



Epsilon Theory

THEORY IN ACTION | BY RUSTY GUINN

Whom Fortune Favors

The Five Things that Matter | Part 1



Still, brave Turnus did not lose hope of seizing the shore first,
and driving the approaching enemy away from land.
And he raised his men's spirits as well, and chided them:
'What you asked for in prayer is here, to break through
with the sword. Mars himself empowers your hands, men!
Now let each remember his wife and home, now recall
the great actions, the glories of our fathers. And let's
meet them in the waves, while they're unsure and
their first steps falter as they land. Fortune favors the brave.'
So he spoke, and asked himself whom to lead in attack
and whom he could trust the siege of the walls.

— Virgil, *The Aeneid*, 10. 270-28

I had to take a verbal physical. A bunch of yes or no questions. But they were strangely worded, like, "Have you ever tried sugar... or PCP?"

— **Mitch Hedberg**

Imani: Am I not all you dreamed I would be?

Akeem: You're fine. Beautiful! But if we're going to be married, we should talk and get to know each other.

Imani: Ever since I was born, I have been trained to serve you.

Akeem: I know, but I'd like to know about you. What do you like to do?

Imani: Whatever you like.

Akeem: What kind of music do you like?

Imani: Whatever kind of music you like.

Akeem: I know what I like, and you know what I like, 'cause you were trained to know, but I would like to know what you like. Do you have a favorite food? Good! What is your favorite food?

Imani: Whatever food you like.

Akeem: This is impossible. I command you not to obey me.

— ***Coming to America (1988)***

Natural selection, the process by which the strongest, the smartest, the fastest reproduced in greater number than the rest, a process which had once favored the noblest traits of man now began to favor different traits. While most science fiction of the day predicted a future that was more civilized and more intelligent, all signs indicated that the human race was heading in the opposite direction: a dumbing down. How did this happen? Evolution does not make moral judgments. Evolution does not necessarily reward that which is good or beautiful. It simply rewards those who reproduce the most.

— **Opening Narration, *Idiocracy (2006)***



Lepidus: What manner o' thing is your crocodile?

Antony: It is shap'd, sir, like itself, and it is as broad as it hath breadth; it is just as high as it is, and moves with its own organs. It lives by that which nourisheth it, and the elements once out of it, it transmigrates.

Lepidus: What colour is it of?

Antony: Of its own colour too.

Lepidus: 'Tis a strange serpent.

Antony: 'Tis so. And the tears of it are wet.

— **William Shakespeare, *Antony and Cleopatra*, Act 2, Scene 7**



He ended frowning, and his look denounc'd
Desperate revenge, and Battel dangerous
To less then Gods. On th' other side up rose
Belial, in act more graceful and humane;
A fairer person lost not Heav'n; he seemd
For dignity compos'd and high exploit:
But all was false and hollow; though his Tongue
Dropt Manna, and could make the worse appear
The better reason, to perplex and dash
Maturest Counsels: for his thoughts were low;
To vice industrious, but to Nobler deeds
Timorous and slothful: yet he pleas'd the ear,
And with perswasive accent thus began.

— **John Milton, *Paradise Lost* (1667)**

For the whole earth is the tomb of famous men; not only are they commemorated by columns and inscriptions in their own country, but in foreign lands there dwells also an unwritten memorial of them, graven not on stone but in the hearts of men. Make them your examples, esteeming courage to be freedom and freedom to be happiness.

— **Thucydides, *Funeral Oration for Pericles***

They don't think it be like it is, but it do.

— **Career journeyman Oscar Gamble, when asked about the New York Yankees clubhouse**

The reality show president and the High King of Ireland

If you've seen the film, you know why it has become so fashionable to talk about *Idiocracy's* prescience. If you haven't, a brief synopsis: the film tells the story of humanity many years in the future. In this future, humans are very stupid. The biggest celebrity is the resilient star of a hit reality show about a man subjected to repeated groin injuries. Farmers water their fields with an electrolyte-laden sports drink since, after all, as the Brawndo company clearly states, "it's got what plants crave." Plus, with that kind of television programming available, it's not like you're going to have time to read debates among historians about whether Scipio Africanus truly ordered the salting of Carthaginian fields.

Well, all that and they elected a wrestling and adult film star as president.

Don't worry. I'm not going where you think I'm going with this, although I will admit that even though I threatened to write in President Dwayne Elizondo Mountain Dew Herbert Camacho in two prior elections, when he actually appeared on the ballot I found it a bit more difficult to pull the lever.

So how did this happen (the movie plot, not Trump)? Well, the proximate cause proffered by the narrator is that all the smart, creative people saw overcrowding and a dangerous world and decided not to have kids. So it's a gene pool argument. Underneath this purely genetic argument, however, lie truths about both evolution and social structures that form around and because of some of the trappings of genetics and lineage. From an evolutionary perspective, we are presented with the asymmetric potential of humanity that has solved most of its existential problems. If intelligence and creativity have little-to-no bearing on survival (more accurately, on a given human's potential to procreate), what is the catalyst for the development of positive traits? Should procreation become associated with long-run maladaptive traits, however, the bigger issue becomes: how quickly do social power structures develop around and entrench those traits? How effectively do those structures prevent the emergence of adaptive traits when we need them again (e.g., knowing that you should probably just use water)?

You're reading a note on a website long published with the header, "Politics trumps economics every time," so I expect you won't be surprised to learn that I think that over short periods of time, the pressure of the social structures is by far the stronger of these two dynamics. After all, the driving force behind the *Idiocracy* scenario is not entirely fictional. If you've participated in any sort of foray into genetic genealogy, you've seen the effect in action.

A few years back, a group of researchers from Trinity College Dublin identified that there was a strong relationship between certain genetic haplotypes and surnames that matched published lineages of a certain quasi-historical Irish king: the wonderfully named Niall of the Nine Hostages. Researchers found in subsequent testing of individuals with those surnames that many shared a mutation in their Y chromosome. At a location called 14902414 (don't ask), where they expected to find guanine, which is what they'd find in researching any other human male they'd ever come across, they found adenine instead. We call this kind of mutation a "single nucleotide polymorphism." These mutations are one of the most important ways we map the branching of lineages in male genetic history. Stable SNPs are passed down like a scar from generation to generation in a path-dependent chain.

Once this was discovered, we were off to the races in the usual ways. One of the largest DNA testing companies wasted no time in creating a special logo that was applied like “flair” to user accounts certifying them as a Descendant of Niall of the Nine Hostages! If you’re one of the few million men who would test positive for this mutation, you can still scrape a bit of your cheek into a vial, send it in and then download and print a certificate attesting to this, although they’ve softened the language somewhat. As always, lineage and genetics are far more complicated than they appear on the surface, and subsequent research made it clear that the mutation happened centuries before this man would have lived, probably in Cornwall and not Ireland, and included all sorts of other lineages as well.

Even if the specifics were a bit off, there was a kernel of truth in this mode of thinking: in general, rich people with swords who could afford food had more children that didn’t die early, and their children had more children who didn’t die early. In addition to really bad genealogical practices, this is why everyone you meet who has done any research into their family has found some super-famous king or viscount or third earl of something-somewhere from whom they’re descended. It’s also why when a particular common lineage seems to spring out of a place and time, we are drawn to the notion of the fecund king, whether it’s Niall or, say, Genghis Khan. A 13th century peasant farmer probably didn’t have healthy kids, and if he did he probably didn’t keep exquisite written records of them. But in the short run, evolution is a fickle, funny, random thing. Does the success of the line of someone like Niall mean that it had some significant, genetically heritable trait that made its members more likely to thrive? It’s possible, of course, and in many cases throughout history it is certainly true — evolution is a thing, after all — but over shorter horizons it is natural variation and randomness that dominate.

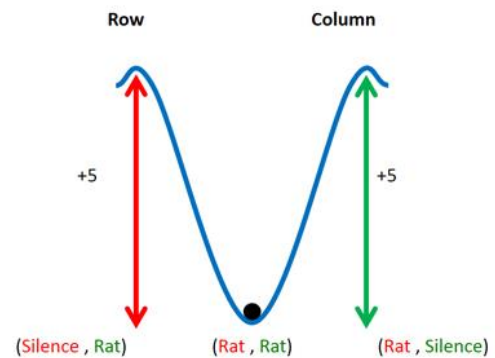
Yes, Niall himself may have successfully overcome his opponents because he was predisposed to carry more muscle mass and greater range of motion in his arms, and your 12th great-grandfather, the Marquis of Accepting Internet Strangers’ Shoddy Research, may have risen to his position from obscurity because of his stunning intellect. But power structures like nobility and primogeniture¹ aren’t necessary to protect the remarkable. They are necessary to protect the weaker links in the chain that come as a result of even more remarkable genetic variation, and the resilience of the line over time is functionally the strength of the power structure that supports it — and must support it in order to endure such variation. **In short, those power structures — the ideas of nobility, genetic superiority and divine right — are just narratives. Very, very strong ones.**

¹ Or at least patrilineality. Unlike a lot of Germanic cultures, Irish (and later Scottish) traditions favored Tanistry, under which a sept could allow any male descendant of a chosen accepted ancestor to become the Tanist, the heir apparent. Often it *was* simply the King’s eldest son, but not always.

From the very beginning of *Epsilon Theory* — but reaching its zenith with [When Does the Story Break](#) — these pages and our thinking have focused on the almost-shocking resilience of the stories we tell ourselves and each other about markets and investing. In that piece, we placed the focus squarely on the inflection point: what does it look like when the narrative changes? When do gentlemen stop wearing the wigs they wore for 150 years? When and why do they stop wearing hats? When will we all stop knowing that we all know that markets are policy-controlled? When will Mike Judge's future humanity accumulate enough negative results from maladaptive traits that marginally superior traits become relevant to reproduction again (so that we don't die out as a result of malnourishment and repetitive concussive injuries to the groin)?

For such a narrative to break, our private knowledge — a collective state of understanding of something so agreed-upon as to be considered fact — must be influenced by new public knowledge. When it's a pervasive idea, it resolves to a strong equilibrium, like the information surfaces we talked about in [Through the Looking Glass](#). And it requires an awful lot of information for a narrative like this to break.

It's true for High Kings of Ireland and it's true for investing.



What manner o'thing is your manna

Let me tell you about an especially stupid investing idea that has managed to survive for a very long time.

Since we've covered dystopian fantasies, let's imagine this stupid idea in context of something wonderful: let's assume that we are 22 years old again, right out of college and talking to our first financial advisor about our 401(k) allocation. Now, it doesn't matter if you're a financial advisor yourself, an institutional allocator, an individual or a professional investor, you know what's coming next. The book says 100% stocks. Maybe the home office dropped in some higher risk/return styles into their mean/variance model and so we probably get a dash of [Chili P](#) in the form of emerging markets and small caps too. All stocks, mostly U.S., with a bit more international, emerging markets and small cap than the average client. Sound about right?

Let's unpack this advice. The financial advisor in this scenario is essentially telling his client the following:

I'm happy to inform you that the trillions of business decisions of billions of employees and managers of companies around the world, combined with the decisions of bankers who determined whether and how much to lend to those companies, the decisions of individuals who chose whether to buy or sell that company's products, global weather phenomena, collective actions of terrorist groups, trillions of trading decisions made by computers and individuals alike on a microsecond-by-microsecond basis, the general pace of technological growth, the changing risk appetites of a dozen different classes of investors, the state of rule of

law in various countries around the world, the changing policies of governments and central banks governing trade, commerce and financial markets, the current level of prices and valuations, and the way in which billions of individuals will perceive and estimate the outcomes of all of the above — that all these things together have conspired together to create an entity we call a stock, which, when taken in combination with a more or less arbitrarily determined number of other stocks and all of their differing characteristics, will create a stock market that just happens to have **exactly the right amount of risk for you!**

What a bunch of superstitious hogwash.

We treat asset classes like manna from heaven, preordained structures that were designed to meet our every need, in which the lowest-risk major asset class has just the right amount of risk for a retired person and the highest-risk major asset class is perfect for the most risk-seeking individual. The very idea *pleases the ear* because it asks little of us. You'll eat your manna and like it! But be honest, can you think of anything else where the universe conspires so beautifully and elegantly to meet our needs?

Fortunately, at this point many investors at least pay lip service to the preeminence of asset allocation, but we often think of it in terms that commingle the types of risk we are taking and the amount of risk we take. We see this commingling — a thing we call asset classes, like broad definitions of stocks and bonds — as manna from heaven because we tend to inextricably link the concepts of asset classes with risk and return. We are trained by the investment industry to see our asset class decisions as a proxy for risk decisions. They aren't, and the distinction matters.

It's easy to get caught up in terminology and semantics here, so instead, think about the act of investing in its most fundamental sense. Strip away products, market conventions, regulation and structures like exchanges, even corporations. Investing is the act of using capital to buy an asset or pay expenses to support it. We invest so that we will either (1) produce income from the asset or (2) cause the asset to become more valuable in the eyes of other investors. In this sense we can think of our risk as the range of outcomes from (1) and (2) after considering the (3) nature of our claim on both. This is true for any investment.

What, then, is an asset class? Well, it's a mostly sensible, if subjective, way to generalize how some investments are more like other investments. Asset classes define that similarity mostly in how their characteristics (1) and (2) above respond to the same stimuli. So ignoring that the right answer is, "because it's just what we do", why do we consider U.S. large cap stocks an asset class? Well, generally speaking, it should be because the things that cause risks to a company's ability to generate earnings are pretty similar, and (rather self-prophesyingly) because the *fact* that it is considered an asset class influences how other investors are likely to respond similarly when they assess the value of all the other underlying constituents of the asset class.

In practice, however, the factors that influence the viability and the value of our claims on enterprises we invest in (i.e., companies, governments, properties, projects, etc.), and especially the *magnitude* of sensitivity to those factors, can be hugely variable within asset classes. TSLA and T theoretically have exposure to some of the same drivers of variability, but how much, really? Do people scale back their texting and phone plans during a recession? Eh, maybe. Do they stop buying \$90,000 rolling

batteries? Oh yeah. And yet, more often than not, investments like this move in sympathy. What is so fundamental about and shared within these asset classes that they can be aggregated like this? This is a critical thing to understand if you spend any time assessing risk or building portfolios:

The real reason that many investments behave like each other *at all* is that they are grouped into asset classes that most investors trade together.

It's the sort of tautological, Schrodingeresque yarn that should be familiar to any *Epsilon Theory* reader: asset classes behave like asset classes because we treat them like asset classes. No matter how much we grouse about fundamentals not mattering, no matter how much we may wish this weren't the case, it is. And it's becoming truer as passive investing and indexing become more dominant. We may not think it be like it is, but it do.

If you find this dissatisfying, join the club. The cementing of this kind of mechanic is a big part of the hollow, [petty, transactional, voodoo wasp-infested investing world](#) we live in. I'm not asking you to pretend that it isn't a thing. What I am asking you to do is consider whether it is right to anchor the way we think about portfolios and appropriate levels of risk for ourselves and our clients on the independent and recursively derived characteristics of "asset classes."

In behavioral finance and cognitive psychology, this is a classic example of both the availability and anchoring heuristics. In the absence of a clear framework to assess how much risk we ought to take in our portfolios, we instead look at the continuum of risk/reward opportunities as expressed through these asset classes, whose risk characteristics are readily apparent — and available. We anchor on the "most risky" and "least risky" of those asset classes, and treat every individual as a relative or marginal analysis against those anchors. Thus, we arrive at all the variants of 60/40, 70/30 and 50/50 portfolios consisting of varying percentages of stocks and bonds. It's a *Coming to America* conversation with every advisor: "How much risk is appropriate for a high-risk investor? Why, however much risk a broad market stock market index has." "How much for a moderate risk investor? I don't know, let's add some bonds to whatever we just sold the last guy."

The conflation of the types and amount of risk has other effects as well. A portfolio that is 80% bonds isn't just less risky than a portfolio that is 80% stocks — it is also exposed to really different drivers of returns for what it holds. Thus, even in an asset class-conscious framework, the narrative holds. And it is a strong one.

Its missionaries take many forms: practitioners, econometricians, academics, and even regulators, who conduct all sorts of other analyses to support these conclusions. They anchor us to conventional definitions and groupings like asset classes, style boxes and the like, they take for granted assumptions (e.g., no leverage) that create massive bias in their conclusions, and they focus unerringly on improving utility theory to better understand what investors *will* do instead of identifying what they *should* do. In so doing they unwittingly conspire to force us into a set of investment options that reflect a sad mix of human behavioral tendencies, conclusions biased by massive abstractions and absurd faith in coincidences.

Have you ever tried sugar...or PCP?

I think it's pretty unlikely this narrative goes anywhere any time soon. Its assumptions are too convenient, too *perswasive*, its conventions too embedded in product structure and regulation. Think

Target Date funds, balanced funds and '40 Act limitations. It's also true that it can be pretty useful. As these pages have made clear, we have a pretty dim view of spending a lot of time [sitting around talking stocks](#) and we're not in the business of wasting time on [window dressing](#) or [fiddling](#). When we build portfolios, we use a lot of index-linked instruments — ETFs, futures, swaps — because they do a pretty good job of delivering many of the core sources of risk and return we want.

But believing in and using low-cost vehicles doesn't require you to calibrate your whole framework of thinking around the characteristics of the indexes they track. So what is our framework? What will be robust to changing levels of risk and changing sentiment? What has a true north even when the drivers of asset classes are shifting? What allows us to answer something other than "Yes" or "No" when someone asks us whether we've ever tried sugar or PCP?

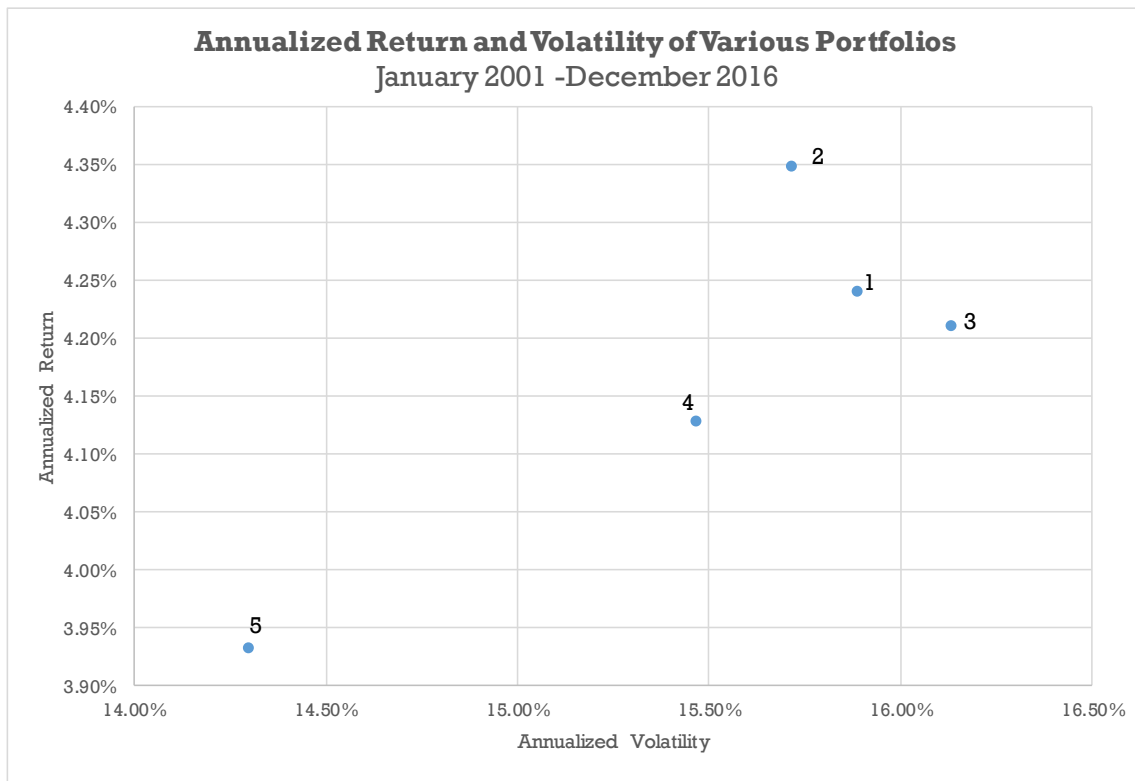
How much risk you take is probably the most important decision you *will* make as an investor. It is certainly the first decision you *should* make.

This is a deceptively simple point, but it matters. I am saying that before you spend a minute thinking about or designing an asset allocation, your complete focus should be on the quantity of risk you're willing to take.

In some cases — decisions among similar asset classes — the risk decision is very obviously more important. This is most easily understood by example. Below we examine the risk and return of five different portfolios since January 2001 and rebalanced monthly:

1. A portfolio invested 100% in the MSCI All Country World Index ("ACWI")
2. A portfolio invested 90% in ACWI and 10% in the S&P 500
3. A portfolio invested 90% in ACWI and 10% in the MSCI Japan Index
4. A portfolio invested 90% in ACWI and 10% in the MSCI Europe Index
5. A portfolio invested 90% in ACWI and 10% in nothing (under a mattress)

Think of Portfolio 1 as our control. Portfolios 2, 3 and 4 represent — for the most part — an isolation of the "asset" dimension and an abstraction from risk. Portfolio 5 represents an isolation of the risk dimension. If we chose to overweight the U.S., Europe or Japan by 10% against a global market cap weighted index, the average difference in annualized return between the 10% overweight bets and the ACWI over this period was about 8 basis points. By contrast, taking off 10% of our risk took away about 30bp of return. Intuitively this is a function of the relative Sharpe ratios of various asset classes and how they differ, and so over different periods — such as ones in which the broad market was down — this analysis might have different signs. But over most of history and across most markets the magnitude, the *importance* of this decision, would be like what we show here.



Source: Salient Partners, L.P., as of 12/31/16. For illustrative purposes only. Past performance is no guarantee of future results. Certain performance information shown is compared to broad-based securities market indices. Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index.

You could think about this in risk space as well. The volatility of the ACWI over this period was just under 16%, coincidentally not that far from what you would observe over many other long-term windows. In contrast, the volatility of the excess return between each individual market and the broad market — their tracking error — was always lower. On average using the U.S., Europe and Japan, the average tracking error is about 7.6%, less than half of the volatility of the market itself.

This analysis becomes a bit more convoluted if you're comparing decisions across assets that tend to have very different amounts and types of risk — say, U.S. large caps and Treasuries. If we were able to achieve a similar level of risk from government debt, we'd see that the impact of the different types of risk becomes as significant as the risk decision itself. But even in this case, to get to a place where we are thinking in those terms, quantity of risk is our starting place. How much you own usually matters more than what you own.

For many investors, this is counterintuitive. It presents a strong contrast to the way in which many investors have taken advice from people like Peter Lynch and Warren Buffett, whose letters and books highlight the extent to which focusing on simple businesses they can understand or can "sketch with a crayon" has led to their own success. Much to Mr. Lynch's dismay, for example, investors have often understood this to mean buying Procter & Gamble stock because they personally use a lot of Crest toothpaste and feel strongly that it's a superior product to Colgate. I would extend this to include even the more sensible-sounding notion that a senior IT professional has some edge that should allow him to successfully manage a JNPR/CSCO pairs trade. Please.

Buffett and some others are probably an exception to our rule of thumb here, although only marginally so. Not because of his talent, but because of his extreme concentration. The idiosyncratic characteristics of the portfolio of companies in which he chooses to invest may sometimes be more different from those of other companies than the difference between holding the portfolio and holding cash. But that level of concentration is so extraordinarily rare among investors that I think it's *probably approximately correct* to consider it irrelevant for our discussion.

So what am I saying to the "quality" and "buy what you know" investors? I am saying that unless you have a portfolio that is very concentrated in individual securities — by which I mean that more than 6 or 7% of your total net worth or investable assets are invested in an average stock or bond position — if you think that the unique characteristics of what you own are going to drive your success more than how much market risk you're taking, you are wrong.

Measurement will be important as we walk down this road, but I don't have a lot of interest in spilling more ink/electrons debating the best way to measure risk. We'll get into it more in Part 2, but regardless of what measure for risk we choose, by and large, how much exposure we have to financial market risk will have more impact on our portfolio results than any other factor.

Primum non nocere

What does all this mean for the code-driven investor?

It means that anything lower in the priority must be considered in context of its impact on risk. This seems intuitive, but is extremely poorly understood. Take a look at [this article](#) from the world's leading newspaper covering financial markets. Without tongue firmly planted in cheek, this author undertakes to compare hedge fund returns to private equity returns as part of explaining why private equity funds are raising so much more money. This is really stupid.

The first reason it is stupid is because the comparison is terrible. Most private equity — large buyout funds, anyway — is just levered stocks with high fees and a PM who calls himself a "deal guy" and wears Brioni instead of your long-only guy's Brooks Brothers. It's the exact same type of risk as mid-cap equities, and if it were in a constantly marked structure, it would demonstrate more risk than your average mid-cap equity benchmark. Not to be too on-the-nose about this, but hedge funds are usually hedged. Most try to avoid equity sources of risk, and almost universally avoid taking as much risk as traditional strategies. Evaluating and comparing absolute returns of these two assets because they're both "alternatives" is like the guy with the butter-laden tomahawk ribeye gloating when I order the petit filet. Yes, we all saw the 26-ounce steak on the menu, guy.

The second and more disquieting reason it is stupid is because *it's kind of true*. People and funds really are making this exact decision: to sell their hedge funds to fund private equity. At other times (usually after PE disappoints) they do the opposite. But I see decisions like this **all the time**. I see advisors trying to improve a client's yield by swapping stocks for high yield. Selling their equity index fund to go into an unlevered low volatility equity fund. I see them going to cash because U.S. stocks feel expensive. I see them rotating from market-neutral hedge funds to high volatility CTAs and managed futures funds, or visa versa. There are always good decisions why we don't like Asset X and maybe some good reasons why we like Asset Y. But because our frameworks often don't first think about the baseline expectations for risk and return for these assets, these decisions often fall

victim to the pitfalls we highlighted in [And They Did Live by Watchfires](#), where our temptation to tweak leads us to make small changes that have big unintended consequences. In a huge majority of cases, risk differences between assets will dominate the expected edge we have on views of the relative attractiveness of different *types* of return. More on this to come.

The other implication — and chief benefit — of starting the portfolio construction process with a risk target is that it frees us from the anchoring biases of a framework that begins from the arbitrarily determined characteristics of asset classes. That does place some onus on us to develop a view of the right amount of risk to take, of course. And while some of the techniques for developing such a view are standard fare, they also usually either revert to boundary constraints driven by asset classes and vehicles, or else focus on an exercise where the expected portfolio return *just* meets a return target or theoretically minimizes the probability of not reaching some horrifying outcome.

So, while I believe that your quantity of risk is the most important decision you can make, I can't tell you how much risk you can tolerate. I *can*, however, generalize what I know many professional investors do in their personal portfolios:

1. They take a lot more risk than you.
2. They concentrate a lot more than you.
3. The fact that they offer lower-risk products reflects their assessment of business risk, not investment merits.
4. Tail risk becomes a much bigger consideration as we do more of #1 and #2.

I'll be the first to say that the notion of "smart money" is mostly a myth, but there's a reason why your fund managers behave like this. The notion that bonds are *mana* for conservative investors turns out to be just about right. Go figure. The idea that equities are *mana* for risk-seeking investors turns out to be pretty far off. For those of us in the risk-seeking camp, we need to start over on the question of the right amount of risk to take. For that, you'll have to wait for Part 2.

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