Chapter 6

Cerebral Junk Food

10 Reasons Listicles Are Bad for Your Health

More often than not we know what we should do. We are well aware that we should choose salad over French fries, water instead of soda, and take the stairs rather than the escalator. Everyone knows these things, and yet in that moment of choice, no matter how many times we've said, "never again" or swore an oath to ourselves and others, we simply can't resist. Many times our very own bodies are actually working against us, nudging us to make the wrong decisions. The mere sight of something sugary or salty automatically triggers the production of excess saliva, hence the term *mouth watering*. To make it worse, because we tend to have a natural preference for the wrong option, it doesn't take much to tip us over in that direction and very often it's our friends and family, the ones who should be helping us do the right thing, who play the role of that little devil whispering in our ear, "You only live once. Go for it. You know you want it." And so we do. We rationalize the irrational act and postpone the difficult choice for some time in the future when we will do better. "I promise."

AlphaBrain: How a Group of Iconoclasts Are Using Cognitive Science to Advance the Business of Alpha Generation, First Edition. Stephen Duneier.

Unfortunately, it isn't just our physical wellbeing that suffers as a result of our poor choices, our mental fitness is also plagued by many of the same bad influences. The surge in popularity of the "listicle" is an example. The listicle is to your brain what a bag of greasy, sodium-packed chips is to your waistline.

What are listicles? They are those pervasive stories you've seen spreading like a virus on your social media feeds, and are now infecting traditional media and even institutional research. They have titles like "5 Things You Should Know About . . . ,", "7 Secrets to . . . ," "8 Keys to . . . ." Get it? Combine *list* with *article* and you have the *listicle*.

Why have they spread like type 2 diabetes? Well, much like images of sugary foods, our brains have a biochemical auto-response to lists. They are similarly satisfying in the short-term (and often just as damaging in the long run). The reason they are so appealing to us is that they hold the promise of simple solutions to complex problems, delivered via bite-sized, easy-to-digest nuggets of wisdom. Bottom line, our automated thought system doesn't like to work hard, and when given the option between an open ended discussion in which a wide range of possibilities are explored, and a finite list of bulleted answers, we are severely biased toward the latter.

Why It Matters

Like it or not, we are influenced by an article's headline, and those who are trying to draw our attention know it. Fundamentally, headlines are meant to perform two functions: summarize and attract attention to the full text of the article. However, a number of studies have shown that headlines typically do not accurately represent the articles they introduce. In fact, they have concluded instead that headlines make a loose, inadequate or misleading substitute for full-text news reports in a number of ways. Therefore, the purpose of headlines has degraded into solely attracting attention to the full text.

Writers and publishers know what will attract readers, but since publishing went digital, it's no longer enough to get you to buy the newspaper or magazine. Now they are judged, and often paid, according

to how far down they get you to scroll, with God-like status reserved for those who get you to click to the next page. You see, they have to go beyond simply grabbing a reader's attention so that they buy the paper or open the article, now writers and publishers must hold that attention right to the end. As a result, the rules for writing headlines are now being applied to the entire article, leaving little more than a "loose, inadequate or misleading substitute for the full-text reports" as the content itself. Bottom line, we are consuming more empty calories, and content, leaving us simultaneously bloated and undernourished, both physically and mentally.

> The country is entertained, but not engaged. It is drowning in information and thirsty for knowledge.
>
> **Charles Pierce,** ***Idiot America: How Stupidity Became a Virtue in the Land of the Free***

You've Been Framed

One of the fundamental tenets of rational decision making is something known as "description invariance." What it means is that it shouldn't matter *how* available options are presented to us. We should consider them all consistently, and without bias. Unfortunately, we humans are extraordinarily susceptible to the manner in which information is delivered, a finding that is supported by a wealth of empirical data. This bias has been named the framing effect.

Figures 6.1 and 6.2 show a couple of examples showing how information can be presented in different ways, evoking different responses.

As much as we'd like to believe that we investors are too smart to fall for such things, there is compelling evidence that its effects are pervasive in our industry as well. Take, for example, the concept of P/E, the price-to-earnings ratio. As everyone knows, P/E is offered as a way to draw a direct connection between the price of an equity stake in a company and the earnings that business generates. Although it implies a connection and we may like to believe there is one, technically there isn't,

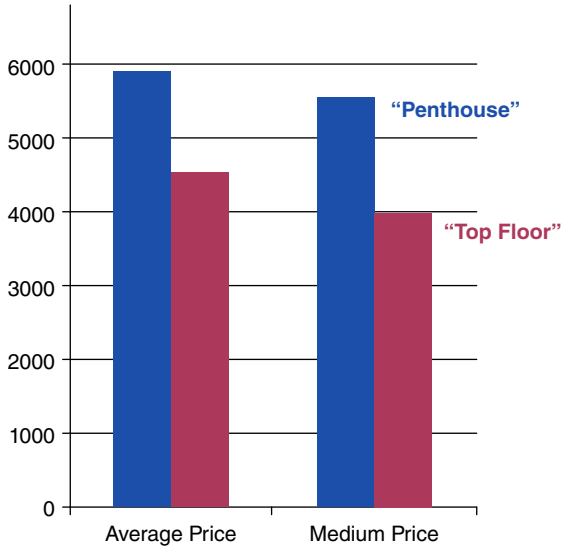

Figure 6.1 Rental prices for top-floor NYC apartments based on the label ($0–$10,000).

Figure 6.2 How to make smoking seem healthy.

except in our minds. A stock can trade at 12, 17, 25, or even 100 times earnings, and nothing about the laws of physics argues that any one of them is more "correct" than another. In other words, there is no way to arbitrage a stock market merely because it is valued at 100 times earnings.

Sure, you could argue something like, "anytime it's traded 'up there' it's been a good short" or "it's 'undervalued' down here," but if you think about it, these are merely acknowledgments of a behavior pattern. In other words, P/E and any other measures like it, are little more than technical indicators, making terms like *undervalued* and *overvalued* functions of historical behavior patterns. The reality is, they serve as anchors for us to create order out of chaos and randomness.

Thanks to the way these simple formulas are presented, combined with our ability to graph, compare, and analyze correlations among them, it gives the impression that they actually mean something. The fact that they don't mean anything more than the words used to describe a top floor apartment, doesn't keep us from pretending that they do. We can say things such as it doesn't make sense that the stock market would rise at a significantly faster pace than the underlying economy or it isn't sustainable, but the reason it's so difficult to predict the top of a bubble is because there is no "correct" value, no way to arbitrage it. In fact, it *is* sustainable. Although some argue if there is no one else left to buy the price will go lower, but this simply isn't true. If there is no one wanting to buy and no one wanting to sell, you have market equilibrium. The price goes nowhere.

Yes, equities that are priced below the business' liquidation value can be arbitraged. The further we are from that level, the greater the extrinsic value relative to intrinsic value the stock price represents, and the more like trading baseball cards, artwork, and gold it becomes.

As the *penthouse* versus *top floor* example shows, we often value identical things differently based on how they are presented to us. It is irrational behavior. I believe the same could be said for those who are bullish for gold *because* they believe stocks and most other assets are in a bubble. You see, the only thing that separates gold from every other asset, including equities, is that it isn't anchored to anything. It has no actual use, no real demand, because we as a society don't *need* it for anything. There are no earnings or yield to anchor

it. Therefore, it can't be proven to be relatively cheap or expensive, undervalued or overvalued. On the other hand, there isn't a whole lot of it and not much in the way of new supply, which is why people categorize it as a *pure* investment, when the reality is, that is what makes it the very embodiment of speculation itself. It has value only because we bestow value upon it. It is the ultimate fiat currency, ironically, the very thing from which gold bulls typically seek refuge.

The true definition of a bubble as it exists in our minds is when an asset's valuation doesn't reflect what it represents. By this definition, one could easily argue that the stock market, at the time of writing, is in a bubble, since stock prices keep rising while growth in earnings continue to recede. In order for us to maintain our belief in the construct of markets as having meaning rather than as a house of cards, we must argue that it isn't sustainable. When stock markets rally in spite of poor growth prospects, when bonds continue to rally despite negative yields, when commodity-dependent emerging markets find buyers for their debt at "low" yields even as commodities collapse, it creates cognitive dissonance. How can these things happen if financial asset prices are based on something concrete? The simple answer is, they can't, and yet they do. The reason is that financial assets are exactly like gold. Ultimately, their price is tied to supply and demand for the instrument itself, not the anchor.

A Picture Is Worth a Thousand Biased Words

Figure 6.3 shows the global production of what we traditionally think of as cameras, from 1947 to 2014. Photographer Sven Skafisk then thought to add sales of smartphones to the chart, which makes sense given how many people use their phones instead of cameras to take pictures now. Sven chose to maintain the *y*-axis scale, which puts the explosive sales growth in perspective (Figure 6.4).

It's a powerful image for sure, but does it *really* help put the growth in perspective, or does it distort it? To answer that question, take a look at the image on the next page, showing the same data (camera plus camera-phone sales) versus an exponential growth rate of 21% per year. In other

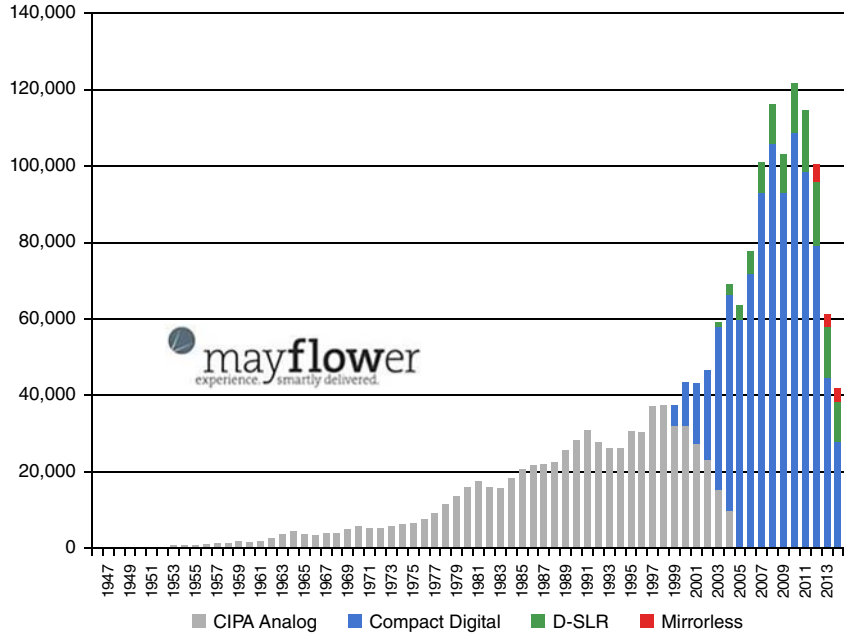

Figure 6.3 CIPA camera production, 1947–2014.
SOURCE: Mayflower Concepts.

words, begin with the actual camera sales from 1932 and grow sales at a constant 21% per year. Perhaps, we are affected by how information is delivered to us after all.

How We Manufacture Uncertainty and Volatility

In Figure 6.5, you will see the counties in the lowest decile of the kidney-cancer distribution. As soon as we see an image like this, our brains immediately set about the task of explaining why it is that the healthy counties appear to be mainly rural. Perhaps it is a result of breathing unpolluted air, consumption of farm fresh food, or maybe readily available clean water delivered straight from tranquil streams. As it turns out, the explanation has nothing to do with the environment or lifestyle, but I'll come back to this in a moment.

Figure 6.4 Sven Skafisk's presentation of CIPA camera production, 1947–2014.
SOURCE: Mayflower Concepts and Sven Skafisk.

Figure 6.5 Counties with the lowest 10% age-standardized death rates for cancer of the kidney/ureter for U.S. males, 1980–1989.
SOURCE: Howard Wainer and Harris L. Zwerling, "Evidence That Smaller Schools Do Not Improve Student Achievement," *The Phi Delta Kappan* 88, no. 4 (December, 2006), pp. 300–303. Reproduced with permission of SAGE.

A young auto racing team has had a phenomenal year, finishing in the top five in 12 of the 15 races it completed. Unfortunately, the car failed to finish due to a blown engine in the other seven outings. A decision needs to be made whether to enter the final race of the season on this particularly cold morning. Several major sponsors have taken notice of the team's performance and the team is on the cusp of moving from struggling upstart to a power player with significant financial resources. If they finish in the top five again today they will certainly hit the tipping point to success. However, another blown engine will likely send them back to square one, or worse. Their engine mechanic, a true "grease monkey" believes the problem has something to do with ambient air temperature, but the chief mechanic, an engineer, disagrees. As proof, he provides the air temperature for each race in which they experienced a blown gasket, highlighting the fact that the problems occurred across a full range of temperatures. More on their decision in a bit.

Baseball has just entered the postseason, that moment when the 30 teams that have been competing to win the World Series are

reduced to the top eight. It's also the time when experts begin making predictions. As it is with all sports, the experts place great emphasis on momentum, particularly recent momentum. As an example, here is how one article on SBNation.com begins: "Rule No. 1 of predicting the postseason: Pick a very strong team. The Blue Jays are rolling. They have the best team, clearly." It isn't just the so-called experts though. We all do it. For instance, if you were attempting to predict the outcome of the very next at-bat for a major league baseball player, which of the following do you believe would offer the most predictive value?

- His batting average over the past five plate appearances
- His batting average over the past five games
- His batting average over the past month
- His batting average over the season so far
- His batting average over the previous two seasons

If you're like most people, you would order the predictive power exactly as it is shown in the preceding list. However, when Moskowitz and Wertheim[1] studied all MLB hitters over an entire decade, it was the batting average of the previous two seasons that offered the most predictive value. In fact, if you wanted to order the preceding list from most valuable to least in predicting the outcome of a batter's next time at the plate you would completely reverse the order of the list. Interestingly, they found the same results when applied to the NBA, NFL, NHL, and European football.

Let's return to the question facing the owners of that auto-racing team. Unfortunately, because the chief mechanic had framed the data in a narrow way, the key decision-makers hadn't thought to ask the simple, but important follow-up question, "What were the temperatures when the engine did not fail?" Had they done so, they would have quickly discovered that temperature was indeed a key factor in the failures. This story of the racing team as presented here is a fictitious one, created by Jack Brittain and Sim Sitkin as a case study for decision-making. However, the data provided and the decision of "go" or "no go" was a very real one faced by the engineers at NASA ahead of the launch of the space

[1] Tobias J. Moskowitz and L. Jon Wertheim, *Scorecasting: The Hidden Influences Behind How Sports Are Played and Games Are Won* (New York: Three Rivers Press, 2011), p. 228.

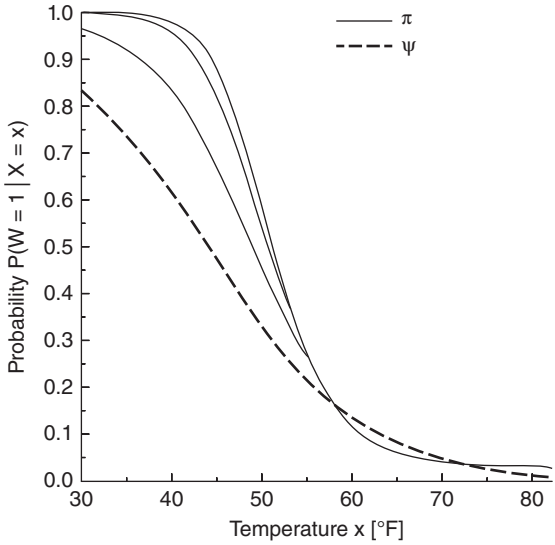

Figure 6.6 Probability of o-ring failure
SOURCE: C. Maranzano and R. Krzysztofowicz, "Bayesian Reanalysis of the Challenger O-Ring Data," *Risk Analysis* (29 July 2008). Reproduced with permission of John Wiley & Sons, Inc.

shuttle, *Challenger*. Unfortunately for all involved, because the problem was initially framed very narrowly, some very valuable data, the kind that surely would have resulted in a "no go" decision on that cold morning (see Figure 6.6), was missed.

This is such a powerful story because it shows that even the smartest among us are vulnerable to poorly framed problems resulting in all the difficulties that come with overvaluing small sample sets. The annals of history are littered with similar mistakes by equally intelligent, educated, and successful individuals, which is why it shouldn't be hard to believe that this same mistake is made on a regular basis by professional investors, including the most successful ones.

Let's return to the question about why it is that rural living results in lower incidents of kidney cancer, but first, some additional information before we get too deep into the creation of an intelligent sounding narrative. Figure 6.5 shows the counties in the *top* decile of the kidney cancer distribution. Once again, rural areas dominate. If you had been

presented with this image first, you would likely have jumped to the conclusion that the high rates might be due to higher poverty rates, limited access to proper medical care, a greater propensity for smoking and drinking alcohol, or perhaps diets that tend to be higher in fats.

In reality there is no valid narrative that can accurately explain the phenomenon. It is merely a statistic phenomenon of studying a small sample set. But rather than attribute it up to the random, highly variable nature of small sample sets, we intuitively set about the task of generating a story that can explain it. Unfortunately for us, regardless of what we desire, small towns represent small sample sets, and small sample sets typically exhibit greater variability and tend to be overrepresented in the tails, both of them. It really is that simple.

Back in 1985, a little known paper[2] was written by Robert Abelson of Yale University, in which he proved mathematically that the percentage of variance in any single batting performance for major league baseball players explained by skill is less than one-third of 1%. The author's hypothesis, which led to the proof was that "many games are decided by freaky and unpredictable events such as windblown fly balls, runners slipping in patches of mud, baseballs bouncing oddly off outfield walls, field goal attempts hitting the goalpost, and so on … The ordinary mechanics of skilled actions such as hitting a baseball are so sensitive that the difference between a home run swing and a swing producing a pop up is so tiny as to be unpredictable, thus requiring it to be considered in largely chance terms" (p. 129). Although he proved that skill played a minuscule role in an individual swing and at-bat, he did acknowledge that over sufficiently lengthy periods, skill was indeed a significant factor.

Considering the high degree of variability and uncertainty inherent in very short term results, not to mention the volumes of research proving that small sample sets are more volatile, less predictable, and less informative, it should make us question the decision-making ability of portfolio managers, CIOs, and asset allocators who, in the face of turmoil and uncertainty, actually shorten their investment horizon. Although it appeals to our intuition and therefore feels right, focusing on progressively shorter-term price action in order to gain greater control of P&L volatility is quite simply irrational.

[2] "A Variance Explanation Paradox: When a Little is a Lot," Psychological Bulletin 97, no. 1 (1985): 129–133.

By shortening our time horizon, allowing both short-term price action and every individual data point, including nonfarm payrolls, to drive our investment decisions, we are in fact increasing the influence of noise over signal, randomness over predictability, and injecting volatility into both our thought process and results. Ironically, as more and more investors and their money managers attempt to reduce volatility and increase their sense of control by becoming hyperfocused on what has just happened, their decisions become more sensitive to noise and their results more volatile. With this behavior having become so pervasive, it's no wonder markets appear more volatile and less predictable these days. When we shift our focus away from the big picture, where trends are far more apparent and explicable, it's only natural that the world would appear to be less certain, more volatile.

It is important to recognize that we can't actually explain every tick in the S&P 500 or weekly move in wheat. In the scheme of things, these are little more than random events. When we continuously attempt to create seemingly coherent narratives to explain what are essentially random events, we will naturally experience more moments when our expectations are proven wrong than when we weren't so myopic. Rather than accept responsibility for the mistake, we tend to place blame externally, which, in this case, leads to the explanation that the world no longer makes sense, that it is more volatile and uncertain. But, if we step back a bit, push those short term charts away, consider what the really big forces are that are truly driving global economics and financial markets, we can see that the world hasn't actually become more uncertain. The uncertainty is merely a function of how the problem is being framed, which is leading to poor decisions, lower returns, and greater volatility en masse. When that occurs, risk parameters tend to be tightened up even more, thereby exacerbating the problem, which is where we often find ourselves today.

What Dieting Taught Me About Consuming Information

In 2007, I was on the verge of breaking the 200-pound barrier, in the wrong direction. A lifetime of dietary habits that would have made

Morgan Spurlock's "Super Size Me" look like a healthy alternative had finally caught up with me. I had just moved from London to Santa Barbara, which seemed a logical time to make some adjustments that would nip this problem in the bud. The problem was I had no idea where to start. So I did what anyone who wants a six-pack stomach would do. I asked someone with rock hard abs for advice. In my case, it was my wife's new yoga instructor. "Sugar," she said. "You have to avoid sugar if you want to get rid of the layer of fat that is hiding your abs."

Exactly what I was hoping to hear. A succinct, simple formula that I could focus on to accomplish my goal. For the next 48 hours, I read every label and investigated the composition of every food that didn't have a package. I was a man on a mission to eradicate sugar from my diet. In no time, I would be walking shirtless everywhere I went.

Entenmann's doughnuts? No more. Honey Bunches of Oats cereal? Nice try. Sounds healthy, but it's got sugar. Box of raisins? Wait, raisins have sugar? I was like a deer caught in the headlights. I couldn't find any food that didn't have sugar in it, so I went two full days without eating a thing.

What sounded like a simple formula for achieving my goal was actually an impossible task. I was so focused on this one thing, I missed all the other important elements, including how sugar factored in to a complete diet.

This wasn't the first time I had rushed into an idea with vim and vigor. Years earlier, I announced to my wife that I wanted to learn how to speak German. A few days later she tells me that the kid who washes her hair at the salon is from Germany and that he would be happy to teach me. "Really nice guy," she said. It was great. He came to the house on my schedule and the lessons were inexpensive. I worked with him for a few weeks before it dawned on me that I had in no way vetted his linguistic skills other than knowing that he was from Germany. "What if he is teaching me the equivalent of street slang or even just poor grammar?" I had no way of knowing, so I stopped the lessons immediately and opted for a more structured and reputable methodology.

Getting back to my six-pack conundrum, it was clear I had committed the same error here as I had with my language lessons. By simply exhibiting the characteristics I desired, in this case six-pack abs, I jumped to the conclusion that this woman actually understood how she came to

possess them, and that she had the ability to transfer that knowledge on to me. I was wrong on both counts, for a second time.

I decided to take matters into my own hands. It was clear that I needed an education, but the first step had to be vetting potential sources of information. I went to the bookstore in search of a book about food, and how it affects our bodies. I needed to understand how it all works together. With so many talking heads on television, infomercials, hundreds of books on dieting, thousands of fad diets, weight loss solutions and gimmicky products designed to help me achieve my goal, I needed a checklist to weed out the charlatans and block out the noise. With as little as I knew about this topic, I did know one thing for certain. Almost all individuals who attempt to lose weight and improve their health seem to fail. For many it is over before it even begins. For others, it slips away over time. For most, it is a roller coaster ride of success and failure, repeated ad nauseam, fueled by a lack of discipline and knowledge.

I was determined to avoid failure, so I set out for the biggest bookstore I could find, in search of a book(s) on the subject of food that abided by two rules, at a minimum. It could not have the word *Diet* in the title and it could not have a picture of someone wearing their old "fat pants" to show how much weight they had lost. You see, just as simply being from Germany doesn't qualify you to teach the language, having lost weight at some point in your life, no matter how much weight, doesn't necessarily qualify you to teach someone else how to do it.

I opted for the very bland looking, well-written, fact supported collection of diet-related information titled, *Eat, Drink, and Be Healthy: The Harvard Medical School Guide to Healthy Eating* by Walter Willett, MD. I read, highlighted, reread the book, and then condensed what I learned down to a few very simple, easy-to-implement guidelines that I would follow. By doing so, I got back to my fighting weight of 175 and have stayed there ever since.

So how does this relate to the consumption of information? People have developed shortcuts as a way to become more efficient. We pigeonhole, categorize, and bucket information without even knowing it. Most importantly, we outsource the vetting of information, often times to people we've never met and without knowing their qualifications as vetters.

Credibility is inferred through connection, even flimsy ones. It happens all the time, and often with disastrous consequences.

Bernie Madoff understood this and took full advantage. His connection to a charity bestowed credibility onto him in the eyes of a few wealthy elites, which then endowed him with further status. One connection after the next relied on the first, effectively outsourcing their critical thinking to an entity many times removed.

In an age when the original source of misinformation can be very quickly lost in a web of reposts, forwards, and cut-and-pastes, we must be even more diligent in our vetting. When smart people forward articles even before they've read them, the problem becomes infinitely worse for society as a whole, for it is the intelligent, particularly those with a reputation for it, to whom we most often outsource our vetting process.

The *availability cascade* is defined as a self-reinforcing process in which a collective belief gains more and more plausibility through its increasing repetition in public discourse (i.e., repeat something long enough and it will become true). It's a dangerous flaw in our cognitive process, because it can easily be capitalized upon by the deceitful and the hucksters. We are their prey and our only defense is to be more critical in our thinking.

I'm not suggesting that you should be overly cynical about every bit of information that comes your way but simply that you take a minute to vet the sources you depend on for the majority of your information. By doing so, you can actually let your guard down a bit, leaving you to absorb the truly valuable thoughts and information.

By the way, what the yoga instructor should have said when I asked her how to get a six-pack, was, "Calories consumed minus calories burned equals weight change. Burn more calories than you consume and, *voilà!* – you will likely lose weight. To reduce the calories consumed, eat things that keeps you full longer. To increase the calories burned, move more today than you did yesterday. It's that simple." Would I have paid for that sage advice? Probably not. So, if you think about it, I had incentivized her to provide me with information that was less valuable for *me* – similar to how we investors incentivize providers of research and analysis to deliver content even when there is nothing worth saying.