

Chapter 7

The Input Paradox

Bowflex Behavior Modifier 2000

Last year US consumers purchased nearly four billion dollars' worth of new fitness equipment for use at home. The level of technological sophistication included in many of these products is astounding. Thanks to virtual classes with the world's best instructors now available in our own homes (see pelotoncycle.com), the 34,000 brick-and-mortar gyms are one step closer to obsolescence. Availability of the latest, most advanced equipment for home fitness is nothing new though.

Year in and year out, billions are spent by consumers who want to get in shape but lack the will to make it happen. For decades, the fitness gurus have been pumping out an endless supply of equipment that promises to tuck tummies and trim waistlines without requiring a great deal of effort. The commercials show scantily clad, incredibly fit average Joes not even breaking a sweat after working out for just seconds on a machine that requires “just minutes a day” to get the body we've always wanted. It's that easy. But of course it's not, which is why many of them fold up for easy storage. After all, tucking it under the bed keeps

the dream of using it alive without having to be reminded every single morning and evening, that we've failed again.

From the ThighMaster to the elliptical, the Nautilus to the Bowflex Stairmaster, the technology represents great potential, but there's no getting around one very simple fact. Unless you actually put in the hard work and use it properly, that high-tech contraption will do little more than lighten your wallet. Actually making it worse than useless.

Thanks to cheap computing power and the availability of open source coding tools the investment world finds itself awash in the FinTech version of Thigh-masters and treadmills, each selling the promise of better returns free of cognitive bias and behavioral mistakes. At least once a week I am approached by a software developer offering to demonstrate the latest and greatest solution to behavioral bias. They promise access to all kinds of data which we can then slice and dice every way possible in order to make more rational, objective, and consistent decisions for our investment portfolios. They offer a potential panacea for those struggling to generate alpha. Just write a check and suddenly your firm will be smarter about the risk it takes and better able to generate those returns you desire.

Here's the thing about every single one of these products that I've seen demonstrated. Not one of them does anything you couldn't do with an Excel spreadsheet all by yourself for free. You don't even need to know how to program or code. None of them offers any value unless you employ the cognitive strain required to ask the right questions about the outcome, states, and acts, and challenge your own beliefs. They don't possess any more magic than the Bowflex Stairmaster Elliptical Weight Trainer 5000. Yes, if you work your tail off on that machine, you will lose weight and get fit, but no more so than running the stairs in your office building or the hill behind your house.

As much as we'd like it to be the case, you can't buy your way out of the hard work and discipline in pursuit of rock hard abs. Simply buying Jenny Craig's meal plan won't keep you from sneaking that slice of cheesecake. Neither will purchasing a glorified spreadsheet help you avoid the cognitive strain required to make better decisions.

Data is a tool, nothing more. If *gathered* and used properly it can help deliver insight. As any investor knows though, simply having access to even the cleanest data isn't enough. You must know what to do with it. It requires talent and skill to convert fundamental and technical data into alpha. The same goes for data regarding process.

Interestingly, the purchase and use of these products, intended to reduce cognitive bias, may actually make you more vulnerable.

Dieter's Paradox

Despite the exponential proliferation of “healthy” products being offered to the American public we are getting fatter at a worrying pace. According to the latest Gallup poll, 28% of the population is obese. That's an amazing 10% increase since 2008 alone. The Centers for Disease Control estimates that 70% of Americans are either overweight or obese. (By contrast, a mere 1.8% are classified as underweight.) Although we tend to associate obesity with diabetes, its effects go much deeper than that. One-third of all cancers are related to it as well. In fact, if you look at the major causes of both death and disability, weight is a key factor in every one of them. One study estimates that absenteeism due to weight related health issues costs the US \$153 billion in lost productivity annually. However, that figure doesn't come close to reflecting the true impact were you to add in medical expenditures, both privately and publicly funded.

The big question is, how is it possible that every food product on the shelves these days is seemingly free of gluten, high fructose corn syrup, saturated fats, preservatives and artificial flavors, while being packed with protein, yet we continue to get bigger and bigger? Interestingly, and ironically, there is actually a positive correlation between eating healthier meals and becoming less healthy. The reason lies not in how our bodies process food, but in how our brains process information. We explore this phenomenon here, because it helps explain how it is that we can be so hyperfocused on diversification as a means for reducing P&L volatility, while P&L volatility is on the rise, thanks to diversification.

Negative Calorie Foods

Researchers at Northwestern University discovered an interesting phenomenon when they asked subjects to estimate the calorie content of a series of unhealthy meals and then again for those same meals, but with a healthy addition. For example, one of the unhealthy meals was a hamburger. The average estimate among self-proclaimed *weight-conscious* subjects was 734 calories. When the same hamburger was accompanied by three celery sticks, the average estimate provided by the same group dropped to 619. Think about that for a moment. When food was added to the meal, respondents perceived the bigger meal to contain 15.6% fewer calories. The same occurred when a small apple was added to a bacon and cheese waffle sandwich, a small salad without dressing was added to chili with beef, and a celery/carrot side dish was added to a meatball pepperoni cheesesteak.

I know what you're thinking. These people are fools. How could more food contain fewer calories? Don't they realize that a small apple doesn't contain negative 66 calories? Well, actually, they do. When assessed independently, people properly attribute calories to both the hamburger and the celery sticks. However, we tend to assess things as they are presented to us. That is the nature of framing, and the reason it is so important to understand how it affects our decision making. When shown a hamburger, we bucket it as a vice, whereas the celery sticks are perceived as a virtue. Take a large vice, add a small helping of virtue to it, and voila, you have a smaller vice. When we eat an unhealthy meal and add a healthy option to it we perceive it to be less unhealthy.

Our brains are fantastic at swapping out one hard-to-answer question for a simpler, yet very different one, often without us even knowing it. In this case, our brains erroneously perceive the words *healthy* and *low calorie* as interchangeable. People behave as though healthy foods, such as fruits and vegetables, have benefits that extend to all aspects of a meal, including its effect on weight gain. It is a bias that, like all others, leads to suboptimal decision-making, and marketers are aware and take full advantage of it.

Diversifier's Paradox

Diversification is the name of the game these days. The portfolio manager diversifies her portfolio to reduce P&L volatility. The CIO looks to create a diversified portfolio of portfolio managers for the same reason. Endowments, fund of funds, family offices, and other institutional investors seek to build a portfolio of diversified funds, and end investors do the same – not to mention nonfinancial companies are diversifying their revenue streams and funding sources to reduce their reliance on a single source.

The concept of diversification is predicated on incorporating holdings that are uncorrelated, or possibly negatively correlated. Simply adding a long in Brent crude to a long in WTI won't likely reduce my P&L volatility. If I build a portfolio of longs in Brent versus an equal number of shorts in WTI, it's possible I could make or lose money, but in order to generate the same returns that are possible on a portfolio comprised of longs in one or the other alone, I'd have to size up the positions considerably.

Let's look at the concept of a "market neutral" strategy using long/short equity positions. I believe XYZ Company is undervalued, because I believe their earnings will be better than the market's expectations. When the earnings announcement comes I believe it will be repriced so that the company's stock once again trades at a multiple similar to the industry average. In anticipation, I want to get long XYZ's stock, but by doing so, I will expose myself to a possible adjustment in the industry multiple, general equity market risk, and a whole host of other factors separate and distinct from the company's earnings expectations. So I identify a stock or group of stocks that represent the same industry, similar revenue streams, dividends, etc. and short them in an appropriate proportion so as to isolate the one aspect of XYZ Company to which I want exposure. This leaves me exposed purely to the earnings announcement repricing for which I have high conviction. If the stock market moves down, I am protected with my short. If industry multiples come off, I am protected. Essentially, for everything exogenous to the earnings announcement, I am protected.

Now, since I have hedged (a form of diversification), I have reduced my risk, perhaps significantly. Therefore, I can size up the position significantly as well. Think about what that does for the risk/reward profile on the underlying view. Very little exposure to extraneous factors, and if the earnings positively surprise I generate a much greater return for the portfolio. It's a perfectly rational, compelling story, and a concept that is very appealing to our intuition.

But let's take a step back. I have increased the position significantly, not just on XYZ Company, but I have also gone short an equivalently large amount of the stock in a company or group of companies for which I have no strong opinion. Somehow, I believe this to be less risky than a significantly smaller position in XYZ alone, but is it?

On paper, perhaps it is. I'll run an analysis, or more likely, my firm will generate a factor by which I can determine the appropriate size for the hedge, whereby my risk will remain unchanged. Maybe the factor is beta or something more sophisticated, but in the end it's based on a historical correlation. It might be the past three months, six months, or two years, and for conducting a stress test, perhaps it will examine the exposure during particularly violent moments for markets. Without asking too many questions about the limitations of the analysis I'll establish the position, both the long in XYZ and the *appropriate* short against it. Now, it's just a matter of waiting for the earnings announcement.

What I've just described sounds so simple, thoughtful, and stress free. It's the story told by countless fund managers to even more investors, year in and year out. When it is told by a fund on a roll, it takes on an air of certainty.¹

The reality is that correlations themselves have been increasingly volatile, so the "correct" notional for the hedge hasn't been so easy to determine. That in itself has led to far more volatile returns for market-neutral managers. Perhaps more devastating for many of them has been the timing of the moves between one side of a trade and the hedge on the other. When the side you have no opinion on moves 5%, 10%, even 30% in a day, in the wrong direction, yet your long doesn't

¹ Just read *Bloomberg Briefs'* annual analysis of hedge fund returns for 2015 and you'll see what I mean.

match it, are you willing to hang on for a few days in order for the hedge to retrace or your long to catch up? It's very unlikely and often impossible given internal risk limits. And that is exactly what has been wreaking havoc among many market neutral energy traders. Rather than having a relatively simple and small long equity position in the stock of a company we believe in, with clearly defined goals, both on the upside and downside, we add complexity and size, believing that we are somehow reducing the risk. It is a myth.

Of course when it works in your favor it's not seen as luck, but rather as astute trading. And that is how you have market-neutral funds topping the performance charts and seeing huge inflows, whereas others are closing shop at an astounding pace. A paradox indeed.

Illusory Invulnerability

We are inundated with data these days. At the touch of a button we can calculate our heart rate, monitor the number of steps we've taken, and estimate the calories we've burned. Many coaches suggest that you wear a heart monitor while exercising so you can determine if you're working hard enough. The FitBit is now fashionable, and even our phones can track much of the same data with free apps.

Now, thanks to the FinTech revolution, we can do the same for our portfolios. I sat with a client as he took me through the daily email he receives from his firm which is chock full of graphs and charts meant to help him better understand the composition of his portfolio and the attribution of his P&L. It was very impressive. With that kind of information so readily available, it could revolutionize the way he invests. Perhaps it could, but only if he has any idea what it all means. He doesn't, and neither do most people when they wear a FitBit.

We know we should take in fewer calories and burn more through exercise. We know we want to control our blood pressure and that our bodies require a proper balance of vitamins and minerals. We know that less volatility is preferable, as are higher returns. What many of us don't know is why we don't do what is best for us, or how we can change that.

FitBit premium offers an endless array of data about your sleep patterns, an unbiased activity assessment, and allows you to track your *progress* (yes, it assumes progress even though the odds favor regression). The beautiful charts and graphs are similar to those offered by many of the FinTech programs for portfolio health and progress. Odds are, neither a hedge fund's risk managers nor its CIO are likely to spend any time whatsoever understanding the math behind the calculations. They will simply assume it offers value. After all, something is better than nothing, right? Wrong.

When purchasing and using these systems, we have objectives such as better risk management and making better decisions. Simply by purchasing it and mandating that it be used boosts our related self-concept. In other words, the purchase and implementation reinforces the perception of ourselves as disciplined, thoughtful, and objective decision-makers. It matters little that we don't understand how it works or what value it actually delivers. It doesn't matter if there are shortcomings or that it may be misleading. What matters is that we made the effort. That effort reinforces a positive self-concept because we are taking action, much like purchasing the most expensive BowFlex.

Unfortunately, without an understanding of the mechanics of decision making, how cognitive bias occurs and why it matters, technology has the potential to exacerbate many of our most problematic issues. Consider the use of vitamin supplements. There is a general acceptance that vitamin supplements are good for health and well-being. However, there doesn't exist any evidence that a higher consumption of vitamin C is associated with a lower incidence of lung cancer, nor do people perceive there to be. However, in a number of studies, smokers who are given vitamin C supplements smoked more than the control subjects. Some researchers call it *illusory invulnerability*, whereas others use the related term, *licensing effect*. Which term you choose isn't nearly as important as understanding the concept.

When we work out, regardless of how hard or intensely, we feel good about ourselves. We feel as though we've sacrificed and therefore deserve a reward. The workout, like a smoker taking vitamin C supplements, represents a good deed, which in effect gives us *license* to do a bad deed.

Recall the negative-calorie food phenomenon. When we employ something we perceive as being good for us very often we mentally overemphasize its positive effect. That inflated valuation of a positive opens the door to the likely indulgence in a negative perceived as commensurate, that we would have otherwise rejected, thereby potentially producing a net negative return on the investment of time and/or energy without realizing it.

Codifying Mistakes Through FinTech

One of the keys to improving our decision-making is to shift from a belief-based system to an evidence-based one. Technology provides a terrific tool toward that end. However, unless it is employed properly and consistently, it can actually do as much damage as good. There are the usual issues related to the old “Garbage in, garbage out,” and the ones mentioned earlier, but it goes well beyond those. Tech based tools are no different than any other tool meant to aid in decision-making. They must be developed within the context of the decision-making process rather than the other way around. In other words, we must first define the problem we are trying to solve, along with the criteria by which we will define success or failure. Then we must define the factors that affect our ability to solve the problem but that we do not control. Only then can we consider which acts will provide the greatest odds of solving it. To reiterate, the employment of technology should be for a specific purpose that is first properly defined.

More often than not though, the employment of technology occurs because there is an intuitive belief that it *should* be employed. Over and over, clients and potential clients tell me that they are exploring different FinTech solutions. They spend valuable time listening to pitches and trying to pick from the different options. Yet when I ask the simple question, “What problem are you trying to solve with this?” the overwhelming majority seem to be at a loss.

Then there is what you do with the output. A client recently had an interaction with his manager about the effort he is putting forth to shift his investment process from the industry-standard reactive process to a proactive one. The portfolio manager lamented about how much

work it is to properly plan a trade, including the identification of relevant signals and delineation of the specific actions he will take over the trade's life. The manager's response? "According to the data you generate the majority of your alpha in the first two weeks of your trades' lives. So don't overthink them or you might miss the opportunities." The narrative is so flawed it could be considered laughable, but because it is *supported* by data, it carries weight. Poor decision-making by a poor decision-maker has now been codified into a poor decision-making process that will influence an entire firm, and given the proliferation of misguided FinTec implementation, perhaps an entire industry.

Bottom line is this. Just as buying the most expensive BowFlex Collapsible Elliptical StairMaster 5000 won't make you a professional athlete or give you a six pack abdomen, purchasing a FinTech version of the same won't make you an expert investor, or even a better decision-maker. In fact, there's a good chance it may make you worse.