



## Shrinking Alpha: Bruce Springsteen, Big Data and the Need for Knowledge

June 5, 2017

*"I saw my rock 'n' roll past flash before my eyes. And I saw something else: I saw rock and roll future and its name is Bruce Springsteen. And on a night when I needed to feel young, he made me feel like I was hearing music for the very first time."*

*-Jon Landau, May 22, 1974*

Growing up as a blue collar kid in New Jersey, it should not be surprising that Bruce Springsteen holds an important part in the memory compartment of my brain. Earlier this year, I listened to him narrate his autobiographical audiobook, *Born to Run*. The most interesting part for me was hearing him describe with painful emotion the early days of failure as an artist. He talked at length about the difficulty around the releases of his first two albums in 1973, *Greetings From Asbury Park* and *The Wild, the Innocent and the E Street Shuffle*. At the time, he had been hyped as the next Bob Dylan and those first two albums were commercial failures. With those failures, the critics and momentum chasers using the most recent data points started making their predictions. Joe Smith, President of Warner Brothers records was quoted as saying "He's a hot new artist now, but he's not the new messiah and I question whether he will establish an international mania." As Dave Herman, a DJ at the time said, "He was just another media hype that failed. He was already a dead artist who bombed on his first album." With data momentum and pundits going against Springsteen, critic Jon Landau wrote the quote above in a review after seeing Springsteen perform in May of 1974. What information did Landau see that music lovers had, up to that point, missed? Landau's quote may now be the most famous prediction in music history.

In our business, predictions are important. We try to accumulate data to model in order to come up with some sort of prediction on the future. In the early 1980s, the investors who were able to find data that others did not were the winners. Looking for hidden companies that analysts did not follow was a goal. For a variety of reasons, markets were less efficient. In the last 10 years due to the technological explosion of data, the edge for human beings in accumulating

hidden data is no longer enough. Computers are probabilistically forecasting what the data will be before it is announced. Last February, Institutional Investor published a story about a quantitative hedge fund named CargoMetrics. It described their approach to forecasting future data by combining satellite signals and shipping data in order to get real time analysis on the economy. According to the founder, “My vision is to map historically and in real time what’s really going on in economic supply and demand across the planet.” The article went on to say, “CargoMetrics is building a learning machine that will be able to automatically profit from spotting any publicly traded security that is mispriced.”

On top of losing the edge in unfound data, there are structural forces making the past less important. Last year I wrote a paper titled [The Art of Unlearning](#) where I made the argument that in this world of rapid change due to exponential innovation, an unprecedented demographic shift and a rising China moving the sphere of economic and monetary influence to Asia, there was a need for us to adapt and unlearn what we think we know. These forces were new and powerful and growing each year making an extrapolation of the past very dangerous. Getting your brain to unlearn what you know is more difficult than learning something new. I was reminded again recently about the importance of data analytics and the need to adapt while reading the recent Michael Lewis book, *The Undoing Project*. The early part of the book is centered around Daryl Morey, the General Manager of the Houston Rockets. It begins almost like a sequel to *Moneyball* with insights into how they incorporated data analytics into the way they predicted the success of college players into the NBA and how to use this data in finding value in the draft. Like with the Oakland As’ success in *Moneyball*, the Rockets’ use of data analytics led to success. In the 10 years that Morey has been with the Rockets, they have not had a losing record. Overall, during that time period, they have the third best record in the NBA. The initial success he credited to the accumulation of data others did not have in the form of 20 years of box scores from the NCAA for all games. With that data, they created new ways to analyze statistics that others did not have yet. They had an edge. In the same way as CargoMetrics is looking for any security that is mispriced, the Rockets were looking for value that others could not see. Normally, I would put a book like this down; figuring it would eventually lead to a story about how humans won’t have any jobs in the future. But it made an interesting turn. The book goes on to describe how as data became ubiquitous and commoditized, Morey reached an inflection point when he realized the edge was shrinking.

***‘His approach had been sufficiently effective that other NBA teams were adopting it. He could even pinpoint the moment when he felt, for the first time, imitated. It was during the 2012 draft, when the players were picked in almost the exact same order the Rockets ranked them. “It’s going straight down our list,” said Morey. “The league was seeing things the same way.”***

## Well I got this guitar, and I learned how to make it talk

From that point, the book focused on how data by itself was no longer enough and that now it took other “knowledge” to predict outcomes. Five years after Morey got to the Rockets, enough teams were using data analytics that the draft was more efficient. After years of active managers not believing quantitative analysis could replace good old human analysis, stories like CargoMetrics have led to acceptance. The active management industry is filled with media headlines on the arms race of data and artificial intelligence. Everyone is pouring hundreds of millions of dollars into the search for the holy grail of predictions through the use of data. In 2013, I wrote two papers titled [Adapt or Die](#) on the concept of needing to adapt to a new world of data analytics so I definitely agree that all businesses need to be integrating technology and efficiency into all aspects of their business. However, to me, like in the NBA, this is actually a race to eliminate inefficiency and in the end this will look a lot like the end of the gold rush with a few winners and many more losers. Yes, you can call me a skeptic on a hunt for the now elusive investment alpha. The reason for the skepticism is two-fold. The first is plain and simple that many large successful quantitative funds have been doing this for decades already and have already scraped much of the available alpha chicken off the bone. In the case of one of the more successful ones, WorldQuant; coincidentally, if you go to their website you will see that they started in 2007, the same year Morey was hired by the Rockets. The second reason is simply the competition that is coming from outside of hedge funds in groups like Quantopian. Quantopian is a crowdsourcing of algorithm builders. Its website reads:

***“Leveling Wall Street’s Playing Field. Quantopian inspires talented people everywhere to write investment algorithms. Select authors may license their algorithms to us and get paid based on performance.”***

Like with Uber disrupting taxis, where anybody can be a taxi driver the same day, anyone can be an analyst back testing data to find historically statistically successful alpha. The one caveat with being an Uber driver is you need a car. The only barrier to entry for competition back testing data on the cloud is a computer. The ability to crowdsource the entire planet for alpha can only speed up the efficiency of markets.

## Sleeping in that old abandoned beach house, getting wasted in the heat

This leads to my skepticism on all this money being spent on finding inefficiencies through backtests. It is still important for optimization of risk and for teaching funds more about portfolio construction but I think the increased competition to connect asset prices immediately to real time data will continue to lead to shorter and sharper investment cycles. Visually, to me this is seen in [Exhibit 1](#). It will lead us to a few winners and many losers and likely the winners will not last as long as they once did. Due to faster and faster computing speeds and now the barriers to entry so low for an individual at home to compete, the inefficiencies of short term arbitrage opportunities continue to be eliminated. When Steve Cohen said at a conference last year “Frankly, I’m blown away by the lack of talent,” I think the difficulty of finding talent is similar to

finding people who can compute math faster than a calculator. Like Daryl Morey's recognition of the competition using the same statistics, we continue to make the markets more efficient by eliminating arbitrage-able opportunities off of data. The results of the U.S. Elections are a good example of this. If you go back and look at the outlook pieces for 2017, you will see calls for higher rates, a stronger dollar, higher commodities, outperforming banks, higher inflation etc. All of these ideas had already worked from the day of the results to the end of 2016. Computers discount the results faster than humans. By discounting new data points in shorter time periods, the edge of short term active managers arbing out data is shrinking. For me, this is what is driving the changes happening in our industry. In the end, like most industries before ours, there will be a lot less participants in the future than there are today and the survivors will have adapted to this efficient world.

If in the short term, markets are more efficient, what "knowledge" can help us more in predicting market outcomes? When you look for guidance on using knowledge, I think the best place to go is Charlie Munger of Berkshire Hathaway, the father of the latticework of mental models, who said "Obviously if you want to get good at something which is competitive, you have to think about it and practice a lot. You have to keep learning because the world keeps changing and competitors keep learning. You have to go to bed wiser than you got up. As you try to master what you are trying to do — people who do that almost never fail utterly. Very few have ever failed with that approach. You may rise slowly, but you are sure to rise." This statement to me is where to go for the good news. There is increased competition from computers but the human brain still has the advantage when it comes to pattern recognition, intuition and connecting the dots. Computers are good at telling us what is happening today but not at what people will do going forward. The power is shifting from accessing data to filtering data and interpreting data to make a decision. As Yuval Noah Harari put it, "In ancient times having power meant having access to data. Today having power means knowing what to ignore." That is what Jon Landau was able to do. The data said Bruce Springsteen would not be successful but Jon Landau used his concert experience and compared that to other experiences and believed this was something great and forecasted a change or regime shift. Like Steve Jobs with the iPod, his intuition was that people were going to eventually see what he saw.

### **When the change was made uptown, and the Big Man joined the band**

With efficiency in the draft, Daryl Morey saw the need to incorporate new "knowledge" into his selections to improve his success in predicting. He recognized that predicting human outcomes solely based on past data did not incorporate changes in people looking forward. This new data for him was behavioral. At this point, *The Undoing Project*, shifts to the importance of looking for other knowledge that is not math based but was still data. Whether it is predicting the success of an artist, restaurant, movie or forecasting economics or the markets moves, we are predicting human behavior. The book moves into the world of behavioral psychology, economics and finance and the works of Amos Tversky and Daniel Kahneman. We need to bring into the

equation emotional intelligence and figuring out what people will do in the future. We need "knowledge" and not just math.

***"Knowledge is literally prediction," said Morey. "Knowledge is anything that increases your ability to predict the outcome. Literally everything you do you're trying to predict the right thing. Most people just do it subconsciously."***

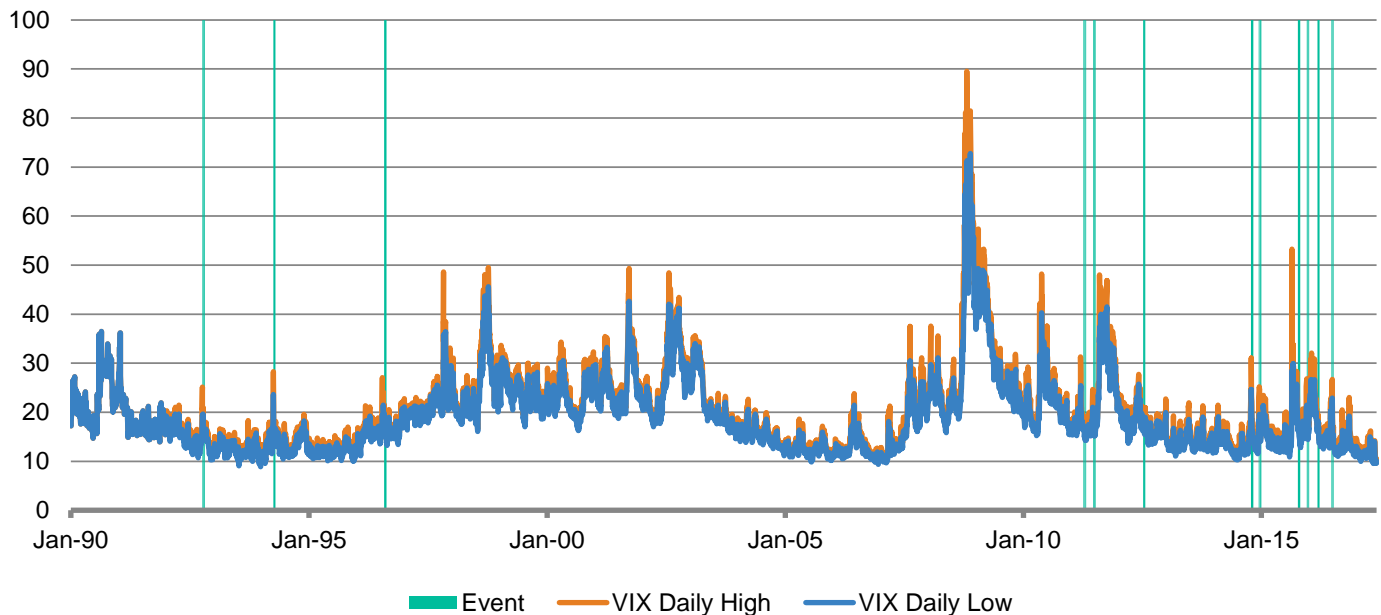
Making the transition away from math and into the art of converting "knowledge" into data has become more important. For markets, use poker as an example of this knowledge. Poker is a game, like the markets, of incomplete information. The most important information is what your opponents are holding in their hands. For markets, this shows up in sentiment and positioning. For years, we have all tried to find a way to incorporate the art of positioning and sentiment analysis into decision making. This is why there is no right price for assets. It is about psychology. Human psychology has always been a part of the most famous unwinds in hedge fund world. Just read *When Genius Failed* or the story behind the 2007 quant unwind. One of the world's first quants to learn about the importance of behavioral knowledge in the markets was Sir Isaac Newton. He lost over two million dollars in today's money in the market in the 1700s and stated "I can calculate the motions of heavenly bodies, but not the madness of people." John Maynard Keynes also got into the importance of behavioral predictions within *The General theory of Employment Interest and Money* where he laid out the beauty contest concept to explain stock market movements away from fundamentals where the game is not to predict who has the prettiest face but who everyone else thinks has the prettiest face. As Howard's Marks put it "The power of psychological influences must never be underestimated. Greed, fear, suspension of disbelief, conformation, envy, ego and capitulation are all part of human nature, and their ability to compel action is profound, especially when they're at extremes and shared by the herd." Similar to what Daryl Morey realized, how to measure that statement is an art of knowledge and not only math.

### **'Cause tramps like us, baby we were born to run**

That is why I believe the winners in this world against the computers will be the ones who can best use their brain to turn knowledge into a model that constantly reassesses the probabilities and makes predictions. I see it as a transition away from short term investing alpha and more about trading and allocation alpha where patience and folding are more important. We are leaving a world of blackjack card counters and entering one of poker which will periodically have bad beats. These bad beats can best be seen in [Exhibit 1](#) which highlights shorter and sharper short term cycles in the form of increased volatility of volatility. Think of them as flash crashes for no reason other than to cleanse the positioning.

## Exhibit 1

*VIX Suggests Shorter and Sharper Investment Cycles*



Source: Bloomberg.

In a world of too much data, it is about filtering, behavioral inputs, connecting the dots and constantly reassessing the odds. If you are looking for guidance on how to think about this or measure this success, I think it is worth following some of the great words of wisdom from Charlie Munger and Orit Gadiesh from Bain.

*“You’ve got to have models in your head. And you’ve got to array your experience both vicarious and direct on this latticework of models. You may have noticed students who just try to remember and pound back what is remembered. Well, they fail in school and in life. You’ve got to hang experience on a latticework of models in your head. What are the models? Well, the first rule is that you’ve got to have multiple models because if you just have one or two that you’re using, the nature of human psychology is such that you’ll torture reality so that it fits your models, or at least you’ll think it does...” – Charlie Munger*

*Draw on that palette of diverse knowledge to recognize patterns and connect the dots across multiple areas. - Orit Gadiesh, Bain*

*“As technology, globalization, geopolitical challenges, and competition accelerate the disruption of business, people are confronted with challenges, customs, and issues they have never experienced before. I find that experts – someone with deep knowledge limited to just one area –*

***often lack the flexibility needed to adapt to change and can be easily flustered or, worse, be completely derailed.” Orit Gadiesh***

And maybe even the wisdom of Comicus from *History of the World Part 1* by Mel Brooks.

*Dole Office Clerk: Occupation?*

*Comicus: Stand-up philosopher.*

*Dole Office Clerk: What?*

*Comicus: Stand-up philosopher. I coalesce the vapor of human experience into a viable and logical comprehension.*

*Dole Office Clerk: Oh, a bullshit artist!*

## **The hungry and the hunted explode into rock 'n' roll bands**

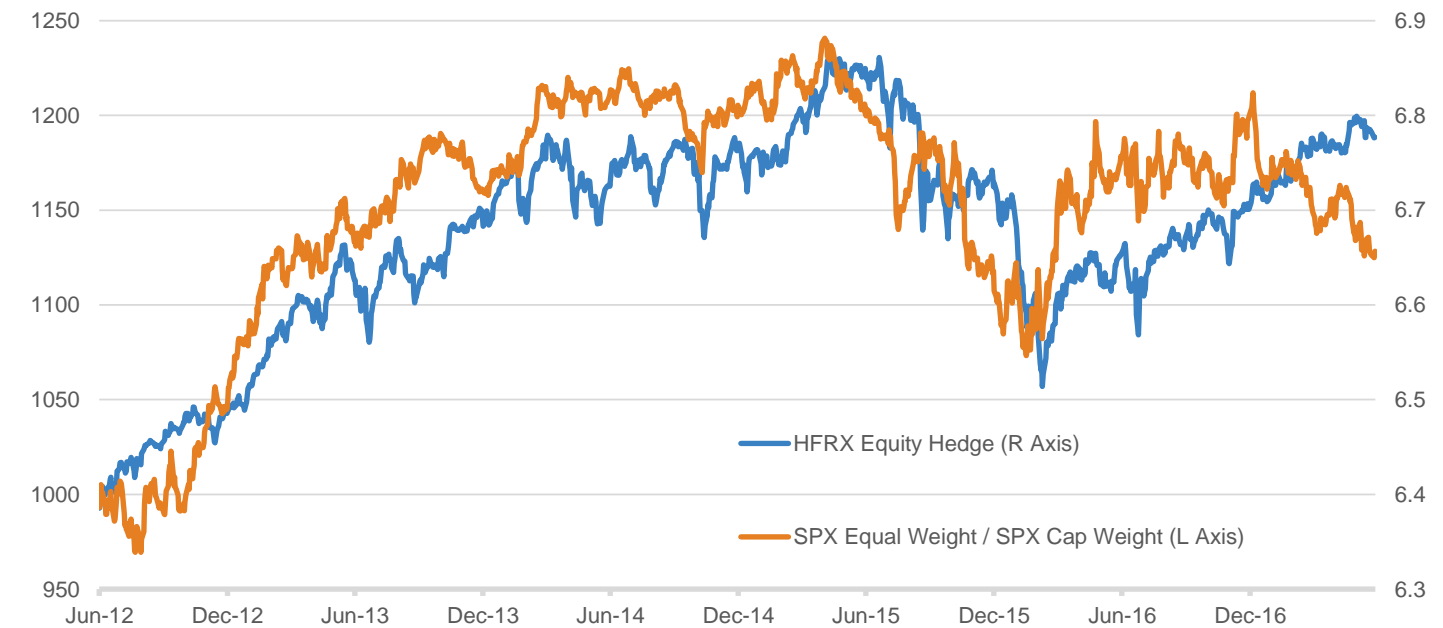
The reality for me after all of this is not that there is less talent but we were likely just not as talented as we thought. Computers, quantitative analysis and artificial intelligence will continue to force out the ones of us that are not capable of adapting and learning to compete against more efficient competitors. Our industry is no different than all the other industries being disrupted by technology. The survivors will be the ones that 1) do not race against the machines and are able to incorporate technology into their processes and businesses and 2) are able to incorporate knowledge into their models of decision making while AI tries to catch up to the power of the brain. The two passages below are from Theo Epstein's recent commencement address and speak to how he came to a similar conclusion as Daryl Morey on the need for going outside of just data in forecasting success.

***So, early in my career I used to think of players as assets, statistics on a spreadsheet which I could use to project future performance and measure precisely how much they were going to impact our team on the field. I used to think of teams as portfolios, diversified collections of player assets, paid to produce up to their projections to ensure the organization's success.***

***And please remember that even though so much can be quantified these days, the most important things cannot be. And finally, when things go really, really wrong, and then when it rains on top of everything else, fingers crossed for tomorrow, I ask you to choose to keep your heads up, and come together to connect and to rally around one another, especially those who need it the most. It is likely to uplift you all.***

Using Morey's advice of combining data and knowledge to connect the dots, here are my current thoughts on markets. Beginning in March, I started to see dots that I believe are signs of the next regime shift in the market. Structurally, my views remain the same. The world will remain in a lower for longer environment with low growth and inflation with that, there will be more violent market pendulum swings between reflation and deflation causing shorter and sharper

investment cycles which will feel more like emerging market swings. Obviously, the most recent abrupt unexpected pendulum shift began in February 2016 when the most recent lows were set in risk assets. Commodity deflation and central banks without ammunition were the fears then. Today, it is hard to find fears. The data looks better with earnings growing and PMIs around the globe much higher. Most importantly, stock market prices around the world are significantly higher with MSCI world up 35% from the February 2016 lows. At the same time, there is still hope in the future of growth mainly built around expectations of U.S. tax cuts, increased infrastructure spending and deregulation. Despite these positive trends, there are dots within the market mosaic forming a different picture. Central banks being less accommodative with the FED and PBOC tightening. Despite higher index levels, we are seeing many breadth measures weakening. The five largest companies in the SPX - Apple, Google (Class A and C), Microsoft, Amazon and Facebook - are alone responsible for a third of the rally this year and the technology sector is responsible for over 50%. This has led to significant underperformance of the equal weight SPX vs the cap weighted SPX. [Exhibit 2](#) overlays that chart vs the HFRX Equity Hedge index. Commodities are weakening with some indices near or at 52 week lows. Momentum is showing up again with tech on one side and autos, retailers and energy on the other side. Value has been down five months in a row for the first time since June 2008. Utilities have outperformed financials by 9% so far this year within the S&P 500. PMIs appear to have peaked, yield curves have been flattening and U.S. inflation break evens have moved lower. Asset prices appear to be sending warning signals.

**Exhibit 2***Hedge Fund Onboard with Large Cap Outperforming Small Cap**Source: Bloomberg.*

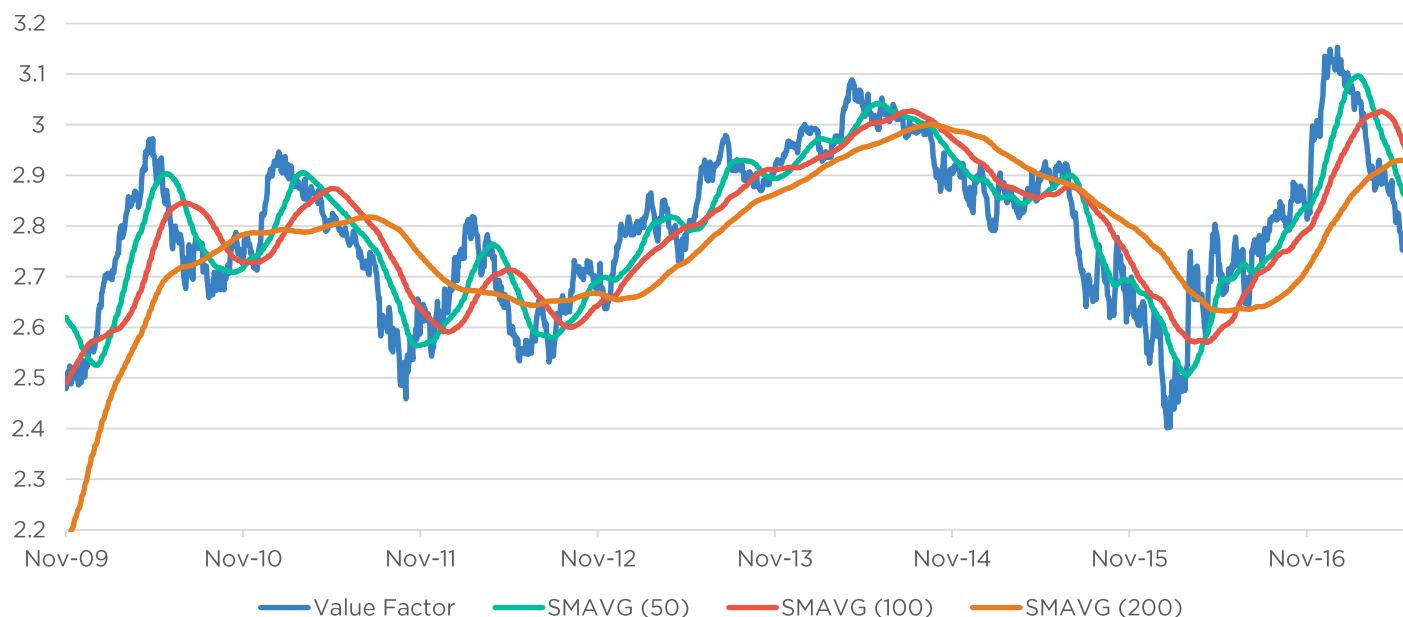
However, it is the behavioral side that worries me the most. The best sentiment measure to me to catch these regime shifts is using the Investor's Intelligence sentiment numbers. I like this one because it is based on newsletters, which is similar to using the front pages of magazines. Last February, it was at the lowest sentiment reading since early 2009 and recently it's at levels not seen since 2015. This sentiment shift shows in most positioning analysis as well. What worries me the most on the behavioral side though is the lack of position cleansing or bad beats we have seen since the election. From August 2015 to the U.S. election in November 2016, there were at least ten 5% corrections. Many of them took less than a week, or in some cases overnight, which is what [Exhibit 1](#) is meant to show. Without cleansings, volatility measures have collapsed. I traded markets in the early 1990s and I learned not to expect higher volatility just because it is low. But I do think the longer we go without a rise, when we finally do see one, it will be more violent because of the time. Finally, on sentiment, is [Exhibit 3](#). This is a chart of the factor price to book or value. As a firm, we have written several times over the last few years of the importance of looking at factors for sentiment and as a warning sign for crowdedness. Value is always an important one to watch as a leading indicator. Since the lows is 2009, when lower for longer became the condition, whenever value has been in decline, it has paid to be patient. Because of low rates, the P/E of the market has proven to be a bad gauge of whether returns are about to suffer. However, when viewed from a market neutral perspective at times when the expensive stocks are outperforming the cheap stocks, it has recently been a dot preceding a cleansing. The psychology of 'value no longer matters' fits in with [Exhibit 4](#) which shows the relative strength of the NDX vs the SPX at levels seen at other important inflection points. We all know Amazon is

## CIO PERSPECTIVES

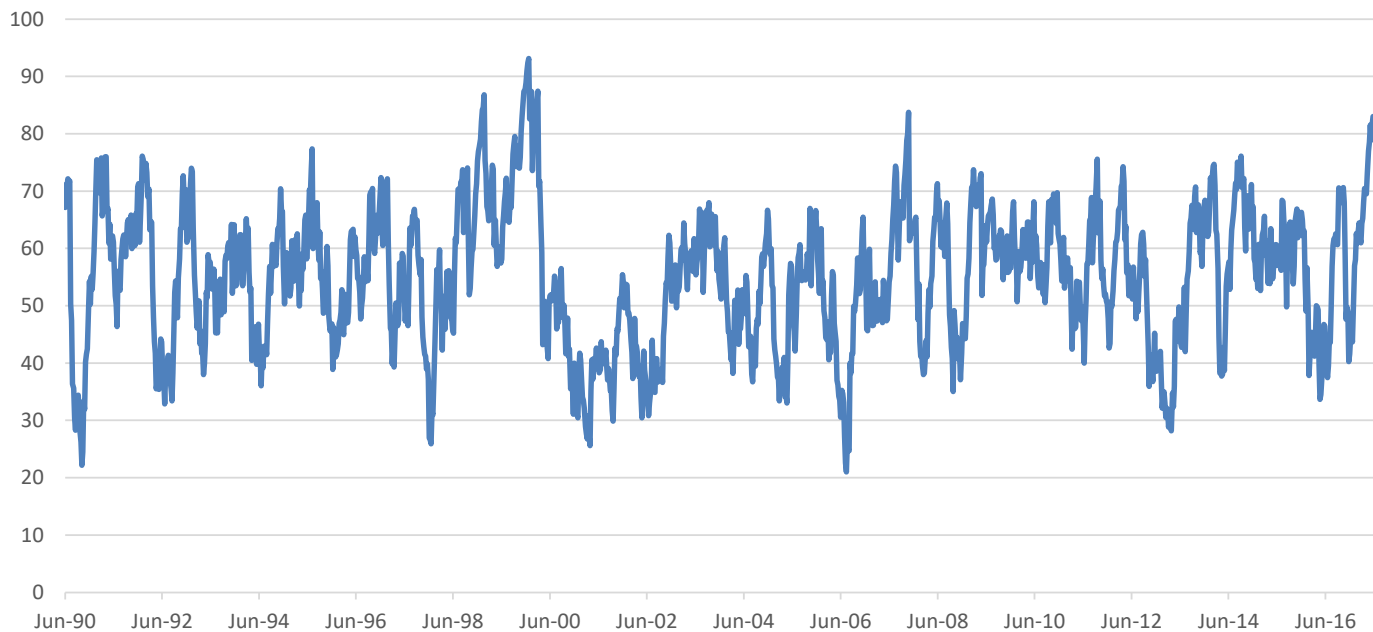
beating brick and mortar retail but when it is being treated like new news, we have some form of greed setting in. All of this suggests to me that the risk reward from these levels argues for patience and sitting out a few hands, waiting for a better entry. In my [outlook paper](#), I thought the market would likely discount most of the good news early in the year and given the returns to date and sentiment levels, I think it is prudent to be careful and let this enthusiasm burn off. Remember, regime shifts should not be thought of as directional calls. This is an analysis where the odds to me of what the market are offering for an active manager are very different than last February and that argues for being prepared for possible turbulence ahead.

### Exhibit 3

#### *Value Factor is Weakening*



Source: Bloomberg.

**Exhibit 4***Relative Strength of NDX vs SPX*

Source: Bloomberg.

**Can't see nothing in front of me, can't see nothing coming up behind**

It is important to tie this paper up with my most recent experience with Bruce. I saw him and the E Street Band perform on August 30, 2016 at MetLife stadium. Of the first 10 songs he played that night, except for one cover, all of them were from those first two albums. I realized that night that those two albums truly inspired me as a writer. Incorporating my life into my writing has been important to me since I first read the lyrics and meaning to those early albums. I think it also helps me think of markets in a broader context of interconnected dots. For those of you who only know Springsteen from his later music, I recommend reading the lyrics from the songs on those first two commercially failed albums. Jon Landau ignored the sales of the first two albums to make his prediction based on the latticework of his mental models and did not focus on the data of his sales success to date. Bruce's third album following Landau's prediction was *Born to Run*, one of the greatest of all-time. It led to immediate success with Springsteen, shortly thereafter, landing on the covers of Newsweek and Time magazine. The rest, as they say, is history and the Boss was born. The iconic bold lyrics throughout this paper are from the album *Born to Run*. For true and aware Bruce fans, you know that the final one in this paper is not from *Born to Run* but from the post 9/11 album *The Rising*. In honor of the importance of the experiential part of accumulating knowledge, that line from *The Rising* is a selfish shout out to Bruce and my best friend growing up and best man at my wedding Sean Caton who died on 9/11. Bruce and Sean will always be a big part of who I am and how I think, due to the experiential

## CIO PERSPECTIVES

knowledge I gained through the influences of both of them in my younger years growing up in New Jersey. Many of my dots are due to them. Thanks Bruce and you are always and forever in my mind Sean.

-Jordi

### AUTHOR

Jordi Visser

[jvisser@gweiss.com](mailto:jvisser@gweiss.com)

### NEW YORK OFFICE

320 Park Avenue, 20<sup>th</sup> Floor  
New York, NY 10022

### HARTFORD OFFICE

One State Street, 20<sup>th</sup> Floor  
Hartford, CT 06103

### INQUIRIES

Gillian Tullman

Director of Investor Relations  
and Marketing

[gtullman@gweiss.com](mailto:gtullman@gweiss.com)

+1 212 390-3451

Jena Roche

Vice President, Investor Relations  
and Marketing

[jroche@gweiss.com](mailto:jroche@gweiss.com)

+1 212 390-3445

### WEBSITE

<http://gweiss.com>

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