Q4 2017 Market Review & Outlook

Morgan Creek Capital Management

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Letter to Fellow Investors

The Year of the Frog: #HackedMarkets

Source(s): whitelotusfs.com, savethefrogs.com, usatoday.com, dailyhaha.com, flickr.com, content.time.com (12/31/65)

Over the past year we have presented the Quarterly Letter almost like an old-time Serial, where each successive letter is connected to the last through a character or plot twist. Our story began last February with the first installment titled *Babson's Brilliance: #WelcomeToHooverville*, which introduced our protagonist, Sir Isaac Newton (brilliant scientist who discovered Gravity), through the eyes of Roger Babson (brilliant entrepreneur and market observer who called the 1929 Crash), who was obsessed with gravity throughout his lifetime (founded a research foundation to find a "cure"). The letter described how we believed that with the election of Donald Trump, a President with no experience just like Herbert Hoover, there was a risk of a Bubble Melt-up in the equity markets that would follow the 1929 pattern (peaking at 2,800). The second installment in May, titled *Not So Intelligent Investors: #GravityRules*, connected Newton to the father of Value Investing, Benjamin Graham, who (like Sir Isaac) had learned about the power of Value Investing by using the exact opposite approach (leveraged speculation) during the Bubble leading up to the 1929 Crash. Graham quickly discovered that gravity does indeed rule and lost everything, causing him to rethink the error of his ways, embrace the discipline of Value Investing, pen the two most important books on the topic (*Security Analysis* and *The Intelligent Investor*) and become a professor who inspired some of the most widely recognized investors of our generation (like Warren Buffett). The third installment in August, titled *What Goes Up Must Come Down: #DarknessFalls,* linked the total solar eclipse to Newton's pioneering work on gravity and the movements of the sun, moon and stars and introduced W.D. Gann, a self-taught trader and market forecaster, who right after the turn of the twentieth century wrote about market cycles that would later predict the 1929 Crash (to the month) and nearly every major crash, crisis or market turning point during the last hundred years. The fourth installment from November, titled *It's Déjà Vu All Over Again: #Pure Imagination,* used the wisdom of Yogi Berra to discuss how perhaps the repeal of gravity (stocks moving to ever higher levels of overvaluation) might persist because, as Yogi liked to say *"It's not over until it's over."* We also sought the wisdom of Willy Wonka to help us understand a world of pure imagination (while every valuation metric was signaling a Bubble and imminent return of gravity there was a possible explanation insofar as the nominal value of equities was high, but when deflated by gold (real money) the valuations were lower than previous Bubble peaks – an old Banana Republic trick of inflating asset prices that benefit wealthy by slowly devaluing the currency, like boiling a frog). With our latest installment, we introduce a few new characters to our story, but weave our way back to our hero, Sir Isaac Newton, and his battle against the evil central bankers and their seemingly never-ending production of the anti-gravity element, "Upsidasium."

The Chinese animal zodiac (Shēng Xiào) is a repeating cycle of twelve years beginning on the Lunar New Year, where each year is represented by an animal and persons born in that year are said to share that animal's associated characteristics. The twelve-year cycle was derived from an approximation of the 11.86-year orbital period of Jupiter, the largest planet of the solar system. In order (by legend, the order in which the animals arrived at the Emperor's banquet), the twelve animals are the Rat, Ox, Tiger, Rabbit, Dragon, Snake, Horse, Goat, Monkey, Rooster, Dog and Pig. February 16th ushered in 2018 as the year of the Dog. The zodiac also has five elements (Wu Xíng) which, when combined with the twelve animals, are associated with a 60-year cycle (interesting correlation to the Gann 60-year cycle). The elements are Jin (Metal), Mu (Wood), Shui (Water), Huo (Fire), and Tu (Earth) and the theory is that these core elements follow a predictable cycle of control that dominate all human relationships over time. The elements interact with the intrinsic characteristics of each animal and create character traits which are reflected as follows Metal (Determined, Persistent, Manager, Tiger), Wood (Talented, Idealist, Planner, Owl), Water (Sympathetic, Perfectionist, Coordinator, Chameleon), Fire (Courageous, Passionate, King, Koala) and Earth (Tolerant, Honest, Leader, Peacock). Further, odd numbered years are labeled Yin and even numbered years are labeled Yang (another cycle of energy), so that 2018 is the Year of the Yang Earth Dog. The logic is that investment markets are made up of individuals and those individuals are impacted by these cycles, thus there would be a logical cyclicality to market events over time. This is what W.D. Gann wrote about in the early 1900s when he created his Financial Time Table, and what we have observed over the last century within the cyclicality predicted by the Gann charts has been quite evident in economic activity and equity markets.

Most of us would agree with the characterization of dogs as our best animal friends and would further agree with their description as loyal, friendly, dependable and kind (other than those who, like one of the characters in *The Italian Job* says, *"The dude's got dogs. I don't do dogs… I had. A bad. Experience)*. People born under the sign of the Dog are said to share similar traits. Within the Chinese zodiac, the Dog is associated with loyalty, honesty, intelligence and known to be easygoing and helpful to others (contrasting to the Rooster from last year, which is seen as demanding and fickle). Dogs are known to be swift and passionate believers in their own personal philosophy, while on the other hand, they may sometimes be critical, stubborn, and cold and have difficulty communicating. The year of the Earth Dog focuses on dependability, loyalty, building relationships, and interestingly, building material wealth. The earth element will make this particular Dog year gentler than others, increasing the likelihood that we observe people fighting for causes they believe in deeply, which could emerge as large political movements or simple local activism (perhaps more of the latter than the former, due to the Earth element). The earth element encourages a cooler-headed approach to problem solving, rather than emotional responses that lack judgment and reasoning. Curiously, two notable Earth Dogs are entertainers Madonna and Michael Jackson while Elvis Presley was a Wood Dog and three of the last four Presidents, Bill Clinton, George W. Bush, and Donald Trump are all Fire Dogs (born in 1946). Unfortunately, 2018 is likely to be an unlucky year for people born under the sign of the Dog as in Chinese astrology the years that share your birth sign are thought to bring bad luck. For the rest of the signs, 2018 will be a year where new industrial projects and developments in energy should be successful (interesting given movement to try Fiscal spending) as well as entrepreneurial activity as Dog years are good times to make lifestyle changes and start businesses. Family relationships are critically important, while individual focused activities based on personal greed or ambition are likely to fail. From a global perspective, the Year of the Earth Dog could be a year of hope where meaningful dialogue helps countries and cultures move toward solidarity and away from indifference and conflict (did we see some of that at the Winter Olympics?).

Many years ago, we came across an annual forecast by Paul Ng (a well-known Feng Shui Advisor and Geomancer) that we found quite useful in thinking about the year ahead in politics, the economy and markets (and have read his annual forecast every year since). Feng Shui is the Chinese metaphysical and quasi-philosophical system that seeks to harmonize individuals with their surrounding environment. Feng Shui literally means wind and water and is based on the views of poet Po Kwok nearly 1,700 years ago that expound the theory that when positive energy is correctly managed in a home, good luck follows as a matter of course. Master Ng has worked with individuals, corporations and governments all over the world to create more positive living and working environments and has also developed a comprehensive approach to forecasting events in geopolitics, economics and markets by focusing on the natural cycles of the Chinese Lunar Cycle. Looking at the 2018 forecast at the highest level, Master Ng summarizes his perspective saying *"The 9-Violet star is the controlling force for this year. This is the 14th year of the 8-Cycle of the world. This star represents joy and its element is fire. It represents mobility and changes, but also hints at heat and fire problems around the world."* Globally, this means that regions in favor include China and South-East Asia, while regions not in favor include the U.S., the U.K., Russia, Japan and Korea. China's politics should remain very stable and economic growth is likely to surprise to the upside (as high as 8%), so living standards should rise and the government would put more emphasis on education. Entrepreneurship and innovation will expand rapidly, especially in the retail sector and e-commerce and international trade should greatly improve. South-East Asia will be in the Money Center and most countries will improve over last year as Indonesia, Singapore and Vietnam continue to prosper. The U.S. will have a very troublesome year, full of many controversies and battles and may get involved in the trouble of other countries. America is in the Illness Center and domestically this could be record year of gun issues and racial tension. The economy may become fairly unstable, although real estate, automobiles and the sale of weapons to other countries will remain strong. Europe and the U.K. may suffer as they are in both the Illness Center and Warring Sign, hence economics will be unstable and volatile. Japan is in a Receding Center and the economy will remain sluggish, while internal politics will be stable. Japan may try to enhance its military might and will continue to focus on exporting technology. Russia's politics will continue to be stable and their relations with China will continue to improve leading to an improvement in the economy. Korea is at the Controversy Center and political problems may greatly hinder economic development. North Korea will continue to boost its military might, however, they will try to smooth international relations with South Korea and China. This may lead to South Korea becoming caught the U.S. and China. Finally, most Middle East countries will continue to be a destabilizing force in geopolitics. In summary, the global economy is likely to be increasingly less stable but should still move on an upward trajectory (albeit at a slower pace). Big swings in the global equity markets are likely to prevail prompting global central banks to remain in easing mode, keeping global interest rates lower than expected.

Master Ng also makes monthly forecasts for global equities (positive or negative) and his projection for January from last year (Lunar Year is February to January) was that equities would be positive, then negative, and after a huge rally for the bulk of the month, stocks hit the wall on 1/29 (unsurprisingly, a Bradley Turn Date) and fell for the last three days of the month. He expects markets to be negative in February through May (coincidently, the next Bradley Turn Date on 6/1), then positive from June through November, before turning more volatile again in December and January (positive and then negative in both months). Looking beyond the markets as a whole, 2018 will favor the elements of Earth, Metal and Water and will be challenging for Fire and Wood, which means certain industries will be in favor and others will struggle. Earth-oriented sectors include Real Estate Development and Construction, Pharmaceutical and Food related businesses. In Real Estate, markets become more polarized, with China continuing to prosper (Tier One cities, such as Beijing, Shanghai, Guangzhou and Shenzhen will outperform cities in Tiers Two, Three & Four) and similar polarization is likely in the U.S. and Canada where cities like Toronto, New York, Boston, and San Francisco will prosper will other cities may slow down significantly. In Healthcare, expect breakthroughs in medicine, especially in genetics and breakthrough advances in cancer treatments (with some cures likely). Food related businesses will prosper as dining as an experience takes hold and a surge in family formation brings business to hospitality industry. Metal-oriented sectors include Technology, Autos, Airlines, Building Materials, Precious Metals & Mining and Security (particularly cyber-security, my new favorite industry…). In Technology, there will also be many breakthroughs and China (Huawei) will gain market share, while the U.S. (IBM) loses share. There will be many new startups of high-tech companies and a greater than average amount of volatility in the sector, resulting in a high level of M&A activity. Global Auto sales continue to surge and EV and Hybrids gain significant momentum. There will be advances in Materials science that lead to new applications in the Airlines and Defense sectors. The overall demand for metals will grow and Precious Metals should appreciate. Water-oriented sectors include Banking, Finance, Import/Export, Breweries & Spirits, Fishing (aquaculture), Travel and Logistics. The financial markets are likely to resume more normal volatility, which will benefit Bank trading activities and underwriting. New technology (Blockchain) could lead to significant cost reductions in Banking & Finance. The Travel sector would do particularly well as cruises and group travel become more popular (particularly in China), Asia and Europe benefit most as travel destinations. In the elements that will be challenged in 2018, Fire-oriented sectors include Energy, Education, Electronics and Entertainment. In Energy, oil and gas prices may gradually rise, which could improve equity values, but volatility is likely to persist. In Entertainment, continued M&A activity is likely. The Wood-oriented sectors include Apparel, Forestry, Farming and Chinese Traditional Medicine. The Apparel sector struggles and some big chain stores run into solvency problems forcing more M&A activity. One last curious item is that the Earth Dog year only comes around once every 60 years, the last one running from 2/18/58 to 2/7/59, which coincidently was the period that held the record for most consecutive months in a row of positive performance (fourteen) in the S&P 500. This January just established a new record of fifteen consecutive months (which appears likely to end this month).

This is where the Frog comes into the picture and we go from the Year of the Dog to the Year of the Frog. Markets are not supposed to go straight up month after month and they are particularly not supposed to rise steadily with no volatility whatsoever, which is exactly what occurred in 2017. The past year was the lowest volatility year in the history of the U.S. equity markets, as the S&P 500 went the whole year with no drawdown greater than (1.8%), had the lowest standard deviation ever (3.9%) and the highest Sharpe ratio in history (4.4). What makes this lack of movement even more astonishing is that the markets began at near record valuations (second only to the 2000 Tech Bubble) and the valuations rose steadily all year (despite a fairly good earnings recovery). Like the old story about boiling a frog, if you heat up the water first and then drop the frog in, they will jump out because they notice the temperature. However, if you put the frog in tepid water and slowly turn up the heat (eventually to boiling), the frog never really notices and tragically becomes frog soup. The same thing is happening to investors in the equity markets as they are casually sitting in the S&P 500 Index Fund hot tub while the global central banks slowly and continually turn up the heat on asset prices (Upsidasium is more powerful than uranium), fueling an equity Bubble unlike any in history. We appreciate that this last phrase may seem like a hyperbolic statement, but the data confirms the point in that while the 2000 Bubble had a higher overall P/E ratio, the egregious valuations were concentrated in a few places (Technology, Telecom, Media, Biotech) and there were actually pockets of value that a frog could swim toward in order to escape the heat (REITs, small-caps, Energy, Utilities), not to mention a few other pots around the world (Japan, Emerging Markets) where frogs could jump to and actually find cool, clear water. U.S. equities are the pot of hot water that is on the verge of the boiling point and investors are an army (perfect word, as market participants would all profess to be just following orders to Buy the Dips…) of frogs on the verge of becoming permanently impaired. There is still time for investors to collectively jump out of the pot before they are no longer able, but the warmth of the pot seems to be lulling the army into a false sense of security. What is also seemingly lost on market participants is how the slow and steady rise in asset prices is slowly robbing them of their wealth as the dollar is devalued and their wealth loses purchasing power. With the Kleptocrat in Chief at the helm, there has been an acceleration of the inflation of asset prices (remember only 14% of people own stock outside of retirement accounts, and only 50% overall, while very few own investment property, art or collectibles) and while the prices of these rich-assets skyrocket (single painting just sold for $450 million, luxury condos breaking records weekly) wealth inequality is now at the highest level ever in American history. While corporate management teams taut the benefits of Shareholder Value Maximization, they continue to take the ugly reality is that every law that is passed (like the horrible #TaxDeform Bill) quietly allows more money to be funneled into the top 1% bank accounts. This is Crony Capitalism at its worst, where every law is the best (or worst depending on your perspective) law money can buy and every change benefits those making the changes the most. This is a practice that has been executed for millennia as Dictators and Emperors enrich themselves at the expense of the general population and it always ends badly (though it may take a while). There is a reason there is a saying that Empires Fall.

As an aside, we find it just a little bit ironic that the Save the Frogs movement began almost precisely at the same time that the central banks began collectively firing up the Upsidasium mines to stoke the fire to boil investors back in March of 2009. The movement began in recognition that frog populations were declining worldwide at unprecedented rates, and that nearly one-third of the world's amphibian species were threatened with extinction. Save the Frogs found that 200 species had completely disappeared since 1980, while the natural rate of amphibian extinction up to that point had been one species every 500 years. Amphibian populations face a daunting array of environmental problems, including pollution, infectious disease, habitat destruction, introduction of invasive species, climate change, and over-harvesting for the pet and food trades. The continued rapid loss of amphibian species will result in irreversible consequences to the planet's ecosystems and, ultimately, to humans. Frogs eat mosquitoes (one of most problematic killers on the planet), provide chemicals for medical advances, serve as an important part of the food chain, and tadpoles even filter our drinking water (they also look and sound cool). Chief Sealth (namesake of Seattle) summed it up beautifully in 1854, *"What is there to life if one cannot hear the lonely cry of the whippoorwill of the argument of frogs around the pond at night?"* Today, a decade hence, and $12 Trillion of Bubble Fuel (QE) to stoke the fire later, we find ourselves in a precarious situation where the mantra of passive index investors has become "come on in, the water's fine," while those with a more keen sense of impending danger (value investors) are beginning to jump out of the pot (in fact, some, like Seth Klarman and Julian Robertson jumped out a while back). Charles Mackay, the Scottish author, summed up this type of situation best in his classic work *Extraordinary Popular Delusions and the Madness of Crowds,* when he wrote that *"people, it has been well said, think in herds; it will be seen that they go mad in herds, while they only recover their senses slowly, and one by one."* Those frogs that have come to their senses and perceived that the water has become dangerously hot are taking leave of the pot and selling the most overvalued assets (U.S. equities) and seeking cooler waters (Real Assets, Emerging Markets) or even the ice bath that is Cash. All the while, the Index Fund pot soaking the army of frogs shouts derisively at them as they leave that they will be "missing out" and the few frogs who had not joined the hot tub party are now taking the plunge in a panic for fear of missing out ("FOMO"). It turns out that the amphibian brain is not very large (0.1 grams versus 1,400 grams for a human) and it might be said that an irrational investor brain, which is either rationalizing why they stay in the pot (while frogs that have proven to be smart in the past leave) or rationalize why they are jumping in the pool now (instead of a decade ago when valuations were low), may be functioning at about the same level. So, one of the goals of this letter is to (allegorically) help Save the Frogs (market participants) to prevent 2018 from becoming the Year of the Frog.

For the past few years I have been fortunate to be a keynote speaker at the Cayman Alternative Investment Summit

(#CAIS2018) and it has been a highlight for the year in terms of content, discourse and pushing the envelope in terms of the evolution of the investment industry. This year's CAIS theme was "Wired: The Rise of Alternative Investment in a Digital Age" and (as usual) the agenda was packed with outstanding speakers including industry experts, institutional and private investors and a few celebrities who bring a unique perspective to an investment conference. I have historically done a talk that combines some views on the future of the Alternative Investment industry and my MCCM Surprises, but this year the sponsors gave me a standard title, Alternative Investments: Predictions for a Digital Age, but asked me to switch things up a bit and talk about how I thought Blockchain and Cryptocurrencies were going to disrupt the financial services industry. Anyone who has read this letter in the past couple of years (or followed me on Twitter) knows I have some very strong opinions on this topic and believe that Blockchain is Big, Really Big, and will fundamentally reshape the way we think about money and value and how we transact with one another in the future. We won't go into all the details of my presentation here but the highlights are that there is a reason that bankers call Bitcoin a fraud, governments call cryptocurrencies a threat to national security and so many people who have spent no time learning about the Blockchain revolution are afraid of the massive disruptive power of these technologies. Very simply, the incumbents have a lot to lose as the Internet of Value does to money and transactions what the Internet has done to information and commerce. The only other thing we will say here is that many people lately have been saying that we are having a crash in cryptocurrencies (and particularly Bitcoin) and that these technologies will go the way of MySpace and Netscape, but we beg to differ. We would make the case that the game hasn't even started yet, it is still pre-game warm ups and the Distributed Ledger Technology, Blockchain protocols and Cryptocurrencies are going to change the world as we know it, unleashing massive wealth creation opportunities for intrepid investors who embrace the coming disruption. We will write more in the Cryptocurrency section below, but remember that it always pays to invest in disruptive innovation (and the opportunity to short the companies that are disrupted is a bonus).

The CAIS celebrity speakers this year were fantastic and included Robert O'Neil, the member of Seal Team Six who was on point during the raid on Osama Bin Laden (spoke on courage, preparation and how to never quit), famed actor Will Smith (spoke on overcoming obstacles to achieve a dream and how to fail fast and fail forward) and groundbreaking IndyCar racer Danica Patrick (spoke on her new career leading PrettyIntense.com). Before I get to Danica's role in our theme, let me comment on a couple of things from the other two speakers. Robert O'Neil (a true American Hero) was riveting, but he left me with a few quotes that I think are critical to investing. First, *"Bravery is not the absence of fear, but the acknowledgment of fear and the ability to take appropriate action."* When markets get scary (and they will quite often) you must not give into fear, but act in the manner that your discipline and preparation prepared you for and face that fear. Fear actually makes you better, it sharpens your senses and forces you to be a more effective decision maker (the opposite, complacency will get you killed every time). Second, *"Your gun is always sighted in."* In other words, you must always be prepared and ready for the *"Worst thing that can happen, because the perfect plan does not exist, and something will always go wrong."* Third, *"Never assume a situation is a certain way."* When you enter the room (or market) observe the surroundings (data) and *"Let your instincts take over, and always remember that slow is smooth and smooth is fast."* In battle (like investing) you must stay under control and not let emotions take over, when you make a mistake (you will) you have to let it go and *"do the next right thing"* because if you dwell on the mistake and make a bigger one, *"you die"* (permanently impair your capital). Finally, *"Panic is contagious,"* and always remember that *"No one ever caused anything positive by panicking."* Will Smith is (as you might expect) simply an amazing speaker, storyteller and engager, as he did everything from chronicle his life story to bring a local school's steel drum band on stage to getting his less than rhythmic interviewer to rap with him. His primary message was to not be afraid of failure (all too common in our participation trophy world), but to be sure to *"Fail early, fail often and fail forward,"* because

"Failure is a massive part of being able to be successful, as that is where all the lessons are." We could not agree more, and this is clear in investing as we have often quoted our good friend Bill Duhamel (Route One Capital). *"With every investment we either get richer, or wiser, never both."* As captivating as Robert and Will were on stage, we were actually moved more by the diminutive (had never seen her in person and didn't realized she was that tiny) Danica Patrick.

Danica Sue Patrick is a professional racing driver (soon to be retired after Indy500 this year), fitness entrepreneur (PrettyIntense.com) and spokesmodel. She is the most successful woman in the history of American Open-Wheel Racing (her 2008 Indy Japan 300 victory is the only female win in an IndyCar Series race). Danica is considered to be a pioneer for women in motorsports, as her skill and achievements enabled her to break the gender barrier in the predominately male industry, and she has been influential to many girls who have taken up auto racing. Born in Wisconsin, Danica began karting at age ten and dominated the sport (winning as many as 70% of the races in her class) and won the World Karting Association Grand National Championship three times in the 1990s. She dropped out of high school (but later completed her GED), moved to the UK to further her career and later moved back to the US to join Rahal Letterman Racing in 2005 where she was named the Rookie of the Year for both the Indy500 and the IndyCar Series. She began racing NASCAR and stepped away from IndyCar in 2011 to focus full-time on Stock Car Racing. Danica became the first woman to win a Cup Series pole position by setting the fastest lap in qualifying for the 2013 Daytona 500 (finished eighth). Danica announced her intention to step away from full-time racing after the 2017 season (raced 27 seasons), but will compete at the 2018 Daytona 500 and Indianapolis 500. Danica came on stage in Cayman and stole the show with her intensity, humor and candid discussion of her racing career and decision to pursue a new career in health and fitness. Since formally retiring from racing last year, she has written a book, *Pretty Intense,* that serves as the title of her new fitness enterprise. She has started the Warrior Clothing line, focused more time on managing her vineyard in Napa, and is exploring development of a cooking show. There are many things about Danica Patrick that are inspiring (not just to young girls who aspire to be racers) such as her courage to break barriers, resiliency to step back into a car after some horrific crashes, her drive and ambition to be the very best in her field (she likes to win), and her powerful intensity that is evident in her presence and charismatic personality. That said, what was striking was the undeniable overlap between race car driving and investing and there were a number of takeaways from her conversation that are particularly important in the current investment environment.

One of the first things that hit home was her admonition to the audience to *"Always control the things you can control"* (effort, focus, discipline) and to *"Make the best decisions you can with the information that you have available."* One of the things that hamstrings many investors is the inability to make decisions and take action when faced with imperfect (or limited) information, as they are constantly looking for more confirming data or analysis, which results in missed opportunities. The fact is there will never be perfect information. The other element of this perspective is that you can't control everything and therefore you need to focus your intensity on those things you can control in order to be successful. In racing, she said you have no control of what another driver will do in a particular situation (you can control your reactions), no control over the weather (you can control your equipment) and no control over the stress level of a situation (you can control your emotions). In investing, you have no control over what other investors in a market will do (you can control your actions), no control over the economic, monetary and fiscal environment in which you have to deploy capital (you can control your instruments) and no control over the valuation levels of specific markets (you can control your exposure). A couple of the clearest correlations between racing and investing is the speed at which races/markets move and the interconnectedness of the actions of the racers/market participants (the actions of one will impact the outcomes of others). On the issue of speed, Danica had some keen insight in saying that *"You can slow down your emotions and stay sharp,"* and the ability to stay focused intensely on the facts and market conditions and not get caught up in the emotions of the psychology of the market participants is a trait of all great investors. My second boss had a coffee mug made up that said, quite simply, *"Invest without emotion"* (makes sense given firm name was Disciplined Investment Advisors). On the interconnectedness issue (that is an inextricably linked to speed) she said the key is that you *"Always have to leave room for error"* because when you are driving a car at 240 mph and something bad happens (and it will happen), if there is not enough room for error (investment translation, margin of safety) you can find yourself very quickly hitting the wall with no skid marks. A related point that was equally impactful was when Danica discussed when things do take a turn for the worse (tire gets clipped and cause a spin, debris causes a crash ahead, etc.) and you *"Realize that the only way to the other side is through, you must be able to imagine better on the other side"* as only positive thinking, fast action and focus can get you through safely to that other side. She went on to quote Henry Ford and the power of positive thinking *"If you think you can or can't, you're right."* In racing (and in investing, or just about anything in life for that matter) you must stay focused on thinking about what you want, not what you don't want (how many of us have stood over a golf ball and thought "don't slice it in the woods").

The most interesting thing about Danica's discussion from an investment perspective was the description of being in a car running around a track at 240 mph and how the team works together to make sure that she is always aware of the risks that she can't see. Racing, like investing, is all about taking intelligent risks. Some might say it is too big a risk simply to get behind the wheel of a car that could go 240 mph, let alone run the car with dozens of other drivers in an environment where the slightest error could actually be fatal, but to a trained professional, those risks are quite manageable. Some might say it is too big a risk to invest capital in a world where central bank intervention has pushed the speed limit up to insane levels (think current valuations here), let alone try to compete with high frequency traders, robots and algorithms where the slightest mistake could wipe out your capital, but to a trained professional, those risks are quite manageable. The key point Danica made is that racing was not a completely individual sport (yes there is only one driver) but she has spotters watching the track and telling her about things she can't see in her blind spots or events that are occurring around a curve or beyond her immediate horizon and crew that are remotely monitoring her car to make sure it can handle the stress of the race environment (or they call her in for a pit stop). The same applies to investing insofar as the investor is the decision maker and it is your capital (or your clients' and you are the fiduciary), but you have spotters (market observers, analysts and researchers) who can give you information about risks in your blind spots or beyond your immediate horizon and you have systems that remotely monitor your portfolio to alert you to risks that make you particularly vulnerable to the current investing (racing) environment (and call you in for a pit stop). When racing, Danica made the point that there is always a safe speed for every situation and going beyond that speed heightens the risk in a non-linear (exponential) fashion and the real issue is that it takes a much smaller error to lose control (and have a bad outcome) if you have exceeded that safe speed. She also made the point that you can make lot of errors when you are running under the yellow flag (slower speeds while danger is cleared) without serious consequences (you may even be able to overcome them later), but when racing at full speed the tiniest of errors can lead to disaster. Danica went further to say that you cannot prevent all mistakes, but you can minimize errors by maintaining very acute focus and controlling your emotions (same message as Robert O'Neil). Investing is the same, when markets are fairly valued (or better, undervalued) you can make a lot of errors and still be okay, but when as the valuations rise (the speeds increase) even the smallest mistakes can lead to very bad outcomes. This is where we find ourselves today in the U.S. equity markets, as valuations are nearing all-time records (are at all-time highs ("ATHs") for some measures like Median Price/Sales), and all it will take is a little fender rubbing coming out of one of the turns for a car to spin out of control and we could see the kind of crashes that we experienced the last time risks were this high in 1929 or 2000, #NoSkidMarks.

The biggest challenge we see today is that the average market participant is like the driver that passes the speed limit whatever sign at the top of the page. The sign tells drivers that anti-crash force fields are now in effect and that drivers should just *"Have Fun."* Who needs to worry about risk? Who needs to think about road conditions or weather? Who wants to let some other driver (no matter how much more experienced or talented) go faster than them? They said there is no risk. They said there can't be any crashes. It sounds like the universal belief in the Fed Put, the magical idea that no matter how ridiculously valued any asset market gets, the Fed will ride to the rescue and bail us out to make sure we don't suffer any losses from our investment portfolios. There is just one problem. How did that Fed Put work out for everyone who piled into Technology stocks at the Bubble peak in 2000? They lost (40%) peak to trough in the S&P 500 and an even more brutal (78%) in the NASDAQ (took eighteen years to get even). How did the Fed Put work for investors who piled into financials and housing stocks in 2008? They lost (58%) peak to trough in the S&P 500 before the Fed got the instructions for creating Upsidasium from the BOJ (been producing since 1990s). Roger Babson would be very envious of global central bankers today who seemingly have discovered an anti-gravity machine for equity (and other asset) prices. What is truly dazzling today is that the "banksters" don't even have to actually produce much Upsidasium today. All they have to do is promise that they might again, and the Pavlovian response to even the smallest correction in stock prices is to Buy the Dip (and when that doesn't produce the right scale of price increase, borrow more margin debt and *really* buy the dip). When there is a perception of no risk, no potholes that you might hit, no other bad drivers that might cut you off, no standing water that might trigger a spin, or any other risk for that matter that an anti-crash force field can't eradicate, the natural response is to become complacent, let your guard down, and press pedal to the metal. Whether that complacency applies to driving, investing or personal security, it is always when you believe that you are the safest, that you are actually the most vulnerable, and as we like to say #RiskHappensFast.

This past week was a stark reminder of just how quickly risk can happen, just how easy it is to become complacent and just how dangerous good outcomes after bad decisions can be in life (and investing). Generally speaking, oftentimes when you think you have been smart, brave or clever (won a race, made money in an investment), you were, in reality, reckless, foolish or stupid (took a crazy risk, most often unknown to you) and you just got lucky. The past week has been renamed #HackerHellWeek, as I suffered a hacker attack that disrupted my life in a meaningful way (I was actually very lucky, it could have been much, much worse) as I (like, I expect, most people) never took password security very seriously (yes, they all used to be a version of a favorite mascot, stupid…) and clearly never even contemplated that it was possible to have your mobile phone number stolen. It was a quiet Tuesday afternoon when suddenly things started going a little crazy. Right before my eyes, things began to change as if a ghost had taken control, email notifications of password changes began to flood my inbox, my Twitter profile picture and name suddenly changed and a nearly incomprehensible (except for maybe the F-bomb) tweet was sent out. I actually didn't see the first tweet in real time, but saw a response from a friend saying, "Huh?" When the second tweet went out, you think it "Must be a glitch," like wires crossed, then the third goes out and you think "That's just weird," then the fourth one comes, and you think "Something is wrong." Finally you realize with the fifth one "I've been hacked!" It is a very surreal experience as you are watching from the outside, you know it's not natural, that something is "off," you can't really believe it is happening and can't understand how someone could guess your passwords to that many Apps simultaneously. Once you realize you have been hacked, what do you do? You want to call the authorities, but who do you call - the police, the FBI, Twitter (they don't let you call, by the way.…)? You want to spread the word that the tweet sent under your name saying your wife was just diagnosed with cancer and requesting money to a GoFundMe account didn't come from you (but it sure looks like it did), and how do you send out the notice since the hacker has control of your email and twitter accounts? Then a little bit of panic sets in, you realize just how vulnerable you are. Are all the passwords on the phone? Can they get to the bank accounts and credit cards? Where is the Crypto stored (the biggest target of this particular kind of hack)? Then it is a frenzy to try and get control back, but why won't the phone work? It took until eight hours later talking to the AT&T rep to figure out what had actually happened, something that wasn't possible, something there was no contingency plan for (as Robert O'Neil said, the worst possible thing is likely to happen) actually happened. Someone in Atlanta convinced a rep at a GameStop to give them a SIM card for our phone number with no ID and no PIN number (how is that possible when it seems like I have to give blood and a retinal scan to find out whether I am eligible for an upgrade). Seriously? Someone stole my phone number and used the mobile phone to reset all the passwords (the dirty secret of the flaw in SMS text password resets) so they could control all of the Apps and try to steal anything of value that was stored electronically. Some important advice, change all of your passwords to very complex phrases that have nothing to do with your life and use email accounts rather than your mobile phone to authenticate password changes.

So, that is the backstory (or I guess the hackstory… pun intended) and the correlation to the markets is fairly straightforward. The first one standard deviation move away from fair value you may not even see, you're busy, and a little overvaluation is no big deal, right? The next half turn you attribute to the momentum in the markets and, again, no big deal. At two standard deviations you might think "That's weird," but it's been that overvalued before (a few times), so nothing to worry about. Another half turn higher and you think "Something is definitely wrong", but you aren't sure what to do about it and you rationalize it by saying "It was worse in 2000." Finally, at three standard deviations above fair value (where we are on the verge of today) you realize we have definitely been "hacked." The central bankers (and all of the Passive investors and FOMO return chasers) have created an investment environment that is completely out of control. Even the rationalization that it was worse in 2000 rings hollow (3.4X is not that far away) and you have to make a decision to simply ignore all the spotters screaming in your ear as you careen around the track at 245 mph (outside the safe zone) that there is some debris on the track coming out of turn four. We know by all measures that the economic expansion is long in the tooth and that a Recession will cause some serious stress in the markets (even likely will cause a crash at these speeds). We also know that unlike the experience I had with being hacked, where you are totally powerless until AT&T can shut down the hacker's phone and reinstall a new SIM card into your phone, in the markets you are not powerless, you can act. You can sell. The even better news is that selling an overvalued asset is not just good risk management, but it is effective capital management because you can use the proceeds to search for value opportunities elsewhere and believe it or not there are pockets of value around the world, you just won't find many of them in the S&P 500 and the NASDAQ (doesn't mean none, but far fewer and the Index as a whole is completely unattractive from a risk/reward standpoint). In the U.S. equity markets, the hackers (central bankers) have taken control and we must deal with #HackedMarkets for the foreseeable future until such time as the powers of gravity are restored.

Sixty-two hours later (felt like much longer), Twitter restored control of my account (bank accounts, credit cards, email, etc. were much quicker to respond and provide support) and as a little poke at the hacker who had tweeted so "eloquently" (in quotes for a reason) about rappers, I decided to have my first tweet back pay a little homage to the one rapper who had the perfect line from his song *Without Me*, *"Guess who's back, back again, Shady's back, tell a friend."* Eminem (aka Marshall Bruce Mathers III) is an American Icon, a rapper, songwriter, record producer, and actor who became one of the most listened to artists of his generation. Throughout his career, he has had 10 number-one albums on the Billboard charts (the only artist to have eight consecutive number ones) and five number-one singles on the Billboard Hot 100. Eminem has sold nearly 50 million albums in the US and nearly 155 million records world-wide, making him one of the world's best-selling artists. Rolling Stone ranked him 83rd on its list of the 100 Greatest Artists of All Time, calling him the King of Hip Hop. One of Eminem's most famous songs is titled *The Real Slim Shady*, which basically makes the case that he is the one and only original white rapper, and there is an interesting perspective in the equity markets here. The song begins with the lines, *"May I have your attention please? May I have your attention please? Will the real Slim Shady please stand up? I repeat, will the real Slim Shady please stand up? We're going to have a problem here."* If we make the comparison that the S&P 500 Fair Value is the real Slim Shady, then until such time as we get them to stand up (and be accounted for) we are going to have a problem. Eminem goes on in the chorus, *"I'm Slim Shady; yes, I'm the real Shady. All you other Slim Shadys are just imitating. So, won't the real Slim Shady, please stand up, please stand up, please stand up."* We know at this point that the equity markets have moved far beyond fair value — that the current valuations are just poor imitations of the central value of the S&P 500 and it is only a matter of time before the Real Slim Shady decides to stand up and expose all of the wannabe rappers. The fact remains, no matter how many times we hear rationalizations that it is different this time (#NotDifferentThisTime) and there is real value in the markets and it will eventually stand up. Jeremy Grantham has said that there is a risk in warning about Bubbles because Value Investors are prone to being early and *"The pain will be psychological and will come from looking like an old fuddy-duddy, looking as if you have lost your way in the new golden era where some important things, which you have obviously missed, are different this time. For professionals this psychological pain will also come from loss of client respect, which always hurts, and loss of peer group respect, which can be irritating."* So why would we do it? Why take a stand against the ever-inflating Bubble (particularly during the melt-up phase when things can get ugly in a hurry) and risk losing clients and reputation. A mentor of mine once gave the best answer when asked the same question saying, *"I would rather lose half my clients, than lose half my clients' money"* (a true fiduciary answer). We go back to Eminem here in his song *Lose Yourself,* when he sang, *"Look, if you had one shot, one opportunity to seize everything you ever wanted, one moment. Would you capture it or just let it slip?"* He asks the important question of whether you have the nerve to take the shot to do the thing that you know is right, even when it is hard to do. He goes on, *"He's nervous, but on the surface, he looks calm and ready to drop bombs, but he keeps on forgettin' what he wrote down, the whole crowd goes so loud, he opens his mouth, but the words won't come out, He's chokin', how, everybody's jokin' now, the clock's run out, times up, over, blaow!"* You are standing on the stage, the crowd is gathered, the music is playing, and everyone is all-in; do you have what it takes or do your freeze and stay silent? Bringing it all back to Newton, Eminem says the magic words, *"Snap back to reality, oh there goes gravity."* In the end, #GravityRules and it is time, not to drop bombs (like my Twitter hacker), but to drop U.S. equity exposure and move your portfolio out of harm's way (out of the grip of #HackedMarkets and into free markets, and assets, around the world where you can still secure a margin of safety, minimize the probabilities of impairing your capital and keep the power of compounding working in your favor). It is time for the Real Slim Shady to please stand up.

When it comes to economics, the Real Slim Shady is John Maynard Keynes (last picture above), who is widely considered to be the yardstick by which other Economists are measured (a tough standard given Keynes was six-foot-seven). Lord Keynes (knighted in 1942) was so influential in the field during the beginning of the twentieth century that an entire school of economic thought bears his name, the Keynesian School. Keynes was born on June 5, 1883 in Cambridge, England into a middle-income family where his father was a lecturer at Cambridge University and his mother was a local social reformer. He performed well in school, top of his class (excelling in mathematics), and at thirteen, his headmaster wrote that Keynes was *"head and shoulders above all the other boys* *in the school"* (in brains as well as height). He won a scholarship to Eton College where he showed talent across a wide range of subjects, particularly mathematics, classics and history, but left to enroll in King's College in 1902 where he earned his degree in mathematics two years later. His grandmother wrote to him while there saying that since he was born in Cambridge, people would expect him to be clever (he was indeed). Keynes studied briefly under Alfred Marshall and Arthur Pigou (two of the most influential economists of the time), whose scholarship on the Quantity Theory of Money influenced Keynes's economic beliefs and later writings. In 1906, Keynes left University to take a position with the civil service in Britain as a clerk in the India Office. While there, he collected material for his first book on economics, *Indian Currency and Finance,* which described the workings of India's monetary system. Keynes returned to Cambridge in 1908 as a lecturer, a position funded by Alfred Marshall, but took a leave of absence to work for the British Treasury during World War I. He worked his way up quickly through the bureaucracy and was made the Treasury's principal representative at the peace conference at Versailles in 1919. He resigned shortly thereafter on the belief that the Treaty of Versailles was overly burdensome for the Germans. The economist Harry Johnson wrote that the optimism (from Keynes' early life) was a key to understanding his manner of thinking, saying *"Keynes was always confident he could find a solution to whatever problem he turned his attention to, and retained a lasting faith in the ability of government officials to do good."* Keynes returned to Cambridge to resume teaching and became a very prominent writer and speaker and became something of a celebrity when his book *The Economic Consequences of Peace* was published in 1919 which eloquently argued against the punitive reparations payments imposed on Germany by the Allies after World War I. He wrote, ***"The war has ended with everyone owing everyone else immense sums of money. Germany owes a large sum to the Allies, the Allies owe a large sum to Great Britain, and Great Britain owes a large sum to the United States. The holders of war loan in every country are owed a large sum by the States, and the States in its turn is owed a large sum by these and other taxpayers. The whole position is in the highest degree artificial, misleading, and vexatious. We shall never be able to move again, unless we can free our limbs from these paper shackles."*** Keynes believed that the amounts demanded by the Allies were so large that if Germany tried to pay them they would stay perpetually poor and be consistently politically unstable (turns out they should have listened to him…). Keynes warned that ***"The decadent international but individualistic capitalism in the hands of which we found ourselves after the war is not a success. It is not intelligent. It is not beautiful. It is not just. It is not virtuous. And it doesn't deliver the goods."***

In the 1920s, Keynes wrote extensively on the Quantity Theory of Money (today called Monetarism) including the *Tract on Monetary Reform* and the *Treatise on Money*. His major economic policy perspective was that in order to stabilize the economy the government must stabilize the price level and that the central bank must raise interest rates when prices rise (inflation) and lower interest rates when prices fall (disinflation). He wrote, ***"Thus, after all, the actual rates of aggregate saving and spending do not depend on Precaution, Foresight, Calculation, Improvement, Independence, Enterprise, Pride or Avarice. Virtue and vice play no part. It all depends on how far the rate of interest is favourable to investment, after taking account of the marginal efficiency of capital. No, this is an overstatement. If the rate of interest were so governed as to maintain continuous full employment, virtue would resume her sway. The rate of capital accumulation would depend on the weakness of the propensity to consume. Thus, once again, the tribute that classical economists pay to her is due to their concealed assumption that the rate of interest always is so governed."*** Keynes' ideas about economics took a dramatic change during the period of the Great Depression as he thought critically about the causes of Britain's economic woes. The result was the groundbreaking work titled *The General Theory of Employment, Interest and Money*. Keynes' work revolutionized the way economists think about economics and was disruptive in several ways, particularly because it introduced the notion that Aggregate Demand =

Consumption + Investment + Government (spending) and that unemployment could be managed through Fiscal Policy. Keynes' work was revolutionary because he challenged conventional thinking (something he learned from studying Newton) and he described his work, saying, ***"The ideas which are here expressed so laboriously are extremely simple and should be obvious. The difficulty lies, not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds."*** Keynes was passionate about the power of ideas to initiate change and made the case that ***"I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas."*** In the aftermath of the Depression, Keynes could not stand idly by and explain away inaction due to incumbents and vested interests, but rather fought to disrupt the status quo through the introduction of big ideas. He firmly believed that ***"A study of the history of opinion is a necessary preliminary to the emancipation of the mind,"*** and that ***"Ideas shape the course of history."*** From his study of history, he believed that ***"The destruction of the inducement to invest by an excessive liquidity-preference was the outstanding evil, the prime impediment to the growth of wealth, in the ancient and medieval worlds,"*** and hence, he contended that ***"It is investment, i.e. the increased production of material wealth in the shape of capital goods, which alone increases national wealth."*** Time Magazine included Keynes among its *Most Important People of the Century* in 1999, saying, *"His radical idea that governments should spend money they don't have may have saved capitalism."* Keynes was a huge believer in radical ideas and said that ***"Words ought to be a little wild for they are the assault of thoughts on the unthinking."*** An entire generation of economists were inspired by the big ideas included in Keynes' *General Theory* including John Hicks, James Tobin, Paul Samuelson, Alan Blinder, Robert Solow, William Nordhaus, Charles Schultze, Walter Heller, and Arthur Okun and the development of the discipline of Econometrics was created to empirically explain Keynesian models. One of Keynes' final contributions before his passing in 1946 was at the 1944 Bretton Woods Conference where he was one of the architects of the International Monetary Fund and the postwar system of fixed exchange rates.

Keynes himself was no fan of the idea that economics was, in and of itself, a meaningful doctrine, or philosophy, but rather believed that ***"Economics is a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessor to draw correct conclusions."*** In other words, he viewed the discipline and framework of solving problems (the mental model) to be more important than the current results (which, by definition, would be changing over time). Keynes argued against the codification of economics, saying ***"Too large a proportion of recent 'mathematical' economics are mere concoctions, as imprecise as the initial assumptions they rest on, which allow the author to lose sight of the complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols."*** Keynes believed that a true economist should be more well-rounded, saying ***"The master-economist must possess a rare combination of gifts. They must be mathematician, historian, statesman, philosopher, in some degree. They must understand symbols and speak in words. They must contemplate the particular, in terms of the general, and touch abstract and concrete in the same flight of thought. They must study the present in the light of the past for the purposes of the future. No part of man's nature or his institutions must be entirely outside their regard. They must be purposeful and disinterested in a simultaneous mood, as aloof and incorruptible as an artist, yet sometimes as near to earth as a politician."*** The other danger of overzealous belief in economic thought that Keynes warned against was the predilection of individuals to cling to ideas as they grew older and therefore create a mismatch between the knowledge of an individual and the responsibility and power of that individual. When you are young and open to exploring new ideas during the educational phase (formal education or practical experience) of life, you are more likely to have less influence, but in your later years (when you become set in your beliefs) you will have often risen to a position of greater influence. He wrote, ***"The ideas of economists and political philosophers, both when they are right and when they are wrong are more powerful than is commonly understood. Indeed, the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually slaves of some defunct economist. In the field of economic and political philosophy there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back."*** The key here is to be vigilant in your immersion into current thinking, to take time to truly think deeply and always be searching for new ideas.

Keynes (like many of the other characters in our Serial) was influenced greatly by the wisdom of Sir Isaac Newton, most notably his appreciation of big ideas and his discipline to think deeply about problems to form innovative solutions. He described him in very powerful terms, saying ***"Newton was not the first of the age of reason. He was the last of the magicians, the last of the Babylonians and Sumerians, the last great mind that looked out on the visible and intellectual world with the same eyes as those who began to build our intellectual inheritance rather less than 10,000 years ago."*** Newton was a person of mind-boggling intelligence and talent, but as Keynes describes, his true intellect came from his boundless curiosity and ability to look at things with a beginner's mind, to not make not assumptions of how something should be (again, like Robert O'Neil said at CAIS) and to allow the power of the idea to unfold from the actual event (rather than your preconceived notion). Keynes also understood Newton's other superpower, the ability to remain intensely focused on a singular idea, or problem, in order to reach a conclusion saying, ***"I believe that Newton could hold a problem in his mind for hours and days and weeks until it surrendered to him its secret. Then being a supreme mathematical technician, he could dress it up, how you will, for purposes of exposition, but it was his intuition which was pre-eminently extraordinary and his muscles of intuition being the strongest and most enduring with which a man has ever been gifted."*** All great investors have the ability to intensely focus and the very best of the best have the ability to trust their intuition (gut instinct). Intuition is the result of the subconscious continually working on a problem (Michael Steinhardt described it as a super computer that is always working behind the scenes) and, like any muscle, the more you work it out, the stronger it becomes. Keynes pointed out the challenge of intense focus saying, ***"Anyone who has ever attempted pure scientific or philosophical thought knows how one can hold a problem momentarily in one's mind and apply all one's powers of concentration to piercing through it, and how it will dissolve, and escape and you find that what you are surveying is a blank."*** Big ideas are, in the beginning, impenetrable (by definition), and it is common to attempt to focus intensely on the particular problem only to have that focus interrupted by something more urgent, a distraction, or simply from the fatigue that comes from that intense focus. The ability to regain focus time and time again after losing concentration on the problem is a rare talent indeed and the more challenging the problem, the more resilience and persistence you have to have to solve it. Oftentimes, investing is the same way. The biggest opportunities are the long-term disruptive ideas that will challenge your focus time and time again by yielding to the doubts of the masses and falling precipitously (only to rise again more strongly). Perhaps one of the best examples would be AMZN stock over the twenty years since it went public. How many investors were able to maintain focus on the big picture (disruption of commerce) during the double-digit declines (average 30%) that occurred every single year? The answer (beyond employees) is very, very few. Keynes also noted that ***"I believe that the clue to [Newton's] mind is to be found in his unusual powers of continuous concentrated introspection. A case can be made out, as it also can with Descartes, for regarding him as an accomplished experimentalist."*** One of the most important things in investing is the ability to think deeply about an opportunity and formulate a hypothesis for exploiting that opportunity and then to implement a plan to act on that hypothesis. Perhaps the most important thing is having the ability to reflect on the outcomes of the action plans (experiments) in order determine what worked, and more importantly, what didn't work. Only then can one reformulate the hypothesis to attempt to capture the opportunity again. As Thomas Edison, said, *"I never failed, I just discovered 10,000 ways not to make a light bulb."* We tweet about this often, saying Persistence = #Edge. Newton was a person of monumental talent and Keynes was wise to seek his mentorship (anyone you read about deeply can be a mentor) in the study of his approach to thinking, reasoning and problem solving.

It is truly interesting that Keynes, like Sir Isaac Newton and Benjamin Graham, shared towering intelligence but were humbled by the capital markets due to their affinity toward speculation early in their careers. Keynes began his career as a speculator in 1919, and at 36 years old was considered a very late arrival to the markets. At the time, Keynes was convinced that short-term trading was a superior approach to the capital markets. Given his macroeconomics background, Keynes began trading currencies as he was quite bullish on the U.S. Dollar and bearish European currencies given his serious concerns with the Treaty of Versailles. As was tradition at the time, he opened a trading account using a very high margin, trading positions with 10X leverage on capital of £4,000 (about $270,000 today). Within a year, Keynes hit it big on the French Franc and made a profit equivalent to 3.5X his initial capital ($950,000). That may have been the worst thing that could have happened. "Beginner's Luck" is a term that exists for a reason and it is truly one of the most dangerous things in investing. When you have success early, you tend to attribute it to skill (rather than luck), and in the worst cases, you have made a poor decision (taking too big a position, an ill-advised risk, etc.) that has a good outcome. This is a lethal combination because it does not invite introspection and learning, but rather encourages complacency and boldness, where attentiveness and caution are usually more warranted. As you might have guessed from our tone, Keynes soon learned that trading FX on high margin based solely on his long-term economic views as a really bad idea. Despite his strong belief (remember he quit his job over this) that the Dollar would rise, and the Deutschmark would fall, the opposite occurred, and the Germany currency went on a three-month tear upwards wiping Keynes out. Keynes commented that ***"Experience shows that what happens is always the thing against which one has not made provision in advance. The expected never happens, it is the unexpected always."*** Within that short ninety days, Keynes had turned that nearly £14,000 gain (around $1MM in the black) into a £14,000 loss (around $1MM in the red). Perhaps this was the origin Keynes' quip that ***"If you owe your bank a hundred pounds, you have a problem, but if you owe a million, it has."*** Faced with that problem his brokers asked him to post £7,000 in maintenance margin and Keynes was able to get an advance against his book and borrowed £5,000 from a well-known financier to post the collateral.

In response to this debacle, Keynes uttered perhaps his most famous line, ***"Markets can remain irrational longer than you can remain solvent."*** One of the most important takeaways from this event is that leverage reduces your ability to remain solvent during these periods of irrationality, so it is always advisable to reduce leverage as prices move toward those extreme levels (like today). Keynes used some Newtonian introspection here, saying ***"We should not conclude from this that everything depends on waves of irrational psychology. On the contrary, the state of long-term expectation is often steady, and, even when it is not, the other factors exert their compensating effects. We are merely reminding ourselves that human decisions affecting the future, whether personal or political or economic, cannot depend on strict mathematical expectation, since the basis for making such calculations does not exist; and that it is our innate urge to activity which makes the wheels go round, our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive on whim or sentiment or chance."*** In summary, Keynes had an epiphany that while long-term expectations (and trends) were steady, the urge for humans to act (they abhor the admonition to don't just do something, sit there…) can overwhelm the long-term and the default decision rules may oftentimes be suspect, at best, and poor, at worst. Keynes then leveled criticism to the extension of time horizon by economists to rationalize their theories, saying ***"The long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again."*** The value in economic analysis (actually, all analysis) is to take the observations from history and the long-term perspective and develop useful tools to manage the current environment. Keynes took these lessons, made adjustments and set up a new strategy.

Remembering that Keynes was a very optimistic person, he was completely unbowed by his apparent failure as a trader. His perspective was that ***"If we consistently act on the optimistic hypothesis, this hypothesis will tend to be realized, whilst by acting on the pessimistic hypothesis we can keep ourselves for ever in the pit of want."*** Keynes was determined to become financially independent and used the power of positive thinking to recast his strategy. Unlike most people, who focus on the failure and remain afraid of being wrong, or making another mistake, Keynes believed that ***"There is no harm in being sometimes wrong, especially if one is promptly found out."*** In other words, being wrong is fine, but staying wrong is not, and the faster you correct your errors, the better off you will be. The problem is most investors can't (won't) admit they are wrong. George Soros often said, *"I am only rich because I admit my mistakes faster than other people."* Keynes began to trade more prudently than during his early career and began utilizing short-term trading indicators to supplement his long-term views. Keynes also came to the realization that waiting for perfect information, or analysis, was impractical (and less profitable), concluding that ***"It is better to be roughly right than precisely wrong."*** Increased speed in executing ideas in trading was critical to his future success. Within six months, he was able to pay back the £5,000 loan, and over the next few years he expanded his trading to include commodities (cotton, metals, sugar and wheat) and, eventually, stocks. By 1924 he had amassed a fortune of nearly £60,000 ($4.3MM). This construct takes us to Keynes' other timeless piece of wisdom. While giving a speech late in his career, an audience member said, ***"But my lord, when we addressed this issue a few years ago, didn't you argue the other side?"*** to which Keynes replied ***"That's true, but when I get more evidence I sometimes change my mind. What do you do?"*** The ability to create and embrace strong opinions (or investment strategies) that enable you to act consistently and forcefully, while maintaining the ability to hold them loosely enough that you can change your mind when confronted with additional, superior or more compelling information, is one of the core traits of truly great investors.

Keynes' growing fame as an economist and his newfound success in the markets soon led to the opportunity to become the first bursar of King's College in 1924. As he was now responsible for the ongoing financial well-being of the College, he decided to pool all the capital under his purview into a fund called the Chest (like an Endowment). Keynes' intention was to continue to utilize the trading strategy that he had developed to grow the Chest assets in a rapid fashion. Keynes also set out to sell much of the King's property (a move opposed by many of the Fellows) and use the proceeds to speculate in the stock market. Keynes' view was that ***"A speculator is one who runs risks of which he is aware, and an investor is one who runs risks of which he is unaware. Investing is an activity of forecasting the yield over the life of the asset; speculation is the activity of forecasting the psychology of the market."*** He believed (at the time) that liquid markets were more controllable than illiquid markets. Keynes realized it would be imprudent to use the substantial leverage he utilized in his initial trading strategy, but he intended to aggressively trade the Chest portfolio, which led to higher than average volatility. Over time, Keynes modified his investment philosophy again as he began to doubt that he could consistently profit from his knowledge of economic cycles. He wrote, ***"As time goes on, I am more and more convinced that the right method in investment is to put fairly large sums into enterprises which one thinks one knows something about and in the management of which one thoroughly believes. It is a mistake to think that one limits one's risk by spreading too much between enterprises about which one knows little and has no reason for special confidence. One's knowledge and experience are definitely limited and there are seldom more than two or three enterprises at any given time in which I personally feel myself entitled to put full confidence."*** Keynes moved toward a strategy more akin to the old investment saw of putting a few eggs in a basket and watching the basket very closely. He spent time every day reviewing the financial statements of his preferred companies and speaking to brokers in search of a few good investment ideas a year. The Chest's initial capital was £30,000 ($1.7MM in 2018 dollars) and by the time Keynes passed in 1946 the fund had grown to £380,000 ($15MM in 2018 dollars), equivalent to an annual compound rate of return of 12%. That return may not seem remarkable until you consider that the period includes the Crash of 1929 and World War II, both of which were disastrous for U.K. stocks, and the British equity market fell (0.7%) a year for the twenty-two-year period (down (15%) cumulatively versus a gain of nearly 9X for the Chest). Perhaps even more impressive (and likely quite nerve wracking at the time) was that the Chest portfolio fell (50%) from 1928 to 1931 with another drawdown of (40%) in 1938, proof that concentrated portfolios can be prone to extreme volatility. On the flip side, Keynes was steadfast in his approach, holding on to those investments in which he had high conviction, and he was rewarded as the returns from 1932 to 1936 were an astonishing 44.8%, 35.1%, 33.1%, 44.3% and 56%, respectively (with another 54% gain in 1943). Keynes wrote that ***"I feel no shame at being found still owning a share when the bottom of the market comes. I would go much further than that. I should say that it is from time to time the duty of a serious investor to accept the depreciation of his holdings with equanimity and without reproaching himself. An investor should be aiming primarily at long-period results and should be solely judged by these."*** His long-term results were very strong, indeed; perhaps most impressive of all was that the Chest's gains were generated with no dividend reinvestment as all income was used to support the College programs. Keynes' biographer, H.F. Harrod, summarized Keynes' investing philosophy this way, *"He selected investments with great care and boldly adhered to what he had chosen through evil days."*

Keynes lived through the Crash of 1929 and came away with an interesting perspective on how investing in the public equity markets had grown to function over time. He described it in such a way that the description has come to be known as the "Keynesian Beauty Contest." He wrote, ***"Professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one's judgement are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees."*** The markets moved to become a sort of psychological game in the heat of the Bubble leading up to the peak in 1929 and Keynes summarized his view in another of his most memorable quotes, ***"Successful investing is anticipating the anticipations of others."*** The problem in the Bubble was that the market participants become so enamored of the game itself, they lost the ability to think objectively about the underlying securities, instead reaching a mania where ***"nothing mattered except states of***

mind, chiefly our own." Keynes described the ability of humans to adapt to their environment, even when that adaptation goes against their core beliefs, saying ***"The power to become habituated to his surroundings is a marked characteristic of mankind."*** The problem being that once market participants collectively move from fundamental analysis to speculation based on price movement alone, the FOMO drives previously uninterested (and un-invested) individuals to jump into the markets, which pushed valuations to even greater extremes. Keynes understood that "***Everything is always decided for reasons other than the real merits of the case,"*** and the real problem is that ***"once we allow ourselves to be disobedient to the test of an accountant's profit, we have begun to change our civilisation"*** (Bubbles cause us to lose our collective rationality). As market prices reach greater extremes, the rational response is to run away (not toward) the markets, but ***"people will do the rational thing, but only after exploring all other alternatives."*** Keynes wrote about the great risk created by this sequence of events, saying, ***"A conventional valuation which is established as the outcome of the mass psychology of a large number of ignorant individuals is liable to change violently as the result of a sudden fluctuation of opinion due to factors which do not really make much difference to the prospective yield since there will be no strong roots of conviction to hold it steady."*** One never knows what the catalyst for pricking the Bubble will be, but once the prices begin to turn and ***"once doubt begins, it spreads rapidly"*** (due to lack of conviction and lack of analysis). We find ourselves in this familiar territory again today (like in 1929 or 2000), where the marginal investor has come to the party very late, with very little conviction, and when they doubt in the ability of the market hackers (Central Banks) to maintain control, that doubt will spread rapidly, resulting in large losses across many portfolios.

Keynes would say that he developed a very rational, logical, portfolio investment strategy over his career, but he underperformed meaningfully in the period leading up to the Crash (and was criticized harshly) and his response was that ***"There is nothing so disastrous as a rational investment policy in an irrational world."*** What Keynes had discovered during the final months of the boom was that ***"Investment based on genuine long-term expectations is so difficult today as to be scarcely practicable. I was suffering from my chronic delusion that one good share is safer than ten bad ones, and I am always forgetting that hardly anyone else shares this particular delusion."*** At the peak of the madness, the crowd's perspective becomes completely inverted from reality and reason and caution and prudence are chastised, while aggression and boldness are rewarded. Keynes observed that ***"It is the long-term investor who will in practice come in for the most criticism. For it is the essence of his behaviour that he should be eccentric, unconventional and rash in the eyes of the average opinion. If he is successful, that will only confirm the general belief in his rashness, and if in the short run he is unsuccessful, which is very likely, he will not receive much mercy. Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally."*** The complete lunacy of this perspective is almost beyond comprehension, but the fact that it has endured for three-quarters of a century is even more difficult to believe. We can (sadly) confirm that this view still persists in the investor universe as we witnessed a significant Institutional Investor claim that if history were to repeat like 2000, they would rather lose (85%) in a particular security (so long as everyone else did) than to diversify away from that overvalued security in favor of an alternative investment like hedge funds or real assets. Truly astonishing. Conversely, Keynes also observed that ***"A sound banker, alas, is not one who foresees danger and avoids it, but one who, when he is ruined, is ruined in a conventional and orthodox way along with his fellows, so that no one can really blame him. It is necessarily part of the business of a banker to maintain appearances, and to confess a conventional respectability, which is more than human. Life-long practices of this kind make them the most romantic and the least realistic of men."*** Again, the lunacy of such a perspective is nearly beyond comprehension as it should be the job of fiduciaries to protect capital and manage risk, not be content to destroy capital along with the rest of market participants who chose to ignore the risks of a hacked market. After this experience, Keynes became a staunch disciple of Value Investing as he observed that investing is ***"the one sphere of life and activity where victory, security and success accrue always to the minority and never to the majority. When you find any one agreeing with you, change your mind. When I can persuade the Board of my Insurance Company to buy a share, that, I am learning from experience, is the right moment for selling it. The central principle of investment is to go contrary to the general opinion, on the grounds that if everyone agreed about its merits, the investment is inevitably too dear and therefore unattractive."*** In the world of #HackedMarkets, it is time to focus intensely on taking the contrarian perspective and to move toward a more defensive posture within portfolios (particularly with respect to U.S. equities). As the father of Value Investing, Ben Graham would say, it is the contrarian's job to buy when Mr. Market is depressed and to sell when Mr. Market is unreasonably optimistic.

As Keynes honed his investment strategy over time while managing the Chest fund he became increasingly convinced that Value Investing, Concentration and Contrarianism were the three core tenets for long-term success in building wealth. He wrote down the three key components of his approach in 1938, and the wisdom of this approach rings true to this day (particularly right now). First, ***"A careful selection of a few investments (or a few types of investment) having regard to their cheapness in relation to their probable actual and potential intrinsic value over a period of years ahead and in relation to alternative investments at the time."*** A fundamental focus on Value is clear in this first rule, but there are two important aspects to the construct that need additional discussion. Keynes was very concerned that most investors did not differentiate probability and uncertainty and clarified this point in saying, ***"It has been pointed out already that no knowledge of probabilities, less in degree than certainty, helps us to know what conclusions are true, and that there is no direct relation between the truth of a proposition and its probability. Probability begins and ends with probability."*** Many statements may be true, such as a particular company is in a good line of business or the market for a particular product is expanding, but these truths do not change the probability of whether a company can execute on its objectives, or the probability that a stock purchased at a discount to fair value will move back to fair value. Keynes was also focused on remaining focused on the actual facts related to an investment, rather than the hopes, dreams and wishes of the management (or media or other investors) for that company, saying ***"The considerations upon which expectations of prospective yields are based are partly existing facts which we can assume to be known more or less for certain, and partly future events which can only be forecasted with more or less confidence. It would be foolish, in forming our expectations, to attach great weight to matters which are very uncertain."*** Keynes second rule stated that investors should have ***"A steadfast holding of these in fairly large units through thick and thin, perhaps for several years, until either they have fulfilled their promise, or it is evident that they were purchased on a mistake."*** Keynes came to believe that if an investor has done rigorous analysis of the companies in the portfolio that remaining steadfast during times in which Mr. Market views the value of those securities differently is paramount to success. He does leave himself a small out saying to sell if it becomes evident that the securities were purchased on a mistake, which demands continual evaluation of the holdings to reevaluate the reasons for purchase. Keynes likened the proper holding period to a marriage, saying ***"The spectacle of modern investment markets has sometimes moved me towards the conclusion that to make the purchase of an investment permanent and indissoluble, like marriage, except by reason of death or other grave cause, might be a useful remedy for our contemporary evils. For this would force the investor to direct his mind to the long-term prospects and to those only."*** Finally, the third rule states that investors should hold ***"A balanced investment position, i.e., a variety of risks in spite of individual holdings being large, and if possible, opposed risks."*** Holding a concentrated portfolio was the potential to increase the risk of the portfolio, where risk is traditionally defined as volatility of returns, but is more appropriately defined as permanent impairment of capital (real loss). In the most extreme case, a portfolio of a single security, while having the potential for great gains, could destroy the entire portfolio should the business fail or be subjected to some disaster (natural, regulatory, operating, etc.). What Keynes focuses on in speaking to opposed risks is to find investments that are not correlated with one another and would not be damaged by the same untoward events. For example, a portfolio containing a coal mining stock, a steel company and a shipping company would all be damaged by a downturn in the economy or a technological shift in materials technology. Conversely, a portfolio containing a Chinese retailer, a domestic healthcare provider and a European tech company are likely to move more independently and be insulated from a single shock. One additional point that Keynes made (not one of the Three Rules) is related to being cognizant of the risks related to liquidity. We have described in the past that "liquidity is a coward, it only exists when you don't need it," and Keynes said pointedly that ***"Of the maxims of orthodox finance none, surely, is more anti-social than the fetish of liquidity, the doctrine that it is a positive virtue on the part of investment institutions to concentrate their resources upon the holding of 'liquid' securities. It forgets that there is no such thing as liquidity of investment for the community as a whole."*** This is one of the primary reasons for diversification and also one of the reasons that we favor having such a meaningful component of investor portfolio in truly illiquid (private) investments where you are compensated properly for that lack of liquidity.

Shifting back to Keynes' economic perspectives for a moment before we conclude, his perspective on Capitalism seems particularly germane today in light of the rise in Populism and Nationalism. Keynes took from his study of history that ***"the political problem of mankind is to combine three things: economic efficiency, social justice and individual liberty."*** He concluded (as many before him) that Capitalism was indeed the worst economic system, except for all the others… saying ***"Capitalism is the astounding belief that the most-wickedest of men will do the most-wickedest of things for the greatest good of everyone."*** The risk in any economic or political system is that those who rise to power (and only the wickedly crafty will rise) abuse the system for their own benefit in the name of greater good. Taxation is the means that makes this possible and Keynes would argue that the delicate balance between taxes and the budget balance was critical to the success or failure of the system. He pioneered Supply Side Economics long before the Laffer Curve saying, ***"Nor should the argument seem strange that taxation may be so high as to defeat its object, and that, given sufficient time to gather the fruits, a reduction of taxation will run a better chance than an increase of balancing the budget."*** The key term here is *balanced budget*, so he would be appalled at the #TaxDeform Bill that was just passed and spoke powerfully about what this type of terrible legislation is symptomatic of saying, ***"If, however, a government refrains from regulations (taxation) and allows matters to take their course, essential commodities soon attain a level of price out of the reach of all but the rich, the worthlessness of the money becomes apparent, and the fraud upon the public can be concealed no longer. By this means the government may secretly and unobserved, confiscate the wealth of the people, and not one man in a million will detect the theft."*** This is Kleptocracy at its finest. When those in power embrace the path of inflation of assets (which they control) though the debasement of the currency, it is the beginning of the end for the Capitalism. Keynes quoted Lenin in this regard saying, ***"Lenin is said to have declared that the best way to destroy the capitalist system was to debauch the currency. By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and, while the process impoverishes many, it actually enriches some. The sight of this arbitrary rearrangement of riches strikes not only at security, but also at confidence in the equity of the existing distribution of wealth. Those to whom the system brings windfalls, beyond their deserts and even beyond***

their expectations or desires, become 'profiteers', who are the object of the hatred of the bourgeoisie, whom the inflationism has impoverished, not less than of the proletariat. As the inflation proceeds and the real value of the currency fluctuates wildly from month to month, all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism, become so utterly disordered as to be almost meaningless; and the process of wealth-getting degenerates into a gamble and a lottery. Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction and does it in a manner which not one man in a million is able to diagnose." The army of frogs are unaware they are being boiled.

Very heady stuff and somewhat frightening when you read these words, written so long ago, as if they were describing the current American situation in real time. Mark Twain famously quipped that *"History doesn't repeat, but it rhymes,"* and even Busta Rhymes would be speechless at how closely we seem to be following the well-worn path to ruin. One natural response to the debasement of the currency would be the creation of an alternative currency, a true store of value, that would allow the citizenry to fight back against the elites and that is precisely why Bitcoin has emerged. Originally the pet project of the Libertarians who were fighting against the establishment, Bitcoin has emerged from the shadows (no longer shady…) into the mainstream. Keynes talked about big trends saying, ***"The great events of history are often due to secular changes in the growth of population and other fundamental economic causes, which, escaping by their gradual character the notice of contemporary observers, are attributed to the follies of statesmen or the fanaticism of atheists."*** Clearly, he was not speaking to the creation of Bitcoin but to the fact that all truly new ideas begin as broken precedent and are attributed to the fringe elements. Derided by the establishment (Jamie Dimon calling it a fraud) and dismissed as insignificant means that there is probably something big going on here. Keynes would advise that ***"it would not be foolish to contemplate the possibility of a far greater progress still."*** One of the keys to long-term investment success is the ability to find emerging trends early, jump on board and hold on during the volatile path toward their success. Those in the Bitcoin community call it HODL (Hold On for Dear Life). Stepping back to gain some perspective, we can see that all of the current events seem to point to one of the larger social issues of our time, the challenges related to growing wealth inequality, Keynes addressed this in his writings, saying that there could be a day in which we rise above wealth for wealth's sake saying, ***"When the accumulation of wealth is no longer of high social importance, there will be great changes in the code of morals. We shall be able to rid ourselves of many of the pseudo-moral principles which have hag-ridden us for two hundred years, by which we have exalted some of the most distasteful of human qualities into the position of the highest virtues. We shall be able to afford to dare to assess the money-motive at its true value. The love of money as a possession, as distinguished from the love of money as a means to the enjoyments and realities of life, will be recognized for what it is, a somewhat disgusting morbidity, one of those semi-criminal, semi-pathological propensities which one hands over with a shudder to the specialists in mental disease."*** A very noble goal indeed and an idea with incredible power that we could return to the idea of deploying capital for the greater good. Keynes believed that it was the human condition that drove progress saying, "***If human nature felt no temptation to take a chance, no satisfaction (profit apart) in constructing a factory, a railway, a mine or a farm, there might not be much investment merely as a result of cold calculation."*** There is more to life than the accumulation of wealth and the dangers of the concentration of wealth in the hands of a powerful few is readily apparent today.

To wrap things up, we think the challenge we face today was described best by Keynes when he said, ***"Speculators may do no harm as bubbles grow on a steady stream of enterprise. But the position is serious when enterprise becomes a bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill done."*** When we pass corporate tax cuts that induce stock repurchases to enrich management teams with large options packages (because they are not accounted for as compensation) rather than invest in new capital projects, we have lost our way. Keynes emphasized that ***"once we allow ourselves to be disobedient to the test of an accountant's profit, we have begun to change our civilisation."*** Misallocation of capital has been a growing problem in the QE Era, and once again it is the scions of the system, the Central Bankers, the Legislators and the Corporate management teams that are complicit in the inflation of the Bubble. The most dangerous outcome of these activities, however, is how the inflating Bubble in the equity markets attracts those who can least afford to lose to enter the game at precisely the wrong time. Keynes would argue that *"**it is generally agreed that casinos should, in the public interest, be inaccessible and expensive. And perhaps the same is true of Stock Exchanges."*** The problem is that society has gone the exact opposite way trying to "democratize" access to trading stocks through technology, which actually has increased the systemic risk as a result. Keynes argued that there was a very simple fix, ***"the introduction of a substantial Government transfer tax on all transactions might prove the most serviceable reform available with a view to mitigating the predominance of speculation in the United States."*** If the frictional cost of acquiring or disposing of investments were increased (rather than decreased, as has occurred) the average holding period of assets would rise, and we would return to a system run by Investors rather than Speculators. Keynes wrote about how during the run up to the Crash in 1929, he was alarmed that he could not defeat ***"the dark forces of time and ignorance"*** that drove market participants to chase the inflating Bubble. He surmised that in the heat of the Bubble Melt-up ***"it may profit the wisest to accept the mob psychology rather than the real trend of events and to ape unreason proleptically."*** He observed that while the government sought to debauch the currency and the masses chose to speculate, ***"the actual, private object of the most skilled investment today is to 'beat the gun', as the Americans so well express it, to outwit the crowd, and to pass the bad, the depreciating, half-crown to the other fellow."*** Keynes learned the hard way that this is a dangerous game indeed (as did Ben Graham, concurrently). He changed his entire philosophy away from Speculation toward Investment, and we would all be wise to learn from that transformation as we navigate these #HackedMarkets during the Year of the Frog.

Fourth Quarter Market Review and Outlook

We made a slight modification to the Letter format last quarter by combining the Quarterly Review and the Market Outlook sections. It seemed to flow more naturally to discuss what has gone on in each asset class and sector and then discuss our outlook in the same place, rather than to have two separate sections. We hope this change makes our views a bit easier to follow and flow a little more naturally.

As we noted last quarter, it really does appear that we can (and should) permanently include the line from the opening of the Market Review section of the Q2 Letter that described how markets are behaving in a manner very differently than historical norms courtesy of global central bank liquidity continuing to flow. *"Similar to most prior periods during the QE Era, the equity markets didn't really care much about what was going on in the real economy, didn't really pay attention to whether earnings were coming in above, or below, expectations and pretty much ignored all the political and geopolitical noise during the quarter and just went up, registering another solid quarter of gains."* Q4 was just the latest period in this string of above average returns as the S&P 500 rallied an incredibly strong 6.2%, the NASDAQ was up just a smidge more, rising 6.3%, but it was the DJIA (thanks to the price weighting phenomena) that stole the show in Q4, surging an astonishing 11%. Small-caps returned to their lagging ways (they trailed in three of the four quarters of 2017) as the Russell 2000 Index was up only 3.3% and the Russell Microcap Index trailed even more, rising only 1.8% for the period. For the full year, the equity market returns were nothing short of spectacular (even more so given how unexpected they were given the low levels of consensus forecasts last January) as the S&P 500 was up a stunning 21.8%, NASDAQ was up an even more stunning 28.2% and the DJIA was right in line with the Tech Index, up 28.1%. The Russell 2000 Index was up a solid (but weak by comparison) 14.7% and the Microcap Index brought up the rear, rising just 13.2%. For some perspective, it helps to remember that the average returns for U.S. equity markets since 1926 are 10% for the S&P 500 and 12.1% for the Russell 2000 (small-caps earn higher returns as compensation for higher risk). The International developed equity markets were quite strong again in Q4 but lagged the extraordinary returns in the U.S. as the MSCI ACWI ex-USA rose 5% (an outstanding outcome in any normal period). Emerging Markets finished with incredible strength – the MSCI EM Index soared another 7.4% as synchronized global growth was led by the developing world in this cycle and exploding profit growth in many EM countries. For the year, the MSCI ACWI ex-USA benchmark rose a very strong 27.2% and the EM Index was the strongest performer, surging an astonishing 37.3% for the twelve months. We'll discuss the specifics of the performance within the various markets below, but let's first revisit the topic of Volatility (a student often marked absent from the roll in our Intro to Capital Markets class over the last few semesters) that we have discussed over the past few quarters.

For long time readers of this letter it may be getting a bit old to read about the same few segments every quarter, but over the past year we thought (obviously prematurely…) we were writing about a unique extreme event each quarter only to have that extreme event be topped the following quarter by even more extreme circumstances and Q4 was no exception. We wrote last summer that *"One thing to discuss here is how the most recent advance in U.S. equities has occurred in an environment nearly devoid of any volatility whatsoever. The lack of volatility in the S&P 500 is unprecedented as there are a handful of periods where a particular measure of volatility was very low, but some other measure was more normal, but never has there been a period where every measure of market movement is registering extreme lows."* The fourth quarter took the concept of Volatility in equity markets (or more specifically, the lack thereof) to a whole new level of extreme and 2017 became the least volatile year in the history of the U.S. equity markets (read that sentence again and let it sink in…). Let's start with the most basic measure of volatility, the standard deviation of the S&P 500 Index, which fell from the second lowest level in history (5.4% at the end of Q3) to a truly astonishing 3.9%. To put that number in perspective, it is more than a point lower than the previous peak in market calm (5%) and we have to go all the way back to 1965 (during the Nifty Fifty mania) to find another period that comes close to the recent period of market stability. It is important to put this craziness (any measure that reaches such an extreme qualifies as crazy to us) in perspective, the average standard deviation over the past decade has been 15.1%, the past twenty years is 13.3% and the average over the entire period that market data is available (since 1871) is nearly five times higher than the 2017 result, 18.6%. Using standard deviation to calculate the Sharpe Ratio (measure of return per unit of risk), the Q4 number of 4.4 was literally off the chart (the scale on the chart of the past ninety-one years stops at 3.0). The previous annual peak was 2.6 in 1954 and the Sharpe Ratio had only been above 2.0 five times over the century. Given all the numbers that get thrown around in the investment business, perhaps the 4.4 number doesn't seem that extreme, but let me assure you that a reading that is 70% (not missing a decimal point) above the previous all-time record high (over nine decades) is not only off the charts, it is truly incomprehensible. I will posit that you could have asked any investment professional in the world whether it was possible that the Sharpe Ratio for the S&P 500 over a year could exceed 4.0 and they would have universally said that it was impossible (I will even bet a high 90% would have said 3.0 was impossible). Again, for perspective, compare the 4.4 to the 10-year average Sharpe Ratio of 0.45, the two-decade average of 0.53 and the long-term (since 1928) average of 0.4 and it becomes apparent just how anomalous this past year has been.

Looking at some other volatility data, the level of abnormality of the past year comes through loudly and clearly. There were many (ourselves included) that thought there was the potential for a Crash in 2017, but not only was there no Crash (down > 20%), there was not even a Correction (down 10%), nor even a Pullback (down 5%), nor even a Hiccup (down 3%). Heck, there were only four days where the S&P 500 fell more than 1% and the worst day was the smallest of any year ever (there is the ever word again) at down (1.8%) which edged out the previous low of (2.5%) in 1996. No Crashes, no Corrections, no Pullbacks, no Hiccups, simply no Volatility of any kind is allowed in the equity markets any longer. Just for perspective, it's not just downside volatility that has been banned, upside volatility is unwelcome too, as there were only four days where the SPX was up more than 1% (and three of those were within eight basis points of 1%) with the largest daily gain of 2017 being 1.4%. Have the Machines really taken over? That might be one explanation, but we had two periods in history in the 1960s and 1990s where market volatility vanished and there were no High Frequency Trading Algorithms then, so that is unlikely to be the whole story. The absence of any normal level of corrective action in the Index over the past year ranks as the second least volatile period in equity markets in history, as the streak through year-end of 381 days without a (5%) correction was the second longest after a 394-day streak in 1996. That record was broken on January 22, 2018 as the SPX recorded its 395th day without a 1% correction. One last indicator of just how truly unusual 2017 market activity was comes from a statistic we originally quoted in Q2 saying, *"The biggest outlier statistic is the lack of intra-day volatility in 2017, as in an average year there are 114 days where the S&P 500 has greater than a 1% trading range and the lowest number since 1980 has been 40 (in 1993)*, *"* but in 2017, there were a truly astonishingly low number of nine (yes, 9…) days with greater than a 1% trading range. The definitive proof statement that market volatility has been outlawed is that fact that through January 2018, the S&P 500 has been positive (on a total return basis) for fifteen months in a row, equaling the longest such streak since WWII, which ended in May 1959 (there is only one other double-digit streak in 1954). The Bull Market is now in its 106th month and could pass the record for longest Bull Market in September of this year at 113 months (equaling the Tech Bubble market that ran from 1990 to March of 2000).

One final consideration is that Volatility (as measured by the CBOE VIX Index) tends to run in a Secular Cycle (averaging six years), ebbing and flowing along with the Liquidity Cycle and the Business Cycle. Over the past three decades, there have been discrete periods where there was low volatility (and high average equity returns) followed by periods where there was high volatility (and low average equity returns). During the six years from 1991 to 1996, the VIX was low and the average return on the SPX was 16.1%. In the following six years from 1997 to 2002, the VIX was high and the average return on the SPX was 4.9%. During the next four years from 2003 to 2006, the VIX was low and the SPX averaged 15% returns. The following six years from 2007 to 2012, the VIX was high and the SPX actually lost money for the period, averaging (0.5%) a year. Over the past five years from 2013 to 2017, the VIX has been very low (set new all-time record low the first trading day of 2018) and SPX returns have averaged 15.3%. As an indicator of just how extreme the impact on vanishing volatility has been on the VIX previously, there had only been nine days where the VIX was below 10 in the history of the Index (four in 1993, three in 2006, and one each in 1994 and 2007), but there were a remarkable 52 days below 10 in 2017 (remember the average VIX value is 18.5). Despite the extreme readings, what seems clear from history is that volatility never dies, it just goes dormant every now and again. The VIX likely won't stay low forever and we discuss one thesis on what might happen to volatility in 2018 in the 10 Surprises below.

One last update on the craziness that has been going on in small-cap stocks. We wrote in the Q2 Letter that *"Investors continue to believe the benefits of the Trump Trifecta (remember it is August and we still have #NoFecta…) will accrue to a greater extent to the smaller companies that have reportedly been overly burdened by regulation and who can't afford lobbyists to get their effective tax rates lowered."* While we would agree there is some logic in believing that small-caps would benefit disproportionately from reduced regulation (ease of doing business), the jury is still out as to which companies would benefit more from Tax Reform. If there was actually some reform in the Tax Bill, it would have been tough to say which companies (large or small) would benefit most, but since all that came out of the GOP and White House was a Tax Cut, the outcome should have been that small companies benefitted more (on a relative basis, not on an absolute basis) because they don't have the lobbying power of the large companies who had already reduced the effective rate for most big firms (which means the impact of the new Tax Law will be less than promised…). Logic has not been part of most investors' game plan in recent years and in small-cap land logic has completely left the building as we have explained for the past few quarters. We discussed last time how *"In Q4 of 2016 there were so many companies with negative earnings in the R2000 Index that the WSJ couldn't calculate a P/E ratio (that's right, they actually printed Nil where the P/E was supposed to be in the Market Data Center)."* Regular readers will recall that we also said that wasn't the craziest part of the story as right before we went to press in February the Russell 2000 P/E did finally appear in the WSJ Market Dashboard section at a staggering 295X (no decimal points). We also wrote about how when we were composing the Q1 Letter in April *"Things got seriously strange when the Market Data Center section of the WSJ website was inaccessible for a period of weeks (just vanished)"* as perhaps the WSJ decided that (like in the movie *A Few Good Men)* investors couldn't handle the truth about the valuation of small-cap companies. We reiterate a simple lesson we learned during the 2000 Tech Bubble - when P/E ratios hit triple digits, future returns for investors tend to be quite poor. We wrote last quarter about CSCO, the poster child for that crazy era, remembering when *"…the P/E hit 286X in March of 2000 and then the stock fell (88%) over the ensuing two years…"* As an update, CSCO is still down (47%) today, eighteen years later). The WSJ website is working again this quarter and the current

P/E for the R2000 is now back to triple digits at an astonishing 145X, up from 115X last quarter (they may want to turn it off again…).

As we discussed last time, *"The most frightening part is that this published number is calculated using pro-forma EPS (#EarningsBeforeBadStuff) and still excludes companies with negative EPS (of which there are many)"* We can appreciate that we are one of a vanishing breed of investors who actually use trailing earnings when looking at valuation (they are, by the way, the only earnings we actually know, since forward earnings are an estimate, or as some might say, a dream). We do understand that in the New Abnormal, everyone calculates P/E ratios using Forward Earnings based on Pro Forma (fantasy) numbers (importantly, excluding negative earnings, of course) and using that methodology, the R2000 is apparently not that expensive at 26.8X (still seems high to us). As we wrote in Q2, *"Let's do the math together."* Say the P (price) of the R2000 stocks can rally another 12% over the next twelve months (long-term average), for the P/E to drop from 145 to 27, the E (earnings) would have to rise over six times (600%)! It seems like it may be a challenge to say with a straight face that R2000 EPS can grow from $11 to $67 in the next twelve months. A fun fact for perspective here is that in Q1 of 2017, the estimates for R2000 EPS for the year were $52 (that is slightly more than the actual reported $11). Now we understand that trying to compare "Earnings Before Bad Stuff" and real Earnings is a fool's errand in a raging Bull market, but we feel compelled to keep bringing this discussion back to the math. Just for giggles, let's repeat something we wrote last time that we discovered from looking at the history of this game of zealously overestimating forward small-cap earnings, *"The most comical thing about this Index is that the implied EPS growth in the forward multiple has been around 300% in each of the past three years while the best growth during that period was only 12%!"* Oh, and by the way, EPS actually fell over the past quarter since the P/E went up 26% and the R2000 Index only went up 3.3%, but who's counting (apparently, no one…)? We wrote last time that despite the fact that these valuations tell us that forward returns for small-cap U.S. stocks will be quite negative over the coming decade, there was likely to be a delay in the day of reckoning saying, *"The Bubble in small-caps seems to be at extremes that would presage a correction and return to more normal levels of overvaluation (more in line with the large-caps), but we are also cognizant that should some real form of Tax Cuts (we have stopped calling it Reform, because it isn't…) is passed there could be one last cathartic move higher in the Russell 2000."* So, a couple days after we sent out our last Letter, Congress actually did pass a Tax Cut Bill (original vote on 11/16 and final vote on 12/20) and the R2000 Index is up 10% in the past eight weeks in celebration. Curiously, the S&P 500 is actually up 12% over the same period, so perhaps investors have realized that the big companies (who paid for the new Law) will get a bigger benefit, or (less likely) investors are finally looking closely at the lack of actual earnings in small-cap land and realizing that buying stocks at these valuations has a negative expected Net Present Value (" NPV"). Probably not, but we can dream, can't we?

Looking at the U.S. Style Index returns in Q4 the trends that began in Q1, Growth over Value and Large over Small, accelerated into year-end and Growth completely thumped Value in 2017 (so much so that the cries of "Value is dead as a discipline" are starting again…). The RTop200G surged an unbelievable 8.2% in Q4 (a good year in many periods) while the RTop200V was up "only" 5.2% (still a very strong absolute number), the RMidG was up 6.8% while the RMidV was up 5.5% and the R2000G was up a solid 4.6% versus the R2000V bringing up the rear, up just 2.1% (what used to be considered a good quarter…). The spread between Large Growth and Small Value expanded back to extreme levels in Q4 at 6.1% (after reversing briefly in Q3) and the spread for the full year was an astonishing 24.1%, the largest gap as we can ever remember. Looking at the full year results for 2017, Growth pounded Value across every sub-segment as the RTop200G soared an absolutely remarkable 31.9% (remember these are the largest companies in the world) versus the RTop200V up "only" 13.8%, the RMidG rocketed 25.3% versus the RMidV up "only" 13.3% and the R2000G was up a robust 22.2%, while the R2000V managed only a 7.8% advance (actually trailed Long Bonds). We wrote last time that *"The complete dominance of Growth over Value in 2017 has triggered a wave of headlines that are once again trumpeting the Death of Value Investing. Even famed Value hedge fund manager David Einhorn wrote in his Q3 letter (referring to the FANG stocks) that 'given the performance of certain stocks, we wonder if the market has adopted an alternative paradigm for calculating equity value.'"* We also wrote how these letters were reminiscent of the first quarter of 2000 when some of the greatest Value managers of the day (Julian Robertson, Tony Dye and Gary Brinson) were forced out of business as investors gave up on the discipline of Value Investing to chase the Dot.Com Bubble. In real time, legendary Value investor (and subject of our #TheValueOfValue Letter) Seth Klarman stunned many in the investment world when he wrote in his year-end letter that Baupost could shift away from their famous wariness of high growth companies by investing in *"the new firms that are seeking to displace the older incumbents."* Expounding on this change in historical posture, Klarman shared that the team is researching technology firms and attending more conferences in the space. He went on to say that *"Disruptive change is already driving differences in the assumptions we are comfortable making and the cash flow projections that underpin our financial models."* Investors took this as a sign that even one of the most venerable Value managers of our era was throwing in the towel and giving over to the Dark Side of Momentum and Growth. Fortunately (for us Value disciples), Seth clarified that *"While companies such as Amazon and Facebook are driving enormous change and have themselves been growing rapidly, they are not necessarily great investments going forward as many of these companies seem very fully valued."* Phew, that was close.

As we stated last time, *"We have heard the current refrain many times in our career, how Value investing is dead, how there is a New Paradigm where the old models of valuation no longer apply and how there is a group of Growth stocks that investors can buy at any price and be rewarded."* We went on to discuss how in 2000, these "buy at any price" companies were CSCO, MSFT, INTC and ORCL, and how these stocks have languished for the past eighteen years after crashing from the pinnacle in March 2000 and the total market cap of the Not-So-Fab-Anymore-Four is still over $200B less than the $1.6T peak valuation. In the Everything Bubble era, it is the #FANG stocks (FB, AMZN, NFLX and GOOGL) that get all the attention (plus AAPL, NVDA and MSFT in some discussions) and the new Fab Four have been anointed stocks that investors can once again "buy at any price" with the promise of endless riches and no downside risk. The #FANGs lived up to these promises in Q4 (and all of 2017) as they rose consistently during the course of the quarter, up 4%, 22%, 9% and 9%, respectively. For the year, the results were nothing short of spectacular with eye-popping returns of 53%, 56%, 55% and 33%, respectively (remember the S&P 500 was a very strong 21.8%). To provide some perspective on just how dominant these big technology companies have become, let's take a look at some history. In 1917, there was only one of the top ten largest companies that would be considered Technology, AT&T which was valued at $14B ($293B in 2017 dollars), while the largest company was U.S. Steel which was valued at $46B ($966B in 2017 dollars). By 1967, IBM had surged to be the largest company in the U.S. and was valued at $256B ($1.8T in 2017 dollars), and if we stretch and say that Eastman Kodak and Polaroid were Technology companies, four of the top ten were Tech. Today, Technology dominates the public equity landscape as the five largest companies in the U.S. are all technology (and AT&T has dropped out of the top ten). At the end of 2017, AAPL was the largest at $898B, GOOGL was $719B, MSFT was $644B, AMZN was $543B and FB was $518B for an astonishing total of $3.3T. We have discussed many times over the past three letters how gravity always rules, there are no new paradigms of valuation and that Howard Marks is right when he says, *"There is no investment good enough that you can't mess up by paying too high a price."* We wrote last time that *"We can make a compelling case why these companies will suffer the same fate as the Fab Four from 2000 and their combined market cap a decade from now will be lower than today, but we will save that for another time."* That time will be in the 10 Surprises below as Surprise #3 is that in 2018 #FANGsBite. We also wrote last time that *"We believe the rotation back toward Value is coming and when it occurs, it will be terrific, meaning it will be long-lived and material, and all of the Value investors who are perceived to be so dumb today will seem smart again."* Just like Volatility, Value is not dead, it's just resting, and while that slumber could last another quarter (or maybe even a few quarters), we may becloser to getting the wake-up call than most investors realize.

There was incredibly wide dispersion in the industry sector returns within the S&P 500 during Q4, which reflected the risk-on nature of the #FOMO chase for returns (and window dressing) that often occurs in the final weeks of the year (particularly in big up years for the general market). Technology continued to dominate (thanks to the persistent rise of the FAANG weighting), but Consumer actually took the checkered flag for the quarter surging 9.9% (mostly from AMZN, but many retail names have stormed back off the summer lows), edging out an equally robust 9% return from the tech sector. Financials rallied again as the Tax Bill turned into Tax Law, jumping 8.6% on expectations that rising rates (another side effect of the euphoria surrounding the Tax Cuts) would help Net Interest Margins (hope springs eternal). The most curious part of the move in Financials was the immediate impact of the Tax Law was to slash Q4 EPS for the sector as some funky accounting had to be reversed and a whole bunch of "earnings" got wiped out. I guess the fantasy logic is that the losses don't count because they were just accounting fiction, but weren't they getting a multiple before they were erased, so shouldn't Financials actually fall to reflect less total earnings (crazy talk, I know, since now markets only go up…)? There was only one other sector that managed to beat the wildly strong SPX return of 6.6%, Materials, as a few hints about increased Fiscal spending in 2018 (wasn't that supposed to happen in 2017?) got investors whipped up into a frenzy about buying construction materials stocks. Staples just missed the cut at up 6.5% as investors decided that maybe AMZN wouldn't take 100% market share of retail and there were a few bargains to be found in basic consumer companies. Industrials were solid (pun intended), rising 6.1%, even more impressive considering the continued malaise of the once mighty GE, and Energy was solid as well, up 6%, on the back of a surge in oil prices in Q4. The laggards in Q4 were the defensive sectors, which still rose, but lagged fairly badly compared to the leading sectors as investors determined that playing defense was for suckers and since the markets can only go up, owning anything with a yield or stability is inferior to holding growth and leverage. Telecom was up 3.6%, Real Estate was up 3.2%, Healthcare (which had rocked for the first three quarters) was up only 1.5% and Utilities barely managed any gain at all, up a scant 0.2%. For the full year the rankings were pretty close to Q4 with the exceptions of Financials being a little lower and Healthcare being near the top (as we thought might happen in the #MCCMSurprises #8 last year). Technology was the monster winner in 2017, soaring 38.8%, and there was a huge drop down to second place as Materials were "only" up 23.8% (a fantastic year by any measure unless you stand next to the #FANGs), Consumer was a surprise bronze medalist, up a very strong 23%, but remember that what S&P calls Consumer Discretionary has a monster weighting in Tech (AMZN, CHTR, CMCSA and PCLN, so much so that they are splitting out many of these names into a new sector in 2018). Healthcare missed the podium by less than a percent, up a very strong 22.2%, completing a very nice recovery from the sick ward in 2016 (last place). Financials were up 22.2 as well, rounding out the five sectors that bested the S&P 500 return of 21.8%. Industrials were very close, up 21% and then there is a big drop off to Staples up 13.5%, Utilities up 12.1% (solid first half before the growth mania took over) and Real Estate up 10.8%. There were two sectors that actually had negative returns for the year (actually tough to do in 2017), Energy was off (1%) and Telecom brought up the rear, down (1.3%). It is likely that these two sectors will show some "worst to first" action in 2018 and we wouldn't be surprised to see them at the top of the leader board next January.

What a difference a quarter can make. Only ninety days ago we wrote about how the fading U.S. Consumer was evident in the Q3 results as Discretionary and Staples were basically flat and both sectors were lagging the S&P 500 (Staples was second worst CYTD). In Q4, the Discretionary names surged to the top of the charts, up 9.9%, and Staples were not far behind, up 6.5%. We wrote last quarter that we entered 2017 very Bearish on the Consumer, and the Retail segment in particular, and were pursuing the Amazon Road Kill strategy across our portfolios, saying *"We had been long Amazon and short many of the big Retail names in our discretionary portfolios earlier in the year, but with AMZN up 28% and names like JCP, TGT, M, KSS, GPS, DDS and JWN down (44%), (28%), (33%), (20%), (5%), (5%) and (1%) over the 1H17, we thought it might be wise to take some profits and cover some of the shorts."* The timing of covering those shorts proved propitious as there was a very big bounce across the retail sector during Q4 (some might say it was mostly a short-covering rally) and the above group of retail names (aside from JCP) were up strongly. Target rose 10%, Macy's surged 21% (guess there might be some value in their RE after all), Kohl's also surged 21%, GAP jumped 15%, Dillard's rose 12% and Nordstrom was up 7%. The only laggard was JCPenney as they continued down (along with Sears, which fell an astonishing (50%) during the quarter), falling (12%). Who would believe that the two stalwarts of American Retail could have a combined market cap of less than $1.5B today ($1.2B for JCP and $0.275B for SHLD). Perhaps the most amazing statistic in the Consumer space is that AMZN is up 40% since Halloween and the increase in market cap ($200B) over that time is 4X larger than the market cap of all of the traditional Mall Retailers combined. It's not that we don't think AMZN is a great company (they are), we would simply maintain that the mania around the #FANG stocks has reached an extreme level that reminds us of 2000. Another retailer that has made a dramatic turnaround is WMT, which rose 26% in Q4 and was up a very strong 44% during 2017. WMT is another example of a company left for dead who has found a very compelling model to compete in e-commerce to complement their core retail business. We actually made a bet last summer that over the coming decade, WMT would be a better investment than AMZN, and after seven months, WMT is slightly ahead, up 45% to AMZN up 40%.

We discussed in the Q1 letter how there was some confusion in the markets around the fact that it seemed as we entered 2017 every day there were more negative reports about horrible retail sales numbers and more announcements of store closings, yet the Consumer ETF was rising. We wrote that *"One would think that with the horrible numbers in Retail, the Consumer sector would have been down, but when you dive in a little deeper into the makeup of the Consumer ETF you find that it has a lot of technology exposure."* Names like AMZN, CHTR, CMCSA and PCLN act much more like tech stocks than consumer stocks and given their large weightings in the ETF, it was not surprising that XLY was tracking XLK (the tech ETF). In Q4, it was mostly about AMZN and the home improvement stores as the cable companies faded in the wake of NFLX crushing new subscriber growth (implication being more people are cutting the cord), but the old stalwarts, DIS and MCD also contributed nicely to gains. XLY is another very concentrated ETF and has 18% in AMZN, 8% in HD, 6.5% in CMCSA and 5.5% in DIS (more than one-third of the portfolio in just four names). All of the core positions were up smartly in Q4, AMZN zoomed ahead 22%, HD surged 16%, DIS jumped 8% and CMCSA was up 6%. We discussed last time that a danger of ETF investing is that you have to "*beware of the differences between the names of the ETFs and the impact of capitalization weighting on the actual underlying exposures."* It truly is Buyer Beware in the ETF industry as the name of the instrument doesn't always match the underlying exposures and you may *"find out there is actually very little concentration in that sub-sector, or conversely, you might find exposure to things that you weren't expecting like a monster allocation to technology in a consumer ETF."* Investing is most effective when you take intelligent risks, risks you are compensated for, and if you aren't sure of the underlying exposure in the instrument you chose, it is likely that you will end up taking unintended risks and you may not be adequately compensated for taking those particular risks. The other insidious issue with ETF (and all Passive) investing is that the predominance of capitalization weighting means the strategy is buying more of things as they become more expensive and selling things as they become cheap (the anti-Value strategy). The built-in momentum of rules-based strategies works great during periods of high liquidity but can be (and will be) disastrous during periods when the liquidity dissipates (will eventually happen). We discussed another problem in Q2 that arises from trying to utilize these ETFs as hedges, saying "C*onversely, you will always be fighting against positions that have a systematic upward bias if you try and short them to use them as a hedge."* Investors must always keep in mind that rules-based systems cannot have judgment (perhaps some future version of AI will figure this out) and they are slaves to the underlying algorithms that were created from analysis of historical data, much of which is "polluted" by the QE Era eradicating volatility and normal price discovery. It appears that we were early in our call on the Consumer sector last quarter when we wrote, *"Given how late we are in the economic cycle, how over-extended the U.S. consumer is today and how high valuations are in these sectors, we would expect to see mediocre (at best, poor at worst) returns from the Consumer segment going forward."* Sometimes "early" is the euphemism for "wrong," and sometimes early is simply early, and as there have been myriad data points from the collapsing savings rate, rising credit card delinquencies, falling retail sales growth (particularly when adjusted for population growth) and stagnant wage growth (contrary to the current Narrative). Timing momentum is a challenging (and often dangerous) task but we will follow Bernard Baruch's wisdom here when he said, "I made all my money by selling too soon."

Something to continue to pay attention to is the rapidly falling breadth of the overall market and the extreme concentration in the Technology sector as investors chase the #FAANNMG names. The technology SPDR, XLK, has the most challenging concentration issue of all the sector ETFs given the massive weightings in Apple (AAPL), 13.7% of the fund, MSFT at 11.3%, GOOGL at 11% (3 names equal more than one-third of the ETF) and FB at 7%. We made a little joke in Q2 that, *"AMG may be the tricked-out version of a BMW, but it is also the primary driver of the Technology sector in the S&P 500."* Q4 was again pedal to the metal as AAPL was up 10%, MSFT was up 15% and GOOGL was up 9%. Given the extreme moves in these companies seemingly every quarter, it is sometimes hard to remember that we are talking about multi-hundred-million-dollar enterprises that are increasing in value more than the GDP of many countries in three-month periods. Specifically, the $80B increase in Apple market cap in Q4 is roughly the same size as the annual GDP of Ethiopia or Sri Lanka and would rank 69 out of the 195 countries around the world. Putting the dominance of AMG aside, there were many other spectacular performers in the tech sector in Q4, while FB took a little breather rising "only" 4%, NFLX rose 9%, NVDA rose 8% and even the old guard joined the rally as the original Fab Four of the 2000 Tech Bubble

(MSFT, CSCO, INTC and QCOM) surged as CSCO rose 14%, INTC jumped 18% and QCOM soared 24% on a hostile takeover offer from Broadcom (AVGO). We summarized our view on Tech in the Q2 Letter saying, *"Technology is likely to continue to be a great place to invest, but the challenge will be to pick your spots as valuations have gotten very frothy in some areas (#FANG springs to mind), while other sectors like semiconductors have decades of amazing growth ahead as technology becomes more ubiquitous."* The Broadcom move is an example of this trend as is the reemergence of strength in the old guard tech companies that are remaking themselves to take advantage of the new trends in ubiquitous semiconductor integration, decentralized (Edge) computing and Blockchain technology.

As we also noted in the Q2 Letter *"NVDA has become the dominant player in GPUs (Graphics Processing Units) which have become increasingly important as Algorithms, AI and Big Data have become an ever-larger component of everyday technology. To give a sense of how big a deal GPUs are, NVDA which had been left for dead as a washed-up video board manufacturer a few years ago is up 58% CYTD, up 190% over the past year and up an amazing 1,100% (yes, 11X) over the past five years."* With the Q4 surge, NVDA was up 90% in 2017 and is now up 1,500% (yes, 15X) over the past five years, quite an amazing performance from a washed-up company. Charles Darwin's teachings remind us that we all (animals, humans and organizations) must adapt or die and NVDA has been an incredible example of evolution and how to take full advantage of a fundamental shift in technology. Not only has that shift created huge wealth for NVDA shareholders, but their innovation in GPUs is driving a transformation in computing power that is enabling disruptive innovation (and related wealth creation) across many technology platforms in a Reflexive manner that is nothing short of breathtaking. We wrote last quarter how *"NVDA's GPUs are displacing some of the demand for traditional semiconductors and we discussed last quarter how two of the old guard in technology, INTC and AMD, had been battling it out over the past year."* AMD had established a slight edge over INTC in the new technology platforms (particularly in cryptocurrencies) and was up 30% through the summer while INTC was down (5%), but then two earnings disappointments by AMD and two earnings surprises by INTC turned the tables. The INTC surge in Q4 coupled with a (19%) plunge by AMD reversed the relative positions (to their normal places over the past two decades). The AVGO grab for QCOM shows how much potential there is in this trend, so we would expect to see more M&A activity in the semiconductor space in coming quarters. While there is great potential in expanding global computing power and that will require lots of semiconductors and new processors, some of these stocks are very richly valued (and they are all overbought). So while momentum is clearly in control today, it wouldn't be surprising to see that momentum begin to fade toward the end of Q1 2018. One last thought on Technology is that after the "buy at any price" Bubble peak in 2000, it took NASDAQ seventeen years to regain that valuation (many companies are still well below 2000 peaks). We wrote last time that *"Valuation does matter, gravity does rule, and darkness could (likely, will) fall on many of the most egregiously overvalued companies, like the FAANGs. It is not inconceivable (in fact, it is mathematically quite likely) that these stocks could be at the same price a decade (or more) from today (like the Fab Four from 2000 to 2017)."* We have added a new warning for technology investors in the 10 Surprises below saying that given how strong the consensus is that the #FANG stocks can never go down, we would not be surprised if #FANGsBite in 2018.

With strong performance in Q3 and very strong performance in Q4, Financials moved from second from the bottom for the 1H17 to finish the year ahead of the S&P 500 and in fifth place among the twelve industry groups. Much of that move was a tagalong with the rise in interest rates that began in Q3 and has accelerated in recent months on hopes that the Tax

Cuts could stimulate economic growth and profits. Given the disappointing results for Q4 GDP, the data continues to defy the "Hopers" and, as we are fond of saying, hope is not an investment strategy (in fact, in investing it is a four-letter word). Repeating what we wrote in the Q2 letter here for context, we said *"There are some managers we respect have very high hopes for Financials and see a clear path to double digit gains in years ahead, but we can't make the math work as our view is that interest rates won't surge higher so Net Interest Margins won't explode upwards. The actual data in lending shows a very rapid contraction that should hurt profit margins in the second half of the year."* The actual data in the 2H17 comports with this perspective as loan volumes continued to decline, bank profits were weak, and were particularly weak in Q4 due to Tax Law related write downs. Furthermore, the long end of the yield curve continues to flatten (not steepen) so there has not been the huge expansion in NIMs. Alas, in the Euphoria stage of Bubbles, Narratives are much more important than data, so once the 10-year started to move higher, financial stocks followed. We discussed last time that the catalyst was *"a single tweet from the Tweeter-in-Chief on September 8th that the GOP needed to push the Tax Reform plan faster was all it took to turn rates and Financials on a dime."* Bank stocks had been falling for months up to that point but have surged since then. The Big Six (C, JPM, BAC, MS, GS and WFC) were up nicely in Q4, rising 1%, 11%, 15%, 7%, 6% and 10%, respectively, and if we look at the last three months including January (the period since we wrote the last letter) the returns are even stronger, up 9%, 16%, 18%, 15%, 11% and 18%, respectively. We closed this section last time saying, *"We think there is a lot of hope built into the Financials about Tax Reform and a stronger economy (both of which are still quite uncertain), so we see more risk than reward in this sector should either of them disappoint."* It turns out we were wrong, as investors concluded that there was more reward than risk and that the promises of the Tax Cuts trumped (pun intended) the continued below average economic growth. We can't keep Willy Wonka's words of wisdom out of our head when thinking about the Financials and, given how absolutely sure everyone is that the Bond Bull Market has definitely ended rates definitely going higher, the prospect of above average disappointment in the sector should Surprise #1 actually occur in 2018 is likely a higher probability than investors expect.

Materials had another excellent quarter, surging 6.9% (after surging 6% last quarter) on continued hopes that someday the promises about an Infrastructure Bill would actually lead to passage of an Infrastructure Law which would someday lead to increased Infrastructure spending, but as has become the norm during the melt-up phase of the Everything Bubble, hope and promises are enough to trigger panic buying of stocks. As was the case in Q3, the most impressive thing about the surge in the Materials sector was that it occurred despite poor returns (up only 1%) from the largest component, DowDupont (DWDP) which has a 23% weight in the XLB ETF. Last quarter we had seen some explosive moves in the Mining sub-sector (pun intended), thanks to the continued strength of base metals prices (particularly copper) which have been buoyed by the continued better-than-expected China GDP growth data (defying all the doubters calling for a China hard landing). We wrote last time how we remained skeptical on the Infrastructure promises, but bullish on the metals, saying *"Given that there is still not even a Bill (let alone a new Law) that would lead to any new infrastructure products we view the bullishness on the overall materials sector skeptically, but we do have a positive outlook on Copper (and to a lesser extent Gold) and Agribusiness so would expect some follow through in these sub-sectors in the coming quarters."* Apparently, we weren't bullish enough on copper and not skeptical enough on gold, as the copper companies soared, with Freeport-McMoRan (FCX) up a stunning 32% (acting like a tech stock), but Newmont (NEM) floundered (along with gold prices), falling (1%). Our positive outlook on the Agribusiness sub-sector (particularly fertilizer companies) was finally rewarded after some of the companies in the sector saw the value that we saw and

Potash (POT) and Agrium (AGU) merged to form a new fertilizer powerhouse, Nutriem (NTR). Continuing the momentum that commodities generally had experienced since the Gann Turn Date on June 22nd, CF jumped 20%, and even MOS, which had struggled for most of the year, surged 18%. There is positive momentum behind the hope that there will be an Infrastructure Bill proposed in 2018, but we will have to wait and see. Even without the fiscal boost, commodities look to be in the early innings of another positive cycle and that should bode well for the Materials companies. That said, there are some signs that China is clamping down on some speculative activity in Copper and Iron Ore, so there could be some volatility in Q1, particularly given the huge moves from the 2H17 need to be consolidated.

Over the past year, Industrials have been another sector (along with Materials and Financials) getting a boost from the *"Trump Pump"* as investors have "bought the rumor" on the Trump Trifecta and, as we wrote in Q2, *"Investors believed (we are not sure why…) that the $1 Trillion of Fiscal Spending that Trump promised on the campaign trail was going to miraculously materialize as soon as he took office (or even more crazy, before)."* Industrials surged another 6.1% in Q4 (slightly behind the S&P 500), but as we highlighted all year, the most amazing thing about the Industrials rally is that it continues despite absolutely horrible performance from the largest component (and former bellwether) General Electric. As we wrote last time, *"[GE is no longer bringing good things (or its stock price) to life and after being down (15%) in the 1H17, tacked on another (10%) drop in Q3 to bring the September-to-date loss to (23.5%)."* We also noted that the story wasn't getting any better as GE had just reported very poor earnings in October (and worse forward guidance) so the story got downright terrible in Q4 as GE tumbled (29%), bringing the 2017 loss to an absolutely stunning (46.7%). Let that sink in for a moment; one of the largest and historically most successful companies in America lost nearly half its value in the past year. How does this fact align with the reports of boom times in America and stock markets making new records nearly every day? Given that GE still makes things that all of us use every single day, and that much of what they produce, like jet engines and power generation equipment, can't be replaced by software and or video streaming services, does it really make sense that GE should sell for 17 times earnings while NFLX sells for 206 times earnings? We will give the short answer of we don't think so and leave the longer answer for another time. Repeating what we wrote last time (because we like the pun), *"Given GE's sizable 8% weighting in the XLI ETF, the rest of the Industrials had to work hard to keep performance in line with the markets and since that is what Industrial companies do (pun intend), a number of the other sub-sectors stepped up and generated solid returns."* A number of the Industrials workhorses (let's keep the pun going) have stepped up in a huge way in recent quarters to fill the void created by GE and there has been none flying higher (can't help it…) than Boeing (BA) which has turned its chart into a replica of a model Bubble chart in the past year. After soaring a stunning 29% in Q3, BA was up another 15% in Q4 and has gone completely ballistic in January, up another astonishing 20% (to be up 122.9% over the past year). BA is the latest stock to get caught up in the ETF Inclusion effect as everything from sector funds to index funds to low-volatility funds have had to buy BA regardless of price and have pushed the P/E into the stratosphere at 25.6. We will take a flyer (shameless, we know) here and say that there will be turbulence ahead for BA in 2018.

There were some other notable performers in Industrials in Q4 as Honeywell (HON) was up 8%, Union Pacific (UNP) surged 16%, and Caterpillar (CAT) continued its amazing run, surging an eye-popping 26% (on top of the 16% jump in Q3). CAT had smashed EPS forecasts in Q3 and the year-end momentum (and a little window dressing) pushed the gains to extreme levels for the 2H17. There is an issue that the CAT results point to that we think bears repeating here, we wrote las time that *"Despite the ebullience about the CAT report, there is a troubling* *undercurrent in the Caterpillar data that has been a recurring theme this year. CAT reported earnings adjusted for Restructuring charges that they claim were one-time and therefore non-recurring and shouldn't be included in their results. Excluding one-time items is not the most egregious thing that management teams do to EPS data, the issue becomes troubling when the non-recurring items recur every quarter and we have heard this story from CAT for the last few quarters. The idea of reporting Earnings Before Bad Stuff, meaning you exclude and anything that makes your EPS look bad is dodgy at best."* We will continue to keep CAT in the dodgy camp (we don't believe they have crossed any bright lines) but will posit that given the pressure on companies to service very high debt loads (particularly if rates actually do rise) that these types of non-recurring restructuring charges will continue to recur. "They" (whoever they are…) say, *"Defense wins championships"* and that sentiment actually may finally turn out to be true in the markets in 2018 as it clearly was all about playing offense last year. We modified the line over the past couple of years, saying that a good investment strategy was to #PlayDefenseWithDefense. Defense stocks were not quite as robust in Q4 as in the past couple of years and the Fantastic Four of Lockheed Martin (LMT), General Dynamics (GD), Raytheon (RTN) and Northrop Grumman (NOC) had mixed results with returns of 3%, (3%), 0% and 6%, respectively. Despite the pause in their ascent, the Defense names were all up strongly in 2017 as LMT jumped 30%, GD rose 17.9%, RTN surged 31% and NOC soared 32.6%, all but one handily beating a strong showing of 21.8% for the SPX.

The Energy sector made a dramatic turnaround in the last few months of 2017 to turn what had been a truly awful year into a year that was merely bad. One of my favorite investment sayings is that you make the most money when things go from truly awful to merely bad and that formula held true in Energy in the last part of 2017. Energy stocks were up another 6% in Q4 (on top of the 6.8% in Q3) and were able to essentially erase the losses from 1H17 to finish the year nearly flat, down (1%). The move in Energy names occurred coincidently with the rebirth of the Reflation Narrative on September 7th (when the "Deal" was announced on the Tax Bill) and there were some truly impressive moves in a few of the sub-sectors. The moves really were unexpected and caught investors off guard (and incorrectly positioned short) and we wrote last time that *"Perhaps Hurricane Harvey and his potential damage to the drilling complex (particularly impacting the offshore drillers) could have prompted some ebullience on the prospects for a spike in oil prices that would flow through to the energy stocks."* Oil prices had spiked 10% (from \$47 to \$52) during September and jumped another 15% during Q4 to finish just over \$60 (right on target for our 2017 Oil Surprise) and there was a marked shift in sentiment that Energy stocks were discounting a much worse outcome in commodities prices (particularly oil) than the actual data showed. The willingness of investors to cling to a Narrative in direct opposition to material facts that provide evidence that the Narrative is no longer valid is a recurring phenomenon in markets that creates tremendous opportunities for intrepid investors who are willing to take positions based on a Variant Perception from the Consensus (the entire thesis of the 10 Surprises exercise). The U.S. Oil and Gas industry has been completely transformed over the past decade as the development of Shale drilling technology has been improved and more widely adopted resulting in a stunning recovery in the level of domestic energy production. There has been much ink spilled (along with a little oil) about how the lack of cash generation by these E&P companies makes them unappealing investments, punctuated by a famous hedge fund manager presenting an epic PowerPoint at the famous Sohn Conference about how PXD could never make any money and the equity was worthless (Pioneer is up 11% since then and still has a \$30B market cap). We discussed how the view that Shale companies were bad investments had become popular again last quarter, saying *"There are plenty of investors who believe that \$50 oil does not provide enough cash flow for this highly leveraged* *industry and the bears were clearly in control through mid-August with RSPP, FANG, PE and PXD down (33%), (16%), (32%) and (32%, respectively)."* Those stocks had rallied hard in September as oil prices continued to recover from the June lows and Q4 was a quarter for the energy Bulls as these stocks were up 16%, 26%, 11% and 14%, respectively. Curiously, as oil continued to rise in January (up 7%), the equity returns in this group were mixed as PXD continued to defy expectations and rose another 6%, but FANG slipped (2%), RSPP dropped (4%) and PE reported weaker than expected operating results (higher costs, lower production) and cratered (22%). The strong operators with positive cash flow should continue to be rewarded this year as their current prices reflect oil in the low $50's while WTI hovers in the low $60's.

We have discussed over the past couple of quarters how the Oil Services companies had taken a larger than expected hit from the fall in oil prices (they had to cut prices deeper to keep business), but that things appeared to be shifting as the oil price recovery was taking hold. We wrote that *"One interesting thing to watch over the next couple of quarters will be to see if Oil Services can continue to recover if oil prices continue to rise. A good friend from Dallas made the point that if oil moves into the $60's in 2018, the profits from that move should accrue to the Services companies since they suffered disproportionately on the way down."* Q4 didn't provide much upside momentum for this thesis as the results for OIH, SLB, HAL and SLCA had mixed results returning 1%, (2%), 8% and 6%, respectively. Interestingly, those returns also had tremendous volatility as a ferocious short squeeze had pushed these names up as much as 20% in October, only to settle back to more muted returns by quarter end. That volatility continued in January as the Oil Services stocks followed oil prices higher in the first few weeks of the New Year and this quarter was up 11%, 14%, 15% and 10%, respectively, by 1/22, only to fall back dramatically in the final week to finish with returns of 3%, 6%, 8% and (3%), respectively, as sand company SLCA was crushed (pun intended) once again. We discussed last quarter *"SLCA reminds us of the problems of the mathematics of loss"* and to reiterate here, one year ago SLCA peaked at $60 and fell (58%) through August before rallying 30% over the past five months. The problem is that the compounded result is that SLCA is still down (47%) from the peak last February. One of our favorite lines in investing comes from the legendary Roy Neuberger who was fond of saying, *"There are three rules to investing, Rule #1, don't lose money, Rule #2, don't lose money and Rule #3, don't forget the first two rules."* Said another way, if you take care of the losses, the gains will take care of themselves. Another segment of the energy space that has been quite volatile in recent quarters has been the offshore drilling companies. We wrote last time how *"There are plenty of very smart people in the energy business who will make a strong case that because of the Shale revolution there is no need for deep water offshore production, therefore the bond owners of these companies will become the new equity owners (stocks go to zero…), but that transition will have to wait a while longer it appears."* Recall that the offshore Drillers had been left for dead in 2017 as RIG, RDC and ESV were more than (50%) through the August nadir and then exploded higher in September as a massive short-squeeze caught a huge number of investors off-sides in this segment. The drillers were up in Q4, but the results were uneven, with the stocks up 4%, 24% and 2%, respectively. Like the rest of the Services companies, they jumped smartly in the first couple of weeks of January, peaking at up 12%, 4% and 20%, respectively, on 1/12, but then the shorts regained control and the group ended the month down (1%), (9%) and (4%), respectively. Volatility is likely to be the watchword within drillers in coming quarters as the fundamental story is weak, but they will continue to be go-to names for investors looking for equity beta if the oil price recovery Narrative plays out. We are leaning slightly to the Variant Perception outlined in Surprise #6 below (that oil drifts lower over time), so the bond holders may end up owing some drilling rigs in coming quarters after all.

In the healthcare sector, we began the year expecting a great recovery from the poor performance of 2016 and we wrote last quarter that *"We expected that there would be plenty to write about in coming quarters about strong returns in the Healthcare sector and it has been a great year for both general Healthcare and Biotech."* Unfortunately, the sector caught a little cold in Q4 and XLV (Healthcare ETF) was flat and IBB (Biotech ETF) was down (5%) and returns across the sector ranged from mediocre to poor with the one exception of the insurers that rallied on less than expected fallout from the Tax Cut and Budget battles in Washington. We wrote last time that *"It turns out pandering to voters during an election makes for good campaign politics but actually trying to get legislation passed that would impact drug companies is just about impossible."* The biggest positions in XLV were actually quite strong in Q4, so it was a much more broad-based malaise that drove returns back to flat. Johnson & Johnson (JNJ) is an 11% position, while Pfizer (PFE) and United Healthcare (UNH) are each 7% positions, so three names make up a quarter of the portfolio, and with JNJ up 6.5%, PFE flat and UNH up 12%, that means the other 75% of the ETF had to average (6%) returns for the period, which is quite weak compared to the other sectors. IBB has a similar concentration issue as the top four positions, GILD, BIIB, AMGN and CELG are all 8% positions and those names struggled in Q4 returning (15%), 1%, (7%) and (28%), respectively, making it nearly mathematically impossible for the ETF to have a strong quarter. We had commented in Q2 that there was some real value in the healthcare and biotech segment saying, *"There are still a number of companies with P/E ratios that are well below the overall market including Express Scripts (ESRX), Gilead (GILD), Bristol-Myers (BMY) and Amgen (AMGN) that appear attractive."* Those names did perform well in Q3, but everything in that group aside from ESRX struggled in Q4. Express Scripts rallied 17% along with the insurance companies, but there are storm clouds forming on the horizon as a consortium of companies (Amazon, Berkshire Hathaway and JPMorgan) are making noises about forming a new type of health insurance pool that could threaten the traditional model (lots of work to do between idea and implementation). The Pharma companies struggled in Q4 as BMY dropped (5%), MRK shed (13%) alongside Pfizer's flat quarter. Looking over the whole year, it was feast or famine in the Healthcare and Biotech segments, as there were some huge winners and some notable losers. Vertex (VRTX) led the pack with a stunning 100% return, but nearly as impressive were Anthem (ANTM), up 58%, and Abbvie (ABBV), up 55%. Biogen (BIIB) was up 20% and Amgen (AMGN) rose 17%, but BMY managed only a 2% return, GILD was down (2%) and CELG brought up the rear, falling (11%). We discussed last time how Insurance and Services were not supposed to do well in 2017, but these companies surged in Q4, Aetna (AET) was up 13%, Cigna (CI) was up 7% along with the 12% jump by UNH bring full-year returns for the insurers to 47%, 50% and 37%, respectively. Our conviction of the Healthcare space remains high and reiterating what we said last time, *"We continue to see truly amazing scientific breakthroughs in the Healthcare and Biotech sectors and believe this is one of the sectors we can count on for strong returns in an equity market that we are less enamored of (being kind) today."* As we have written many times in recent years, there is a huge Demographic tailwind (every day in the U.S. (and Europe) 10,000 people turn 65) that will power returns in these sectors for many years to come and the integration of technology into the Healthcare industry will create new opportunities in personalized medicine that could provide truly explosive return potential.

The four sectors that are most defensive, Telecom, Real Estate, Healthcare and Utilities were the four worst performers in Q4 as the Bubble Melt-up began to accelerate (we don't need no stinking defense…) and those sectors were up significantly less than the SPX Index. For the full year, Telecom was negative, down (1.3%), but the other sectors were either respectable, Real Estate up 10.8% and Utilities up 12.1%, or quite strong, Healthcare up 22.1%. Real Estate and Utilities have been suffering as interest rates have begun to rise and investors have sold yield related stocks despite the fact that 10-year yields are still below 3% and many of the REITs, MLPs and Utilities offer twice (or more) yield. Seems curious to us but happens every time that the Bond Bull market is declared dead and time will tell if this move is the "Big One." We wrote last time about what was causing so much stress in the Telecom sector, saying *"The challenges of finding ways to entice mobile subscribers to switch services inevitably leads to price cutting and an eventual race to the bottom"* and that race continued again in Q4. Verizon (VZ) was the winner again in Q4, rising 7% (on top of an 11% gain in Q3) while AT&T (T) fell (1%), T-Mobile (TMUS) gained slightly, up 3%, and Sprint (S) was the loser (again) in the mobile wars, falling (23%). People continue to ditch their landlines and Century-Tel (CTL) was smashed again in Q4, falling (14%) (on top of a (24%) loss in Q3), showing just how tough things can get for the disrupted when disruptive innovation takes hold. We posited last quarter that *"The key to Utilities for investors today is the direction of interest rates and since everyone is sure they are going to rise there will probably some short–term headwinds for these stocks, but should the consensus be wrong yet again (as we expect) and rates continue their Lacy Hunt inspired downward trajectory Utilities and Telecom (not to mention other yield assets) could find their natural buyers return."* That perspective has been completely wrong over the past few months as the rise in rates actually began to gather some momentum. Should the 10-year crack the 3.06% level, we will have to re-evaluate the probability of Surprise #1, but we are still firmly in the Hoisington camp that secular lows in rates are ahead. With all of that said, for the first 29 days of January, the Defensive sectors were eschewed for growth and momentum, Utilities and RE were down another (3%) and Telecom was up 1% (with SPX up 6.5%), then things turned sharply right on the Bradley Turn Date and equities headed down over the last three days of the month. Given that the next Turn Date isn't until May, there may be some very interesting things to write about in U.S. equities come April.

It seems like an important time to revisit our discussion of valuation and the SPX P/E ratio given the disconnect between *"the consensus that interest rates are now set to rise and that P/E ratios can continue to expand."* We wrote in Q2 that the Consensus on interest rates presents a conundrum for equity Bulls, saying, *"Let's assume for the sake of argument that the consensus is right, and the long Bull Market in Bonds is over, and rates are headed higher, then why is it that the P/E ratio for stocks keeps rising? Mathematically, if rates rise, discount rates rise and a dollar of earnings in the future is worth less today, so an investor should want to pay less (not more) for each dollar of E (thus P/E ratios should fall)."* Interest rates were basically flat in Q4, as the 10-Year Treasury yield moved from 2.3% to 2.4%, yet once again, the P/E of the S&P 500 (using actual reported earnings) increased from 23.6X to 25.1X (a 6.4% rise). Interestingly, given the 6.6% return for the Index, multiple expansion once again accounted for the majority of the increase in stocks during the quarter. In fact, by this calculation (contrary to the claims of some big earnings recovery), Actual Reported Earnings during Q4 were not up much at all (again). The strange thing is that the EPS growth number being reported in the media continues to be on "pro forma" earnings (earnings before bad stuff) and Factset is reporting a 13.4% increase in EPS with about half of the companies reporting so far. We continue to have a hard time with the focus on adjusted numbers instead of actual numbers and the P/E on trailing reported earnings seems to us to be the most accurate number. We are "old school" and perhaps the New Abnormal metrics will turn out to be the right ones this time, but that would mean that this time is different, and history has not been kind to those words. Looking at this issue another way, we have written many times about the formula created by Larry Jeddeloh at TIS Group outlining the conversion of QE purchases into S&P 500 points. The TIS model *"showed every $100 Billion of QE has translated into 40 S&P 500 points."* The Fed bought around $200B of Treasuries and Mortgages in 2017, so assuming fairly even purchases of $50B per quarter, there should have been approximately 20 S&P points of equity tailwind each quarter. The S&P 500 Index rose 155 points during Q4, if we attribute 20 points to QE and 160 points to multiple expansion (beginning level of 2,519 times 6.4% increase in P/E), that would leave negative (25) points for earnings impact. Zero impact seems possible, but not negative, so maybe the QE boost isn't evenly distributed and the 80 points of impact over the course of the full year is a better way to look at the formula. The S&P 500 rose 435 points in 2017, given 80 points of QE impact and 145 points of P/E expansion impact (2,239 times 6.4%), that leaves 210 points for earnings growth, which calculates out to about 9.4%, right in line with 11% pro forma number.

Rates have exploded higher in January, running from 2.4% to 2.7%, so maybe the Bond Bears will turn out to be right this time (we will still take the under), but we posited a question last time that would suddenly become even more important if that is the case, saying, *"If rates do actually begin to creep higher, it will be increasingly challenging for equity multiples to expand and as the earnings recovery continues to fade, there could be double trouble for the equity Bulls."* Clearly that construct was a major fail in January as the SPX surged another astonishing 5.7% (although the last few days revealed a few cracks in the foundation) as panic buying set in and equity markets suddenly felt very similar to March of 2000. Just for reference, here are a few of the crazy moves that occurred in January: BA surged 19% (remember this company is growing low single digits), AMZN soared 22%, NVDA jumped 23% and NFLX lurched 34%. These are not annualized returns, these returns happened in the first 31 days of 2018. To say their valuations are a bit rich is an understatement, with P/E ratios of 29, 314, 60 and 200, respectively, but in an environment of rising rates (where discount rates rise too) they might even be described as dangerous. So, what does the Fed do now given they have seemingly been following their third mandate of supporting equity prices? The FedHeads (Governors) spent the last few months of 2017 talking up their plan to raise rates four times and over the past few weeks a number of commentators were trial ballooning the idea that the Fed was "way behind" on rate hikes and they should actually surprise the markets with a hike of 50 basis points in January. We discussed last time how *"much of the economic data that the Fed has used in the past to determine when to hike rates continues to point to an environment where doing so would be ill-advised (at best and a Policy Error at worst)."* There was a slight pickup in Core PCE Inflation from 1.29% to 1.52% over the past three months (still way below the 2% target), but Core CPI was flat at 1.78% (again below the 2% target) and even Headline CPI rolled over and fell back to 2.1%. It seems appropriate to repeat the truly amazing words of our outgoing Fed chair that we wrote about last quarter saying, *"Ms. Yellen recently stated in her testimony to Congress that the low rates of inflation were "a mystery". Let that sink in for a moment, the PhD that leads our* central bank *(made up of a team of hundreds of PhDs) basically has said that she has "no idea" why inflation remains low despite her best efforts to reflate the economy by injecting Trillions of dollars of thin-air-money into the system (not the most assuring posture)."* The answer is actually pretty simple and perhaps the PhDs should simply ask a first grader who could easily explain that Grandpa doesn't move as fast as he used to (or buy as much stuff), in other words Demographics is Destiny. The one place where there was some hope for higher inflation someday was in the 5-Year Breakeven Inflation Rate, which did rise from 1.77% to 1.98% over the past three months. We say hope because there has not been much correlation with this level rising and actual CPI or PCE rising and there is the pesky little fact that this is a level similar to where the Fed was beginning QE II and III, not raising rates. We wrote in Q2 that there was one more way that the Fed might impact markets, highlighting *"the decision to begin to normalize the Balance Sheet (sell bonds back into the marketplace), which most pundits believe would cause significant turbulence for stocks."* The Fed Plan for Balance Sheet Normalization is that they would begin to reduce purchases (not really selling) by $10B a month in Q4 and then increase to $20B a month in the New Year (theoretically followed by increases to $30B and $40B at some point, if all goes well…). Last time we did the math and said that these levels of lower purchases *"doesn't really seem to us to amount to much in the context of a $4T Balance Sheet"* but given the timing of the sudden turbulence in equity markets around the increase, perhaps it is like the proverbial butterfly flapping its wings. Another point to reiterate here is that *"the biggest problem we see here is that the central banks have been called the "Buyer of Last Resort" for a reason."* A decade ago the BOJ pledged to reduce their Balance Sheet from 26% of GDP and it just topped 100%, so when the Fed pledges to cut their Balance Sheet from 26% of GDP (remember the U.S. is 10.5 years behind Japan demographically), we will continue to take the under. Said another way, at the first hint of trouble in asset markets caused by Quantitative Tightening, central bankers will do what central bankers have learned to do best, they will ease (QE4ever).

A year ago, everyone (and we do mean everyone) was absolutely convinced that the U.S. dollar would be strong, the Fed was raising interest rates, the incoming Administration promised 4% GDP growth and foreign currencies were going to crash (making the dollar appear stronger by comparison). The Willy Wonka quote springs to mind again that *"Oh, you should never, never doubt what no one is sure about"* and no one (well, almost no one…) was sure that the dollar would be weak and *"we were a very lonely wolf on our #MCCMSurprise #7 that King Dollar had made its last stand and the cover of the Economist magazine in December with George Washington all jacked-up on steroids would turn out to be the top for the Greenback (the DXY was 103 at the time)."* The interesting part of the equation was that the Fed did hike three times and the dollar just kept falling. GDP growth did disappoint in Q1 but rallied to 3% in Q2 and Q3 and the dollar kept falling. The dollar weakened all year and Q4 was no exception as the DXY tumbled from 93.1 on 9/30 to low of 92.1 on 12/29, down another (1.1%) to finish the year down (10%). The Q4 trip was not straight down, however, and there was even a period of time early in the quarter where the dollar Bulls were stamping their hooves saying they were finally right (as Lee Corso says, *"Not so fast, my friend"*). We had noticed something in July, saying *"Curiously, the world is suddenly piling on the short dollar trade today and there has been a dramatic reversal from a very net long position to begin the year to a net short position in the non-commercial traders' overall positioning, so it is highly likely that there could be a short-lived relief rally in the dollar in Q3, before resuming the downward trend (which we expect to run for many years)."* As usual, we were early (about eight weeks), but DXY did get extremely oversold in August and a relief rally was triggered by the "Trump Deal" on Tax Cuts on 9/8. DXY rallied from a low of 93.79 to a peak of 94.92 on 10/27 but then headed down again to finish the year at the 92.1 level. We wrote last quarter that we believed things would play out this way, saying *"there is usually some seasonal tailwind for the dollar in Q4, so we are not surprised to see this type of move. That said, we believe this is just a counter-trend rally and the Greenback will continue its downward trajectory in the New Year as King dollar has been dethroned and we see increasing evidence that the world is moving to a multi-polar currency regime going forward."* The final pulling of the cushion from the throne occurred in Davos when Treasury Secretary Mnuchin basically admitted the Administration's desire to trash the dollar to help U.S. manufacturing (only to be half-heartedly rebuked by Trump the next day saying the opposite), but DXY continued down in January, falling another (3.2%) to 89.13. #KingDollarDethroned indeed.

We have talked a lot about the dollar in our Letters over the past few years because, as we said a year ago, *"Getting the dollar right might be the most important investment decision we could make during the year. The reason for the hyperbole on the Greenback (beyond my normal hyperbolic style) was that so many of the other market opportunities had become so tightly correlated to the dollar and if you got the* *dollar call right you could make better returns in equities, bonds, commodities and (obviously) currencies."* As global investors, we have to think about currency risk when deploying capital outside our home markets as currency fluctuations oftentimes swamp the impact of the changes in asset values. One of the biggest dangers with this reality is that investors very often underestimate the FX impact and chase what appears to be a strong return in a market only to have their gains wiped out (or worse, convert to losses). Such was the case for foreign investors chasing the higher (can't call them high) yields of government bonds in the U.S. to escape negative yields in Japan and Europe. Those investors picked up a hundred or two hundred basis points, but then lost (10%) in FX, so they would have been far better off just accepting the known loss of a few tens of basis points of negative yield in their home country. Since we are U.S. domiciled investors, we take the contrarian view that the dollar will continue to be weak, we can seek the greater growth and return opportunities outside the U.S. and receive the tailwind of making even higher returns as the dollar continues to slide. Summarizing this view, we wrote last time, *"If we believe the dollar will be secularly weak (as we do) we are more prone to invest in foreign markets on an unhedged basis to take advantage of the additional returns that will accrue as the dollar weakens against the currencies of the markets into which we deploy capital."* Clearly, we have to be on guard against becoming complacent in our view and remain ever vigilant in seeking information that could change our view, but we feel very good about the fundamental case for the Greenback to continue to grab the lead in the global race to the bottom within developed markets currencies.

Importantly, we discussed in our Q1 Letter how U.S. based investors are conditioned to think about the dollar only in relation to the DXY Index, saying *"An important thing to keep in mind about DXY is how the Index is dominated by the Yen and the Euro (even more Euro than Yen) and that there are other more diversified currency indices as well (e.g. trade weighted) which have different return profiles."* Given that the race to the bottom is really a devaluation derby among the largest developed markets, that tri-polar view is understandable, and it is clearly important to have a strong view on the Yen and the Euro as a U.S.-based investor. Our Yen position has been consistent since November 2012 (when Abe-san ushered in Abenomics) and we summarized that view last quarter, writing *"We believe that the Japanese government has only one way out of their demographic and debt crisis, to weaken the Yen consistently (and dramatically) to ease the burden of the sheer volume of nominal debt. Hence, we have been very active in hedging USDJPY exposure for client and in our discretionary portfolios and we would expect to see continued Yen weakness in the quarters and years ahead."* One of our important mantras in investing is *"strong opinions, weakly held"* as you need a strong opinion to have conviction to act, but you have to be willing to change your mind should facts and circumstances change. USDJPY did not weaken as we expected in Q4 (or in 2017, for that matter) and we see signs that the Yen is regaining some of its Safe Haven status and could actually be more resilient (stronger) in the coming months. We wrote last quarter how *"the Yen continued to be stuck between Safe Haven demand pushing it higher and Kuroda-san trying to pull is lower"* and, if January is any indication of what is to come, it could be an interesting time in FX markets as the USDJPY fell from 112.9 to 108.7 despite Kuroda-san pledging his commitment to buy 10-year bonds indefinitely to keep the yield curve pinned at zero. Most interesting of all is that Japanese equities have not been hurt by this move (more on that in the Japan section below). The largest component of DXY is the Euro and we outlined how we had a differentiated view toward the EURUSD relationship than the Yen last quarter, writing, *"Wherein we were convinced that since everyone was so sure that the EU was disintegrating and that the Euro would be weak, we should take a more positive view of the Euro and stay unhedged."* That contrarian position played out throughout the first three quarters of 2017, but in

October we thought that sentiment on the long Euro trade seemed a bit crowded and wrote that *"we wouldn't be surprised to see a pause that refreshed in the Euro's ascent against the dollar. The other factor in thinking about the Euro is that a super strong Euro is bad for all of the export businesses in the EU (particularly Germany and France) and we might expect that the politicians in those countries might start making noises about the need for some Euro weakness in the near term."* There actually was a little jawboning to that effect in Q4 and the EURUSD did fall from 118 to 116 through the middle of November before rallying back to 119 to finish the year. That said, between Super Mario once again saying that Tapering QE would have to wait and Donkey Kong Mnuchin throwing the dollar off the roof in Davos, the Euro surged in January, rallying all the way up to 1.24, a very strong (and potentially worrisome for the Troika) 4.2% move. We wrote last time that *"There is nothing like a strong currency to mess up the earnings (and then stock prices) of an export dependent economy and since the while EU and Euro plan is to create a weak currency as a weapon for global trade domination, the recent advance was most unwelcome."* The Big Dog in the Eurozone, Germany, cannot be happy about the recent surge in the Euro, so we expect some response from the EU to the U.S. currency manipulation very soon.

We made a very important point about EM FX last fall given we had a large overweight to EM equities, saying *"Given our predilection toward Emerging Markets, we have had to be vigilant in thinking about the impact of FX on those investments and creative in thinking about hedging given the very high FX trading costs in many of the markets."* One challenge for global investors is that the cost of hedging in the EM markets is quite high, so you must anticipate (correctly, that is the really tough part) significant moves in the currencies to justify the costs. That said, there clearly have been times (like during the commodity collapsing from 2011 to 2014) where hedging costs are worth paying to protect your equity gains. We noted last time that *"Generally speaking, EM currencies are slightly cheap (about 0.2 standard deviations) to their long-term history and given their higher rates of economic growth it makes sense that they would be stronger in the near-term."* We also said that looking at the Trade Weighted dollar basket is a good way to understand the broad trend in the global currency markets. The Trade Weighted Index was essentially flat in Q4, hovering around 119, but that Index strengthened 7.8% versus the dollar in 2017, indicating broad based strength in the global FX markets. We recommend that investors who are exposed to global currency markets (and/or hedge their currency risk) are better served to use the Trade Weighted Index versus DXY given the broader inclusion of global currencies. Other than the dollar, the most important currency in our view is the RMB in China and having an informed view on the Yuan will be critical to investing success in global portfolios. This point was perhaps even more important than usual in 2017 *"given the extreme consensus view coming into the year that the Yuan had to devalue and that event would precipitate an economic hard landing in China."* We had a Variant Perception on China, and on the RMB, coming into 2017 and believed that Stability would be the watchword ahead of the 19th Party Congress and that Premier Xi would not allow (with some help from his friends at the PBoC) any sort of devaluation. Xi wanted stability and Xi got stability and the hedge funds that bet against him got losses. The RMB was very stable in 2017 and actually strengthened, a trend that continued in Q4 as the USDCNY moved (2.4%) from 6.67 to 6.51, capping a (6.3%) dip over the course of the year. Interestingly, the RMB had been very stable around 6.9 over the first half of the year before rising slightly into the Party Congress. We had written last time that *"Now with the Party Congress behind them, we would not be surprised to see a little bit of the move given back in coming months"* but just the opposite happened and the bulk of the strength of the Yuan occurred in the final months of the year (and has continued into January, falling all the way to 6.29). Repeating our closing thoughts from last quarter (which are still key points), *"The Chinese Leadership* *is very skilled, and they continue to play Go while the rest of the world (particularly the U.S.) argue about how to set up the checkerboard."* When investing around the world, currencies matter (a lot), and in a world plagued by political uncertainty and high levels of volatility, they matter even more than normal. Having a thoughtful, disciplined hedging program will be critical to investment success and we believe that focusing a disproportionate amount of effort in understanding global FX relationships will pay dividends for many years to come.

It has been interesting over the past month to see all the attention paid to the U.S. equity market returns by investors and the media and the celebration of the "huge" gains in 2017 as if they were something unique and special. Not to say it wasn't a good year for the S&P 500 and NASDAQ, it was, but the returns in International Equities were universally better (in some cases a lot better), so the challenge of overcoming home market myopia continues apace. Turning to Europe first, things had been heating up across The Pond since the French elections and while the Q4 returns were somewhat muted, the full year returns were very solid. The MSCI Europe Index was up 2.2% in Q4 (a fraction of the SPX return of 6.6%), but the full-year gains were a very robust 25.5%, handily beating the SPX gain of 21.8%. We had written last quarter about the potential for the punch bowl to remain a while longer (despite persistent rumors that ECB Tapering was imminent), saying *"the only fly in the ointment has been that inflation remains persistently below the 2% target (just like in the U.S.), at 1.4%, but the upside of the fly might be that Mr. Draghi will have to remain accommodative longer than expected (if he can find any bonds to buy, maybe they will include Greek bonds?) so there will be more Bubble fuel for stocks."* The Bubble inflated nicely in 2017 as investors took those freshly printed Euros they got for selling their cruddy (technical term) bonds to the ECB and bought equities of all shapes and sizes across the Continent. As we have discussed all year, a large component of the European returns for U.S. investors were courtesy of a weaker dollar (stronger Euro), but since we anticipated that trend, our portfolios were light on hedging and captured most of the gains. The best performing markets during Q4 were quite different than Q3 as the PIIGs digested their huge gains from last quarter and Austria, Ireland and Germany stood atop the leader board, rising 5.8%, 3.5% and 2.8%, respectively. When new capital flows into the region it tends to find its way into these core markets given their above average weight in the Indices. This Reflexive momentum is a great thing when it is working, but it is important to remember that it can be very painful when the virtuous cycle turns into the vicious cycle. The risks of this type of reversal are rising as we edge closer to the eventual day when Super Mario turns off the money spigot (likely to occur in 2018, in our opinion). Amazingly, for the full year there was not a single European equity market with a negative return (although there were a few in Q4). For that full year period the top European markets were Austria, up a stunning 58.3% (post-election relief), Denmark, up a very strong 34.7% (Monetary Policy and Novo Nordisk, 22% weight, up 50%) and Netherlands, up an equally strong 32.2% (post-election relief), which all meaningfully outpaced the U.S. markets. On the flip side, there were actually a few negative returns in Q4 across Europe (unlike previous quarters) as Sweden fell (3.8%), Finland dropped (2.6%) and Italy gave back (2.3%) during the period. When we step back and look at the whole year, there was not a single negative return across the fifteen countries and the "laggard" (in absolute definition only) was Ireland which was up "only" 18.1% (nearly equivalent to the SPX). Belgium, after a strong start to the year, finished up 18.5% and Sweden was up 20.6% to round out the "bottom" (again only because we had to force rank them) three. With every country up double digits for the year, it appears that the EU may not be on the way to becoming an open-air museum as Byron Wein once quipped (we will explore in Surprise #8 below).

Mr. Draghi, was noticeably absent again in Q4 (like in Q1 and Q2) perhaps trying to stay out of sight so he wouldn't have to confront the *"growing chorus of people making the case that Europe is recovering rapidly and that inflation is surging to the point that not only will Draghi have to Taper, but he may have to raise rates soon and even Super Mario would not be immune to the bullets that would be fired by global investors if he were to take away the ECB punchbowl just as the party was starting to get good again."* Super Mario's last appearance in Q3 was brief and he simply acknowledged that Tapering was a possibility next year, so it was an extended European Vacation right through the Holidays. Coming back to a topic that continues to puzzle us in Europe is why the transmission mechanism for QE in the EU does not have the same direct result as in the U.S. markets. We took the work that Larry did at TIS Group and tried to fit a model for Europe and summarized earlier this year, saying *"We have hypothesized that there should be a similar correlation between QE and Equities between Europe and the U.S. and we have fashioned a version of the TIS Group model to link Euro Stoxx 50 moves to ECB bond purchases."* After some trial and error (mostly the latter), we came up with a formula that appeared to be working that for every 100B Euro of purchases you get 20 Euro Stoxx 50 points. Given roughly $210B of QE purchases in each quarter of 2017 there should have been 42 Euro Stoxx 50 points per quarter during the year. After a rough start to the year, the model was dialed in through the end of Q3 and the target for the Index was 3,584 and the Index was actually at 3,595 (pretty good). Adding another 42 Euro Stoxx points to the target, we get 3,626 for the year-end level for the Index, but the Index actually limped across the finish line (falling the last few days) and only managed 3,504, down (2.5%) in Euro terms for Q4. The lag problem we discussed this summer seems to have returned (or maybe the transmission mechanism just doesn't work the same). When thinking about the seeming disconnect between the model and the markets, we discussed in Q2 that *"If QE isn't going to drive equity returns, then we need a good old-fashioned economic recovery to drive stocks higher. We warned that "if the hard data continues to come in less positive there is potential for the fundamentals to swamp the sentiment and technical momentum that emerged in Q1."* A real economic recovery has indeed taken hold in Europe as Q4 GDP came in at 2.7% (above expectation) and up nicely from 2.5% in Q3 (and far ahead of the 2Q16 trough at 1.6%). Should the growth continue, there could be some further gains to be captured in Europe, particularly if the earnings growth remains robust and the only spoiler would be if the stronger Euro begins to bite at exporter earnings.

With Abe-san's victory as Prime Minister in November of 2012, we became bullish on Japan and on Japanese equities in particular. We embraced the construct that Abenomics would boost animal spirits, encourage new business formation and support export-oriented businesses (through a weaker Yen). Five-plus years later, the Dynamic Duo of Abe and Kuroda can waive the mission accomplished banner (at least on round one, since Abe has been re-elected) as on just about every measure the results are very positive. With regard to judging Abenomics, a weaker Yen, stronger economic growth, the absence of deflation and higher stock markets would be a good quartet of criteria. The USDJPY exchange rate is higher by 44% (weaker Yen), economic growth has now been positive for eleven consecutive quarters (back to a 2.1% annualized rate), inflation has been positive for fifteen consecutive months (back to a 1.0% level) and the Nikkei Index has rallied 165% (compared to the S&P 500 being up 105% over same period). Even more impressive are the moves of the major Japanese tech companies, Sony (SNE) and Nintendo (NTDOY), which are up a stunning 350% and 280% over the period, respectively. Try as he might, Kuroda-san has not been able to keep the Yen moving down, but he has been able to stabilize the 10-year JGB just above zero (banished negative interest rates which is huge), so we are fine with the fact that the USDJPY trend has taken a pause. We wrote in the fall that *"Unlike Q1 where not much happened in the Nikkei as a whole, despite seeing some bifurcation between "Old Japan" (losing) and "New Japan" (winning), Q2 had a marked feeling of growing* *momentum as investors around the world are beginning to return and are finding rapidly growing earnings across a broad swath of companies as prices that are substantially lower than the U.S. and Europe."* Global investors returned in droves in Q4, joining the BOJ and the huge Japanese Pension Funds as huge buyers of Japan stocks and the markets surged during the period, jumping 8.5%. We wrote last time that *"With Japan Inc. earnings set to explode higher by more than 20% (some estimates as high as 25%), there is some chance that our Ten Surprises target of 22,000 for the Nikkei might be in reach by year end (or maybe in January, which technically would be within a year of the Surprise)"* and it appears we were a little conservative as the Nikkei soared into year-end to finish 2017 at 22,765, up a very impressive 24% for the year.

Curiously, despite improving fundamentals all year, the gains in the equity markets were very concentrated. The Nikkei was essentially up only a few percent for the first seven months of the year and then caught fire (along with other global equity markets) on September 8th (day after the Trump Tax Deal with the Democrats) and was up nearly 20% through November 8th and then was basically flat through the end of the year. We discussed the record setting stretch that occurred in October last quarter, writing *"that move in equities really accelerated in October, as the Nikkei surged 8.5% (actually enjoying the longest consecutive streak of up days, sixteen, it history) on the anticipation (and realization) of Abe-san winning another landslide victory and consolidating his power base (virtually assuring that he will remain PM for five more years)."* Another thing we pointed out last time (that we will update here) is how the bounce off the Trump Election Day panic has been significantly more powerful in Japan than the U.S. and once again while investors and the media talk about how great the S&P 500 has been, they could have made much more money buying Japanese stocks than American stocks. Updating the numbers through the end of 2017, the Nikkei has surged 33% over the past fifteen months, nicely outpacing the S&P 500, which is up about 25%. The hedged Japan ETF (DXJ) is also up 35% (different allocation from the Nikkei cancelled a 7% lift from hedging), the Japanese Financials ETF (DXJF) is up a solid 32% and the big tech winners just kept on winning as Sony (SNE) and Nintendo (NTDOY) surged 47% and 55%, respectively. As is usually the case, right as we were about ready to give up on the Japanese Mega-Banks for a while (no natural buyers despite being exceedingly cheap), some buyers finally showed up and the big three, SMFG, MTU and MFG rallied in Q4, with SMFG and MTU rising smartly, up 13%, while MFG was up only 3% (but finally up). These stocks continue to be very cheap and are likely to finally make from headway in the New Year. Japan has experienced similar leadership as the U.S. with Technology driving a great deal of the Index returns in 2017. The four Big Dogs in Japanese technology, Sony (SNE), Softbank (SFTBY), Trend Micro (TMICY) and Nintendo (NTDOY) were mixed in Q4 (after taking breather in Q3) and while NTDOY and SFTBY digested some of their huge gains, falling (2%) each, SNE and TMICY powered ahead, jumping 20% and 15% in Q4. For the year, these Fab Four were up sharply, surging 60%, 20%, 60% and 72%, respectively. We remain bullish on Japan and we will highlight our thesis in Surprise #7 below.

Last quarter's Letter theme was a tribute to Yogi Berra who famously quipped *It's Déjà Vu All Over Again* and that phrase certainly came to mind in thinking about Emerging Markets throughout this year and we highlighted a déjà vu moment last time that we discussed in the Q2 Letter, saying *"certainly, lightning couldn't strike twice and clearly the second increase in the Fed Funds rate would have to put pressure on EM currencies and equities, so EM stocks couldn't possibly be the best performing asset again in Q2? As is usually the case, when everybody believes something is going to happen (or not happen) the opposite usually happens, and EM was the best performing equity asset class in Q2."* Yogi was right, and lighting struck a third time in Q3 and EM beat the S&P 500, the MSCI World Index, the MSCI ACWI

Index, the MSCI ACWI-ex U.S. Index and the MSCI EAFE Index. That 7.9% gain in Q3 put EM markets up a remarkable 27.8% for the first three quarters of 2017 and we tried to put that into perspective last quarter, writing *"Think about all of the ink spilled this year about how great the returns of the S&P 500 and NASDAQ have been this year (and they have been impressive, up 14.2% and up 20.7%) and they have risen 50% less, and 25% less, than EM in 2017."* So, it couldn't be déjà vu all over again in Q4, right? There was no way those pesky developing markets could outperform the core markets with all of their central banker might aligned behind them to inflate their asset price no matter what? Why, sure they could, and the MSCI EM Index surged another 7.4% in Q4 to move the 2017 full-year return to an astonishing 37.3%, more than 70% better than the SPX return of 21.8%. Remember that we listed out all the reasons why EM had to underperform in 2017 (more specifically why the consensus was sure EM would underperform) when we wrote *"Emerging Markets were not supposed to be strong performers in 2017 (or in 2016 for that matter…) because the Narrative was that the Fed was going to raise interest rates, the dollar was going to rally, EM currencies were going to crash, China was going to have a banking crisis and hard landing and EM equities were going to give back all their gains from 2016."* One of the funny things (funny in a good way) was that the consensus was right about interest rates (the Fed did hike rates three times) and EM equities surged anyway. For the other consensus prognostications the joke was on them as the dollar was the one doing the crashing (not EM equities), China GDP not only didn't crash, but accelerated upwards (defying all the pundits), there was no banking crisis in EM and not only did they not surrender their gains from 2016, but rather more than trebled those gains in 2017 to be up 47% over the two years versus only 30% for the S&P 500. And just when you thought it couldn't get any better for EM, it did, as during the global equity market melt-up in January the MSCI EM Index surged 8.3%, outpacing an audaciously strong 5.7% return from the SPX Index. While we remain very positive on these markets over the long-term, there is likely to be some volatility at some point in the near term. We highlight our long-term perspective on EM in Surprise #9 below.

EM Index performance in Q4 was very strong again, but like the third quarter (unlike the 1H17) there actually was some dispersion of performance across various countries within the Index, ranging from up 21.4% to down (8.1%). Amazingly (for the fourth quarter in a row) there were lots of countries with double digit returns and only a few countries with negative returns during Q4 (five out of twenty-five). At the bottom of the leader board was Mexico that fell (8.1%) on renewed fears of NAFTA changes. The biggest problem for Mexico (and Canada) is the complete lack of coherent communication coming out of Washington regarding strategic objectives for NAFTA renegotiations (probably because there is no strategy other than bluster…) so uncertainty reigns and markets hate uncertainty. Up until Q4, Mexico had been one of the stronger performing markets as prices were recovering from the post-election pummeling last year, so the full year return was a healthy 16%. Pakistan moved out of the cellar in Q4 (barely) but continued to get punished for not making the MSCI Inclusion cut in June. It truly is amazing how much power the MSCI Committee has when it comes to making or breaking equity markets in the smaller countries around the world. We described the phenomenon in the Q2 Letter, writing *"a market darling in 2016 (surging 40% in off the bottom last February) on the expectation of being upgraded from Frontier Market status to the EM Index, but suffered a bit from the "buy the rumor, sell the news" phenomenon and fell (6.2%) in Q2."* We talked about how selling begets more selling and window dressing exacerbates the problem at the end of the year as portfolio managers clear the decks of losing positions (so investors won't see their mistakes on the year-end statements). We wrote last quarter that *"One thing that we think is being overlooked amidst the reshuffling of portfolios thanks to the MSCI reclassification is how beneficial the Belt and Road Initiative (the project formerly known as OBOR, One*

Belt, One Road, now nicknamed BARI) will be to Pakistan over the long term and we would expect to see Pakistani equities back atop the Leader Board sometime soon." Soon turned out to be the last couple days of 2017 as bargain hunters swooped in (it doesn't take much buying in illiquid markets to move prices) and Pakistan was up 13% through the first three weeks of January before some political rhetoric out of Washington (shocking) brought the sellers back out and most of those gains evaporated over the last week. For the year, Pakistan dropped (24.4%) and is now squarely in the camp of being a Miserable place to invest (as defined by Sir John Templeton) and we expect that there will be more gains than losses in 018. The third worst performer during Q4 was UAE which got hit by the political and diplomatic turmoil resulting from their spat with Qatar and fell (6.9%). Despite having the support of Saudi and the early support of the U.S., a shift by the Trump administration toward Qatar created enough controversy and uncertainty for investors to sell first, ask questions later. For the full year, UAE was stuck in neutral and was only up 2.9% as the overall Middle East region struggled to generate equity returns. Perhaps UAE can find some solace in the fact that markets in rival Qatar were down more for the year, falling (11.5%), one of only two emerging markets with negative returns in 2017.

At the end of the Laggards section last summer, we wrote *"As is usually the case in EM, markets tend toward extremes in both directions, so don't be surprised to see these cellar dwellers back at the top of the leader board in coming quarters."* Right on cue, two of the top performers in Q4 were at the bottom of the leader board most of the year and some of the rebounds have been nothing short of breathtaking (which has often been the modus operandi of markets in the algorithm era of markets). We like to say it is always more fun to talk about winners (versus losers), even more fun to talk about big winners and the most fun to talk about really big winners and there were some really big winners in Q4. The best performing countries in EM during the last quarter of 2017 were South Africa, China and Greece and while China has been a hot market all year, South Africa and Greece had been struggling (particularly in Q3). In Greece, we were surprised by the weakness in Q3 as the negotiations with the EU and the IMF were going well; in fact, we had written previously that *"in April, the IMF had made noises that they were on board with the proposed plan and the Tsipras led government seemed to have made all the concessions needed to get the third bail-out."* Greek markets soared in Q2, up 27%, and were up another 6% in August when the bottom fell out thanks to the EU hinting that an Asset Quality Review might be necessary for the Greek Banks (translation, more dilutive equity capital needed) and markets crashed. Through our on the ground network in Athens, we had learned that *"There was a rumor that a Hedge Fund in TX (run by an outspoken manager) had written a big OpEd on how he had accumulated a large stake in the Greek Banks and that the EU (who was still smarting from a bet he made against European Sovereign Bonds in 2011) "created" the news about the AQR to slam the hedge fund's positions (seems a little out there, but curiously, the AQR rumors were denied a few weeks later after the damage was done).* Our sources did not believe that the AQR was necessary and they believed that the NPL problem in the banks was ebbing, so we wrote last time that *"We will hazard a guess that the Greek Banks (and other Greek equities) will be back on the top of the Leader Board very soon."* We will admit that by soon, we didn't mean immediately, but Greek equities shot up 13.3% in Q4 to post a respectable (compared to EM, but very strong compared to ROW) 28.6% return for 2017. On the banks, *"We have written often than in EM the banks represent the best way to play a recovery and Greece was a textbook example. We noted that we favored "Alpha Bank, National Bank of Greece, Eurobank & Piraeus, in that order of riskiness."* The banks were up 14%, 11%, 20% and 16%, respectively, in Q4 and were up again in January with Eurobank up 2% and the other three up 5%. We discuss our positive outlook for Europe and the Emerging Markets in Surprises #8 and #9 below, but we expect that Greece is the word in equity markets in 2018.

China A-Shares came in second place in Q4 surging 13.6% and we believe that this will be the biggest story in global equity markets in 2018 as thanks to the MSCI Committee decision to include A-Shares in the MSCI Indices beginning in June, every global equity manager in the world now has to figure out how to own these stocks in the coming months. While the initial allocation is small at only 2.4%, this decision has been long overdue given that the domestic China equity market is the second largest in the world (behind the U.S.) and would be a roughly 20% weight using the traditional market cap weighted methodology, so this will be a long, steady march to higher exposure to A-Shares in the years to come (talk about a major tailwind). Why did the decision take so long? We posited a theory last August, saying *"We have been amazed in recent years at the incredible negativity toward China and the complete dismissal of the investment potential there by Western investors. Home Market Myopia (people believe the only great opportunities are in the markets where they live) is exacerbated by the cultural divide between the West and the East and has been fomented over the past few decades by Western media as the economic, political and military power of China has expanded."* We understand that investors who deployed capital into China in the 1990s have negative memories about illiquidity (less gently, black hole), opaque accounting (less gently, fraud), transfer pricing issues (less gently, theft by majority owners) and challenging logistics (less gently, crappy systems), but it is almost the 2020s now and all of these issues have been addressed very aggressively and we contend that *"China has developed into a modern, powerful, economic powerhouse, investors who choose to ignore the Chinese markets are now missing some of the best investment opportunities of our lifetime."* We discussed last time how one of the challenges to being Bullish on China is the fact that a meaningfully large number of investors and other market participants who we hold in very high regard are wildly Bearish on China and their boisterous opposition to our positive view does cause some cognitive dissonance. As we wrote last quarter, *"The voracity of their arguments borders on religious fervor and it can make even the most confident China supporters (like us) consider what it is that these people know that we must be missing."* Most of the negative arguments focus on excessive debt, broken financial institutions and corrupt leadership. Listening to their arguments, one might be convinced that China was on the verge of an imminent societal collapse, but every time we visit there (we were there in Q4 for the annual meeting of our China Fund), we find that the things are actually getting better (not worse), growth is accelerating, pollution is falling, the banks are dealing with debt issues, infrastructure is spectacular, entrepreneurs are blossoming, innovation is exploding and we come away even more excited about the future than we were before we went (and we were already pretty excited). We commented last time that *"we have learned over many years of experience that arguing with zealots is a losing proposition, so you are better off simply listening intently to their perspective and thesis and using them as tools to challenge your own perspective and thesis and to test your conviction in that view."* We do find one thing strange in that some of the loudest China critics have never set foot in China (they say they have staff that does that) and we have always found that trying to draw sound conclusions about Emerging Markets from just numbers on a page is really tough (we actually might say impossible). Intelligent investors always seek divergent perspectives and dialogue and debate are critical to battle testing your investment hypotheses and lead to better investment results. We will always pay attention to what smart investors are saying about markets, but in the case of China, we believe that our long-standing presence on the ground, our decades of investing into the region and our deep network of managers and regional experts gives us an edge when deploying capital into China. Reiterating what we said last time, we continue to be so excited about the prospects for investing in China that we are currently raising a fund dedicated to capitalizing on the tremendous opportunities in the private markets across the Technology, Healthcare and the Consumer segments. As China transitions from a manufacturing powerhouse to a consumption driven economy, there will be outstanding opportunities for intrepid investors to make outsized returns.

One of the most persistent things that China Bears focus on is their belief that the economic data coming out of China is "fake" and that things are not nearly as good as they appear. Once again, this argument rings hollow in that they never give any data to support the accusation, but just insist that the China Hard Landing and Financial Crisis is coming any minute (for the past decade…). In an attempt to try and prove that the Bears were right, *The Economist* created an Index (Li Keqiang Index) of observable data (electricity use, banks loan disbursements, freight loadings, etc.) to try and show that the "real" economic activity in China was below the reported government numbers. The funny ending to the story is the Li Keqiang Index showed that GDP growth was actually higher than the government number (so maybe the government is understating the data so not to scare investors about risks of inflation and asset Bubbles). Let's review the macro data for China during Q4. GDP grew a little faster than expectations at 6.8% (same as Q3), down fractionally from 6.9% in Q1 and Q2, but a little above the target of 6.7%. For the full year, GDP grew at 6.9%, well above the 6.5% target set at the beginning of 2017. Retail sales growth continued to be strong in December, coming at 9.4%, but the trend has been slowing a bit in 2H17 as growth was 11% in June and 10.3% in September. Manufacturing PMI continued to expand slowly upwards during Q4, with the December number hitting 51.5, rising above the September reading of 51 and nicely above 50 (signals expansion). Non-Manufacturing PMI was stronger, at 54.3 (perhaps the most important number as China transitions to a consumer driven economy), down a fraction from the 53.4 level in September, but above the prior two months readings of 55 and above expectations of 55 as well. Industrial Production continues to expand and although IP is expanding at a slightly slower pace than the 6.5% growth a year ago, a 6.2% growth rate continues to be one of the highest in the world. One of the challenges of supporting high levels of economic growth is the need for continual expansion of the Money Supply and overall Credit. The PBoC switched the money supply spigot to wide open two years ago to help save the world from spiraling into an economic malaise and kept M2 growth very high (above 10%) for many quarters. We saw the PBoC begin to "tap the brakes" last quarter to begin the process of removing some of the excess stimulus from the markets, as they normally do after a period of rapid expansion. The skill at which the PBoC has been able to expand and contract the rate of growth of the money supply and credit has been extraordinary as they have been able to keep the property markets not too hot and not too cold over many cycles. M2 grew "only" at 9.2% in September (amazingly, the lowest rate since the data began being collected in 1996) and the deleveraging trend continued in Q4 as the M2 growth rate slipped to 8.2%. For perspective, M2 growth is down from 11.3% at the end of 2016 and it is likely that we have seen the end of the double-digit growth seen in previous twenty years. We can't emphasize strongly enough how important this trend will be over the coming years as global central banks will have to find ways to contract the egregious growth rates of fiat currency. China (as usual) is ahead of the game, has a long-term plan and is executing on their multi-decade vision while other developed countries remain reactive and are likely to find themselves falling further behind over time as the balance of global economic power continues to shift back to the East. Total loan growth also slipped slightly in Q4 to 12.7% (down from 13.1% last quarter), but the level of credit expansion remains quite robust and some economists continue to call for even higher levels of growth to support the Chinese economic expansion.

We think too much time is spent hand-wringing every month when these data points are released, as the Western Press loves to over-analyze every little wiggle in the data and make broad pronouncements of the end of China growth and an imminent Hard Landing (they are consistently disappointed). We have written on numerus occasions that we believe global investors are missing the key point that *"the Leadership in China is many moves ahead of China observers and is managing the growth rate very effectively. The Chinese know when to hit the brakes and they know when to hit the accelerator (like they did in 2009 when everyone thought the world was ending and they grew loans 34% that June and saved global growth)."* We describe this as #ChinaPlayingGo while the rest of the world argues about how to set up the checkerboard. China is transitioning toward a consumption driven economy and, as such, both Exports to China and Imports from China become critically important to their global trading partners. Trade was mixed in Q4 with Exports jumping 10.9%, up sharply from 8% last quarter, while Imports were up only 4.5% (well below expectations of 13%) as a sharp drop in oil imports from the near record levels of November hit the year-over-year data. Given the November number was 17.7%, the average over the two months is 11%, closer to the 13% target, but still something to watch in coming months (particularly as it relates to oil prices). Given the renewed negative rhetoric about trade that in emanating out of Washington again (all bluster), we repeat what we wrote last January that *"The relationship between these growth rates shows the transition from "Made in China" to "Made for China" that is underway as the Chinese economy transitions and also shows why it will be very challenging for Mr. Trump to wage a Trade War with China now that U.S. companies will benefit more from open borders than closed."* All hat and no cattle is the phrase that comes to mind when we hear any of the Trumpkins talking about Trade Wars and Tariffs, particularly when the comments are aimed at China. Mr. Trump thinks he is the ultimate negotiator and that the U.S. holds all the cards in the trade game, but once again, The Donald and crew are playing the wrong game, have underestimated their opponent and will make the same type of historically bad trade that Smoot and Hawley made back in the 1930s if they continue down the current path. Perhaps the best indicator of general health of the Emerging Markets is the level of Producer Price Inflation (PPI) in China, as historically periods of deflation in China (negative PPI) have resulted in poor equity market returns and, in many instances, led to periods of crisis in the global capital markets. As we discussed last time *"China's infusion of $1 Trillion of monetary stimulus into the markets in late 2015 and early 2016 has seemingly fixed the problem of persistently negative PPI that had plagued China for the previous couple of years."* PPI had risen smartly since late 2016 to a robust reading of 7.6% in March of 2017 before falling slightly back to 5.5% in June (making investors a little nervous that the reflation impulse was fading) but PPI had recovered back to 6.9% as of September. With the new efforts to pull some of the excess liquidity out of the system, PPI fell back to 4.9% in December, still a positive level, but a meaningful enough decline to prompt close monitoring in the coming months. We closed the China section in Q1 with the statement that *"Chinese equity markets struggle when the PPI is negative and do well when PPI is positive, so the current surge in PPI likely foretells positive returns in Chinese equities in 2017"* and the soothsaying ability of PPI was perfect last year as the Chinese equity markets were at the top of the global leader board as MSCI China was up 54.1%, MSCI Hong Kong was up 36.2% and the MSCI China A50 was up 50.2. Should the trend in PPI remain on a downward path, the upward trajectory of the advance of China equities is indeed likely to slow but should remain solidly positive unless the PPI plunges back in to negative territory in the quarters ahead.

Transitioning from the Macro to the Micro data, a core element of the bullish thesis on Chinese equities is that (unlike the developed markets) they remain relatively cheap (even after the huge 2017 gains). We wrote earlier in 2017 that *"the valuations in China continue to be extremely attractive and history has shown that investors with patient capital have been amply rewarded when buying Chinese equities at these levels."* Investors who bought those cheap assets were amply rewarded in 2017 (particularly those who bought early on the weakness created by the Trump rhetoric following the election). That said, even after truly outstanding performance again in Q4 (and for the whole year), valuations remain attractive as the MSCI China P/E is still only 18.2X and the forward P/E is quite low at 14.2X, the MSCI HK Index P/E is 15.6X and the forward P/E is 17X and the MSCI China A50 (A-Shares) Index remains the cheapest of all with a P/E of 14.7X and a forward P/E of just 12.4X. Compared to other global equity markets China valuations have moved to a slight premium to the other Emerging Markets as the MSCI EM Index P/E is 16X and the forward P/E is 13X, but they remain compellingly attractive relative to the broader global benchmarks. The ACWI Index P/E is now quite high at 21.3X and the forward P/E is 16.5X, the MSCI World Index has an even higher P/E of 22.3X with a forward P/E of 17.1X and the MSCI USA Index is at truly egregious levels with a P/E of 25.7X and a forward P/E of 18.9X (40% higher than the China valuations). So, with valuations this compelling, why are investors still so underweight China? Fears of an economic hard landing, currency devaluation and home market myopia continue to plague U.S. investors. We have criticized this position in the past saying, *"We continue to believe that these fears are misguided and that investors are missing out on a tremendous investment opportunity in China today by listening to the growling of the China Bears."* While sitting on the sidelines had no opportunity cost in 2016, the opportunity cost was huge in 2017, and as we discussed last quarter, *"To add insult to injury, the RMB has actually risen versus the dollar, rather than devalue, as the consensus believed coming into the year. Further, the decision by MSCI to include China A-Shares in their Indexes starting in 2018 will drive significant capital flows into the Chinese equity markets over the coming years."* Siding with the China Bears has been costly, and we believe it is about to get even more costly as the MSCI decision last June to include A-Shares in their global indices going forward means that every portfolio manager in the world now has no choice but to invest in Chinese equities. Our team in Shanghai attended the UBS China conference last month and relayed back to us at a recent Investment Committee meeting that they had never seen so many people at a China conference (and we have attended a lot). Oftentimes there can be a negative correlation between conference attendance and future returns and we make a habit of finding the emptiest rooms (most unloved sectors or companies) when we attend general investment conferences. However, in this case, when we queried attendees about why they were at the conference, the universal reply was that they had never gotten up to speed on the domestic China markets and they now had to allocate in their portfolios due to the MSCI changes. Not much translation is necessary, there is a Great Wall of Money that is about to enter the Chinese equity markets and sitting on the sidelines is going to get increasingly expensive in the years ahead.

We discussed briefly last time how we were invited to speak on a panel for the CAIA meeting in Dallas and the other panelists were Kyle Bass and Jim Chanos (notorious China Bears). In theory, we were supposed to talk about the role of alternatives in portfolios, but the conversation turned to China and we wrote that *"while there was no Jerry Springer-esque chair throwing, there was plenty of verbal sparring about certainty of a China collapse. Suffice it to say that Jim and Kyle remain unified in their bearish view and we were the lone bullish voice on China (similar to when we were the only bullish voice on Japan at another debate with KB at Jim Grant's conference in 2013)."* While we no longer feel like a lone wolf on our enthusiasm for China, we continue to hear more negative sentiment than positive and that is usually correlated with positive returns in the future. As long-time readers know, our portfolio implementation in China focuses on the Big Three sectors, Technology (e-Commerce), Healthcare and Consumer and the returns in these sectors were nothing short of spectacular in 2017. We did comment last quarter that *"given the extremely strong performance of Chinese equities in 2017, we would not be surprised to see a pause that refreshes"* and that was indeed the case as some of our long-time favorites names, including BABA, SINA, TAL, EDU, JD, VIPS and HK:700 had mixed performance in Q4, returning 0%, (13%), (13%), 7%, 6%, 35% and 17%, respectively (VIPS got a huge strategic investment from JD and Tencent). As we summarized last summer, *"The consumer story in China is a growth story that will unfold over the next couple of decades and will dwarf the emergence of the Boomers in the U.S. and Europe over the past few decades and the opportunities for wealth creation in both the public and the private markets are profound."* Investors should continue to build exposure to these sectors in the public markets and explore opportunities to participate in the amazing growth in the private markets. This tremendous transformation is precisely why we have had a team on the ground in China for a decade and why we are raising our second fund dedicated to the private investment opportunities in these sectors. The positive momentum in the public markets continued in January as the cadre of stocks above surged again rising 11%, 8%, 8%, (6%), 14%, 33% and 11%, respectively, while MCHI was up 8% and ASHR was up 7%. We understand that these types of monthly moves are not normal (almost panic buying) and we would expect to see increased volatility (read some downside volatility) in the coming months, but we repeat what we said last time that *"we would continue to buy the dips in advance of the MSCI Inclusion changes coming next June."*

Historically, Frontier Markets tend to run very hot or very cold and things continued to remain hot in Q4 as the MSCI FM Index rose another 5.6% to bring calendar year 2017 returns to a very strong 31.9%. While the 1H17 was a little bit of a melt-up and there were very few countries that showed negative returns, there was a little more dispersion in 2H17 and Q4 had a particularly wide range of outcomes with the best performing market, Vietnam, up a stunning 36.3% (for the quarter, not the year) and the worst performing market, Zimbabwe, down an equally stunning (21.7%). Interestingly, across the Frontier Markets there were six countries up more than 10%, but there also eleven countries that had negative returns during the period. We discussed some of the reasons for the variability of returns in FM last quarter, saying *"Volatility is more extreme in Frontier Markets for many reasons, not the least of which is that they encompass the least developed and diversified economies, have much lower levels of market liquidity, have far less useful (or even available) investment research, usually have far fewer investable companies, suffer from poor governmental systems (as well as some really bad Leaders), have inadequate infrastructure and host of other challenges for investors and all of these factors are what drive these markets to more frequent periods of Feast and Famine (figuratively and, tragically, often literally)."* Because of their small relative size (many markets are smaller than some of the #FANG companies), these markets are prone to Boom/Bust behavior and they can be challenging for investors to be patient and disciplined. The investment wisdom to be fearful when others are greedy and greedy when others are fearful is particularly important in Frontier Markets and staying disciplined to buy when prices are cheap and sell when prices are bubbly is critical because the eventual corrections back toward fair value are very sharp and very rapid. Illiquid markets can easily move to Bubble valuations with not much buying and conversely can easily move to Bargain valuations with not much selling. We wrote last time that following the wisdom of Sir John Templeton is extremely effective in FM saying, *"We channel Sir John all the time and try to help investors to steer clear of opportunities where everyone is crowding around (the Consensus) and rather seek out opportunities where no one seems to be (the Variant Perceptions)."*

The top performing Frontier Markets in Q4 were places where most investors had either given up after a couple of years of very poor performance or were too small to be on most investors radar screen. Vietnam and Kazakhstan markets had struggled in recent years but came roaring back to life in 2017 and finished the year with spectacular gains, rising 36.3% and 25.3%, respectively. The full-year gains were even more spectacular as Vietnam surged 64.9% and Kazakhstan soared 69.9%. One of the challenges for Frontier Markets is the perception held by many global investors that the total market capitalization of these countries is too small to be relevant. At only $66B and $40B, respectively, there is some logic to that perspective (and the free-float is even lower as many companies have substantial family ownership), but for all but the very largest institutional investors these markets are liquid enough to take meaningful positions in a diversified portfolio. The third best performer in FM during Q4 was Jamaica, which rose 19.4%, and had an even better 2017 than the other two jumping 78.9% for the year. The size issue becomes acute for Jamaica as a total market capitalization of only $7B makes this market fairly inaccessible for many investors. There are ways to gain access to some of the least liquid markets in index or ETF products, but the smallest markets in FM will not add or subtract materially from investor returns over most periods. On the downside, the worst performing markets in FM were quite disparate in both their returns and in their reasons for their performance challenges. At the bottom of the leader board, Zimbabwe's big drop of (21.7%) came after what appeared to be a stunning positive run in the first three quarters of 2017. Through September, the Zimbabwe equity market was up 250% but, on closer inspection, investors could see that this was a nominal mirage created by the reemergence of hyperinflation (similar to Venezuela) so the gains were likely to prove ephemeral. The 2017 return of 174.6% in Zimbabwe will likely continue to be eroded in 2018 as the transition away from the dictatorial rule of Mugabe continues and the country deals with chronic problems created by the horrible "leadership" of the past decades. Kuwait was the second worst performer in FM, falling (7.2%) as the Middle East conflicts between Qatar, UAE and Kuwait weighed on markets. For the year, Kuwait managed a respectable 18.8% return and given the sharp recovery in oil prices there could be some positive momentum in the Gulf markets in 2018 (depending on how stable oil prices remain). Ukraine has been a market that has been stuck in a significant rut in recent years and the last few quarters have been challenging as the market fell (5.8%) in Q4 and was only up 4.7% for the year. Worse yet, the trailing 5-year return is (10.5%) and the trailing 10-year return is an astonishing (26%), which means that $1 invested in the Ukraine index a decade ago is now worth $0.05. The rule of Down 90% comes into play here and we have found over the years that buying things that have fallen 90% has been a profitable strategy. The best news here is by not buying earlier investors have avoided the old joke *"What is the difference between down 90% and down 95%? You've lost half your money."* The Templeton Misery Index is flashing red in Ukraine, and it may be time to at least explore some investment options in the breadbasket of Europe.

We have written on numerous occasions over the past three years how Argentina has been one of our favorite markets. The transition away from the Peronista regime has had a stabilizing and energizing impact on a resource rich country that has suffered from poor leadership and kleptocracy for decades. Summarizing again, *"Argentina has been an amazing story over the past few years as they have transitioned from a country trapped in the past being exploited by a despot, to a rising star in the international community trying to recapture their position of prominence from a century ago."* Despite the dramatic turnaround, global investors have been reluctant to re-enter Argentina and have thus missed out on one of the truly remarkable turnaround stories (and money-making opportunities) of the past decade. While the 7.3% returns in Q4 did not make the top three for the quarter, the 2017 returns of 73.5% trailed only Zimbabwe and Jamaica and were a far superior investment destination for the reasons highlighted above. After being effectively locked out of capital markets since defaulting on their debt in 2001, Argentina is back, and recent bond issues were 20X oversubscribed and the interest from global investors has been increasing. Nothing like a multi-year bull market to finally draw people's attention (better late than never) and while normally we would be hesitant when the crowd starts buying what they wish they would have bought, but we see tremendous potential in Argentina as the equitization ratio (market cap to GDP) remains the lowest in the world and the return of global investment capital is catalyzing meaningful development of dormant projects that should generate strong returns for a long time. We wrote last time how *"changing institutional investor interest toward Argentina is one of the most important drivers of growth of the magnitude of the investment opportunity."* The one challenge for Argentina in the short term is the continued wishy-washy behavior of MSCI on the Inclusion decision. Things were really beginning to accelerate in the Argentine markets last summer when *"a funny (or not so funny, if you are Argentinian) thing happened in June, the MSCI Inclusion Committee left Argentina standing at the altar and didn't promote them from FM to EM."* We still believe that the decision was more one of timing (this coming June) as opposed to a decision against inclusion, but we will have to see how that plays out in Q2. Buying the dips in Argentina has been a winning strategy over the past three years and should continue to be a great strategy for the foreseeable future. While Merval Index returns have been quite strong, there are likely to be some dips along the way and so long as Macri remains in power and committed to the reform agenda, we would be ardent buyers of those dips. While the index has been great, there are some individual companies that have performed even better, Pampa Energia (PAM), the electric utility, Macro Bank (BMA), Grupo Galicia (GGAL), another large banking group, and YPF (oil) make up a Fab Four. Overall performance was a little mixed in Q4, with returns of 2%, (3%), 27% and 0%, respectively, but for the full year the returns were spectacular, up 87%, 66%, 133% and 32%, respectively. As a fun update, we have written many times that PAM (in addition to being the best executive assistant) was *"our favorite stock (in fact I tweeted in July of 2015 if forced to own one stock for the next five years this would be it)"* and since then PAM has soared 405% while the SPX is up 35% and ARGT (the Argentina ETF) is up 95%. ¡Viva Argentina!

The battle for the soul of the Bond Markets continued to rage in Q4 and we stated in the past that the eventual outcome of this tug-o-war will have far reaching implications for global investors over the coming years. We described the combatants last summer saying, *"The warring factions are the active managers who contend that the Bond Bull Market is alive and well versus the academic talking heads (like Alan Greenspan) who are calling a Bond Bubble and an imminent crash."* The Reflation Bulls (Bond Bears) point to the Trump Trifecta and claim that the combination of 1) Reducing Regulation, 2) Reforming (lowering) Taxes and 3) Increasing Fiscal Spending will drive a great growth recovery paving the way for higher rates. There are a few #PeskyFacts that could spoil the Narrative and we outlined those last quarter when we wrote *"Simply summarized, reduced Regulation could actually reduce overall profits and tax receipts (less M&A cost savings and lower monopoly profits), a simple Tax Cut for the wealthy has been shown not to result in additional growth (many middle-class tax bills would rise under current plan) and we know that Fiscal spending has a negative multiplier effect and crowds out private spending (actually reduces growth)."* The challenge for the growth Bulls (who are urged on by an Administration making heroic proclamations of 4% to 5% growth) is that Nominal GDP growth is just a math identity and is the sum of Working Age Population Growth and Productivity. The math is not that complex in that we know WAPG for the next decade with certainty (just an exercise of counting babies born) and we know that Productivity has been contracting for years (turns out people aged 25-45 and 65-85 are not as productive as 45-65). None of the Trifecta events deals with either of these issues, so it is really tough to see where the magical growth boost will come from (unless there is some super-secret asset price factor in GDP…). The funny thing is that this debate has been raging for a decade and the increase in debt (government and corporate) has actually not led to increased growth and higher interest rates, but the worst decade of growth in U.S. history and the lowest rates in a century. In point of fact, *The End of the Great Bond Bull Market* Narrative clearly didn't seem to have the intended impact on U.S. interest rates during Q4, as the 10-year Treasury yield began the quarter at 2.33% to begin the quarter and actually fell below that level twice during the period before ending the year at 2.41% (interestingly, lower than where it began 2017 at 2.44%). On the GDP growth front, the Narrative of a strong rebound in growth emanating from the White House and from all the Trumpkin talking heads (remember 4% was a gimme, like the President's putts inside 10 feet…) was contradicted by the facts (real facts) as Q4 GDP came in at a very disappointing 2.6% (down from 3.2% on Q3) and for the year GDP grew only 2.3% (well below everyone's estimates a year ago). Once again, in direct defiance of the Bond Bears (and the Administration), the Barclay's Aggregate Index rose another 0.4% in Q4 and the Barclay's Long Treasury Index surged 2.4% as well, bringing 2017 returns to respectable levels of 3.5% and 8.5%, respectively. The fact that the long bond outperformed shorter duration bonds is very interesting sign that the markets may be trying to tell the Fed that hiking short-term rates this far into an economic expansion is a Policy Error (inversion of the yield curve keeps getting closer). We discussed in last year's Surprises that *"Raoul Pal of the Global Macro Investor Letter writes about the "Chart of Truth" on the 10-yr Treasury bond, which says that the primary trend is down until the yield passes the previous cycle high, which was 3.06%. We reiterate what we have written many times "we continue to side with Van Hoisington and Lacy Hunt who believe that the secular low in rates is ahead of us, rather than behind us."*

We believed that volatility of the performance of the long end of the Treasury curve relative to the S&P 500 in 2017 was a statement on the fragility of the capital markets. We saw multiple examples where *"there has been a very strong flight to quality whenever there is the slightest bit of negative news (or turbulence in the equity markets) and contrary to the Bond Bears, the 30-year Treasury continues to act more like a Safe Haven asset than a Bubble asset."* We wrote about how the relative performance of the S&P 500 and Long Bonds (the SPX:TLT spread) has been an important indicator of market participants' view of where we are in the economic cycle and the risk appetite of investors (Risk On versus Risk Off). The ratio ebbed and flowed during 1H17 and made a couple of round trips of widening and moving back to zero by the end of June. It expanded again over the summer but when it became clear that a Tax Cut deal was in the cards in September, stocks began to rally hard and bonds began to retreat, so the spread blew out 11% by October and tacked on another 2.3% during the rest of Q4 to finish the year at 13.3% (very wide). We wrote last time that *"despite the recent spread levels, we stand by our call that TLT will beat SPX for 2017 (although admittedly looking like a tough bet with only two months to go)."* Clearly that turned out to be wrong (quite wrong) as animal spirits reigned in the final months of the year. It is always important to learn from your mistakes, so what did we learn from this experience? Looking back, our thesis for this position was based on the construct that if the economy were to slow, and equity markets began to struggle, long bonds would again serve as a Safe Haven trade and protect investors from the perils of the journey toward Hooverville (or worse, Trumptown). We bolstered our case (or so we thought) by citing rising evidence of stretched corporate performance saying, *"A lot can happen (or not happen) in the last weeks of the year, but we continue to see increasing evidence of economic stress, slowing earnings growth and perhaps most disturbing is the widening of the spread not between Stocks and Bonds, but between GAAP and non-GAAP reporting by companies that harkens back to the Bubble Trouble times of 2000 (that was followed by two years of record restatements of "earnings")."* The funny thing about Q4 was that our view on long bonds being a Safe Haven trade did play out reasonably well (they rallied nicely to end the year up 8.5%), our view on economic activity getting worse, not better, did play out reasonably well (Q4 GDP well below estimates and without hurricane effects close to zero), but equities just went right on rallying and surged much more than bonds. We learned (once again) that over short periods of time, equity markets can (and do) diverge from the fundamentals and that expectations for government intervention like Monetary and Fiscal activity can trump (pun intended) actual economic data.

We crystalized our thoughts on the central banks last time, saying they *"have become media stars in the New Abnormal (market environment since 2000) and every move they make (actually seems like every word they utter) is analyzed, parsed and broadcast endlessly by talking heads proclaiming their infinite wisdom and expounding how their endless money printing experiment is going to generate economic growth, inflation and higher interest rates (any day now…)."* We also noted how the hard data does not support the Narrative and the central bank worship appears (to us at least) to be ill-advised. We have experienced the worst decade of economic growth in the history of the U.S. despite all of the massive liquidity provided by the Fed and there continues to be no sign of any meaningful inflation, so other than the unemployment rate moving down dramatically (perhaps aided by the massive movement of people out of the workforce), there is not much for the Fed to do a victory dance about. The issue really has been a global phenomenon and we wrote that *"Global Bond markets have been most noticeably locked in that declining trend (yields down, prices up) caused by the glamour bankers from central casting (well actually, mostly from Goldman) providing an endless bid for Government Bonds and the resulting mad scramble for yield by global savers being victimized by Financial Repression (where CBs artificially hold interest rates down in order to encourage speculative investment activity and hopefully trigger a wealth effect)."* That wealth effect seems to only apply to asset prices as everything that the wealthy own, stocks, real estate, art, collectibles, etc. has skyrocketed in value while the income disparity has exploded, and Middle-Class jobs have been decimated making the likelihood of this trend reversing any time soon quite small. We summarized this problem last quarter writing *"Simply stated, artificially low interest rates transfer wealth from Savers to Borrowers (does it not seem odd to anyone else that prudent behavior is punished, and speculative behavior is rewarded…) and incentivize improper risk seeking behavior by investors."* Upon further reflection, it is only odd if you assume that there is a desire to encourage prudent behavior and not to create asset price inflation to transfer wealth to the top of the pyramid (silly us). We think a very perilous thing is occurring today as interest rates have begun to back up rather sharply in January and this could lead to rising turmoil and throw a wrench in the aforementioned plan. There has been a huge amount of jawboning about how the Fed with Powell at the helm is going to get more aggressive on hiking rates and accelerating Quantitative Tightening (reducing asset purchases). We will have to wait and see if there is any action to back up the talk and we will reiterate what we wrote last summer that *"We will continue to take the under on any date that the Fed throws out for selling Bonds back to the market as there is a reason the* central banks *are called the "Buyer of Last Resort" and we expect this game of promising bond sales will go on for many years (as it has in Japan)."*

The Barclay's Global Aggregate Bond Index was up a solid 1.6% in Q4. Once again, as has been the case all year, the bulk of these returns for U.S. investors during the quarter was dollar weakness. Global rates, like U.S. rates were fell slightly during the quarter (again, contrary to the Narrative of rising rates), but the currency effect dominated the overall returns. The Deflation versus Reflation battle raged on in Q4 and while there are signs of the bond markets leaning toward Reflation again in January, the economic data doesn't support the Bond Bear thesis. For the full year of 2017, the Global Aggregate Index defied the Bond Bears and surged a very solid 10.5% and while a large percentage of those returns came from FX, there were real positive returns in Global Bonds. Looking at individual bond markets around the world we see some evidence of a shift in sentiment toward higher rates, but it is still far too early to declare and end to the Great Bond Bull Market. In Japan, 10-Year JGBs seem to have broken out of the grip of negative yields (remember that nothing says Deflation like negative bond yields), barely, as JGBs began Q4 at 0.07% and ended at 0.05%, but they also hit a low of 0.02% in late November. Kuroda-san continues to say he will pin the 10-year at zero or the foreseeable future and it appears that he is winning the battle in the near term. In fact, with a rise all the way to 0.08% in January, maybe Abenomics has finally defeated Deflation (we wouldn't pop the Sake bottle yet). European 10-year yields have been range bound all year and Q4 was no exception. The biggest issue (that no one is talking about) is that there are still close to $8T of government bonds with negative yields globally today (most of them in Europe) and we don't see much evidence that this is going to change any time soon. German 10-year Bunds started the quarter at 0.46% in September and fell all the way to 0.29% in mid-December, before surging back to 0.43% to end the year (why yes, that would be lower than the beginning of the quarter). There was a fairly big move in January to 0.63% and the trend is clearly upward today, but until we see 0.92% (the 2015 high), the primary trend remains down. Repeating what we wrote last summer, *"We continue to hear about how this recent move in rates in the "End of the 35-year Bond Bull Market' and we even wrote in Q3 that "there is a rising cacophony that this time is the big one" and everyone says that foreign government bonds are the short of a lifetime."* Perhaps they are, and this time (unlike the last seven times) there really is a bottom, but we still believe it is too early to make a definitive call. Trying to maintain perspective is hard during high levels of volatility, but 0.29% in December (not very long ago) was materially lower than the last time the Bond Bull market was declared dead. On the flip side, Bunds did not take out the lower lows of 0.15%, so it is certainly possible that we are seeing the beginning of a trend reversal. The risks to that argument are that growth falters or inflation continues to decline and the ECB is forced to extend QE for longer. Just one other quick point here is that during Q4 Greek Government Bond yields fell sharply from 5.7% to 4.1% (and even further to 3.7% in January), which is a trend that directly contrasts with core European yields.

We put together a checklist of criteria to evaluate the likely path for European rates that examined economic data to see if things had changed in a material positive direction that would indicate that rates were likely to head higher. Let's see what has changed over the past quarter and see if the data supports the changing Narrative that rates are headed higher. First, is European (and, importantly, German) GDP growth better? Overall EU GDP has improved smartly over the past four years since turning positive at the beginning of 2014 and was accelerating over the first three quarters of 2017 from 1.9% to 2.8%, but took a tiny step backwards in Q4, coming in at 2.7%. For the full year, EU GDP grew at a healthy 2.5% clip (higher than the U.S. and Japan). German growth was on a similar roll for the first three quarters of the year before slipping in Q4 to finish 2017 at a 2.2% pace. While that rate of growth is an improvement over the 1.9% rate in 2016, it is not strong enough to push up inflation and profits (just above stall speed). Second, has European inflation reemerged? With the rapid recover in oil prices in 2016, EU CPI did surge from the 0.2% low in June of 2016 back to 2% in February but those gains have proved transitory (as we anticipated) and CPI has now fallen steadily for the past three quarters finishing the year at 1.4% and dipping back to the summer low of 1.3% in January. Third, are European politics stable and supportive of better growth? The majority of European elections have been non-events from a Populism perspective as the fringe candidates ended up being more attractive to the media than the voters. We wrote last time that *"It is still too early to say that Populism, Nationalism and Protectionism are dead, but there continue to be encouraging signs that the political landscape in the EU is supportive of better capital markets outcomes"* and that summary still applies today. That said, there are two wrinkles in the European social fabric that bear watching. One, Ms. Merkel seems to have lost some support, and it has been a challenge to reach a majority in the German Parliament for a long. Two, Italy has been unable to reach a consensus on a new government and it appears that the upcoming election will not solve the issue yet again. Fourth, have European Demographic trends improved? This one is not going to change for many years, so no will be the answer for the foreseeable future. Worse, courtesy of continuing Populist rhetoric on immigration (that gets worse after every terror event) the issue is likely to get worse, not better, and be a meaningful deflationary force for many years. Fifth, are European banks healthy and rapidly growing new loans? European banks are in much better shape than two years ago, they have raised capital and passed the Asset Quality Reviews, so they should be in great shape to begin expanding their loan books. Sometimes theory is better than practice. Loan growth has continued to be anemic and, as we wrote last time, the problem is not from lack of effort to lend on the part of the banks *"but from lack of demand (it appears that many corporations and individuals already have too much debt)."* Still no abundance of Yeses, but enough Yeses to conclude that there is a real EU recovery going on, but the question remains is the rate of growth high enough to support higher global bond yields. There is one thing that could lead to higher yields in Europe and that is that the difference between global yields and U.S. yields is so wide that the risk/reward of being long those bonds is inferior to owning Treasuries for those seeking a Deflation Hedge and that lack of demand could feed the vicious cycle of rising rates should the ECB actually stop buying all the European government bonds.

As we described last quarter, *"Financial Repression has caused such outrageous behavior in the bond markets that now when discussing High Yield Bonds, we refer to them as Not So High Yield (NSHY) bonds."* It has been challenging to call non-investment grade bonds with yields below 4% high, so the NSHY moniker stuck in 2017, but there were some small signals in Q4 that perhaps investors were waking up to the risk of owning highly leveraged companies during the tail end of the economic cycle. The BoAML HY Index did manage to eke out another positive return during the quarter, rising 0.4%, and the 7.5% return for the full year was another solid number in a string of very solid numbers for the bonds formerly known as High Yield. NSHY remained oblivious to fundamentals in Q4 (declining credit quality and high leverage) and spreads just keep on tightening for most of the quarter (thanks to the continued grab for yield). Option Adjusted Spreads (OAS) started low and got lower for most of the period, falling from 3.88% on 9/30 to 3.38% on 10/24 before surging quickly to 3.97% over the next three weeks and then fell just as quickly as they had risen back to 3.63% on 12/31. The craziness continued in January and OAS collapsed below the October low, hitting the insane level of 3.23% on 1/26 (right before the world changed on the Bradley Turn Date on 1/29) before bouncing back a bit to finish January at 3.29%. We have a feeling that the fun is just getting started here and that we will have a lot to write about next quarter as the NSHY bonds become ALHY (A Little Higher Yield) bonds and investors who piled in over the last few months (chasing the yield) will be nursing some meaningful losses (probably a good time to start shorting junk bonds here). If we dig down to the bottom of the coke can (never want to take that last sip) in the NSHY market, we find that the really risky stuff, the CCC rated bonds (remember that a CCC rating means 50% are expected to default within four years) continue to be the most prized by investors for some unknown reason. What we wrote last summer seems to still apply, *"In a world where market participants believe there is no risk why not buy the bonds with the largest yields?"* Buying bonds with a 50/50 chance of being of being paid back seems like a bad strategy. If the logic (or maybe better, rationalization) is that so long as you are paid a significant premium above the risk-free rate you can afford to have a bunch of bonds default then we would expect to see yields that make that math work. The challenge is that the crush of money into NSHY bonds has pushed CCC yields down to 10.34% to begin Q4 and they ended the quarter around the same level at 10.53%. So, let's go through the math…as these bonds default, the owner will lose (on average) about 12.5% a year and if the recovery is fifty cents on the dollar (probably high, but trying to be kind) they will net about 4.28% (10.53% minus 6.25%) from a portfolio of CCC NSHY bonds (10-Year Treasuries yield 2.8%) so the risk premium seems awfully low to go from risk-free to "everything has to work out perfectly." We discussed last quarter that speculators (can't call them investors at these levels) are making the case that because the central banks have extended the economic cycle *"there won't be many defaults and these low rated securities will magically defy the long-term default averages (we guess anything is theoretically possible)."* Again, hoping that this time is different seems like a sub-optimal way to invest and we would expect that this segment of the market (basically equity in waiting) will experience the same turbulence when things do actually turn down, or as we like to say #RiskHappensFast.

We have said often that it is critical to keep in mind that the underlying companies that issue these bonds are the ones that must ultimately pay back the bondholders and, if the underlying businesses are weak (and getting weaker), what is the likelihood that they can/will pay? NSHY bonds are called non-investment grade for a reason (taken literally, one would not be inclined to invest) and we have written that *"lending money to companies with poor track records of always paying it back at yields that do not compensate you for the risk of losses from defaults seems like an ill-advised idea."* It is critical to remember that the price of an asset does not change the underlying quality (or lack thereof) of the asset, the price is simply the level at which two external parties are willing to exchange a security because their perception of the underlying value is different. The fair value of an asset is the fair value. The current environment makes the problem even more acute for bond investors because of the preponderance of covenant-lite, or worse, no covenant bonds (a loan with no covenants is just "future equity") makes the risks of buying these assets even higher than normal. To this point, we discussed last time how *"Moody's recently declared that the overall quality of NSHY bonds issued, as measured by strength of covenants protecting investors, hit the lowest level ever (may, with benefit of hindsight, turn out to be the point at which the craziness ends)."* That said, long-term readers of this Letter will say, "but you have been early (euphemism for wrong) on sounding the alarm in the past" and we can't argue that point other than to say that in Q4 the opportunity cost was very low (return was only 0.4%) and there were plenty of much better places to deploy capital. Investing is not just an absolute return game, but also a relative return game. When evaluating outcomes, you have to consider other options for where capital may have been deployed. Clearly moving from NSHY to cash would have had a negative relative return of (0.4%) but moving into EMD would have had a 0.2% positive impact (and reduced risk given lower valuations). In *#TheValueOfValue* Letter we also pounded home the point that *"when market participants (use that term intentionally) pile into any asset class with no Margin of Safety (pay a price above fair value simply because the price is rising) those market participants leave the realm of investors and become speculators."* Speculators focus on price and returns, while Investors focus on valuation and risk and we believe that the valuation and risk levels in NSHY bonds are not compelling and are even bordering on levels at which it may be time to think about taking the other side of the trade (getting short). We will close this section the same way we did last quarter saying, *"When people buy assets rise rapidly in price they become overconfident, they become complacent and they ignore warning signs that they would normally heed if they were more fully engaged in thinking about the investment process. When markets get really seriously overvalued, they are prone to speeding too fast, ignoring the stop signs and they ultimately hit the wall with #NoSkidMarks. We will quote Bernard Baruch (again) here who frequently said, "I made all my money by selling too soon."*

In our opinion, investing is all about taking intelligent risks (those you are compensated for taking). To be a great investor (or Advisor) you need to continually survey the global landscape for opportunities where the return potential exceeds the risks you must bear to achieve those returns. Risk takes many different forms (political, growth, demographic, market structure, etc.); and risk is like energy, it can't be eliminated, you can only change its form. For example, changing market risk to security risk by using a hedged strategy is similar to heat energy becoming light energy. Like we stated in last quarter's letter, *"When an investor is compensated properly for taking any particular set of risks, then (and only then) would it be prudent to deploy capital into those opportunities."* The only market we can find in the fixed income and credit space that meets these criteria (returns properly compensate investors for risks taken), is Emerging Markets Debt. We described last quarter how *"Our Variant Perception about EMD is not widely shared by global investors (although EMD is becoming more popular) and the Western media would have you believe that EMD is still dominated by Banana Republics (derogatory term for countries with excess debt and little growth potential)."* Ironically, the Banana Republic label clearly is a better descriptor of Developed Markets rather than the Emerging Markets given that DM loses to EM on all three of the Killer D's criteria of Demographics, Debt and Deflation. The other important point is that the quality of the companies in EM has dramatically improved over the decades as the economies have grown and diversified. Another added bonus is that with much better management talent in place, these companies have embraced many of the most successful elements of modern corporate structures as they have morphed from State Owned Enterprises to global, multi-national corporations. We have written in the past that contrary to popular perception, *"today, the vast majority of EMD issuers are very high-quality companies and the governments, in most cases, are in meaningfully better financial condition than their DM counterparts, so the risk in EMD has fallen dramatically over the years."* As a final bonus, the yield on EM Debt continues to be higher than NSHY, so investors get better quality at cheaper prices, the definition of intelligent risks. EMD was solid (if not spectacular) again in Q4 as the Barclay's EM Bond Index was up 0.6%, bringing 2017 returns to 8.2%. EM Corporate bond returns were muted (like all bonds) in Q4, with the JPMorgan CEMBI rising only 0.4%. Even local currency sovereign debt returns were muted in the quarter, rising only 0.2%. For the full year, the CEMBI was up a solid 8.3% and with King Dollar getting smacked around again during the period, the GBI-EM local currency bonds were the big winners, jumping 13.2%. Looking across all public debt markets, we see more opportunity in EMD than NSHY and perhaps there is room for some long Treasuries in traditional Fixed Income portfolio to serve as a Deflation hedge. The one caveat to that view is that should the Bond Bear Market Narrative actually turn into a real Bond Bear Market, bond holders will likely revert back to traditional views of the world and EMD is likely to sell off harder during the initial downward adjustment. Over the full cycle of the adjustment, we would expect the New World Order (EMD wins) to prevail, but old habits are hard to break. Repeating something we said last quarter here as well, *"Given the relative unattractiveness of many fixed income investments today, other forms of income producing asset (BDCs and MLPs) have become more attractive, as they have more consistent cash flows and there is reduced risk of capital loss in the event that interest rates do actually rise."*

In a world of Financial Repression, yield-oriented assets (REITs, MLPs, BDCs, etc.) were viewed very favorably by investors during the QE Era. The popular opinion was that "yield was yield" and very few investors ever asked important questions about how yield was generated (operations of financial engineering), whether leverage was necessary to generate acceptable levels of yield and whether there were unique risks to the various strategies and asset classes (for example, real estate is very different from oil and gas or bonds). We discussed how yield chasing investors could have unexpected outcomes last year, saying, *"not all yield assets are created equal;*

different structures, different leverage levels, and different underlying asset quality 'should' produce different return streams. The problem lies in those times when investors ignore all the differences and simply buy the yield of what they consider to be comparable assets (REITs and MLPs)." Those differences reared their ugly head again in Q4, as REITs were up slightly on the Reflation Hope Trade while MLPs got punished (despite rising hydrocarbon volumes and rapidly rising oil prices) on fears that the Tax Bill would harm MLP structure tax advantages (was a close call but in the end was a false alarm). In Q4, the S&P U.S. REIT Index was up a modest 1.3%, while the Alerian MLP Index fell slightly, down (1.0%). For the year, the difference was stark, as REITs managed a 4.3% gain (trading again like bonds) and MLPs were smacked down (6.5%). The weakness in MLPs over the past couple of years (despite a nice recovery in 2016) has rendered the "yield is yield" argument fairly moot as the longer-term numbers do not show well for the MLPs. Comparing REITs and MLPs over trailing periods looks like this:

	REITs	**MLPs**	**Commentary**
1 year	4.3%	(6.5%)	Ugly
2 year	6.4%	5.2%	Not so bad
3 year	5.1%	(9.3%)	Really, really bad
5 year	9.1%	(0.1%)	Really bad
10 year	7.3%	6.1%	Not so bad

Zero out of five pretty much stinks. It appears we were a little early when we wrote in Q2 that *"Reversing the warning this quarter, don't assume from these trailing period numbers that REITs are far superior to MLPs and we will go further to say that fundamentally things look increasingly less robust for RE and we are quite constructive on the prospects for the MLPs (particularly the mid-stream focused companies), so we would expect the next five years to look very different than the last five years."* That optimism was unwarranted in Q4, but when we look at the fundamentals of the MLP space in terms of the rapid growth in both oil and natural gas drilling in the U.S., coupled with the improvements in the balance sheets of the MLPs, we still believe that there are some big returns ahead for the best-in-class companies in this space. Things did change dramatically for the better (if you owned MLPs that is) in January as the relief over the lack of changes to the tax benefits and the fears of rising rates hitting REITs almost completely reversed the underperformance from 2017, as MLPs rallied 5.8% while REITs shed (4.4%). Expect more volatility as 2018 rolls on, but we will stick with the view that the energy business has a tailwind while the real estate business will face headwinds in coming quarters.

We don't mean to throw REITs completely under the bus because, as we wrote a few quarters ago, *"The most impressive thing about REITs is that, interestingly, they have outperformed equities over nearly all trailing periods during the past twenty years, so perhaps there is something to this yield construct after all."* One thing an investor can be sure of over long periods of time is that yield makes up roughly 40% of equity returns (inflation 40%, real earnings growth 20% and multiple change 0%) and while the yield component can be swamped over short periods of time by earnings growth or valuation changes (multiple expansion or contraction), equities are simply a claim on a stream of future cash flows and the cash you get back in yield is the thing you can most count on over time. We discussed last quarter that there is one caveat to this point saying, *"since the changes in the mid-1990's to allow share buybacks (they were considered insider trading up to that point), the analysis gets a little trickier because it turns out that investors don't adjust EPS for declining share counts (even though they should)."* So, even after making the case that yield wins in the long term, 2017 was another reminder of how rapid shifts in multiple can dominate in the short term and the S&P 500 absolutely crushed REITs in Q4 (and over the past year), surging 6.6% versus 1.4% during the quarter and 21.8% versus 4.3% for the year. SPX has now reclaimed the lead over REITs in every trailing period out to thirteen years (17.5% spread out over that period is 135 bps of excess return per year). As expected, REITs dominate the majority of the trailing periods out to twenty years, but a funny thing happens that the S&P 500 takes over again at the twenty-year mark, edging out REITs 9.5% to 9.2% for the two decades. We discussed last quarter why we felt it was important to look at this data saying, *"One might ask why should we look at these trailing periods and compare the two vehicles? The answer is that valuation matters and that there are times when a dynamic approach (active management) can generate far superior returns than a static approach (buy and hold) because the forward expected returns are so different because of extreme valuations in one of the assets."* Looking at the past is fine, but what really matters is looking forward and deciding where to allocate capital to make the best returns in the years ahead.

What is critical for investors to look at is relative valuations of different asset classes and ask which one offers the superior return for unit of risk in real time. The current period feels very much like 2000 to us and when we look back to that period it was clear that allocating away from SPX into REITs was a great trade. From Q1 2000 to today, the S&P compounded at 5.4% while REITs compounded at 11.5% (more than double the return of stocks and with a significant portion in cold, hard cash yield). As we described last time, *"getting a meaningful portion of your return in cash yield is beneficial in two ways, it helps increase compound returns and it provides some margin of safety against short-term fluctuations in prices."* With that said, to be very clear, while we do believe that the next eighteen years may be eerily similar to the last eighteen years for S&P 500 investors (negative returns for the next decade and low single digits for the whole period), we do not believe REITs will deliver the same returns. We do expect that they will beat stocks (thanks to twice the yield), but we highlighted a problem that has been created during Financial Repression that makes the double digit returns that REITs enjoyed since 2000 very unlikely (actually impossible without very high inflation). It is axiomatic in yield assets that to enjoy strong compound returns you have to start from abnormally high yields and fall to abnormally low yields. Not only is that impossible given where REIT yields are today, overall yields could actually rise and then returns could be quite poor. We highlighted the problem in Q2 saying that *"yield assets really have been overrun with refugee bond investors which have pushed prices up too high (and hence yields too low)."* Given the low yields in REITs today, we quoted Yogi Berra last quarter saying, *"We feel like it is déjà vu all over again back to 2007 (when we went short REITs and Sub-Prime) and we have many of the same concerns and repeat our warning that returns in this sector may be below normal for the foreseeable future."* One sub-sector in REITs that we thought was particularly vulnerable a year ago was Mall REITs (#AMZNRoadKill thesis) and, over the past year, SPG, GGP and MAC did fall (11%), (7%) and (5%), respectively, while SPX surged 24% and AMZN soared 76%.

One of the best things about being generalist Value Investors is we have flexibility to deploy capital in any asset class or market around the globe and can continually shift assets from places where asset prices are too high to places where asset prices are too low. That flexibility has given us experience in evaluating and researching various investments and, as we've mentioned a few times this past year, *"We believe we have a significant #Edge in that we have a very broad and deep global network of experts in every asset class that we can turn to for ideas, research, diligence and insights."*

So, the natural question might be that if things are so great in the oil & gas markets and production volumes of hydrocarbons are accelerating, why were MLPs down (1.0%) in Q4 and why were they down (6.5%) in 2017? The answer is complex. There were some fundamental reasons for the weakness including a few major MLPs having to cut dividends and investors withdrawing capital from the space on fears of rising rates. We talked about the risk of the marginal owner of MLPs being retail investors last quarter saying, *"One of the challenges of yield assets is the marginal buyer/seller (hence short-term price setter) is retail investors and when they hear Cramer (or any other talking head) on CNBC screaming about how rates are about to surge, they sell first and ask questions later."* There was also an impact from the uncertainty about potential taxation changes as we also discussed last time saying, *"There was some speculation (remember all it is so far is speculation…) that the tax benefits of MLPs might be attacked in the Tax Bill, so there was additional selling pressure."* Finally, there was continued window un-dressing (selling what is down, opposite of window dressing where you buy what is up) in the final weeks of the year as no one wanted to show that they owned energy assets on their year-end statements. We discussed last quarter how MLPs were being put "on sale" and that AMLP, PAGP, ETE and WMB would be attractive buys going into the New Year. As usual, we were a little early, but investors finally came around to the attractiveness of current yields of 7.6%, 5.5%, 4.2% and 6.6%, respectively, and these stocks jumped nicely from mid-November to January, rising 11%, 2%, 12% and 14%, respectively. The best thing about MLPs right now is that it is not painful to earn twice the yield of other yield assets while waiting for the markets to re-value the core businesses that are improving every month as U.S. oil and gas production reaches new highs. The one risk is that many investors still trade these stocks along with oil prices (despite many fixed price contracts) so these are one of the few places where we are in favor of buying the dips (as opposed to selling the rips).

Given the cyclicality of commodities that results from the Reflexive behavior producers and consumers of commodities, investors should be active in managing commodity price risk in portfolios. We described this last time saying, *"Investors can capitalize on this cyclicality by buying when prices are low and selling when prices are high because we can have confidence, that like the tides, the cure for low prices, is low prices and the cure for high prices is high prices."* We believe that a new Commodity Super Cycle began in Q1 2016 after a severe Bear Market pushed commodity prices to extreme lows that finally forced excess capacity to be shuttered. We also believe we are nearing the end of the transition period described by Kiril Sokoloff of 13D Research as the period where markets come to the realization that the primary trend is changing, and the early choppy price action begins to be replaced by a more consistent upward trajectory. We discussed Kiril's perspective earlier in the year saying, *"Behavior in the early days of a primary trend change described by Kiril Sokoloff in his weekly publication, What I Learned This Week (simply the best research service we have seen and if you aren't already a subscriber, you should be…), where he says that when a long-term theme is in the process of changing (in this case disinflation turning to inflation) the related markets will experience rapid movement in the direction opposite the old primary trend (in this case the big move up in commodities last year after a brutal five-year bear market from 2011 to 2016), but will then experience a rapid reversal that shakes the faith of the early investors in the new trend."* Commodities were extremely volatile in 2017 with a very significant drawdown in the first six months (to test the mettle of early investors) followed by a strong rebound off the bottom on the 6/22 combination Bradley Turn Date and Gann Day. The GSCI hit a 2017 low of 2055 on 6/21 and then rallied sharply in the summer back to 2326 by 9/29 to begin Q4. The commodity index surged 9.9% in Q4 to finish the year at 2557, erasing the first half losses and finishing the year up 5.8%. Commodities kept running in January (along with all risk assets) and the GSCI was up another 3.4% (but volatility has returned in February and we will likely have lots to discuss next quarter). Looking at the move in commodities since the bottom in 2016, it appears that there has been a nice recovery (up 38%) and maybe the move is over but when you change perspective and look since the beginning of the Bear Market in August 2011, the GSCI is still down (54%) so there is plenty of headroom for commodities to continue to recover.

We also discussed in Q2 that *"over the last six years the S&P 500 and the GSCI make a giant Alligator Jaws pattern with SPX up 105% and GSCI down (60%) and you know what we say about Alligator Jaws (they always close, the tricky part is the timing…)."* Those jaws did begin to close in Q3, but then widened back open in Q4 and into January such that the gap is now 120% to (55%), making the opportunity even more compelling. We will close this section just like Q2 saying, *"We recently saw a great chart that Incrementum AG included in their most recent white paper (sourced from BofAML) that shows how Real Assets are the cheapest relative to Financial Assets they have been since 1925."* As Value Investors, we love the words "cheapest in a century" and are very excited about buying what is on sale in the commodity complex, so excited in fact that our Surprise #10 is entitled #GetReal (buy Real Assets).

When it comes to oil, 2017 was a great year at the Creek as our view from the 10 Surprises last January was spot (pun intended) on as oil did indeed fall toward $40 in the first half of 2017 (hit $42.53 on 6/21) and did indeed rise back to $60 by year-end (closed the year at $60.42). The outcome in oil shows the real value of the Surprises philosophy in that when you take a truly Variant Perception ("VP") that is meaningfully different than Consensus you can make significant returns if the VP turns out to be right. There were many oil industry analysts and pundits calling for $70 to $85 oil last year (2017) and even a few who thought we would see $100 again in 2018. All that said, we are careful to consistently reiterate that *"we are by no means oil experts and many of the people we talk to, and invest with, have forgotten more about oil than we will ever know, but we do have an ability (like any good analyst) to look at the data (facts) and make a determination of the supply/demand balance in the oil markets."* One benefit to being global Value Investors is that we have no "stake" in our view (unlike industry analysts or Wall Street) and we believe that when you are incentivized to call for higher prices (in oil, stocks or anything else) because your compensation depends on that view it is hard to be objective when looking at data. We wrote last time that *"when looking at the data for 2017, it didn't add up that oil markets could come back into balance in the first half (and perhaps not even until 2018)."* The surpluses in the U.S. were simply too large to come down quickly and even with the OPEC supply cuts the increased production from the U.S. shale producers was going to keep supply shrinkage to a minimum until the fall at the earliest. The most compelling data point for us last January, however, was the extreme net long positions in oil futures and we wrote that *"another troubling factor for the uber-bullish camp is that traders are already at their highest net long exposure to oil futures since the 2014 peak (so where will the buyers come from?), we know from history that the COT futures data is a tremendous contrarian indicator for oil prices."* Everything fell into place in 1H17 and oil prices fell dramatically (down (20.8%) through 6/21), but then bounced sharply off the lunar cycle turn date in June and basically went straight up (with a few little wiggles) in Q3 and Q4. After a 12.2% jump in Q3, oil briefly fell from $51.67 on 9/29 to $49.29 on 10/6 and then soared in a mostly straight line up 16.9% in Q4 to end the year at the $60.42 level, up 12.5% for the full year (the mathematics of loss are a pain).

Our oil-related Surprise was entitled *When OPEC Freezes Over*, a nod to the concept that "all Cartels cheat" and we actually wrote that *"one of the core elements of the construct was that the likelihood of the OPEC members sticking to the agreed upon production cuts was, let's just say, not high."* Maybe the biggest surprise in the oil space in 2017 was that OPEC didn't cheat and that by the middle of the year they were able to push the supply/demand imbalance back toward neutral and prices were able to stabilize and then rise quite quickly in the second half of 2017. Interestingly, the stated OPEC target was 32mm bpd of overall production and actual OPEC production was only near that level for two months of the year and stands currently at 32.4mm bpd (I guess close enough isn't just for horse shoes and hand grenades). While it isn't 32mm, it is 1mm bpd less than the 33.4mm bpd production level (and rising fast) when the cuts were announced. We also discussed last year how Saudi Arabia had another plan and tried to *"announce the cuts in such a manner as to flatten the futures curve as much as possible to try and make it more difficult for U.S. shale producers to hedge."* The most highly levered E&P companies in the U.S. are being forced to hedge production (to stabilize cash flow) by their lenders so we thought *"it seems like an ingenious plan by the Saudis to harm U.S. producers. However, you know what they say about "best laid plans."* What the Saudis didn't anticipate was that U.S. oil services companies would be forced to slash prices and the break-even production prices for shale producers would collapse to levels once thought impossible (in the $20's in the core basins like the Permian). We wrote in Q2 that *"with oil prices staying in the mid-50s throughout Q1, it wasn't surprising to see U.S. production ramp to 9.3mm bpd. What has been surprising, however, was that with oil slipping well below $50 for most of Q2, production continued to rise to more than 9.4mm bpd..."* As oil prices surged back to $60 by year-end, it was not surprising at all to see U.S. production ramp all the way up to 9.8mm bpd on 12/29. As prices continued into the mid-$60's in January, we believed that it would not be surprising to see U.S. production break through the 10mm bpd level and actually overtake Saudi Arabia as the largest oil producer in 2018 (this fact is central to Surprise #6 on oil below). We hypothesized that while the Saudis were celebrating their price recovery, shale producers were about to show explosive growth in production and oil prices would be vulnerable to another correction. The end of January production numbers confirmed this thesis as U.S. production hit a stunning 10.25mm bpd and oil fell back into the $50's.

Historically, global oil transactions have been transacted in dollars courtesy of the deal between the U.S. and the Saudis in 1971 (when the "gold window" closed) to create a PetroDollar system that would insure that the dollar was the World Reserve Currency (that all could be changing if China has their way with the new PetroYuan contract…). Hence, since that time there has been a strong relationship between oil prices and the dollar and also (interestingly) between oil prices and the USDEUR exchange rate. A year ago, we wrote that *"for many years the dollar and oil prices were highly inversely correlated (dollar up, oil down; dollar down, oil up) and you could get a good sense of where oil prices were headed by the primary trend of the dollar. Looking at the long-term correlation charts, with the DXY around 100, oil should be in the $30's (rather than $52)."* Given that the dollar was so weak in 2017, it was likely only a matter of time before oil prices headed higher. A DXY of 94 was roughly correlated to oil in the low $50's and as DXY slipped toward 90 in December oil should have rallied toward $60 (as it did). A year ago, we also discussed oil's correlation with the Euro saying, *"the other indicator that has tracked oil prices very well has been the USDEUR with a six-week lag and with the Euro at 1.07, oil should be somewhere around $40"* (more support for the lower bound). The USDEUR exploded higher after the French elections (surging all the way to 1.20 on 9/8) and we wrote the last two quarters *"that should presage higher oil prices as we head into the fall and winter and we would not be surprised (clearly not since it is the second half of the Surprise itself) to see oil head back towards $60 toward year end."* Paraphrasing Colonel John "Hannibal" Smith from the A-team, we love it when a plan comes together (or an indicator works well). We also wrote last time that *"given that the USDEUR has now settled at 1.16, we would expect oil to peak around $60 in the second week of November (six weeks after the 1.20 peak in September) and then settle to around the mid-$50's following the Euro's six -week lead as it eased back to 1.16 at the end of October."* As if the oil markets were paying attention, WTI did indeed peak at $59 in the third week of November (pretty darn close) and then was in the mid -$50's for most of December before surging the last couple of days of the year to $60. Now came the real test of the indicator, EURUSD took a little dip in mid-December which would put oil prices back in the $50's at the end January (it did roll over right on the Bradley Turn Date on 1/29), but the EURUSD has continued to surge from 1.18 on 12/11 to 1.25 on 1/29 (turned down right on the Bradley Turn Date as well), so there should be one last cathartic move up on WTI through the middle of March. This will be a very interesting test given the recent string of poor storage data and the huge U.S. production surprise, but we will have to wait until next quarter to see how things play out with the EURUSD/Oil indicator. Another piece of evidence that would suggest that the oil rally is not over is the very Bullish stance of legendary oil trader Pierre Andurand. We discussed last time how Pierre recently came out with *"a letter stating that he remains bullish on oil prices (although he has pushed back his original timeline to say prices may stay lower for a little longer), but he expects to see $100 oil again in 2020 (was 2018 last year)"* and even though prices didn't reach his forecasts in 2017, we have great respect for his team's analytical capabilities and Pierre's trading instincts. We did mention last time as well that the events of 2017 show *"how even with massive research resources, deep industry relationships and large capital bases, commodity markets can be very humbling."* We are very mindful of what we have said about Pierre in the past in these letters (and on Twitter), #DontMessWithTheAndurand (think of the movie *Don't Mess with the Zohan*) and know that we need to keep a sharp focus on positions on the other side of this legendary oil trader.

In the oil space we have focused on three areas to implement investments: E&P companies in the Permian Basin, Oil Services (with an extra focus on Sand companies) and Offshore Drilling. In the Permian, we wrote in Q2 that *"as we near $40 we would accumulate the high-quality Permian producers like RSPP, FANG, PXD and PE"* and that strategy played out quite nicely as those names were up 33%, 45%, 13% and 11%, respectively, from the Gann Turn Date in June. One of the reasons investors missed the opportunity in these producers (and Saudi misread their vulnerability) was they underestimated the creativity of shale producers and we wrote how *"one example is that producers found that if they crammed four times more sand down a well they could double production. This is great news for sand companies (which have been on a tear) like SLCA, FSMA, EMES and HCLP, but not such great news for rig owners as producers can get more output with fewer active wells."* Something strange happened though for most of 2017 insofar as the Fab Four was shipping much more sand, but announcements of future capacity coming online swamped the good news on the revenue front (like what happens in Airline industry). We decided not to try to catch these falling knives (or spinning drill bits), which turned out to be a great decision as prices kept plunging. We wrote last time that *"we were beginning to hear Howard Marks' words in our head that 'there is no company bad enough that you can't fix with a low enough price so it may be time to fill up the sand box again.'"* The past three months were solid (pun intended) for the sand producers as they rallied 10%, 29%, 22% and 22%, respectively. We expect the volatility in these names to continue, but also expect that they will continue to generate significant profits (unlike many other companies) in the quarters ahead. Most investors understand how the shale revolution has been bad news for many services companies in the oil patch, but none had been hurt more than the off-shore drillers (companies like RIG, ESV, RDC and ATW). We had written a year ago that *"the damage has been so great to these names that some deep value -oriented players are beginning to make noise on the long side and there is even some take private risk (might happen at a premium) in staying short, but our favorite manager still sees more downside so will stick with them (until the trend changes)."* As we discussed last time, the huge short squeeze in September put these names *"in the category of you can't win them all,"* as we couldn't *"see how deep water offshore drilling makes economic sense in the Shale Era so we will stay away from these names (even though they may continue to catch a bid from grave dancers)."*

The grave dancers did indeed keep buying and these names jumped sharply through the middle of January, up 15%, 38%, 20% and 44%, respectively, but have fallen back to up about 5% over the three months in the last two weeks of the month (on the lower than expected inventory draw data). We also discussed last time how a very experienced public markets energy manager said to us *"that the move in oil to $65 in 2018 (his forecast) would accrue disproportionately to the Oil Services companies (not the E&Ps), so OIH, SLB, HAL and a few other specialty names in the space might be interesting buys here."* Right on cue, these names screamed up from the end of October to the third week of January, surging 21%, 25% and 33%, respectively, before giving back some of the gains in the last week of the month to be up "only" 13%, 15% and 26%, respectively, over the three months.

We wrote something last time that resonates so much today that we will simply repeat the final paragraph from the oil section here (as it was written). We have found that when public markets become difficult to understand from a valuation perspective (and most would agree that is the case today), we have found that spending more time focused on the private markets is highly profitable. When the public markets seem "easy" (they simply go up every day) investors' attention is drawn away from long-term investing in the private markets because the short-term returns in the public markets have been so attractive. We use the past tense here because, unfortunately, most investors weren't invested in those public markets during the spectacular run, but were lured by the siren song of recent performance and chased whatever strategy had become hot over the recent past. Investors begin to shun the idea of locking up capital to pursue private strategies and that has a tendency to reflexively increase the return potential for deals. Think of the inverse, if there is excess capital bidding up deals (as we would say is the case in large buyouts today), future returns will be lower than average and if no one shows up at the auction (which we would say is the case in small energy deals and China Growth Capital today), then future returns will be higher than average. Ben Graham said that *"euphoric markets tend to transfer wealth from the active to the patient"* and we find that our best returns come from when we are willing to be long-term, patient capital. To that point, we will repeat something here from previous Letters that illustrates the current opportunity set in the energy space, *"We have been spending a disproportionate amount of time with our private energy manager this year (that is an indication of how attractive we think the opportunities are) and every time we talk to one of the teams in the oil patch we come away even more excited about the potential to make outsized returns in the private oil & gas markets."* We continue to see very strong deal flow in the private energy markets and with the lower price environment persisting longer than most anticipated there has been increasing stress in the oil patch. When there is increased stress, there is increased opportunity and we expect to continue to see more attractive opportunities arise from the oil & gas companies that took on too much leverage in the 2014 boom times. Like we articulated in Q1, we have always preferred to traffic in areas *"where returns on new money invested is likely to be measured in multiples of capital, rather than percentages of capital."*

Oil and gold get all the click-bait headlines in the commodity space, but the industrial metals really do the work in terms of providing insight on the strength of the global economy. As we continue to say, "*industrial metals are normally associated with global GDP growth (more specifically of late, China GDP growth) and the price trends in these industrial metals are very closely watched for clues as to the state of the global recovery (or lack thereof)."* There has been global synchronized growth (led by China and India) for the first time in decades and the predictive power of the industrial commodities has been confirmed yet again as the price increases in 2016 signaled the stronger growth in 2017. That said, we have pointed out the growing disconnect between Developed Markets and Emerging Markets growth saying *"It is a little curious that U.S. economic activity continues to* *disappoint, but given the low level of manufacturing activity (relative to services) in the U.S. economy, perhaps there is something more fundamentally wrong with the Developed Markets (we would say the #KillerDs, bad demographics, too much debt and deflation) that the economic growth in the U.S., Europe and Japan will stay muted for longer than people think."* We have posited that one possible explanation for strong price movements in Copper and Iron Ore while DM growth has remained muted is that perhaps Dr. Copper *"is speaking Mandarin now,"* meaning that since the marginal user of industrial commodities today is China (and other EMs) rather than the DMs (Japan, Europe and the U.S.), higher commodity prices are telling us EM growth is surging. Copper prices have been en fuego in 2017 and Q4 was no exception as prices rallied another 11.5%. That said, the positive overall trend continues to mask some serious volatility. Copper started Q4 at $2.95 and the China economic data surprised to the upside. Dr. Copper jumped for joy and stormed higher to $3.24 on 10/16. The next month saw a pause that refreshes as copper prices fell back to $3.07 by 11/17 and then took a roller coaster ride up to $3.17 by Thanksgiving and crashed back down to $2.95 (where it started the quarter) by 12/5. We wrote last time about some mysterious activity from large pools of capital in the futures markets causing above average volatility, saying *"whether this activity is coming from Chinese pools of capital chasing easy to leverage speculative plays (as equity market volatility has declined) or whether it is the result of 'Dark Pools' (pick any conspiracy you like for this one) is uncertain, but the periodic bursts of excess liquidity in these markets is very real."* The final three weeks of 2017 confirmed this type of strange activity as commodity markets set a record for sixteen consecutive up days and Dr. Copper was feeling great again, surging the entire 11.5% for the quarter in those sixteen trading days to finish the year at $3.29. We wrote about something curious in Q2 saying, *"It appears that each time China tries to crack down on speculation in one part of the markets (stocks in 2015 and real estate this year), the money finds another Bubble to inflate. Call it a hunch, but we will likely write more about the Chinese activity in the commodity futures markets in coming quarters."* It is hard to tell precisely where the capital flows are coming from but we warned last quarter that *"the challenge now will be what happens if the PBoC pulls that liquidity back, as they have been prone to do after the Party Congresses end. This will be an important development to monitor over coming quarters."* Somewhat prophetic in that as great as the last weeks of 2017 were, the exact opposite happened in the copper markets in January, as liquidity vanished and prices fell nearly every day to finish down (2.7%) at $3.20. The copper stocks were huge beneficiaries of the 8% move in copper in December as Southern Copper (SCCO) was up 13%, First Quantum (FM.TO) was up 19%, Glencore (GLEN.L) was up 15%, Anglo American (UK:AAL) was up 14% and Freeport-McMoRan (FCX) was up an astonishing 36%. Then they all went flatline in January. Things could get quite volatile in the balance of Q1 should China continue to pull liquidity from the system.

Iron Ore had an amazingly strong Q4, surging 20.5% from $59.50 on 9/29 to $71.75 on 12/29. The price movement was nearly a straight line and the last two weeks of the year were nothing but gains, just like in the copper markets. The strength was unexpected as well given the (35%) correction earlier in the year, which caught investors off guard and we wrote in Q3 that the move was *"surprising because all the negative events that pundits were predicting that might hurt the iron ore markets, slower growth in China (nope, higher), Trump actually acting tough with China and Korea on steel (nope, as usual, just talk) and commodity speculators being tapped out (nope, plenty of money rushing into these markets), never did materialize."* Even in the face of the big price decline, we sided with Kiril Sokoloff and believed that fundamental changes in Supply and Demand across the commodity complex had occurred and that prices should recover quickly. We wrote last time that *"the really big question still remains, are we closer to reflation or deflation? Our view is that the Killer D's* *(demographics, debt and deflation) are still in the driver's seat and while we can see a risk to global economic growth should China remove their monetary stimulus, we can see a path to how supply declines will push commodity prices higher over the intermediate term."* Right now, the reflation crowd has grabbed the reins and the commodity Bull Market seems to be intact (at least through the end of January). Iron Ore related equities rose for the most part in Q4, but were not as strong across the board as might be expected given the strength in Iron Ore prices. VALE was up a very strong 22%, BHP was up a reasonable 12%, RIO was up 10%, but CLF was actually down (2%) and AU:FMG fell (6%). Iron Ore prices went flat in January and the stocks followed the metal's lead. The question is whether they are just digesting the previous moves or whether the liquidity actually is coming out of the system and prices are setting up for another fall. We will be tracking what the PBoC does in the next few months and would remain cautiously positive on these names as valuations are not as stretched as many of the other sectors of the markets.

Just like last year, consensus coming into the winter was that La Niña would finally bring weather extremes (colder winter) so $4 natural gas was once again a "sure thing" (Willy Wonka reminds us what happens when everyone is sure of something…). Similarly, we reiterated the old investment saying last time that *"when everyone is thinking the same way, there is not a lot of thinking going on…"* Curiously, there was some early cold weather in Q4 and there were a few moments of volatility in Natural Gas ("NatGas") during the quarter, but when all was said and done, NatGas prices ended up down (1.3%) over the period. Starting from $3.02 on 9/29 prices actually dipped to $2.85 by mid-October, then bounced back to $2.99 a week later only to fall even lower to $2.77 by 10/27. A big surge in the first week to November (up to $3.22) had the Bulls all excited, but prices quickly retreated back to $2.82 by Thanksgiving before a cold snap pushed prices back up to $3.20 to end the month. The bottom fell out in the first two weeks of December as prices plunged to $2.62 (a nearly (20%) drop in two weeks) but rebounded sharply back to $2.98 by year-end to essentially end up where they started at the beginning of the quarter. We discussed last time how everyone is still focused on the demand side (weather), but the real issue for NatGas is the supply side saying, *"The fact that NatGas supply was surging as expanded drilling activity in the Permian Basin was generating lots of excess gas and the Marcellus and Utica Basins were producing gas like it was going out of style….The production volumes are so high and the "free" gas that comes along with the ramp up of oil production in the Permian keeps us from getting too excited in the near term."* We also discussed last time how bargains may have finally arrived in the NatGas space, writing *"We do think now is an opportune time to buy the higher quality names..."* We had discussed earlier in the year how the NatGas space had bifurcated into the higher quality operators (RICE, EQT and COG) and the lower quality operators (SWN, RRC, AR and GPOR) and when EQT bought RICE that left only EQT and COG in the quality basket. In Q4, quality didn't matter much and despite NatGas prices being essentially unchanged, most of the stocks took big hits and only COG managed a positive result, rising 7%. Even the other quality name, EQT, fell (13%) and the rest of the group all lost money with SWN down (11%), RRC down (16%), AR down (6%) and GPOR down (13%). A really strange thing happened in January as NatGas prices fell for the first few days to $2.79 on 1/5 but then spiked hard on the emergence of a Polar Vortex (it was really cold all across the country) and prices spiked 28% over three weeks to $3.56 on 1/24 before rolling over just as hard, and prices are in free fall as we pen this Letter (ended January at $2.94 and headed lower…). NatGas stocks were pounded hard (regardless of quality) and while EQT and COG lost less, down (7%) and (9%), respectively, the others were smashed, down (28%), (20%), (1%) and (23%), respectively. Like a good Walmart commercial, the prices keep getting slashed and at some point there should be good bargains here, but readers know how we feel about falling knives (never reach out, let them hit the floor, bounce around and stop moving), so we will let things settle down in NatGas before making new allocations.

Precious Metals were volatile in 2017, which was a little strange given the dollar movement. We wrote last time how these markets were *"slightly out of sync with the weakness in the dollar and the heightened geopolitical rhetoric that should have acted as a tailwind for safe-haven assets."* Looking at the returns in Q4, it might appear that most of the PMs took the quarter off as gold was up 2%, silver was up 2%, platinum was up 1% and palladium (which could actually be considered more of an industrial metal given usage in cars) was active, surging 17%. Looking more closely, the metals were indeed flat during most of October and November but then dropped sharply after Thanksgiving (down around (10%) as a group) and then rallied furiously in the last three weeks of December (which they seem to do with some regularity). Given our view that equity markets remain frothy, we want to reiterate some work that a manager that we respect has done around the construct of using gold as a hedge against market volatility instead of cash. We wrote in Q3 that *"the basic idea is that during times of high market valuations (like today) one normal response (followed by some of the smartest investors we know like Seth Klarman) is to raise cash as a hedge, so you have liquidity to buy when prices inevitably get correct and get cheap. What this manager proposes (and has a great deal of data to support the conclusion) is that in these times of extreme valuation (1929, 1972 and 2000) there is a risk that many ignore, currency devaluation risk, which is solved by owning a superior currency (gold). History shows that gold actually rises in value in these times when financial assets are falling (particularly equities) and therefore the purchasing power differential grows not linearly, but exponentially, when using gold as the hedge. The key to the strategy is the non-linearity of the price reaction of gold in times of stress and the dramatic increase in purchasing power that can inure to investors who hold physical gold during these transition periods."* Whether gold will again play the role of safe haven should volatility surge remains to be seen, but the intuition behind the thesis is sound and given the low yields on cash there is very little opportunity cost to the strategy today. Investors in Precious Metals can also choose to buy the miners (companies that process and distribute the actual precious metals) as they are as cheap as they were at the bottom of the PM Bear Market in 2000. We discussed last quarter that *"the challenge for investors has been that there has been a fundamental disconnect in this sector between valuations (which are incredibly attractive) and sentiment (which is equally incredibly negative)."* If the miners outperform the metals, that is a bullish signal for the commodities, and vice versa (if the miners underperform that is a bearish sign). Well, in Q4, it was a draw in gold and a little bearish in silver, as GDX and GDXJ basically matched the returns of GLD, rising 1% and 2%, respectively, while SIL and SILJ trailed SLV, falling (1%) and (4%), respectively. We have been writing the same thing for a few quarters now that *"something doesn't feel right in this sector as the Miners are incredibly cheap, capacity has been rationalized, costs have fallen as oil prices have stabilized at much lower levels than 2014 and global demand for precious metals continues to rise (individuals and* central bank*s), but as we have written in this section before it just doesn't appear that the Miners can find their 'natural buyer' and they have been relegated to the momentum trading crowd, which is not great for us long-term investors."* Caution seems to be the appropriate stance in the Precious Metals space today, but given how the attitude of investors coming into the New Year was that everything was awesome, the Tax Cuts would cause the markets to surge and there was no need for safe haven assets or hedges, our Contrarian bone starts tingling saying that just as everyone is sure gold has been relegated to Barbarous Relic status it may actually be an interesting time to own some. As for the miners, they are super cheap, but they are in the falling knife category, so we need to let them find a bottom (again) and hopefully some natural buyers will appear to bring these stocks back toward fair value.

As interest in Bitcoin, Cryptocurrencies (and Blockchain technology overall) has exploded recently, our timing for initiating a separate Crypto section of the Letter last year could not have been better. Q4 was very active in the Crypto world (understatement of the year) and there is a lot to write about. As we wrote last time, *"The King of Crypto at this point is Bitcoin (largest market cap, most participants and largest number of haters including Jamie Dimon, Warren Buffett and the recently arrested Prince Alwaleed)"* so we will start with Bitcoin and then discuss the Crown Prince (Ethereum) and maybe touch on a few of the other Princes that made headlines in Q4. It is instructive to go back to the beginning of Q4 and recall that the Bitcoin markets were recovering from the early September turmoil about China "Banning Bitcoin," the BTC price had flash crashed (35%) and we wrote how *"the Bit-Haters declared victory and they were all sure that Bitcoin would go to zero any moment (not exaggerating here). Had that happened, we probably wouldn't be writing this section (or maybe we would have as it would have been an interesting post-mortem), so you might guess what happened instead, Bitcoin got stronger and more popular."* The BTC price surged over the balance of September and ended the month at $4,291 (having surged 75% in Q3 and up a stunning 348% CYTD, just a wee bit better than stocks and bonds). Quickly, a few thoughts regarding the China attack (and other attacks by governments) - it is critical to understand that the primary benefit of the Internet of Money (we actually prefer the Internet of Value) is having a Distributed Ledger System for monetary (value) exchange and *"store of value that exists outside the realm of Government regulation (some might use the word manipulation here) and outside the global fiat currency regime."* We have often said that every attack that Bitcoin (and other Cryptocurrencies) withstands increases the viability of the Network and attracts more users, which reflexively increases the value of the Network through the Network Effect and makes the whole system stronger. The old saw truly applies, *"That which does not kill you, makes you stronger."* There is some very interesting work that has been done which shows that the value of the Bitcoin Network grows in a non-linear fashion and that the BTC price is following a parabolic model rather than a traditional linear model. This may explain why people are having such a hard time understanding the price action since humans are not very good with exponential math and logarithmic non-linear regression models. To make matters worse, since so many of the early owners of Bitcoin are not inclined to sell (the HODLers, Hold On for Dear Life), the current price is determined by the marginal buyers/sellers who are a very small percentage of the overall Network ownership and those small players tend toward emotional extremes so the short-term price of BTC has been prone to surges and crashes around fair value. To make matters even worse yet, there is a cyclical phenomenon year-end selling to pay taxes and Chinese selling related to Lunar New Year, which tends to amplify volatility (particularly in late Q4 and into Q1).

So, the parabolic growth in the Network was following the path laid out by the model extremely well through October and November as there was a steady stream of accounts being opened at Coinbase and BTC prices began to surge. All of the prices we will quote here are from Coinbase (as there is some variability in pricing across exchanges). Prices surged 49% in October up to $6,383 and continued to soar in November. One of the most interesting things about Q4 was the media discussion of how every Thanksgiving dinner would have a Bitcoin discussion where the Millennials would be educating the Boomers on the merits of Crypto and sure enough there was an explosion of accounts opened in the week after the Holiday, taking the total number of Coinbase accounts higher than the total number of Schwab accounts (let that sink in given Coinbase is barely five years old). Perhaps the most amazing thing that occurred in Q4 was that the Parabolic model which was produced in 2014 had predicted that BTC would hit $10,000 on 11/22/17 (when the model was created, BTC was $360…) and BTC actually hit the magic number on 11/28! Bitcoin closed the month at $10,094 (up 58%), but the fun was just beginning as all the Turkey Day conversations led to a buying panic over the next three weeks and BTC soared to an intraday peak at $19,891 then settled at a record high $19,205 on 12/17 (up 90.3% in seventeen days). Here is where the story takes a less than fun turn. We had tweeted on 12/7 that market activity had become rather ebullient and that the introduction of Bitcoin Futures on 12/18 could have a short-term negative impact on prices as speculators and hedgers could now bet against Bitcoin. The other issue we have noted previously was that there was a Gann Date on 12/22 and we were concerned that there was meaningful risk of a correction that might run into Q1. The Ghost of Gann struck again, and prices fell sharply through the end of the year to close New Year's Eve at $13,408, down (30%) from the 12/17 peak. Even with the crazy volatility in the closing weeks of the year, BTC was still up a remarkable 212% for Q4 and a truly mind boggling 1,282% for 2017.

For more perspective, it is useful to repeat some of the history of Bitcoin we outlined last quarter, *"Just five short years ago (11/1/12), the value of a single Bitcoin was $12.43 (decimal point is in the right spot). Four years ago (just twelve months later), the price of Bitcoin was $1,120 (that's a comma, not a decimal point), up a staggering 90X (not 90%...). Three years ago, Bitcoin's price had collapsed to $377, down (66%) in one year (but still up 30X over two years). Two years ago, the price of Bitcoin was still $376, essentially unchanged over the previous twelve months. One year ago, Bitcoin had just doubled over the past year and the price stood at $742 (up 60X over forty-eight months)."* Back on New Year's Eve 2016, BTC stood at $970, very few knew much about it, almost no one owned any of it and there was almost no one talking about it (particularly not the financial media). Today, not a day goes by without a big story about Bitcoin, some talking head on TV opining about Bitcoin, or any conversation you have eventually turning to Bitcoin. Given the recent turn down in prices, just like a year ago, the media has turned decidedly negative and, as we wrote last time, *"all the stories said that BTC would crash any moment (as a reminder, BTC was labeled a Bubble in 2010, 2011, 2012, 2013, 2014, 2015 and 2016…)"* and the Bit-Haters are back in control, pointing to the recent weakness as proof positive that Bitcoin is the equivalent of the Tulip Bubble. I have actually found in my conversations about Bitcoin in the past year that there is a perfect inverse relationship between the amount of work someone has done on Blockchain, Crypto and Bitcoin (and knowledge they have) and their view toward these technologies (less work/knowledge, more negative, more work/knowledge, more positive). In point of fact, I have been at two conferences in the past two weeks (one on VC and one on Alternative Investments) and a full 25% of the content and speakers were focused on Blockchain and Bitcoin. These speakers were some of the smartest, most well-informed people in the investment business and there was universal positive energy about the upside potential for the continued adoption of these technologies.

Despite that positive energy, Bitcoin prices have continued to fall in the New Year (as we expected) and after a brief rally over the first few days of January to $16,597, prices dropped another (41%) to end the month at $9,746. We tweeted on 12/28 that we expected the correction could easily head back under $10,000 as the weak hands were shaken out and correcting the timing on $100k to align with the Parabolic model saying, *"Reiterating what I said three weeks ago, corrections in #Bitcoin (and other #Crypto) are inevitable along the way. This one in $BTC could easily extend back under $10k, but long-term trend toward $400k on track. $100k milestone likely in 2021. #BuyTheDip #JustGettingWarmedUp."* We also tweeted that there was nothing magical about the $10k number and that investors should be in no hurry to buy and to let Q1 play out. There has been continued weakness and it looks like the magic number might have been around the $8,000 level that Mike Novogratz tweeted about in December when he announced that he was putting his plans to launch his Galaxy Crypto Merchant Bank on hold until the end of Q1 (nice trading instincts). The most important question hasn't changed since last quarter - Quo Vadis? (Where do we go from here?) We wrote last time how *"we have a Variant Perception on Bitcoin and believe it is still in pre-game warm-ups, so not even a question of what inning are we in because real game hasn't started. When the Custody Banks solve the 'we can't custody Bitcoin because we can't take physical custody' (what do they do with oil and gas reserves or patents and other intellectual property?) there will be an explosion of capital into this asset class (then the game will begin)."* We still expect to hear a big announcement from one of the large Custody providers in the coming months and that event will unleash the Great Wall of Money from the Institutional world into the Crypto world and we would expect Bitcoin will be the first stop. We expect that other Institutions will agree with our view that *"we are focused on Bitcoin as a Store of Value (essentially #DigitalGold) as it is denser, easier to divide (Satoshis) and more portable than real gold. Use cases are likely to come later, as we clearly understand the limitations on transaction times that make it unlikely Bitcoin will disrupt Visa & MasterCard any time soon (but it will over the long term)."* The most important thing to remember about Bitcoin is that the daily price is not really important, what is important is gaining ownership of the Network as it develops. Think of it like an iPhone; when there was only one, the Network had no value, two phones, still no value, a million phones, meaningful value, ten billion phones, huge value. The same applies to the Network value of Bitcoin. We wrote last quarter that *"the miracle of Bitcoin was that it went from nothing to $100 (or whatever real number you want to pick), going to $400, $4,000, $40,000 or $400,000 is much easier, and is entirely logical as we move toward Gold Equivalence (21mm Bitcoin X $400k = $8.4T, right around Gold's total market value)."* As millions of users put capital into the Bitcoin Network (remember U.S. holders are still only 10%), the Network value will continue to grow toward that target level and should there be technology enhancements that allow faster transactions or other use cases, that $400k target (10 years) could prove conservative. In the near term, the Network growth continues along the Parabolic Model path, which points to a target of $30k by the end of 2018, $60k by the end of 2019, $85k by the end of 2020 and $100k by the middle of 2021.

There are hundreds of Crypto Tokens today (1,177 at last count and notice we did not call them all cryptocurrencies) that have resulted from a relatively new process called an Initial Coin Offering (ICO). An ICO is essentially a more formalized crowdsourcing model and the boom in raising capital using this process is having a profound impact on the traditional Venture Capital model. Over $3.7 billion has been raised in ICOs so far (and a huge $2B+ ICO is pending for Telegram) and ICOs raised more capital for companies in Q4 than traditional VC for the first time. Traditional VCs are even participating in some of the ICOs so there is clearly some disruption going on (perhaps we will do a deep dive into ICOs next time). Another huge trend that is early in its development is tokenization of value whereby any asset could theoretically be put into a token format providing fractional ownership, instant liquidity and a 24/7 global trading platform. The implications for traditional real estate and other asset-based businesses are profound and we would expect to be talking more about this wave in the coming quarters as well. As we mentioned last quarter, out of the hundreds of tokens, *"there are a handful of coins that are interesting, and we are likely to discuss at some point in this section going forward (Bitcoin Cash (BCH), Ripple (XRP), Litecoin (LTC), Dash (DASH), Neo (NEO), Monero (XMR), ZCash (ZEC), Ethereum Classic (ETC)) but we want to spend some time on the original Ethereum (ETH)."* As a reminder, think of Ethereum as the "www" of the Internet of Money. It is a protocol that allows developers to build other coins, tokens and applications utilizing the Ethereum Blockchain. As we mentioned last time *"The most talked about application for Ethereum is Smart Contracts, publically recorded transaction records that execute* *automatically when an event occurs (no chasing after people who won't honor a deal),"* but there are many other use cases and the flexibility of the protocol is one of the core strengths. Ethereum is also a cryptocurrency (an incentive system or means of exchange) that is widely held and trades across many exchanges (it is one of the five traded tokens on Coinbase). Ethereum-based applications have been developed in Payments and other interesting use cases and the potential applications are truly staggering across nearly every business model. ETH had an amazing run in 2017, taking home the top spot in terms of total returns across the assets we write about. Ethereum started 2017 at $8.06 and it was a truly amazing year as the 12/31 price settled at $734, up an astonishing 9,107%. Looking at Q4, Ethereum suffered from the China noise in September and had flash crashed (45%) to $214 before climbing back to begin Q4 at $300. We wrote last time how *"there have been a few "glitches" in the Ethereum system in October that have people worrying about Forks and other coding issues (above our level of knowledge), so ETH slipped slightly during the month to $292"* but had managed to claw back to $304 by Halloween. ETH jumped 45% in November to $440 and then surged another 85% to $813 on the day of the CME Bitcoin futures launch, and while there are no futures on Ethereum, ETH fell in sympathy with BTC and dropped (14%) to $703 on the Gann Date on 12/22. One important aspect about Gann Dates is that they tend to work the best in FX markets (whether cryptocurrency counts as FX is unclear, but the human emotion element in trading the same) and on some rare occasions the Gann Date can actually work as an accelerator of a trend rather than a reversal date. That was the case with Ethereum as it broke away from BTC and rallied hard into the first part of the New Year. ETH finished on 12/31 at $734, up a tidy 145% for Q4, and surged another 82% in the first two weeks of 2018 to hit $1,339. After a flash crash of (28%) over the next week to $991, ETH rebounded all the way back to $1,160 on the 1/29 Bradley Turn date and has been in free fall (along with the other cryptocurrencies) over the past two weeks, ending January at $1,081, down (19%) from the mid-month peak, but up another astonishing 47% over the month (things got really ugly in the first week of February, but we will discuss that next time). We conclude this section the same way as last quarter, saying *"some really, really, smart people are getting really, really excited about crypto currencies and we are beginning to feel less strange about writing about them, which is a trend that we expect to continue."* Some of these really, really smart people (like Dan Morehead and Mike Novogratz) are raising new funds this year as the explosion in Crypto-related funds continues into 2018 (140 new funds in the past year at last count) and *"we would expect to be writing about these funds (and some other new types of funds yet to be created) in the quarters and years ahead."*

We came into 2017 believing that we were on the *"eve of a new seven-year cycle of outperformance for Active and Hedged strategies"* and while some active strategies did perform well in 2017, they still trailed the passive index strategies hedged strategies underperformed across the board (although things did begin to shift a bit in January). Looking at Q4, there wasn't much to write home about in the hedge fund space other than some strong performance in the systematic strategies that turned a horrible year in Macro and CTAs into just a bad year. The HFRI Equity Hedge Index was up a solid 3.3% during the quarter bringing the 2017 return to a very respectable 13.2% (in fact, in any other year, that return would be labeled as strong, but not when the S&P 500 is up 21.8%). By very respectable, we are commenting on the fact that given average net exposure of 50%, the expected return simply from hedged equity strategies (market Beta equal to 50% of the SPX) should have been 3.1% for the quarter and 10.9% for the year, so there was a solid 200 bps of Alpha during the quarter and 230 bps of Alpha during 2017. As we wrote last time, *"It is a wonderful sight to see our old friend Alpha again as they had gone missing in 2016."* As we also discussed last time, these results don't include some of the very best performances that occurred in 2017 as the best managers don't report. Reiterating what we said last quarter, *"We are not intending to criticize HFR (they do an amazing job), but rather to highlight that you can't look at all data in the investment industry equivalently."* No one can force managers to report and the very best managers are closed to new capital, so they have no incentive to publicize their results. The long/short results in Q4 and 2017 are welcome in many ways, but what is most welcome is the beginning of the tide seemingly turning such that the QE liquidity that had floated all boats (including the bad ones) is dissipating and those managers who had the temerity to stick to the discipline of short selling are being rewarded. As we wrote last time, *"The strong returns of the equity indices this year has masked some really extreme dispersion between strong sectors (great longs) like Technology and Healthcare and weak sectors (great shorts) like Retail and Energy."* The increasing dispersion across sectors is very reminiscent of 2000 and when correlations across sectors begin to break down that have *"been a harbinger of good times ahead for Active Management (and Long/Short Equity)."* Repeating here again (remember Babson had to repeat his warning twice) what we wrote last January that our view on hedged strategies might be comparable to Roger Babson's now famous warning about the perils of the stock markets in 1929, we wrote *"Just because we were early (some would say wrong) in predicting when the mean reversion in performance of long/short strategies would begin, does not impact whether we would be correct (or not) when making a similar forecast today because they are independent events (based on new and different information)."* Adding another quarter of data to the analysis, we continue see very poor returns ahead for investors expecting to earn meaningful returns from Beta and believe that the best investment returns over the coming decade will come from Alpha. We wrote last year that *"We believe that Alpha generation across long/short equity managers has troughed at levels we have witnessed only a few other times in history (most recently in 2000 and 2008)."* While we were early (as usual), Alpha did return in Q1, expanded in Q2, broadened in Q3 and stabilized in Q4. Paraphrasing Roger Babson (hopefully for the last time), *"We will repeat what we said last year, and the year before, that buying strategies that others are selling (Hedge"d" Funds) is likely to deliver meaningful returns for investors going forward (and they could be terrific)."*

Activist strategies continued to struggle in Q4 and after a number of years of lagging returns from the glamour names in this segment, the boo-birds are out in force claiming that the strategy is no longer relevant and that management teams have too many weapons with which to fight off the activists. It is also entirely possible that the big guys just got too big (size is the enemy of Alpha) and that there is now a bifurcation in the space where the large funds are not likely to generate much excess returns and some of the more focused managers can still deliver solid Alpha. That thesis had some merit after six quarters of mildly positive returns for the HFRI Activist Index (despite large losses by the big dogs), but everyone in the Activist arena struggled in Q4 and the index dropped (1%) to finish the year at a very disappointing 3.7%. Whether Activism is dead or just resting remains to be seen but there clearly has been a negative trend over the past couple of years. One theory on that trend is that in a QE world where debt is free the bad companies can be bailed out, so should rates actually begin to rise and financing is not as readily available it is possible that this strategy could have a revival. The broader HFRI Event Driven Index was up 1.3% in Q4, which, while better than their Activist kin, was not the type of return outcome that investors have come to expect from these specialist strategies, particularly given the strong performance of the markets and the high levels of corporate M&A activity. The 7.3% returns for the full year are disappointing as well and point to the challenges of hedging events in a market where everything rises (regardless of quality) and notions of seniority in the capital structure have been turned upside down (think Tesla bonds trading below par and the stock rising). As we discussed last quarter, *"Managers who have maintained discipline and prudence in their approach to hedging have simply been run over in the global scramble for yield."*

Our argument (shared by many event driven managers) that the continued negative surprises in GDP growth point to the? Or a? weakness (not strength as purported by the Trumpkins) of the U.S. economy, but as we wrote last time, *"We have simply underestimated the willingness of lenders to extend credit non-investment grade companies (they are called Junk Bonds for a reason) with little or no covenant protection at interest rates (spreads above risk-free Treasuries) that only a few years ago would have been unthinkable."* We continue to believe (perhaps we are the only ones) that making lending decisions based off an artificially low spread (think QE and ZIRP) to Treasuries will seem, with the benefit of hindsight, like a bad idea.

We wrote the last couple of quarters about an interesting counter example to our cautious stance toward credit markets and, given the outcome in Q4, we believe another update is in order. Our protagonist manager, call sign Maverick (not their real name but a reference to the movie *Top Gun*) continued to demonstrate some truly fancy flying, putting up another big number in Q4, up 5.5%. As we have discussed, *"this manager has a truly Variant Perception on the credit markets and has made some bold statements over the past year and then backed them up with performance."* Maverick proved once again the wisdom of Michael Steinhardt who famously quipped, *"One of the few sure ways to make money in the market is to have a view that is off consensus and have that view turn out to be right."* As a reminder, his investment strategy is elegantly simple. He buys highly leveraged companies (globally) where he believes 1) he can acquire the shares for less than seven times cash flow and 2) the operating cash flows of the business can support debt reduction (effectively practicing an LBO strategy in the public markets). He discovered that seven times cash flow (EBITDA) was the magic number to pay when you bought a business while working as an Associate at Bain Capital (pay less, make big returns, pay more, make small returns). His Hedge Fund was up a stunning 40% in 2016 (recall that many HF returns were negative that year) and we discussed his "bold statement" in Q1 2017 saying *he made a "seemingly ill-advised decision to write an annual letter projecting similar returns for 2017."* We commented that *"despite his youth and relative inexperience, the manager made a compelling case for why the oil supply shock has modified the default cycle (extended it like in the mid-1980's) and he has boldly (some might say arrogantly) predicted their portfolio could enjoy similar gains in 2017 should defaults ease from current levels."* As we have been known to tweet on occasion, Confidence = #Edge and the old saying by Muhammad Ali is that *"It's not bragging if you can back it up."* Well, Maverick backed it up in 2017 coming in at 32.5% (within missile range of the 40% target). One sign of maturity (beyond his young years) was that Maverick did actually leave himself an out on the prediction (very important in dogfighting) when he said, *"should defaults ease from current levels"* and the skies were free of bogies (almost no defaults) all year, as banks continued to extend and pretend (pushing the quality of debt to all-time record lows according to Moody's). Reiterating our closing point from last quarter, *"We believe that Maverick is a very talented manager and his depth of analysis and understanding of portfolio construction is very strong (as evidenced by his prolific writings on these topics), but he has not been involved in a true dog fight yet."* The skies have been filling up with enemy aircraft so far in 2018 and should those bogies engage, we know that *"In the Event Space, like all strategies that involve leverage, the comparison to Top Gun is very appropriate, because as Viper says, "Remember gentleman, Top Gun is about combat, there are no points for second place."*

Last quarter we compared distressed credit in 2016 to another Tom Cruise movie, *Days of Thunder* (about NASCAR racing), *"as managers who bought the dip last February took the checkered flag in the Hedge Fund Cup. We wrote that the environment had changed this year and said, 'The yellow caution flag is out in 2017 and drivers are stuck behind the pace car running at laps at around 60 mph."* The slow pace continued in Q4 as the HFRI Distressed Index was up only 2.5%, bringing 2017 returns to a rather pedestrian 7%, which did not win any trophies. Distressed investing has suffered from the same issue that has helped Maverick generate such strong returns over the past two years, a total lack of distress. Distressed strategies need distress (hence the name) in order to generate superior returns (have to be able to buy assets at a big discount) and after spreads blew out in early 2016 and China rescued the world with the $1 trillion of stimulus, all the distress disappeared and markets, like a NASCAR race, were simply going fast and turning left. One of the challenges of being a specialty strategy (distressed, merger arb, converts) is that when there is nothing to do in your space you can be tempted to drift into other areas. We wrote in the past that we saw this same type of behavior in 2000 and early 2001 when *"some Distressed managers frustrated by the lack of distressed merchandise have ventured into "Other Credit" (new line item on some manager reports) and may be buying assets with no margin of safety (in direct violation of the spirit of value investing)."* As Value Investors, we know the dangers of buying assets without a margin of safety and those dangers are amplified in the Distressed area given the extreme leverage in many of the companies. As we described last time, *"We know that the QE Era has created an environment where banks have allowed companies that should have gone bankrupt to survive (but, rest assured they will die another day…) and we can see lots of 'future equity' (soon to be bad debt) on over-leveraged corporate balance sheets across many industries and geographies."* Harkening back to the wisdom of Sir Isaac Newton from the last few Letters, we are certain that *"gravity always wins and there will come a day in the not so distant future where the opportunity set for Distressed will get even better and the returns could be quite substantial."* The key to success is having the discipline not to stray off strategy (be comfortable in cash) so that when that day finally arrives (just like it did in 2002 and 2009, and will again, with certainty), you are ready, willing, and able to buy what is on sale. We are prepared for that eventuality and will exchange our cash (or perhaps Gold) for those good assets at bad prices that will come to market as over-leveraged owners are forced to sell.

Perhaps no other segment of investments has been traumatized as much by QE as Absolute Return strategies (Market Neutral and Merger Arbitrage) *"as the* central banker *induced Financial Repression has made it nearly impossible for dollar neutral (equal dollars long and short) strategies to thrive."* Historically, the benefit of dollar-neutral strategies has been that the cash generated by the shorts has contributed a meaningful percentage of total returns (short-term rates were high) but in the ZIRP world those cash returns vanished. Throw in more market choppiness courtesy of overactive high-frequency trading algorithms and trend-following strategies (other than Renaissance) have been brutalized. As we wrote in Q1, *"One of my friends has a great line about this unusual epoch in our history, 'I remember a day when I didn't know the names of the central bankers and I long for those days to return.'"* It has become increasingly apparent that global central bankers have one singular objective, to elevate equity prices in an attempt to create wealth effect (despite no evidence that there actually is one). What the central bankers don't seem to comprehend is that the people who need the help from the wealth effect don't own any stocks; all their free money has done is make the income inequality problem worse (there are some who think maybe that was their plan all along…). What is sad is that they seem to have *"no appreciation that the elimination of volatility and price discovery is destroying businesses (like arbitrage)".* After a flicker of life in Q1, the HFRI Market Neutral Index generated mediocre returns the rest of the year and Q4 was no different, with the Index up a scant 0.4%. The biggest problem for these strategies was there was no equity market volatility to take advantage of (the S&P 500 had its highest Sharpe Ratio ever), which effectively eliminated Market Neutral managers' ability to produce Alpha. For the full year, returns were only 4.8%, an indication of how Market Neutral strategies (once considered Equity substitutes since high cash yields plus Alpha plus leverage could add up to a solid return), in a low rate environment, have been relegated to Fixed Income substitutes. As we mentioned last time, *"this change is not necessarily a bad thing, as Absolute Return strategies have generated returns similar to Bonds over the past few years, but do not have the interest rate risk that threatens Fixed Income investors (in fact, A/R is positively correlated to rates rather than negatively correlated)."* Should rates normalize (read *rise*), these strategies should generate far superior returns to Bonds and maybe they are set up very nicely for the year ahead. One last important point is that as cash returns have fallen, managers have had to use increasing leverage to generate similar returns and that has the potential to end poorly should the liquidity environment change. Repeating the closing line from last quarter, *"we will stick to letting the experts manage the leverage in this space, not just because they get better borrowing rates, but because they have the risk management tools and the ability to move quickly, because as we all know, when things turn in this space, #RiskHappensFast."*

M&A activity crashed during 2017 to levels not seen since 2010, and that decline in volume, plus a number of high profile deals that broke for regulatory or other reasons, led to one of the worst years for Merger Arbitrage in a long time. The HFRI Merger Arbitrage Index had another poor quarter in Q4, falling (0.2%) to bring 2017 returns to a rather uninspiring 4.1%. While these returns are nothing to write home about, they would also fit (barely) into the category of "Beats Bonds" (Barclay's AGG up 3.5% for the year) along with Market Neutral. As we have written about in the past, the biggest challenge for Merger Arb is *"the vast amount of liquidity chasing these deals (and the ubiquity of trading models provided by the Prime Brokers to move product) has squashed premiums and made Merger Arb another challenging way to make a living."* In the investment business (like in all service businesses), success is really all about expectations management. If investors expect Absolute Return-oriented hedge funds to beat equities (like the good old days when cash yielded 5% to 7%), then their expectations would be dashed by recent returns (and they would fire the managers). If, conversely, investors were expecting A/R strategies to beat bond returns and have a negative correlation to interest rates, then their expectations would have been met (and they would be adding more money to the managers). But that was the past; let's focus on the future. If expectations for traditional assets like stocks and bonds is that they will struggle to achieve even T-Bills + 1% over the coming decade (as GMO, AQR and Research Affiliates all do), then strategies that can consistently produce T-Bills + 3% to 4% (with low volatility) may be more prized in the quarters and years ahead. As we stated last time, *"The critical question today is whether investors have the collective patience to accept stable returns from truly hedged strategies or whether they will be lured by the siren song of more directional strategies, which today have higher returns and Sharpe ratios (we believe temporarily thanks to QE)."* There are only two ways to enhance Merge Arb returns - make investments in anticipated deals (rather than only announced deals) and use more leverage. Both of these strategies have some merit and they are actually attractive *"when practiced by an experienced manager with a large team who can do original research and source ideas and has the necessary risk management resources to handle the higher volatility created by leverage."* The problem is that even the best teams can make mistakes and the most cautious risk management strategies can be blindsided by extreme market events. Both of those things occurred more frequently than normal in 2017 and a few of the glamour names in Merger Arb put up really awful numbers for the year. As we wrote last time, *"Proper expectations are the key to making good decisions about investments (and actually most things in life). We reiterate our belief that until Cash returns return to more normalized levels (equal to Nominal GDP) we believe that the best approach is utilize A/R strategies as Fixed Income substitutes rather than Equity substitutes."* One of our favorite sayings is that Patience = #Edge and we would expect that being patient in deploying capital in these strategies will be rewarded handsomely.

Trend following strategies (CTAs and Macro) have been hurt the most by the central bank largesse and the QE Era has challenged even the very best quantitative managers. Macro and CTAs finally enjoyed one decent quarter in Q4 as the melt-up allowed the trend followers to lock in and not worry about the whipsaw movements that had been such a problem all year. The HFRI Macro/CTA Index was up 2.8 and the HFRI Systematic CTA Index was up nearly twice as much, surging 5.5%. One good quarter wasn't enough to save a poor year and the indices were both up a disappointing 2.3% during 2017. There has been a great disconnect between perception and reality when it came to Quant strategies insofar as headlines like "The Rise of the Quants" (the title of a session at a Cayman conference last week) might lead investors to believe that returns in the space have been strong, but it really is a more apt description of the massive flow of capital into the Quant Firms. Call it good marketing, biased media (fun to pick on the old-fashioned human firms) or hope from investors that the machines must be better than the mediocre returns coming from the hedge fund space the past few years; whatever the reason, the perception exists. Like we said last time, *"Either these firms have really good P.R. firms or there is a systematic (pun intended) bias that Quant strategies always make money (the actual data disproves this contention)."* One of the other risks that has been created is the concentration of assets in a small number of firms (anyone who came out of Goldman) and one of the truly terrifying issues is that given how most of these managers have similar training (and use the same basic models) there is risk that the recent low volatility melt-up is the result of pro-cyclical strategies feeding off each other and should something trigger a reversal, that pro-cyclical nature of the algorithms will reflexively turn from virtuous to vicious (in a hurry). We wrote last time that this herding behavior *"sounds like a recipe for potential disaster and add the ability to execute with lightning speed thanks to computerization and we could have a scenario where these once protective strategies actually make things worse, not better."* It is possible that we have seen a sneak preview of what could happen with the big volatility unwind last week and should those losses cascade into the Risk Parity pools (which are huge) we could have the situation of Risk Disparity that we have written about in the past. During the Global Financial Crisis, Macro and CTAs provided meaningful buffers to portfolios and there is a scenario that could play out in the next correction where they could actually make things worse. It doesn't have to go that way, but it is a scenario we have to consider and evaluate.

Overall, the fourth quarter of 2017 once again had a little something for everyone, political intrigue and infighting, geopolitical posturing and gamesmanship, economic growth unevenness and central bank jawboning. There were some nasty battles in Congress over the Tax Cut Bill (don't call it reform because it isn't), yet despite the infighting and name calling, the wealthy and their lobbyists bought enough votes and the GOP, and the Trump Administration, actually accomplished something in getting the #TaxDeform bill passed. Markets celebrated the anticipated stimulative effects of giving companies flush with cash (implying they can't find positive ROI projects) more cash to sit on their balance sheets (maybe they will buy all the Treasuries needed to fund the new deficits…). Global growth was strong in China and other EM, disappointing in Japan, mildly improved in Europe and disappointing (again) in the U.S. (contrary to all the Political congratulations). The Fed hiked interest rates again in December, the ECB pushed tapering until 2018, and the BOJ pressed the QQE pedal to the floor (maybe through the floorboard) so liquidity continued to be plentiful (not surprising that equity markets were strong in during the quarter). We wrote last time that *"With more data to review and some change in perspective in how we think about valuations relative to history and other assets, we are somewhat compelled by the notion that in macro terms equity markets could actually run further and the Bubble could inflate a bit larger."* That notion turned out to be prescient, as the S&P 500 reached our target of 2,800 (actually a little higher to 2,873), before suffering its first (10%) correction in years (more on that next time). It has been widely publicized that Jeremy Grantham uttered the four most dangerous words in investing when he said, *"It's different this time"* (because margins are unnaturally and persistently high). He even continued on to say that the Bubble could inflate for another fourteen months (as Yogi said, *"It ain't over until it's over"*). We also wrote how *"the Gann Calendar tells us that 2019 is the year when the next crisis will hit, the yield curve and PMIs tell us that we are at least a year away (maybe two) from the next Recession, the global* central banks *have a way to go before they are actually tightening financial conditions."* So, the water keeps boiling, but the temperatures are getting uncomfortably warm, so it likely makes sense to start limbering up those jumping legs.

All that said, summarizing our overall asset allocation view here we would reiterate that the current investment environment does not favor excessive risk taking and that cash may turn out to be a very valuable asset (rather than the investment pariah most believe that it has become). We have written many times in the past that *"Cash has a high level of option value as it allows you to preserve capital in the event that the Bubble returns to normal faster than anticipated and it allows you to buy assets at cheaper prices in the future."* So long as the Killer D's (Demographics, Debt and Deflation) are still in control in the Developed Markets economic growth, interest rates (and eventually equity prices) should stay (or become) lower than expectations. While the last couple of months have been challenging for the Hoisington thesis that the secular low in interest rates is ahead (not behind), we still believe that holding a position in long duration Treasuries could prove useful and will be an effective hedge should economic and market turbulence rise more than anticipated. If an investor has to own equities (we recommend lower than average exposure overall) we favor Emerging Markets > Japan > Europe > the U.S., and we would reverse the current capitalization weightings from the MSCI ACWI Index (more EM, some Japan and Europe, and far less U.S.). We believe that Demographics is Destiny and the higher growth rates in the Developing Markets will continue, raising their economic power. MSCI will eventually have to adjust the market capitalization weightings in their indices to reflect the actual relative contributions to global GDP (Emerging Markets contribute 40% of global output and have only 9% of the allocation of the ACWI Index). When taking risk in the capital markets today, given the high levels of valuation in the public markets we continue to believe that the best place for investors to make outsized returns is in the private markets (small LBOs, China Growth Capital, Venture Capital, Energy & Natural Resources, Real Estate and Direct Debt. We have said for the past couple of years that *"whatever weight an investor has been comfortable with historically for private investment, double it (that is, if you liked 20%, raise to 40%)."* Finally, we reiterate (again) that the Year of the Frog is likely to be the time to embrace Active Management and to sell Long Only (Passive & ETFs) to buy Hedge Funds, as the next decade (unlike the last decade) will be all about Alpha (not Beta). We expect that we have seen #PeakPassive and #PeakETFs for this cycle. We said last time that we had entered a world of #PureImagination *"where investors believe they can achieve the long-term returns of stocks (10%) and bonds (6%) from current valuations (the math doesn't work)."* We have seen #HackedMarkets many times before in our career, in 1987, in 2000, and in 2008, and one thing we know for certain is that eventually (like last week) the good guys get control back of the account and things return to normal. Keynes was right that markets can be irrational longer than you expect, but so long as you avoid excess leverage (looking at you XIV, Volatility sellers and Margin borrowers) there is no risk of solvency that will take you out of the game right before rationality is restored. We expect that the army of frogs will, unfortunately, not heed the warning signs, and will end up as the starter course at dinner. However, for those that have started to *finally* feel the heat, there is still time to jump out of the pot and head for the cooler waters of Value, Private, Hedged and Real Assets strategies to protect capital and keep the miracle of compounding working on your behalf.

The #MCCMSurprises

Our January #ATWWY Webinar each year is entitled "*Channeling Byron: 10 Potential Surprises for the New Year*" (with a nod to Byron Wien, the former Morgan Stanley Strategist who originated the annual 10 Surprises idea). When we talk about Surprises, it is important to clarify that Surprises are intended to be non-consensus ideas which, by definition, have some reasonable probability of not occurring; in other words, they are not necessarily predictions (we would expect only a little above half will come true over the long term). To his point, the actual definition of a Surprise is a Variant Perception (an idea that is materially different from the consensus) that we believe has a better than 50% chance of occurring in the current year. The key point here is that a Variant Perception must be *materially* different than consensus to be truly valuable. The unlikely nature of a true Surprise fits in perfectly with the famous Soros quote about how meaningful returns are made by *"discounting the expected and betting on the unexpected."* Michael Steinhardt was famous for saying that, *"We made all our big returns from Variant Perceptions that turned out to be right."* One other important point to keep in mind is that a year is a long time, things can change (sometimes dramatically), and we need to remember the wisdom of John Maynard Keynes who famously quipped, *"When the facts change, I change my mind, what do you do, sir?"* We will remain vigilant during the year to track the progress of each of the Surprises and look for opportunities to capitalize on them in the portfolios, but we will also be ready to change our minds (and our positioning), should the facts change.

The nice thing about doing the Surprises in late January is that their production coincides with writing the Q4 letter and the process of looking back over the past year's Surprises, gathering information on precisely what the consensus is across each asset class and geography and then forming Variant Perceptions (the actual Surprises themselves) provides a huge amount of data from which to create the New Year's Market Outlook. The Surprises framework is sufficiently broad so we can cover the vast majority of global markets and can even drill down further to look at investment sectors and individual company ideas that allow for the optimal expression of the themes. So, let's begin our Around the World tour of what investors might expect for 2018.

Surprise #1: #ActionsBeatWords

Willy Wonka quipped "Oh, you should never, never doubt what no one is sure about" and as consensus reaches unanimity on the Death of the Bond Bull Market (really this time, unlike the last five times…) everyone is sure (again) that rates are going to rise this year. With a new, taller Fed chair, the trend must be up, Deflation is dead and Bond returns are soon to follow. Funny thing is that CB jawboning is one thing, action is another; despite all the talk about tightening, conditions remain extremely easy. No one is sure rates will fall, so they will likely continue down in 2018.

If things are so great, then why is the Fed holding interest rates at these levels as if the U.S. were still in a financial crisis? Curiously, the effective Fed Funds rate is still negative, and the Goldman Sachs Financial Conditions Index shows financial conditions are as loose as they have been at any point since the Global Financial Crisis. We have seen this movie before (in Japan) when the BOJ tried to remove QQE stimulus back in 2007 (coincidently, 11 years ago, matching their Demographic lead) and the equity market crashed (50%), so they had to reverse course and took the assets on the central bank balance sheet from 26% of GDP then (equivalent to the Fed level today) to over 100% today. Another curious phenomenon is that despite short rates rising along with the Fed hikes, long rates (until recently) were actually falling, so the yield curve has been flattening rather than steepening as everyone expected. Ultimately, it is the Chart of Truth (the 10-year Treasury Yield) that has been in a three-decade declining channel and every time the 10-year rate touches the top of the channel (two standard deviations above the declining average) there has been a financial crisis (1987, 1994, 2000 and 2008) and we are at that point today with yields at 2.8%. The most important level is the previous high in the series of lower highs, 3.06% in 2013 during the Taper Tantrum. Unless we break that level, the primary trend remains lower. With the recent equity market turmoil, it will be interesting to see how new Fed Chair Powell responds to a sudden (and long absent) bout of asset price volatility.

Surprise #2: #WelcomeBackBears

Global central bankers have been working overtime since 2009 running their printing presses non-stop to provide liquidity to support global equity markets. Very quietly, the Fed and the PBoC have been plugging up the spigot on the Bubble fuel and even Super Mario (King Jawboner) has been making threats about Tapering. In a dramatic surprise, the talk turns into action, and the Bears hitch a ride on the China express and take their turn at running the markets for a while. Global equity markets sputter and begin a brutal correction back to fair value.

By definition, one of the first two surprises will be at least partially wrong, as the central banks will either take away the monetary stimulus or they won't. That said, the risk to equity markets is that other central banks follow the PBoC and Fed lead of reducing liquidity in response to rising rates and inflation and the rising discount rate pushes the global equity markets into territory they have not seen for many years, a correction (or worse, a Bear Market). We said a year ago that a 1929 Redux would push the S&P 500 toward 2,800 before a correction would ensue, and that if the Administration and Congress made similar policy errors to then, that correction could morph into a full-fledged crash. After reviewing the Gann Financial Time Table more closely, we observed that the next market crisis was predicted for 2019 (not 2017 as we originally hypothesized) and 2017 actually did look a lot like 1927 in terms of returns and lack of volatility. The biggest problem that we see for the Bull Market case is that central banks have flooded the world with debt and yet we have had the worst GDP grow in the past decade in the history of the U.S., so profits are unlikely to rise substantially as grow continues to be muted. The one wildcard to the timing of the crash hit us like a "ton of gold bricks" when reviewing a slide of the SPX deflated by Gold prices and by this measure, while nominal value of equities looks overvalued (on every measure you can observe), the real level of asset prices has gone down dramatically since 2000. Essentially, the government is inflating away their massive debt load by destroying the value of the Dollar (who is the currency manipulator now?). The largest risks to global equity markets is whether China decides to continue to remove the $1T of excess stimulus they injected into the global economy during the 2015 slowdown (we can argue that the U.S. was in Recession in Q1 2016). The good news is that the world's greatest indicator (the $OEXA200R) was still above the magic number of 65 (on weekly chart) that signals an all clear to stay long equities. When it falls below 65 (as it did this week), the rule is to move to 50% cash and if the indicator falls below 50%, you should move to 100% cash.

Surprise #3: #NotDeadJustResting

The potent combination of abundant liquidity provided by global central banks, an avalanche of capital pouring into Passive Investment strategies like Index Funds and ETFs, and widespread adoption of Volatility selling strategies pushes the VIX Index to record lows. Stock market volatility vanishes during 2017, as the equity Bull Market rages on and the S&P 500 experiences its lowest intra-year drawdown and highest Sharpe ratio in history. Investors declare VIX dead and pile into the riskiest assets right as Volatility awakens in 2018.

This Surprise seemed way more "out there" when we released the Surprises in the third week of January as the idea that Volatility could ever come back was considered heresy thanks to the advent of algorithmic trading, a super-active Fed and everyone and their sister selling volatility and compressing the VIX index to the lowest levels ever recorded. The opening cartoon of our Around the World webinar showing an R.I.P. VIX tombstone was the broad Consensus and our Variant Perception that VIX was just resting received a ton of trolling on Twitter (which we have found is perfectly negatively correlated to the quality of the idea). In the U.S. equity markets, forget ever talking about crashes as corrections had been outlawed. There had not been a (10%) correction in nearly two years, there had not been a (5%) correction in over eighteen months and there had not been so much as a (3%) correction in 2017. In fact, forget about corrections of any kind as 2017 was the lowest volatility year in the history of the S&P 500 and it had been nearly three months since the last 1% move (either way) in the SPX. The Index had been above its 200dma for nearly 400 days (second only to the 474-day streak in 2013 and 2014, also during the QE Era) and the Index had also been up for fifteen consecutive months (on a total return basis), breaking the previous record from the 1950s. The lack of equity volatility was astounding as the standard deviation of SPX fell to its lowest level ever for the year, at 3.9% (less than one-quarter of the normal level of 16%), and the Sharpe Ratio hit a new all-time high of 4.4 (60% higher than the previous record in the 1960s) and nearly 9X the normal level of 0.53. The VIX Index itself spent 52 days in 2017 under 10, after never having a year with more than four ever before and then VIX hit an all-time low on the first trading day of the New Year. Short VIX was the new get-rich-quick strategy and many billions of dollars were piling into leveraged ETN strategies (like XIV and SVXY) to try and replicate the success of the former Target manager turned day-trading millionaire. We pointed out that history was replete with examples of alligator jaw formation similar to the recent movements of the S&P 500 and the VIX and it was likely that these jaws could snap shut sometime soon (even we didn't think soon meant three weeks later…).

Surprise #4: #FANGsBite

After a grueling eighteen year climb back from the abyss following the 2000 Tech Bubble Crash, NASDAQ finally regained the March 2000 peak and continued to surge into the New Year on the back of the infamous #FANG stocks (FB, AMZN, NFLX, GOOGL plus AAPL and MSFT). Investors have determined that it is safe to buy these stocks at any price (similar to CSCO, INTC, MSFT and QCOM in 2000) and have pushed valuations to stratospheric levels. With less QE liquidity to inflate the equity Bubble further, it turns out that #FANGs Bite in 2018.

Over the past century the U.S. economy and capital markets have been dominated by a small number of monster sized companies. In 1917, it was U.S. Steel, AT&T and Standard Oil; by 1967, it was IBM, AT&T, Eastman Kodak and GM; and today, in 2017, it was the Tech Fab Five of Apple, Google, Microsoft, Amazon and Facebook. #FAAMG rules. We showed how a year ago, things in the markets (aside from #FANG) didn't look that bubbly and when compared to the 2000 valuation craziness, the big tech names could double without being in the same rarified air. However, if you changed the perspective a bit (looked at a decade instead of a year) AMZN and NFLX looked very bubbly and extremely bubbly, respectively, and when the covers of magazines are adorned with sci-fi looking pictures of the #FANG stocks, it was likely that we were closer to the top than the bottom. We also showed how when every fast-growing company eventually slows down (capitalism works), valuations must follow, and while FB and GOOGL were only crazy-priced around 35X earnings, AMZN and NFLX were in silly town at 336X and 196X, respectively. Finally, there is a saying that "lack of breadth is death" to Bull Markets and the large majority of recent returns were concentrated in a small number of tech stocks and we felt that like in 2000 there is no company good enough that you can't mess up by paying too high a price.

Surprise #5: #LookOutBelow

The New Administration has woken up and realized that China has been playing Go while they have been arguing about how to set up the checkerboard and joined the Race to the Bottom in the Developed Market currency markets. King Dollar was dethroned last year when the RMB was admitted to the IMF SDR, and there is increasing evidence that more central banks around the world are headed toward a Multi-Polar currency regime. The days of U.S. Dollar Hegemony are numbered and DXY breaks lower, heading toward 80 by year-end.

Consensus believes that when the Fed raises rates, the Dollar rises. The problem with that Narrative is that the data tells a completely different story. The markets anticipate the Fed move and the Dollar peaks right before the second Fed hike, so we expect that the Dollar has peaked for this cycle and is back into a cyclical decline (within its long-term secular decline). The DXY looks to have peaked late last year about a month after the Election (sooner on the trade weighted basis) and looks to be firmly locked into a downward trend. As #KingDollar has been dethroned, the RMB has become ascendant and after posting very strong gains in 2017 (contrary to the consensus that China would have to devalue), the Yuan is setting up to maintain a very stable level versus the broad basket of global currencies that the PBoC considers its target basket (not just the Dollar). Once DXY crossed below the 200dma of 90, there was little support below and it could be a rapid trip down to 80. When looking at data from GMI and the TIS group, we see that the G7 Inflation levels give us a target for DXY of the low-80s and the DXY Coppock Curve targets the mid-70s. As the world moves to a more multi-polar leadership model, the days of U.S. Dollar hegemony are numbered, and we will see the rise of other currencies like the RMB appear in other central bank portfolios (Germany just announced) and there will also be a rise in other electronic currencies and payment systems that will create a more global currency union over time.

Surprise #6: #OilsNotWell

After their Thanksgiving Turkey move in 2014 (not cutting production in an attempt to bankrupt over-leveraged U.S. Shale producers) Saudi Arabia finally came to their senses and convinced other OPEC members to cut production to stabilize oil prices. Oil prices followed our 2017 Surprise perfectly bouncing off $42 in June to rally back to $60 in December, but while the Saudis celebrated their "victory," U.S. production exploded higher setting up a very interesting battle in 2018. Oil reverts back to a normal cyclical pattern, rising toward $70 in 1Q18 and falling back to $50 by year-end.

There were some interesting conflicting signals about the oil markets coming into the New Year. The world's largest pension fund was divesting from oil and gas stocks (would normally be a contrarian buy signal, but they are so big that there could be a little self-fulfilling prophecy here) and there was the largest net long position in oil futures in history (would normally be a raging sell signal). The funny thing about oil speculators is they have a long history of being precisely on the wrong side (short or long) at precisely the wrong time (prices turning up or turning down) and we saw large net short positions last summer (when oil hit bottom at $42) and a gradually increasing net long position as oil rose back to $60 to end the year. Right as oil peaked at $66, the net long position hit its crescendo and oil prices have fallen ever since. There is one wrinkle in the data in that given the large leverage ratios in many of the U.S. shale producers, the banks are forcing them to sell forward production and thus the speculators on the other side are reactive rather than proactive so perhaps the true net long position is lower (but still really high). There are also some technical indicators that show how oil is prone to make peaks/troughs in January and June, there was a Bradley Turn Date on 1/29 and there was a cathartic buying panic around the same time, which all pointed to lower prices ahead. The biggest risk to the oil Bull thesis, however, was the ability of the U.S. shale producers to crank up the volumes at these higher prices and should they get up over 10mm bpd that would push the supply/demand balance back into over-supplied and put downward pressure on prices. Like clockwork, the end of January data showed a new record for U.S. production of 10.25mm bpd and the Saudis may have started celebrating too soon. Finally, the last three times that oil was this overbought (RSI over 85) was in 1991, 2000 and 2007 and a Recession ensued within the next year.

Surprise #7: #LongArmOfAbenomics

Continuing to defy the skeptics, the dynamic duo of Abe-San and Kuroda-San keep firing the arrows of Abenomics at their targets of Monetary Easing, Fiscal Expansion and Regulatory Reform and the Bull Market in Japanese Equities accelerates into 2018. Surprisingly, the Yen temporarily halts its decline, as the USD continues its descent, but the equity market separates from the currency as economic and earnings growth accelerates, and foreign investors finally return to the Land of the Rising Stocks. The Nikkei hits 27,000 by year-end.

When Abe-san came to power in 2012, he laid out a plan for a Tokowaka Renewal in the moribund Japanese economy and his three-arrow plan of aggressive monetary easing (to weaken the Yen), fiscal expansion to drive economic recovery and reduced regulation to encourage innovation and revive domestic investment, was subsequently dubbed Abenomics. After two years, the Yen was materially weaker, the Nikkei had nearly doubled, and an observer might have thought Abe and Kuroda (BOJ Governor) would have been heroes. Instead, the economy had fallen into a slight Recession after the VAT Tax changes and the media (and just about everyone else) deemed Abenomics a failure. Fast forward to today, Japanese GDP has been expanding for more than two years, business sentiment is the highest since 2006, animal spirits have been revived and Topic earnings growth is the highest in the developed world (and actually higher than most emerging markets as well). Kuroda-san has put his foot to the floor and grown M2 money supply at a staggering rate and bought nearly every JGB and ETF he can get his hands on in an attempt (successful) to pin the yield curve at zero out to ten years and keep the recovery going. Everyone is buying Japanese stocks, from the BOJ, to large Japanese Pension Funds, to corporations that are buying back stock for the first time and even foreign investors are returning to the Land of the Rising Stocks. Interestingly, and most positively, despite the big moves in prices over the past few years, Japanese equities remain very cheap (EPS are growing faster than prices are rising) and the MSCI Japan Index has the fourth lowest P/E ratio relative to its long-term average in the world (only Taiwan, Columbia and Korea are lower).

Surprise #8: #NoOpenAirMuseum

Byron Wein once wrote that Europe was on the way to becoming an open-air museum and for years pundits piled on saying that the Eurozone was crumbling and would disintegrate. A punishing Recession after the Global Financial Crisis followed by a wave of Populist threats to unity within the EU and Europe reached a fevered pitch with fears of Grexit 2.0 and possible backlash from Brexit. Consensus was that the EU's days were numbered. However, the ECB stimulus program has rekindled animal spirits and a real recovery has taken hold. These events lead to Europe being one of the best performing regions in 2018.

The ECB finally came to the rescue in Europe (better late than never) and they went all-in on the QE, exploding their balance sheet from 20% of EU GDP to 43% in just over two years. The result has been a rekindling of animal spirits in Europe, a rapid decline in unemployment (although still high) and a slight instigation of inflation (although still too low). Confidence has returned to the region and that confidence may even be running a little hotter than the actual economic recovery. The stimulus taps are stuck wide open and with many Trillions of Euros of negative yielding government bonds, there has been a solid recovery in corporate profits as debt is cheap and operating leverage is high at this point in the cycle. The one thing that doesn't seem to make sense is Italy with rates below U.S. Treasuries, but so long as the ECB has a continually low bid that anomaly is likely to persist. The one wrinkle in the plot is that the continued strength of the Euro itself may begin to bite into the export dominated markets like Germany and France and there are signs that profit growth is not growing as fast in those markets (relative to the PIIGS). The problem with the equity story to this point is that there seems to be a cap on the Euro Stoxx 50 Index in that each time it moves toward a break out level either threats of Tapering by Super Mario or higher oil prices causing consumers to slow down have derailed the bull market. We think that Greece is the word in Europe in 2018 as the debt crisis seems to have passed (Greek 2-year yields are below Treasuries) and there is a large amount of offshore capital that is coming back home that could mitigate some of the bank capital needs to deal with the NPL issues. With confidence rising and economic growth rebounding strongly, business confidence is the highest ever recorded and with equity prices so low, it could be one of the best performing markets in a region where there could be a lot of winners in 2018.

Surprise #9: #DecadeOfDominance

A year ago, consensus was that China was on the verge of a hard landing, the RMB (and other EM FX) was going to collapse as the Fed raised rates, and that the dominance of U.S. equities over the ROW would last indefinitely. Instead, Emerging Markets trounced developed markets (both stocks & bonds) as it turned out that Willie Sutton was right after all (that's where the money/growth was). Consensus now believes investors have "missed it" and that the inevitable EM Crash is just around the corner. We will take the other side and say the Decade of Dominance is just getting started.

Emerging Markets were the star performers in 2017 and the most miserable markets at the beginning of the year performed best of all (nod again to Sir John Templeton to always invest where it is the most miserable), with Argentina, Nigeria and Turkey being right at the top of the Leader Board. EM equities have broken out of a multi-year consolidation and wedge pattern and look to be at the beginning of a multi-year move relative to the Developed Markets. DM had dominated from 2011 until 2016 and when we watch the ratio of EEM/SPY we see that there are clearly defined periods of time where either DM or EM dominates and extremely clear signals for when those periods begin and end (just had a new signal for EM). Economic data is very supportive of continued strength in EM as Leading Economic Indicators are rising and the Citi Economic Surprises Index is at a trough and turning higher. The term "Decade of Dominance" comes from a chart that shows the long-term rising channel of the EM Index and, unlike the U.S. where the current price is at the very top of the channel (two standard deviations expensive), EM is at the bottom of the channel (two standard deviations cheap). EM countries are responsible for 40% of all global GDP, yet only have an 11% weight in the global equity index, so there is plenty of room for increased allocation (like the inclusion of China A-Shares beginning in June). EM lending is accelerating which should provide strong liquidity to the region and earnings growth has exploded upwards to nearly double the rate of the Developed Markets (and you get to buy that higher growth at a 22% discount in P/E). While there will no doubt be some volatility in these markets should the DM struggle (there always is despite the superior fundamentals), the EM markets are still very much a place where investors should buy the dips as opposed to the DM markets where it is more advisable to sell the rips (and redeploy into EM).

Surprise #10: #GetReal

After nearly four decades of falling Inflation, global developed markets are at an inflection point where the excessive liquidity created by central banks is finding its way into the economy. In addition to the monetary pressures, the massive urbanization of Chindia (and other EM) has created huge demand for scarce resources and commodity prices have reversed their downward spiral that began in 2011. This perfect storm of events, coupled with the cheapest relative valuation of Real Assets to paper assets in history, creates a tremendous opportunity for commodity investors in 2018.

There are a number of tailwinds developing for real assets, not the least of which is the One Belt, One Road project (recently renamed the Belt and Road Initiative), which will be a powerful driver for rising demand for commodities as the largest infrastructure in the history of the world unfolds in the coming years. China overall continues to grow at a pace that is very favorable for commodities and real assets and with PMI as 5-year highs, LEI turning higher and GDP growth close to 7%, there is little doubt that China's growth will support the next commodity super cycle. Interestingly, there is evidence from some of the economic variables tracked by the Bloomberg Li Keqiang Index that China might actually be growing faster than the reported government figures (theory is they don't want to cause an inflation panic with the higher numbers). China pumped $1T into their economy in 2015 to save the world from an impending slowdown (and to get Xi re-elected), but as that liquidity is sucked back out of the system by the PBoC there is some risk that global growth (and commodity demand) falls off a bit. All that said, there has never been a better time to sell paper assets and buy real assets as relative valuations between financial assets and hard assets has never been more extreme (thanks to central bank money currency devaluations). The good news is that despite a big move in the commodity indices in the past six months (including a recent record string of fifteen consecutive up days), the relative valuation of the CRB and GSCI Indices versus the S&P 500 is still near record levels (and we know that alligator jaws like this always close). Dr. Copper and Iron Ore prices are in solid uptrends and are pointing to better growth ahead, which bodes well for real asset prices. Gold and Gold Miners are as cheap as they were at the peak of the last Tech Bubble in 2000 and it could be an opportune time to add some precious metal protection to your portfolio at these attractive levels.

Bonus Surprise: #BitcoinHitsTheBigtime

Truly disruptive technologies cause great angst in the capital markets as they move along the S-Curve from Innovation to Adoption, particularly from incumbents who are most impacted by the change. In our view, Blockchain is a truly revolutionary technology that could disrupt the entire Chain of Value in the same way that the Internet disrupted communication and commerce. Financial Services executives call it a fraud, governments call it a threat to national security and the consensus is that Bitcoin and other Cryptocurrencies are a Bubble and a Fad, or even a Ponzi scheme. In our view, the reality is that Blockchain and Bitcoin are BIG. Really BIG…

Back in 1988, *The Economist* magazine predicted there would be a world currency in 2018 (they called it the Phoenix and it was a golden coin); Satoshi obliged in 2008 and created Bitcoin (also depicted as a golden coin, although there are no coins, just electrons and ledger entries). It seems that everywhere you go, people are talking about Bitcoin, the older generation calling it a scam and a Bubble and the younger generation calling it #DigitalGold and asking for it in their Christmas stocking. Last fall everyone was calling Bitcoin a Bubble (at $4,000) and Jamie Dimon was calling it a fraud, but the traditional Bubble model doesn't apply to Bitcoin as it is a Network that is undergoing an S-Curve adoption and we showed how the upward trajectory of the Bitcoin price will be a series of parabolic moves that look like Bubbles, but will turn out to be barely observable wiggles on a long-term chart as Cryptocurrencies replace Fiat currencies over the coming decades. We believe money as we know it is going away and it will be replaced by the Internet of Money (or Internet of Value) and Value over IP will have the same impact to our traditional view of money that Information over

IP had on our conception of the value of the Internet. There are plenty of Bit-haters, the largest group being governments and large financial institutions (incumbents who have the most to lose), but the more they try and fight Bitcoin, the stronger it becomes. Bitcoin prices are following a 2014 Logarithmic Non-Linear Regression model (most humans only think linearly) and that model predicted the $10,000 price past November and shows how Bitcoin will move the next 10X to $100k over the next three years (we see a $400k price, gold equivalence over a decade). Q1s have historically been rough for Bitcoin (particularly following years with big up moves like 2017) as the Chinese get set for Lunar New Year and there is some tax selling related to the huge gains from the previous year. It is likely that Bitcoin will stabilize over the next three to nine months and head back for the parabolic pricing channel that mirrors the development of the Network over time. Bitcoin is all about the growth of the Network, people taking money out of the Fiat system and increasing the user base of Bitcoin. That process in still in the early days and we have just entered the Frenzy portion of the Installation Phase of a new technology along an S-Curve. There will be a crash at some point in the future (like the Dot.Com crash) but we are likely a few years away. That crash will cleanse the system and lead to the Deployment Phase of Bitcoin where widespread adoption and use cases will flourish and the investment opportunities will become even more robust. One of the best things about Bitcoin is that it has strong portfolio diversification benefits (low correlation to traditional assets), so it doesn't take much (1% to 5%) in a diversified portfolio to make a significant positive impact. We believe Bitcoin (and other Cryptocurrencies) are here to stay and they are just getting warmed up.

Update on Morgan Creek

We hope you have been able to join us for our Global Market Outlook Webinar Series entitled "***Around the World with Yusko***." We have had many interesting discussions in the last few months including: *Turkey Trouble Comes Home to Roost in November* and *Channeling Byron: Ten Potential Surprises for 2018*. If you missed one and would like to receive a recording, please contact a member of our Investor Relations team at IR@morgancreekcap.com or visit our new website www.morgancreekcap.com.

We are also a proud sponsor of The Investment Institute, a newly formed Educational Membership Association for Institutional & Private Investors and Managers in the Southeast. The date of the next program will be **May 22nd–23rd, 2018** at **The Umstead Hotel, Cary, NC**. For more information on how to become a member and join this elite group please visit www.theinvestmentinstitute.org.

As always, It is a great privilege to manage capital on your behalf and we are appreciative of your long-term partnership and confidence.

With warmest regards,

Mark W. Yusko

Mark W. Yusko
Chief Executive Officer & Chief Investment Officer

General

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Indices

The index information is included merely to show the general trends in certain markets in the periods indicated and is not intended to imply that the portfolio of any fund managed by Morgan Creek Capital Management, LLC was similar to the indices in composition or element of risk. The indices are unmanaged, not investable, have no expenses and reflect reinvestment of dividends and distributions. Index data is provided for comparative purposes only. A variety of factors may cause an index to be an inaccurate benchmark for a particular portfolio and the index does not necessarily reflect the actual investment strategy of the portfolio.

Russell Top 200 Value Index — this measures the performance of the mega-cap value segment of the U.S. equity universe. It includes those Russell Top 200 Index companies with lower price-to-book ratios and lower expected growth values. Definition is from the Russell Investment Group.

Russell Top 200 Growth Index — this measures the performance of the mega-cap growth segment of the U.S. equity universe. It includes those Russell Top 200 Index companies with higher price-to-book ratios and higher forecasted growth values. Definition is from the Russell Investment Group.

Russell 2000 Value Index — this measures the performance of small-cap value segment of the U.S. equity universe. It includes those Russell 2000 Index companies with lower price-to-book ratios and lower forecasted growth values. Definition is from the Russell Investment Group.

Russell 2000 Growth Index — this measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 Index companies with higher price-to-value ratios and higher forecasted growth value. Definition is from the Russell Investment Group.

Russell Midcap Value — this measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell Midcap Index companies with lower price-to-book ratios and lower forecasted growth values. Definition is from the Russell Investment Group.

Russell Midcap Growth — this measures the performance of the mid-cap growth segment of the U.S. equity universe. It includes those Russell Midcap Index companies with higher price-to-book ratios and higher forecasted growth values. Definition is from the Russell Investment Group.

Russell 3000 Index (DRI) — this index measures the performance of the 3,000 largest U.S. companies based on total market capitalization, which represents approximately 98% of the investable U.S. equity market. Definition is from the Russell Investment Group.

MSCI EAFE Index — this is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the US & Canada. Morgan Stanley Capital International definition is from Morgan Stanley.

MSCI World Index — this is a free float-adjusted market capitalization index that is designed to measure global developed market equity performance. Morgan Stanley Capital International definition is from Morgan Stanley.

91-Day US T-Bill — short-term U.S. Treasury securities with minimum denominations of $10,000 and a maturity of three months. They are issued at a discount to face value. Definition is from the Department of Treasury.

HFRX Absolute Return Index — provides investors with exposure to hedge funds that seek stable performance regardless of market conditions. Absolute return funds tend to be considerably less volatile and correlate less to major market benchmarks than directional funds. Definition is from Hedge Fund Research, Inc.

JP Morgan Global Bond Index — this is a capitalization-weighted index of the total return of the global government bond markets (including the U.S.) including the effect of currency. Countries and issues are included in the index based on size and liquidity. Definition is from JP Morgan.

Barclays High Yield Bond Index — this index consists of all non-investment grade U.S. and Yankee bonds with a minimum outstanding amount of $100 million and maturing over one year. Definition is from Barclays.

Barclays Aggregate Bond Index — this is a composite index made up of the Barclays Government/Corporate Bond Index, Mortgage-Backed Securities Index and Asset-Backed Securities Index, which includes securities that are of investment-grade quality or better, have at least one year to maturity and have an outstanding par value of at least $100 million. Definition is from Barclays.

S&P 500 Index — this is an index consisting of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The index is a market-value weighted index – each stock's weight in the index is proportionate to its market value. Definition is from Standard and Poor's.

Barclays Government Credit Bond Index — includes securities in the Government and Corporate Indices. Specifically, the Government Index includes treasuries and agencies. The Corporate Index includes publicly issued U.S. corporate and Yankee debentures and secured notes that meet specific maturity, liquidity and quality requirements.

HFRI Emerging Markets Index — this is an Emerging Markets index with a regional investment focus in the following geographic areas: Asia ex-Japan, Russia/Eastern Europe, Latin America, Africa or the Middle East.

HFRI FOF: Diversified Index — invests in a variety of strategies among multiple managers; historical annual return and/or a standard deviation generally similar to the HFRI Fund of Fund Composite index; demonstrates generally close performance and returns distribution correlation to the HFRI Fund of Fund Composite Index. A fund in the HFRI FOF Diversified Index tends to show minimal loss in down markets while achieving superior returns in up markets. Definition is from Hedge Fund Research, Inc.

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MSCI Emerging Markets Index — this is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. The MSCI Emerging Markets Index consisted of the following 23 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates.

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