioral finance**. *What happens when we stir up that Petrie dish of financial pathogens?*

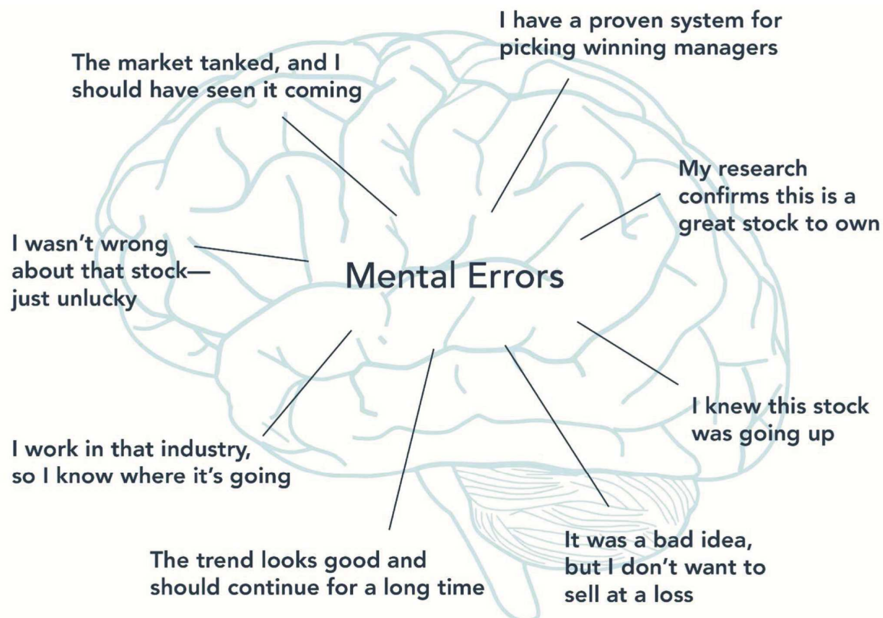
Wall Street Journal columnist Jason Zweig's "Your Money and Your Brain" provides a good guided tour of the findings, describing both the behaviors themselves as well as what is happening inside our heads to generate them. To name a couple of the most obvious examples:

- **When markets tumble** – Your brain's amygdala floods your bloodstream with corticosterone. Fear clutches at your stomach and every instinct points the needle to "Sell!"

- **When markets unexpectedly soar** – Your brain's reflexive nucleus accumbens fires up within the nether regions of your frontal lobe. Greed grabs you by the collar, convincing you that you had best act soon if you want to seize the day. "Buy!"

An Advisor's Greatest Role: Managing the Human Factor
Beyond such market-timing instincts that lead you astray, your brain cooks up plenty of other biases to overly influence your investment activities. To name a few, there's confirmation bias, hindsight bias, recency, overconfidence, loss aversion, sunken costs and herd mentality.

When people follow their natural instincts, they tend to apply faulty reasoning to investing.



Insight #12: Behavioral Biases – What Makes Your Brain Trick?

In "**The Human Factor in Evidence-Based Investing**" we explored how our deep-seated "fight or flight" instincts generate an array of behavioral biases that trick us into making significant money-management mistakes. Here, we'll familiarize you with a half-dozen of these more potent biases, and how you can avoid sabotaging your own best-laid, investment plans by recognizing the signs of a behavioral booby trap.

Behavioral Bias #1: Herd Mentality
Herd mentality is what happens to you when you see a market movement afoot and you conclude that you had best join the stampede. The herd may be hurtling toward what seems like a hot buying opportunity, such as a run on a stock or stock market sector. Or it may be fleeing a widely perceived risk, such as a country in economic turmoil. Either way, as we covered in "Ignoring the Siren Song of Daily Market Pricing," following the herd puts you on a dangerous path toward buying high, selling low and incurring unnecessary expenses en route.

Behavioral Bias #2: Recency
Even without a herd to speed your way, your long-term plans are at risk when you succumb to the tendency to give recent information greater weight than the long-term evidence war-

rants. From our earlier piece, "What Drives Market Returns?" we know that stocks have historically delivered premium returns over bonds. And yet, whenever stock markets dip downward, we typically see recency at play, as droves of investors sell their stocks to seek "safe harbor" (or vice-versa when bull markets on a tear).

Behavioral Bias #3: Confirmation Bias
Confirmation bias is the tendency to favor evidence that supports our beliefs and gloss over that which refutes it. We'll notice and watch news shows that support our belief structure; we'll skip over those that would require us to radically change our views if we are proven wrong. Of all the behavioral biases on this and other lists, confirmation bias may be the greatest reason why the rigorous, peer-reviewed approach we described in "The Essence of Evidence-Based Investing" becomes so critical to objective decision-making. Without it, our minds want us to be right so badly, that they will rig the game for us, but against our best interests as investors.

Behavioral Bias #4: Overconfidence
Garrison Keillor made overconfidence famous in his monologue about Lake Wobegon, "where all the women are strong, all the men are good looking, and all the children are above average." Keillor's gentle jab actually reflects reams of data indicating that most people (especially men) believe that their acumen is above average. On a homespun radio show, impossible overconfidence is quaint. In investing, it's dangerous. It tricks us into losing sight of the fact that investors cannot expect to consistently outsmart the collective wisdom of the market (as we described in "You, the Market and the Prices You Pay"), especially after the costs involved.

Behavioral Bias #5: Loss Aversion
As a flip side to overconfidence, we also are endowed with an over-sized dose of loss aversion, which means we are significantly more pained by the thought of losing wealth than we are excited by the prospect of gaining it. As Jason Zweig of "Your Money and Your Brain" states, "Doing anything – or even thinking about doing anything – that could lead to an inescapable loss is extremely painful."

One way that loss aversion plays out is when investors prefer to sit in cash or bonds during bear markets – or even when stocks are going up, but a correction seems overdue. The evidence clearly demonstrates that you are likely to end up with higher long-term returns by at least staying put, if not bulking up on stocks while they are "cheap." And yet, even the *potential* for future loss can be a more compelling emotional stimulus than the *likelihood* of long-term returns.

Behavioral Bias #6: Sunken Costs
We investors also have a terrible time admitting defeat. When we buy an investment and it sinks lower, we tell ourselves we don't want to sell until it's at least back to what we paid. In a data-driven strategy (and life in general), the evidence is strong that this sort of sunken-cost logic leads people to throw good money after bad. By refusing to let go of past losses – or gains – that no longer suit your portfolio's purposes, an otherwise solid investment strategy becomes clouded by emotional choices and debilitating distractions.

Conclusion

We hope you've enjoyed reading our series as much as we've enjoyed sharing it with you. To wrap our Evidence-Based Investment Insights overview, let's recap the key take-home messages from each insight covered.

1. **You, the Market and the Prices You Pay** – Understanding group intelligence and its effect on efficient market pricing is a first step toward more consistently buying low and selling high in free capital markets.

2. **Ignoring the Siren Song of Daily Market Pricing** – Rather than trying to react to ever-changing conditions and cut-throat competition, invest your life savings according to factors over which you can expect to have some control.

3. **Financial Gurus and Other Unicorns** – Avoid paying costly, speculative "experts" to pinch-hit your market moves for you. The evidence indicates that their ability to persistently beat the market is "rarer than rare."

4. **The Full-Meal Deal of Diversification** – In place of speculative investing, diversification is among your most important allies. To begin with, spreading your assets around dampens unnecessary risks while potentially improving overall expected returns.

5. **Managing the Market's Risky Business** – All risks are not created equal. Unrewarded "concentrated risk" (picking individual stocks) can and should be avoided by diversifying away from it. "Market risk" (holding swaths of the market) is expected to deliver long-term returns. Diversification helps manage the necessary risks involved.

6. **Get Along, Little Market** – Diversification can also create a smoother ride through bumpy markets, which helps you stay on track toward your personal goals.

7. **What Drives Market Returns?** – At their essence, market returns are compensation for providing the financial capital that feeds the human enterprise going on all around us.

8. **The Essence of Evidence-Based Investing** – What separates solid evidence from flakey findings? Evidence-based insights demand scholarly rigor, including an objective outlook, robust peer review, and the ability to reproduce similar analyses under varying conditions.

9. **Factors That Figure in Your Evidence-Based Portfolio** – Following where robust evidence-based inquiry has taken us so far during the past 60+ years, three key stock market factors (equity, value and small-cap) plus a couple more for bonds (term and credit) have formed a backbone for evidence-based portfolio construction.

10. **What Has Evidence-Based Investing Done for Me Lately?** – Building on our understanding of which market factors seem to matter the most, we continue to heed unfolding evidence on best investment practices.

11. **The Human Factor in Evidence-Based Investing** – The most significant factor for investors may be the human factor. Behavioral finance helps us understand that our own, instinctive reactions to market events can easily trump any other market challenges we face.

12. **Behavioral Biases – What Makes Your Brain Trick?** – Continuing our exploration of behavioral finance, we share a half-dozen deep-seated instincts that can trick you into making significant money-management mistakes. Here, perhaps more than anywhere else, an objective advisor can help you avoid mishaps that your own myopic vision might miss.

How have we done so far in our goal to inform you, without overwhelming you? If we've succeeded in bringing our evidence-based investment ideas home for you, we would love to have the opportunity to continue the conversation with you in person. Give us a call today.

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