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Seeds of Thought

Cognitive Science Meets Investment Management

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Lessons from Nick Saban and the Octagon

After going 14-0 in the regular season, Nick Saban's Alabama Crimson Tide football team beat fourth ranked Washington a few weekends ago to earn a spot in yet another National Championship game. In the four years preceding Saban's arrival, 'Bama won just a hair over 50% of their games and hadn't competed for a championship in 15 years. Since he took the head coaching job in 2007 however, they've become a perennial powerhouse of the highest order, winning 87% of their games, achieving the #1 ranking at some point in every season since 2008, and winning the national championship in 2009, 2011, 2012, 2015, and were favorites to win again this year. It's an impressive feat considering the obstacles.

There is an incredible amount of turnover on college football rosters year in and year out, and recruiting has never been more competitive, yet one of the Tide's strengths is their depth at every position. Amazingly, many of the best high school recruits will often sit out a season or two, just to have the opportunity to learn from and play for Nick Saban. While that is an advantage, when you win as often as Alabama does, the competition is constantly nipping at your heels, trying to poach your talent, and rarely at an opportune moment. Case in point, with just days left until his team competed in the Super Bowl of college football, Saban had to welcome his fifth offensive coordinator in 10 years, after Lane Kiffin took the head coaching job at FAU. On top of all this, Alabama competes in the strongest division of the toughest conference in the country, meaning the strength of their schedule is notoriously challenging. How then is Saban able to keep Alabama so competitive year after year? Process.

As it is for Saban's mentor, Bill Bellichick and his New England Patriots, what makes 'Bama's program so unique isn't the roster or support staff, but rather what he constantly refers to as "the process." It is the consistent approach to decision making in training, practice, game planning and execution which focuses on minimizing mistakes that attracts the country's best talent and repeatedly delivers championships to Tuscaloosa.

What I know from my own conversations over the years in focusing on process in the investment industry is that many people confuse having a regimented process in place with being dogmatic and unwavering. That superficial assessment of process is naive, both in our industry and in football. In fact, one of the hallmarks of a good process is dynamism. It is purposefully developed to accommodate and adapt to change in the environment, not to ignore or defy it. Saban's approach serves as evidence of this fact. While most who have achieved his level of success in any industry tend to plod along stubbornly following the same formula, Saban's system is built to adapt to the environment, rather than expecting the environment to adapt to it, no matter how much he might disagree with the direction it is headed.

"I might not like it, but it ain't the way ball is now," Saban said of the style of play that won the first three of his four national championships at Alabama. "It's unbelievable how much the game has changed, and it's really hard to coach defense now. But hey, it's on me -- regardless of the way I think football should be played -- if I don't change with it."

"As we faced more and more no-huddle, more and more fastball guys and had more and more difficulties ourselves in trying to play those kind of teams, I started saying to myself that if it's more difficult to defend that, why aren't we doing it?" Saban recounted.

Outgoing offensive coordinator, Lane Kiffin had this to say about Saban. "It just points out how he is always looking at everything, how to find a better way to do things. In the offseason, he's flying us to different places to go learn things and bringing in coaches all the time, which again, that's unusual, because someone like him ... why does he want to learn from someone else? He's the best coach in college football, but that's why he continues to be the best coach."

In another major sporting event of the same weekend, UFC's bantamweight champion, Amanda Nunes defended her title against the former champion, Rhonda Rousey. Knocking her out just 48 seconds into the first round. Ahead of the bout, the UFC and the media focused almost exclusively on the return of golden girl, Rousey, who earned $3,000,000 to World Champion Nunes' comparatively paltry $200,000. Rather than worrying about being disrespected, Amanda concentrated on her process. In the post-fight interview, the champ spoke the truth to those who follow her sport. The lesson translates easily to our industry and should be heeded by those of us who participate.

"I trained for everything that she (Rousey) would bring today. If she would come forward and try to take me down or if she respects me, I was ready for everything. I took my time and connected with some punches." Rousey made no changes to her coaching staff or her style following her devastating loss to Holly Holmes and in preparation for Nunes. Something that didn't go unnoticed by her opponent. "Always when I see something wrong with my evolution, I try to make some changes," Nunes said. "I feel like (Rousey) doesn't know those things like a real fighter. I feel like if she doesn't know how to make some changes in her game, she's not a real fighter."

Despite being silent ahead of the fight, the champ didn't let the media or the UFC off the hook for the way they treated her, or Rousey in the lead up. "Let's stop this Ronda Rousey nonsense because this fight was everything about her but I'm the champion," Nunes said. "I don't understand why. It's supposed to be everything about the champion and about the best in the world. Why did Ronda Rousey stop for a year and then come back and have everything? It's not right."

Indeed, not only isn't it right, it's flawed. Rousey was a dominant fighter leading up to her *shocking* loss to Holmes. She appeared to be unbeatable. Rather than recognizing that Rousey's skillset limitations were exposed by Holmes, it seemed that everyone but Nunes dismissed the loss as little more than an unlucky kick to the head. A fluke. Instead, Nunes exposed the early career of Rousey as the fluke, but not before Rhonda took the UFC and hundreds of thousands of pay-per-view fans to the cleaners.

The lesson to be learned from Nick Saban, Amanda Nunes, and even Rhonda Rousey, is that a positive track record doesn't grant you immunity from a constantly evolving environment. If you want to continue to compete at the highest level, you must adapt and evolve as well. The minute you rest on your laurels, you are done.

Doubling Down on Luck

While on holiday, I spent some time at the craps table. To be honest, I don't frequent casinos very often, but when I do, the only game that draws my attention is craps. If you think about it, it is the only truly social game on the floor (not to mention the only one that offers "free" odds bets, meaning the house has no edge). When a roller gets "hot" and everyone around the table is making money, the atmosphere is electric. People high-five, nicknames catch on, and bonds are developed between players. There is no other game like it in the building.

It is also a fascinating place to witness the pure, unadulterated flaws of the human brain in action. Otherwise smart, successful people unabashedly displaying a disconcerting level of naivety regarding statistics and the role of luck versus skill, rarely seen outside of financial markets. Yes, the craps table represents a microcosm of the broad financial markets, and the participants in both exhibit eerily similar behaviors.

First, there's the misguided idea that the next roll is somehow dependent on previous rolls. It is not. What makes this particularly fascinating, is that it can be misguided on both sides of reality, by the same person, simultaneously. For instance, a player has thrown several hard rolls (a hard eight is two fours, a hard six is two threes, etc), therefore you want to be sure to bet that they will come in again. In other words, because they've come in a few times for the shooter, bettors believe the odds favor it happening again. As though the shooter possesses some magical ability to make two fair die land with the same number on each facing upward. Hard Bets are the house's favorites among the multi-roll bets, because they provide the house with the biggest edge. Winning a hard bet is an extreme longshot. When a hard bet pays off, the bettor should consider themselves incredibly lucky, take the money and walk away. Unfortunately, they rarely do. More often than not, they let it ride, thereby turning a winning bet into just another loser.

At the same time, when a shooter hasn't thrown a seven for quite a while, many bettors believe the odds favor her throwing one soon. This reflects a belief in reversion to the mean, in the short run. So, simultaneously, the bettor is exhibiting a misguided belief in the hot hand as well as a misguided belief in short run reversion to the mean.

The reality however, is that the next roll presents the exact same odds as every other roll. No matter how it may "feel" when you are caught up in the excitement of the moment. Period. That means the most likely roll of all will total seven (1+6, 2+5, 3+4, 4+3, 5+2, 6+1 or 6 out of 36 possible combinations). Unfortunately for the bettor, the social convention at the craps table dictates that you shouldn't bet against the shooter (and the overwhelming majority of the other bettors at the table), which means most won't make the one bet with the greatest odds in their favor. It's "bad luck". There are other social conventions that work in the house's favor too.

One bettor at the table would get very upset when the shooter didn't roll "with enthusiasm". What he meant was, the shooter didn't hit the opposite wall with his roll. This is a rule put in place by the casinos, because it ensures that a shooter can't line up the die pre-roll, and lightly toss them so that they land in the same way. However, it wasn't the casino that was upset with the lack of enthusiasm, it was a bettor who was actually putting pressure on the shooter to reduce the odds of success for *himself!*

Another bettor criticized me for "betting like an amateur", because I only played the free odds bets and never let them ride.

Most bettors like to begin small, and wait to see if a shooter gets hot before increasing their bets. By letting winning bets ride, they are in effect naturally sizing up their positions as the shooter's momentum builds. Not to mention, they are playing with the *house's* money, so if it is lost, it won't hurt nearly as much. Again, all of these behaviors are predicated on the misguided belief that the next roll is in some way affected by previous rolls. It is not. Therefore, their behaviors are irrational.

Capitalizing on Change

The connection between the first two topics and our job as investors should be obvious, but they are particularly relevant in today's markets, thanks to the rise of FinTech. Throughout my career, the moments that presented the greatest opportunity have always been when modeling shortcomings were resolved through new algorithms delivered via user-friendly, GUI-packaged solutions. For example, when I first started in the industry, we were using Black-Scholes without skew to price options and manage their risk. The methodology was clearly flawed, especially when applied to emerging markets, but it took years for it to come to light. Along the way, some traders learned to make manual adjustments and those adjustments created bifurcated markets. If you wanted to buy calls / sell puts, you went to one group of market makers and if you wanted to sell calls / buy puts, you'd go to another. When some of the banks created skew models to revalue their positions, the bifurcation grew to extremes. In that moment, I became involved in emerging markets. I distilled the different models down to their essence, then found the situation whereby the difference would be exhibited in its most extreme form, and picked at it until the differences disappeared. I can remember the first trade like it was yesterday.

US Dollar versus Brazilian Real was a $5 million market at the time. The at-the-money implied volatility was trading at 15 and so were the risk reversals. It was the most extreme skew in the market. Nothing else came close. I went to my boss and said, "I can sell a 15 delta call, buy a 35 delta call and earn premium. How much can I do that on?" He responded by letting me know arbitrages don't exist in currency markets. They are too efficient. When I pressed him, he said, if you can do it, you do as much as possible. For the 35 deltas, I went to two of the biggest markets makers that weren't yet pricing in skew, and for the 15 deltas, I went to two that were. I put the trade on in $100 million with each counterparty, and earned $200,000. It was even better than a simple arbitrage. I was long a call spread and had earned premium. Unfortunately, in the end I only earned the premium, but had USD/BRL exploded, I would have made a fortune. Do that enough times, and you have a very profitable career, which is how it played out for me.

When new products are launched, they are often modeled by quants with little experience in trading. In currencies, these exotic options are modeled with the most liquid currency pairs in mind, where interest rate differentials, skew and even underlying implied vols are fairly staid. The models are then loaded into the same user-friendly, GUI-packaged systems with which the traders, salespeople and risk managers are familiar…for all related assets. After all, a currency is a currency is a currency, right? Wrong.

To this day, new products are rolled out by quants and delivered into the hands of trusting souls across the industry. The quants trust that those using their models understand their limitations, and the users trust that the developers wouldn't have released something unless it had already been properly tested. Neither are typically true, but the divide is rarely discovered until someone suffers extreme pain as a result. At the moment, the divide appears to be quite wide in the factor modeling that has taken the industry by storm. Not a week goes by without several discussions with my clients about the impact of these models on their risk management and positioning. The conversations are often laden with exasperation and frustration. The constant adjustments demanded by risk management are causing real losses, and disrupting solid investment processes. Now, you can either continue complaining about them, proceed as usual, thereby being victimized by them and feign surprise at your poor performance at year end, or you can dig into the models, understand what they are designed to fix, discover what new flaws they have exposed, and make adjustments to capitalize on them.

As Coach Saban says, we don't have to like what is happening in markets, but if we don't make the proper adjustments to capitalize on them, it's on us. The proliferation of FinTech products, including AI, introduces many new sources of alpha generation, particularly now in the early stages when human intervention plays such a large role. You may never see such an abundance of opportunities to generate truly uncorrelated alpha again. The only question is, will you be a victim or beneficiary? Clients of Bija are already developing and implementing strategies to be the latter. Are you?

About the Author

For nearly thirty years, Stephen Duneier has applied cognitive science to investment and business management. The result has been the turnaround of numerous institutional trading businesses, career best returns for experienced portfolio managers who have adopted his methods, the development of a $1.25 billion dollar hedge fund and 20.3% average annualized returns as a global macro portfolio manager.

Mr. Duneier teaches graduate courses on Behavioral Investing and Decision Analysis in the College of Engineering at the University of California. His book, *AlphaBrain,* is due to be published by Wiley & Sons in the Spring of 2017.

Through Bija Advisors' coaching and publications, he helps the world's most successful and experienced investment managers improve performance by applying proven, proprietary decision-making methods to their own processes.

As a speaker, Stephen has delivered informative and inspirational talks to audiences around the world for more than 20 years on topics including global macro economic themes, how cognitive science can improve performance and the keys to living a more deliberate life. Each is delivered via highly entertaining stories that inevitably lead to further conversation, and ultimately, better results.

Stephen Duneier was formerly Global Head of Currency Option Trading at Bank of America, Managing Director in charge of Emerging Markets at AIG International and founding partner of award winning hedge funds, Grant Capital Partners and Bija Capital Management.

His artwork has been featured in international publications and on television programs around the world, is represented by the renowned gallery, Sullivan Goss and earned him more than 60,000 followers across social media. As Commissioner of the League of Professional Educators, Duneier is using cognitive science to alter the landscape of American K-12 education. He received his master's degree in finance and economics from New York University's Stern School of Business.

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