



Q4 2018 MARKET REVIEW & OUTLOOK

Morgan Creek Capital Management



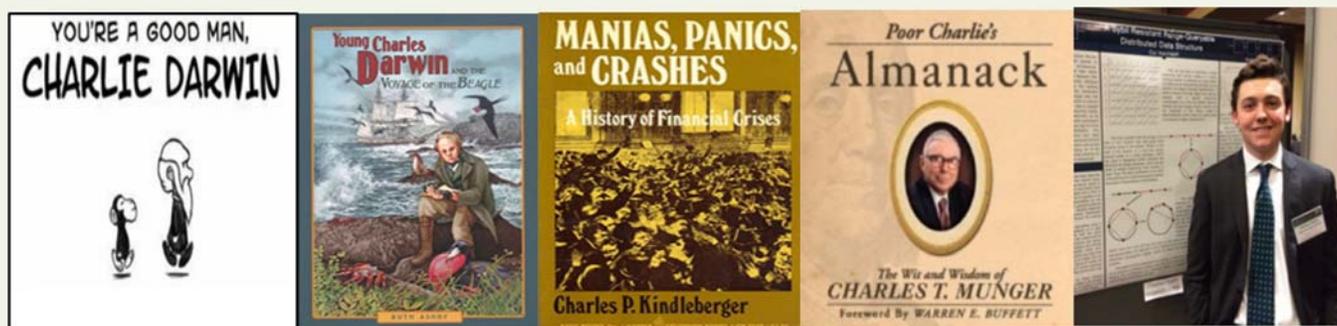
MORGAN CREEK CAPITAL MANAGEMENT

TABLE OF CONTENTS

LETTER TO FELLOW INVESTORS	3
FOURTH QUARTER MARKET REVIEW AND OUTLOOK	19
UPDATE ON MORGAN CREEK	80

LETTER TO FELLOW INVESTORS

A TALE OF FOUR CHARLIES & #FINANCIALNATURALSELECTION



Source(s): me.me, Amazon.com, Thriftbooks.com, Stockopedia.com, OCRegister.com

The origin of the name Charles was from the Germanic Karlaz, a noun describing a free man. Ironically, it was first used in the Anglo-Saxon world by a conquering invader and Norse ruler, Cearl of Mercia, and later adopted by Charlemagne (essentially Charles the Great) in the late 700s and the name Charles evolved to mean Nobleman. Just over a millennium later, Charles Robert Darwin was born into a wealthy (although not noble) family in Shrewsbury, England on February 12, 1809. His father, Robert Darwin, was a trained physician, but had become wealthy by shrewdly investing the income earned from his medical practice. His mother was Susannah Wedgewood (relation of the famous British pottery family) who tragically died when Charles was just eight years old. Interestingly, his grandfather, Erasmus Darwin, was also a prosperous physician, but was a prominent scientist as well who had made significant contributions to the emerging scientific field of evolution (theory that all life had a common origin). At age nine, Charles was sent away to the Shrewsbury School (only a mile away, but he was a boarding student) where he was instructed in the Classics (Greek and Latin), which he did not find all that captivating. Curiously, much of the history points to the fact that Darwin was not considered a very strong student (rumor has it that he was convinced his father would endow him and so he didn't focus on his exams) and was not considered to be particularly smart. One thing Darwin did enjoy was hunting and taking nature walks where he could observe and collect things from the natural world. In fact, young Darwin was so obsessed with hunting that his father once declared "you care for nothing but shooting, dogs and rat-catching, and you will be a disgrace to yourself and all your family." At age sixteen, Charles was sent off to medical school at the University of Edinburgh (where his father had gone before him), but unlike his father, he did not enjoy studying medicine (dissecting cadavers disgusted him and watching surgery horrified him). Darwin recalled that his only fond memories of Edinburgh were his lectures by the great chemist, Joseph Black (discovered magnesium, carbon dioxide and the principle of latent heat) and he discovered his passion for the sciences, particularly chemistry and biology (we resemble that remark). After continued defiance by young Charles on the exam front, an exasperated Robert Darwin withdrew him from Edinburgh and sent him to University of Cambridge with a plan that Charles would train to become a clergyman in the Church of England. Now nineteen, Darwin found the curriculum for the Bachelor of Arts degree to be quite easy and placed near the top of his class despite spending most of his time hunting, drinking and playing cards (which he reportedly enjoyed and at which he was quite skilled). It was reported that Darwin was enthralled by two books he read at Cambridge, Alexander von Humboldt's book *Personal Narrative of Travels to the Equinoctial Regions of America 1799-1804* and John Herschel's *A Preliminary Discourse On the Study of Natural Philosophy*, which drove him to search for an opportunity for overseas

adventure and scientific discovery.

After completing his degree in 1831, Darwin was offered a position as a naturalist on the HMS Beagle (one of the Royal Navy's survey ships). The position was originally offered to John Henslow (a geologist and naturalist at Cambridge), but he declined and had recommended Darwin. The Beagle was to make a two-year expedition (turned in to five) to the South Seas, and while Darwin would have to pay for his passage, he would be allowed to collect specimens for his own use or profit. After some deliberation, young Charles decided "it appears that nothing can be more improving to a young naturalist, than a journey in distant countries" (we would second that emotion in investing, you can't be a great investor unless you travel broadly to explore new places and meet with managers and companies). His father (reportedly with some reluctance) agreed to pay for his son's voyage and the world is a better place for that wise decision. Sailing southward from the British Isles, the Beagle's first port of call was Cape Verde in West Africa where Darwin got his first practical lesson in scientific observation and hypothesis. Young Charles stumbled upon some seashells high up on a cliff and the ship's captain helped Darwin understand their origin by giving him a copy of Charles Lyell's *Principles of Geology* that explained the theory of gradualism (first proposed by James Hutton a century earlier). Darwin was so enthralled with the book that he would later befriend Lyell, who then also become one of his greatest supporters. Darwin kept meticulous notes on the things that he observed and collected during the voyage and he (fortunately for us) documented a large variety of unique flora and fauna in the Galapagos Islands where he observed that each island seemed to have a unique ecosystem and distinct variations of wildlife. Darwin arrived back in Britain in 1836 and though he left as an unknown recent graduate, he returned as a well-respected and renowned scientist as John Henslow had taken the letters that Charles sent him during the journey, bound them together in a journal and distributed them among the Cambridge Scientific community, which led to a long queue of researchers eager to study the collection that Darwin had assembled during the expedition. With the admiration of the scientific community, Robert Darwin was now keen to fund his son's work (rather than be embarrassed of him) and the British government also gave Darwin a large grant to work on documenting his observations aboard the Beagle. Over the course of the long voyage, young Charles had encountered countless examples of nature's complexity and he was fascinated by the abundance of unique species that he had discovered. He set to work to try to answer the question of how these different species had formed. In 1837, Darwin began a new journal of his ideas and theories about the variation in plants and animals that he witnessed during his journey.

Darwin was basically convinced that species could transmute (evolve), but he was determined that he would follow the principles of Francis Bacon, to collect facts and data before attempting to produce a provable theory. He set to work assembling all of the information that he had observed over the previous five years and began to lay the foundation for the formulation of his famous hypothesis. In 1838, Charles read the work of Thomas Malthus on the principal that populations would increase until they run out of food and then crash. The Malthus dilemma was that man tends to increase at a greater rate than his means of subsistence (curiously, the world still hasn't run out of food yet). He experienced a Eureka! moment, saying, "it at once struck me that under these circumstances favorable variations would tend to be preserved, and unfavorable ones to be destroyed. The result of this would be the formation of a new species. Here, then, I had at last got a theory by which to work..." Darwin's stream of consciousness was that in the natural world, the environment carries out selection; those organisms that can adapt to the environment survive and breed, hence, natural selection. Perhaps obviously, the same construct works in investing where good companies adapt to changing market conditions and thrive, while those unable (or unwilling) to adapt fall away (and become great short selling candidates). Technological innovation is a manifestation of the process that Darwin hypothesized insofar as new technology evolves from capturing the best

traits of the existing technology and creating new features or capabilities (like cross-breeding) and the markets/users will determine which new features should be retained (survive) and which should be removed (die). There are myriad examples from drug discovery (immunotherapy) to telecommunications (5G) that we could discuss, but the area of innovation where we are most reminded of Darwin today is in the application of cryptographic technology to money and value, the evolution of a new monetary system. In setting out to perform experimentations to test a hypothesis (or to create a new idea, technology or company), a great scientist (or investor) must have the ability to think outside the box (or even better to think like there is no box) and design ways to look at problems from a new perspective. Darwin was criticized for some of his unorthodox ideas and approaches. He responded that “I love fools’ experiments. I am always making them.” To the consensus, new ideas (particularly those that challenge the status quo) seem foolish and it is from this base of ignorance (rather than certainty) that the best discoveries are made. A great investor has to be able to have the guts to trust their gut, follow their instincts. Darwin said it clearly, “The very essence of instinct is that it’s followed independently of reason.” Something that follows from this is the ability to manage failure (many truly new ideas and approaches will fail), but as Thomas Edison so appropriately said, *“I have not failed. I’ve just found 10,000 ways that won’t work.”* All truly great innovations (and investments) come from that ability to follow your instincts (particularly when consensus is against your idea) and the greatest wealth is created by investing in something you believe in before most people even understand it (like the Internet in 1996, the Mobilenet in 2010 and the Trustnet today).

On the personal front, Darwin married Emma Wedgwood (his first cousin, study of genetics that evolved from Darwin’s work later showed this wasn’t a great risk/reward practice) in 1839 and the couple had ten children, but unfortunately, three died during childhood. On a more positive note, three of their sons, George, Francis, and Horace, followed in their father’s footsteps and became notable scientists (elected fellows of the Royal Society). Sadly, during his early work on his journal of observations from the Beagle expedition, Darwin became quite sick and would be plagued by ill health for the rest of his life. In an attempt to escape the filth of the city that he believed was contributing to his infirmity, they moved the family to a country house outside of London in 1842 and Darwin focused on writing his (now famous) books and scientific papers. Later that year he penned his first paper on the hypothesis that would later become known as “Natural Selection,” but unfortunately it would never be released. Three years later, in 1845, he did publish his famous account of the new species of finches he discovered in the Galapagos, drawing a controversial conclusion that one original species had been modified into all of the different species. In Charles’ own words, “This preservation of favorable variations and the rejection of injurious variations, I call Natural Selection... I am convinced that Natural Selection has been the main but not exclusive means of modification.” More succinctly, Darwin had taken extensive amounts of data from years of observations and reached a simple conclusion (the best investors have a unique ability to synthesize information into knowledge), “One general law, leading to the advancement of all organic beings, namely, multiply, vary, let the strongest live and the weakest die.” Had Darwin been an ambitious scientist, he would have published his Theory of Evolution by Natural Selection at that moment, but he didn’t; he continued analyzing data, weighing evidence and assessing the specimens he collected during his expedition. Darwin was, to put it mildly, obsessed with his project, saying, “It is a cursed evil to any man to become as absorbed in any subject as I am in mine.” The primary issue became that he was so focused on the scientific process, he would not draw conclusions (like analysis paralysis that keeps investors from acting on their ideas), lamenting that “My mind seems to have become a kind of machine for grinding general laws out of large collections of facts.” General laws are important and necessary for the scientific process, but the goal is to produce scientific discovery and move the collective body of knowledge forward (in other words, to share your work). Harkening back to his reputation in school, Darwin (along with a lot of others) did not consider himself more intelligent than others, and in fact believed that most people with basic intelligence were

capable of great discovery (same is true in investing) so long as they were willing to work hard. He said, “I have always maintained that, excepting fools, men did not differ much in intellect, only in zeal and hard work; and I still think there is an *eminently* important difference.” However, sometimes too much zeal and effort focused on creating the perfect output can result in missed opportunities. A reflective Charles said once that “I have deeply regretted that I did not proceed far enough at least to understand something of the great leading principles of mathematics, for men thus endowed seem to have an extra sense,” thus making the case that there are some basic preparations that can make someone a better scientist (or investor). We are actually fond of saying that when thinking about most things in investing, it is #JustMath.

After a decade of toiling to perfect his theory, in 1858 Darwin opened a letter from a young naturalist, Alfred Russel Wallace (he had been corresponding with Wallace during an expedition in the East Indies) and received a terrible shock. Wallace was seeking Darwin’s opinion of a research paper he had written describing a theory of evolution by natural selection, essentially the same theory Darwin had spent decades researching, but had never published (and coincidentally had the same title). Darwin magnanimously replied that Wallace’s paper could be published in any scholarly journal (but was quietly not exactly pleased). Charles was clearly conflicted, the scientific community was aware that Darwin had arrived at the theory first, but curiously, the decision was made that both theories would be presented at the Linnaean Society that year. Precisely at the time of the event, Darwin was experiencing a personal crisis in that his son was sick with scarlet fever and died right before the event, and as such, Charles was not present for the reading of the papers. Strangely, (perhaps fortuitously) neither paper provoked much interest from the judges. Suddenly inspired to action, Darwin spent the next year writing his seminal work, *On the Origin of Species* (often proclaimed to be the most important book in the history of biology), which was published in November 1859 (booksellers immediately sold out of all 1,250 copies). Over the next decade, Darwin updated his book regularly and eventually authored six new editions (with significantly different material) as he continued his work. Interestingly, some of the most familiar ideas attributed to Darwin today (even the construct of Darwinism itself) didn’t appear in the text until the later editions. In fact, the most famous phrase “survival of the fittest” did not appear in the book until a decade after the original publication (in the 1869 fifth edition). Perhaps even more remarkable is that the word “evolution” did not appear in the book until the printing of the sixth edition in 1872. Charles Darwin (contrary to his father’s concerns) became one of the most influential scientists of all-time and has impacted nearly every aspect of human existence over the past 160 years. In recognition of his towering academic achievements, Darwin was awarded the Copley Medal (at the time, the greatest honor in science) “for his important Researches in Geology, Zoology, and Botanical Physiology.” Previous honorees included Benjamin Franklin, Michael Faraday, his inspiration Alexander von Humboldt and his friend Charles Lyell. Perhaps Darwin didn’t dishonor the family name after all and actually lived up to the noble man version of Charles propagated by Charlemagne.

So, what can we learn as investors from one of the greatest minds of the ages and what lessons can we take from his steadfast commitment to the scientific method? We recently recorded an interview for Real Vision with the title *Nobody Knows Nothing*, where we discuss with Grant Williams that in investing it is impossible to “know” anything for certain, and that doubt and humility are two of the characteristics that all great investors possess. Darwin echoed this point when he says, “Ignorance more frequently begets confidence than does knowledge: it is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science.” The same is true in investing, it is always those with the least knowledge who are the most certain of an outcome, take the largest position and are then surprised when things go against them (they don’t even know what they didn’t know). The more you actually know about any investment opportunity (the more real

work you have done), the more uncertain you are of the outcome because you understand completely all the things that could go wrong and could invalidate your thesis. That is not to say the you can't gain an edge from performing high levels of research and diligence, but rather take Darwin's advice on appreciating the limitations of your own knowledge, "It is always advisable to perceive clearly our ignorance" (particularly before we act) so that you don't fall into the trap of overconfidence. Darwin understood well that "Freedom of thought is best promoted by the gradual illumination of men's minds which follows from the advance of science." One of the most important elements of successful investing is the ability to remain focused on the data and let the results chip away at the inherent biases that drive our investment decisions. The problem for most of us is that we don't see things the way they are, we see them the way we are (the way we want them to be). Unfortunately, we tend to form our opinion first and then gather data to support it (or reject data that contradicts our belief) when what we should do is what Darwin did early on by stepping back to think deeply about the data before creating his hypothesis. Darwin went on to say, "we are always slow in admitting any great change of which we do not see the intermediate steps." Even when we are presented with overwhelming data to support a conclusion that is different from our own, we cling to our view, when what we should do is embrace the science, data and the hard evidence that has been presented. Darwin said it best, "A scientific man ought to have no wishes, no affections - a mere heart of stone." Our first boss made the point in a similar way, saying the key to becoming a successful investor was to *invest without emotion*.

Beyond having basic stoicism, one of the other great insights from Darwin comes from his appreciation that observations themselves are not good or bad (right or wrong) but it is their relationship to the hypothesis that matters. He said, "How odd it is that anyone should not see that all observation must be for or against some view if it is to be of any service!" In other words, you have to have a view, a conviction in an idea or a hypothesis formed from the scientific method in order to use the power of observation to your benefit. Investing is simply the repetitive process of applying the scientific method, forming a hypothesis, gathering data, testing the veracity of the hypothesis, changing the hypothesis (or position) if necessary and beginning again. Very importantly, Darwin added that "A fair result can be obtained only by fully stating and balancing the facts and arguments on both sides of each question." Great investors always seek disconfirming data and ideas in order to test their hypothesis and build their conviction in specific investment ideas. One of the challenges of our new, overly connected and social media dominated world is that we are constantly channeled into echo chambers and only served information that agrees with our view (algorithms show us things related to what we have liked before). This constant bathing in agreement weakens our ability to have meaningful dialogue and debate thus leading to much greater herding behavior and inferior returns.

We can apply much from the theory of natural selection to investing, with the most applicable point being, "It is not the strongest of the species that survives, nor the most intelligent; it is the one that is most adaptable to change." In short, adapt or die. In life, and in investing, the environment in which we operate is dynamic and constantly changing and that change forces the participants in the ecosystem to make adjustments in order to survive. Obviously, the stakes are a little different for the average investor relative to the average predator/prey on the savanna, but the basic construct is the same. Darwin said in one of his later revisions to *On the Origin of Species* that "The expression often used by Mr. Herbert Spencer of the Survival of the Fittest is more accurate, and is sometimes equally convenient." The fittest can be defined in many ways and in investing there are numerous ways that successful investors achieve fitness by gaining an edge in some way, analytical, informational, process related, relationship related, technological (or many others) and that edge is what separates the winners from the losers in the business. Darwin said that "Intelligence is based on how efficient a species became at doing the things they need to survive" and the same can be said for investors insofar as intelligence goes far beyond academic

knowledge and intellectual horsepower, but rather refers to character traits like competitiveness, collaboration, courage, creativity and effectiveness. Great investors are very efficient in all aspects of the business, from idea generation, to research and analysis, to trading and execution. The intelligent investor is also highly disciplined and efficient in their use of resources to acquire, hone and expand their edge. Charles observed something very interesting (and not necessarily intuitive) from his observations that “In the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed.” Of all the characteristics that define the very best investors, the ability to collaborate, to learn from others and build symbiotic relationships (win, win) is what truly separates the great from the merely good.

Perhaps one of the primary motivations for collaboration of species over time was the severity of the consequences (particularly in the early days) insofar as should one not be endowed with the superior characteristics for survival and were not successful in finding help to overcome one’s own limitations, the outcome could be extinction. Darwin said, “It is difficult to believe in the dreadful but quiet war lurking just below the serene facade of nature... Natural Selection almost inevitably causes much Extinction of the less improved forms of life and induces what I have called Divergence of Character.” Commenting on the cognitive dissonance caused by the realization of the brutality of nature relative to its majestic grandeur and beauty, he draws our attention to the cold, cruel reality of evolution; that not every species (nor every member of a species) survives. In a similar observation, albeit literary rather than scientific, Thomas Hobbes poem Leviathan in 1651 describes life outside society as “solitary, poor, nasty, brutish and short.” Investing, at its core, is based on capitalizing on this cycle of life and gaining exposure to ideas, technologies and companies that are best able to navigate the brutal process of natural selection (and conversely avoiding those that will cease to exist). Unfortunately, the odds against good ideas and technologies becoming successful companies that turn out to be great investments are really high with failure (extinction) rates as high as 90% in the very early stages of life and averaging close to 80% for businesses overall who fail to reach their 20th birthday. As Darwin advises us, the Divergence of Character continually weeds out the weak from the strong and this evolutionary process means that the longer an idea, technology or company can survive, the longer it is likely to survive (the Lindy Effect). So, the real trick to becoming a great investor is to be able to ascertain early on which ideas, technologies or types of business models are likely to beat the odds. Easy, right? Well, maybe not so easy. Darwin warns us that “A grain in the balance will determine which individual shall live and which shall die, - which variety or species shall increase in number, and which shall decrease, or finally become extinct.” The problem is that in the early days of a species (or idea, technology or company) identifying which particular characteristic (e.g. width of beak) is going to be the key to success. Further, the environment is dynamic so what appeared to be an advantage at one point can become a disadvantage should things change (drought changes food scarcity). Even further, there are risks of random accidents that can extinguish a trait that may have been the winner before that species can breed and pass along the trait. Darwin described the randomness of natural selection, “What a book a devil’s chaplain might write on the clumsy, wasteful, blundering, low, and horribly cruel work of nature!” So, in order to beat the odds as an investor, it is a necessary, but insufficient, condition to do the work to try to identify the most promising ideas, technologies or companies, but you have to make a meaningful number of investments in order to hedge against the likelihood that some of the great investments go wrong for unanticipated reasons. The other big opportunity that exists (although 90% of the time on Wall Street and in the media, the focus is the buy side) is that the high rate of extinction during the evolution process creates myriad opportunities to short the losers and some of the very best investors we have ever known have been spectacular in this regard (partly because it is a much less crowded area). Finally, Darwin discussed another interesting anomaly about the natural selection process in that sexual selection will also be largely dominated by natural selection tending towards the general welfare of the species. Alternatively, she may accept, as appearances would sometimes

lead us to believe, not the male that is the most attractive to her, but the one that is the least distasteful. So, once again we find that the females of the species really do run the show and that, like in investing, there is more to survival and propagation of the species (investment) than meets the eye. What may appear attractive on the surface may actually be a trait that leads to your extinction by a predator or other force of nature.

One of the interesting elements of Darwin's work was that he was careful not to make absolute claims for the origin of individual species (e.g. homo sapiens), but he did firmly embrace his grandfather's theory that "probably all the organic beings which have ever lived on this earth have descended from some, one, primordial form, into which life was first breathed..." Clearly, one of the issues that has become a lightning rod for Darwin's theories is the debate between transmutation (evolution) and creationism. Darwin hit this issue head on in saying "We can allow satellites, planets, suns, universe, nay whole systems of universe to be governed by laws, but the smallest insect, we wish to be created at once by special act..." A mature Charles came at the issue from a scientific perspective saying, "On the ordinary view of each species having been independently created, we gain no scientific explanation." Darwin was also quite circumspect about the immensity of the question (and was mindful of his early academic challenges) saying, "The question of whether there exists a Creator and Ruler of the Universe has been answered in the affirmative by some of the highest intellects that have ever existed." In a genius stroke that deflects the issue masterfully (and invokes one of our favorite protagonists from letters past), he quipped, "I feel most deeply that the whole subject is too profound for the human intellect. A dog might as well speculate on the mind of Newton. Let each man hope and believe what he can." He was not only humble in his appreciation for the depth and complexity of the issue, but also comfortable in his scientific skin saying, "The mystery of the beginning of all things is insoluble by us; and I for one must be content to remain an Agnostic." Charles Darwin was, at his core, a scientist and his perspective was that truth is the result of what the scientific process can reveal, saying "we are not here concerned with hopes or fears, only with the truth as far as our reason allows us to discover it." Harkening back to Darwin's study of Latin, in the end, *loquitur de notitia* (the data speaks, or maybe he would prefer the poker version, *the cards speak*).

While Darwin did not make claims on the exact origin of homo sapiens, he did provide some commentary on the basic character of humans saying, "We must, however, acknowledge, as it seems to me, that man with all his noble qualities... still bears in his bodily frame the indelible stamp of his lowly origin." Darwin had not done the work to proclaim the link between humans and primates (Charles Lyell did use the term Missing Link in 1851), but that didn't stop him from making a comment that rings true today in our discussion of the problems of central bankers and fiat currencies, and he quipped that "An American monkey, after getting drunk on brandy, would never touch it again, and thus is much wiser than most men." The construct that humans are not the swiftest at learning from their mistakes is well documented throughout history (and oftentimes in our own lives) and the natural result of this inability to learn is that the worst offenders are often selected against in evolution (they unfortunately may become extinct). Today, we have plenty of addiction problems from alcohol to the opioid crisis, but the one we want to talk about is the addiction to fiat money creation in the form of global QE. Darwin would contend that even the lowly monkey could figure out that getting drunk on free money is a bad idea. It is a particularly bad idea when there is no measure of success other than the misallocation of capital and the creation of asset bubbles. After a decade of global QE propagated by the central bank gorillas, we have had the worst decade of economic growth in the history of the U.S., the slowest recovery from a recession in history and the creation of the worst income and wealth inequality in history. The truly frightening part of this story emerges from Darwin's contention that "A moral being is one who is capable of reflecting on his past actions and their motives - of approving of some and disapproving of others... The highest possible stage in moral culture is when we recognize that we ought to control

our thoughts.” The problem lies in the fact that we assume that the central bankers have pure motives, that they are moral beings and that they have the discipline to evaluate their actions and make a decision. What we miss in this analysis is what Darwin concluded from his work that “Man selects only for his own good: Nature only for that of the being which she tends.” The basic problem is that the decision makers are seemingly making choices in their own self-interest. They are all part of the elite class and own assets that benefit from inflation and the devaluation of the currency. The myth of the central bank cabal is that their mandate is price stability, which they define as 2% inflation, but that inflation is really a tax on the poor (who own no assets and rely on purchasing power of their income). At that rate of inflation, the purchasing power of income is reduced by half over thirty-four years. Darwin didn’t mince words on this point, “If the misery of the poor be caused not by the laws of nature, but by our institutions, great is our sin.” The worst examples of this sin can be seen in places like Zimbabwe and Venezuela, but the reality is that similarly grievous sins are being committed in all of the major economies where the value of money is being destroyed. Darwin argued “How paramount the future is to the present when one is surrounded by children” and given that we now have an Echo Boom generation that is bigger than the Baby Boomers (but the Boomers are in charge), perhaps it is time that we change our ways (evolve our collective conscience). In another insightful Charles moment, he said, “We stopped looking for monsters under our bed when we realized that they were inside us.” As the great cartoon character from my youth, Pogo, was fond of saying, “we have met the enemy and he is us.”

Darwin believed in the power of the scientific process and he noted that it was not only the scientific discovery that was important, but the ability to eliminate ideas that have been accepted and become part of the consensus that are simply wrong (flat earth, sun revolves around earth, QE works, etc.). He noted that “False facts are highly injurious to the progress of science, for they often endure long, but false views, if supported by some evidence, do little harm, for everyone takes a salutary pleasure in proving their falseness.” The real issue here is that when false ideas are accepted as true, they encourage, or justify, behaviors that can be damaging to society. What Darwin delineates is that having a false opinion is not a problem because many will seek to debate and disprove that bad idea, but when things that are wrong are deemed fact (the epidemic of alternative facts in our current Administration), real damage is done. Worse yet is the problem of those falsehoods being turned into propaganda and Darwin explained this by saying, “Great is the power of steady misrepresentation.” If you repeat something often enough some will eventually believe it to be true (no matter how silly and wrong) and in the world of social media and instant access to information the time to create these narratives is reduced (damage is worse). Darwin said that one of the duties of a scientist (or investor) is to defeat the misinformation, saying “To kill an error is as good a service as, and sometimes even better than, the establishing of a new truth or fact.” The ability (and willingness) to stand up to propaganda and misinformation (like the new Cold War 2.0 nonsense about China, particularly Huawei) takes real courage (one of the most important characteristics of a great investor) and Darwin said very firmly “I am not apt to follow blindly the lead of other men.” Questioning authority, verifying information that you consume (particularly in an age where digital tampering is so easy, blockchain can help here) and taking time to truly think independently about ideas is paramount for being a great investor. Finally, there are times in history where playing defense is more important than playing offense, as Darwin said poetically “...for the shield may be as important for victory, as the sword or spear.” We are in a period where we are under attack by falsehoods (too many to name) and self-interested ideas (QE and negative interest rates) and we have to take up our Darwinian shield and protect our assets from extinction in this time of great uncertainty.

Taking a momentary diversion from the core theme of the letter, Darwin had some interesting life advice that goes to another of the important characteristics of great investors, the idea of balance. To begin, we came across one of

Darwin's quotes that we should all think about from time to time, that not every day is great, things don't always go according to plan, and it is okay to sometimes get in a funk (we are human after all). When asked how he was doing one day by a colleague, a petulant Charles said, "But I am very poorly today and very stupid and hate everything and everybody." We have clearly resembled that remark on occasion, and it is good to remember that it is natural and normal. Darwin also pointed out that the most valuable asset of all assets is time, and that "A man who dares to waste one hour of time has not discovered the value of life." We could not agree more that time is indeed the most precious commodity and we can recover just about anything else lost in life (investment losses, reputation, car keys), but once the grains of sand move through the hour glass they are gone forever. Interestingly, money (physical currency) and cryptocurrencies might also fall into this category of things that can't be recovered once lost, but time is still much more valuable. An interesting point of view that Darwin made in a letter later in life was that "If I had my life to live over again, I would have made a rule to read some poetry and listen to some music at least once every week." Darwin went further, saying, "The loss of these tastes (for poetry and music) is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature." We like the thought process here in that bringing the arts into your life not only is an enriching experience, but the contemplative nature of these disciplines is likely to make us more thoughtful and more effective people, as well as better parents, friends and investors. Charles Darwin passed away in 1882 at the age of 73 at his country house surrounded by family. He was buried in Westminster Abbey (a very big honor) next to John Herschel, his inspiration at university, near his best friend Charles Lyell and very near Sir Isaac Newton (poetic for this letter given our extensive writings on Newton in the past).

The second Charlie in our tale, Charles Poor Kindleberger (an interesting middle name for an economist) was born in New York City in 1910, graduated from the Kent School in 1928, graduated from the University of Pennsylvania in 1932 and received a Ph.D. from Columbia University in 1937 (at the peak of the last problem with QE). While finishing his dissertation, Kindleberger worked briefly at the U.S. Treasury under Harry Dexter White and then joined the Federal Reserve Bank of NY full-time in 1936. He worked at the Bank of International Settlements in Switzerland from 1939 to 1940 and then worked for the Board of Governors of the Federal Reserve System from 1940 to 1942. After being fully immersed in central banking culture, he served in the Office of Strategic Services (OSS) during WWI from 1945 to 1947. Kindleberger became somewhat famous for being the lead architect of the Marshall Plan (aka the European Recovery Program or ERP, named after Secretary of State George Marshall), which was an American initiative passed in 1948 to aid the rebuilding of Western Europe after the war. The United States gave over \$12 billion (slightly more than \$100 billion in today's dollars) in direct economic assistance (grants) to help jumpstart the Western European economies in the aftermath of WWII (with the added benefit of the money coming back to U.S. corporations and the establishment of CIA beachheads in Europe). The Marshall Plan was based on Kindlebergers work around the Hegemonic Stability Theory (HST) which made the case that the global geopolitical and economic system is more likely to remain stable when a single nation-state is the dominant world power, or hegemon (the HST thesis is why the U.S. is fighting so hard to create a negative view of China today). One of the most interesting elements of the Marshall Plan was that Kindleberger recalled that it was the first time that economic analysis had been done using computers, as the Pentagon had the only commercial computers at the time (pre-mainframes). Kindleberger was appointed as Professor of International Economics at MIT in 1948, retired from his full-time position in 1976 and was a senior lecturer until 1981. Kindleberger retired in Cambridge to spend more time with his wife and children (they had four kids and were married for 59 years) and wrote 30 books over the course of his career including the classic *Manias, Panics, and Crashes: A History of Financial Crises* in 1978 (a must read) which chronicled the history of speculative stock market bubbles.

Kindleberger was an economic historian and was vehement about the importance of studying history in order to form and revise economic theory. At the end of his long career, he went so far as to criticize the economics profession, saying, “Much of the profession is empirically bankrupt because it is no longer taught economic history.” Kindleberger was influenced greatly by the work of Hyman Minsky and notably described his mentor as “a man with a reputation among monetary theorists for being particularly pessimistic, even lugubrious, in his emphasis on the fragility of the monetary system and the propensity to disaster.” Minsky created the Financial Instability Hypothesis (FIH) and the construct of the Minsky Moment, the idea that the longer a system goes without a bout of instability the closer that eventual moment of instability actually has become (cycles matter). Minsky’s theory linked financial market fragility, within the context of the normal life cycle of an economy, to speculative investment bubbles that he believed were endogenous to financial markets. Minsky proposed (and Kindleberger refined) that during prosperous times (defined as when corporate cash flow exceeds what is needed to pay off debt) a speculative euphoria develops, which inevitably ends because of some exogenous shock (war, crop failure, invention, geopolitical event) and produces a financial crisis (defined as when debts exceed what corporations can pay off from current revenue). Kindleberger took the Minsky FIH and created his version of the cyclical process of markets (the Kindleberger Cycle) as follows. A **Boom** forms through the creation of some narrative around the evolution of a new idea or business opportunity, which is fed by the expansion of bank credit (money supply). The normal business climate is transmuted into higher effective demand for goods and services (some companies benefit more than others in a form of natural selection), and a speculative frenzy emerges. Kindleberger describes the creation of the frenzy, which leads to the next stage of the cycle **Euphoria**, saying, “speculative manias gather speed through expansion of credit. Most increases in the supply of credit do not lead to a mania - but nearly every has been associated with rapid growth in the supply of credit to a particular group of borrowers.” A true euphoric mania comes from the overestimation of profits (forecasts always go up and to the right), from excessive gearing (leverage) and from investors using large levels of margin on investments (like today where we have set all-time records). The peak of the Euphoria (bubble) emerges as the psychological FOMO (fear of missing out) kicks in and the famous Kindleberger quote that is so often thrown around at market peaks is “There is nothing as disturbing to one’s well-being and judgment as to see a friend get rich.” As judgment disappears, it is replaced by a feeling of invincibility (can’t lose); the speed of trading increases (overtrading) and the holding period shrinks to the point of pure speculation (no longer any shred of investment) where the only reason to buy is for immediate resale at a higher price.

While the masses begin to pile into the markets (throwing judgment and caution to the wind), the Insiders (those who have the most knowledge about true company prospects) begin to sell (first slowly, called feeding the fish, and then in large size, called distribution). While the speculators are still happily buying (prices still rising), the rate of increase of prices levels off and there is some hesitation in the markets (like today where the SPX is the same price it was a year ago). The next phase of the cycle is the **Displacement**, where some external shock to the system causes an awareness that there are not sufficient corporate cash flows to meet the increased level of liabilities. In the original Tech Bubble in 2000 it was the realization that eyeballs were not equivalent to cash flows, in the Housing Bubble in 2008 it was the realization that housing prices could actually go down and 100% LTV loans don’t work well in that scenario. In most cases, it can be the simple fact that a normal cyclical slowdown in economic activity will create an environment where profits fall, and when profits fall stock prices will follow (like my old wrestling coach in high school was fond of saying, “where the head goes the body follows”). The thing about Displacement is that the change in environment actually does alter the economic outlook and in a reflexive way alters the landscape for companies, making it better for some and worse for others. In pure Darwinian fashion, those who can adapt the quickest survive and the others fade away and die. Or so that is how it is supposed to happen, but in the QE Era of

free money and speculative credit (no covenant loans) the worst companies (species least equipped to survive) are bailed out and allowed to live. The real problem is that the longer the boom is allowed to exist the easy money environment attracts the unseemly characters as Kindleberger said, “The propensity to swindle grows parallel with the propensity to speculate during a boom and the implosion of an asset price bubble always leads to the discovery of frauds and swindles.” John Kenneth Galbraith called this increment of wealth that is captured by the tricksters as “*the Bezzle*” and noted that the level expanded during the good times because everyone was so focused on the rising prices that no one stops to examine why prices were rising so fast (accounting gimmickry, frauds or fads). Kindleberger noted importantly (and a little brutally), “What matters to us is the revelation of the swindle, fraud, or defalcation. This makes known to the world that things have not been as they should have been, that it is time to stop and see how they truly are. The making known of malfeasance, whether by the arrest or surrender of the miscreant, or by one of those other forms of confession, flight or suicide, is important as a signal that the euphoria has been overdone.” In the 2000 bubble it was the \$15,000 shower curtain in the bathroom at Tyco; in the Global Financial Crisis it was the London re-hypothecation scandal at Lehman (or the Kraft/Heinz implosion today), but it is not the actual malfeasance. Rather, it is the sudden realization that misdeeds have been done that triggers the cessation and the reversal of the Euphoria stage.

With attention refocused on accounting and math, investors slowly come to their senses and as investors realize that the liabilities of many companies will swamp the assets, “the stage of overtrading will come to an end. The curtain rises on revulsion, and perhaps discredit... The period of financial distress is a gradual decline after the peak of a speculative bubble that precedes the final and massive panic and crash, driven by the insiders having exited but the sucker outsiders hanging on hoping for a revival, but finally giving up in the final collapse.” It was another Charles (Mackay, a Scottish poet and journalist) that described this phenomenon best saying “Men, 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.” The great unwinding occurs in the same way every time (over the protestations of the hangers on who proclaim that it will be different this time) - prices decline which leads to bankruptcies and when the liquidations become disorderly there is panic and the forced selling (margin calls) leads to the final down-leg of the crash (1930, 2002, 2009), which leads to the next phase of **Revulsion**. In this stage, banks stop lending, there is not enough money for everyone to be made whole and the losses explode upwards. Suddenly, the credit bubble is replaced by discredit (absence of credit of any kind) and a lender of last resort (central banks) must enter to stabilize the system. It is here where the insiders, flush with cash from having sold at the peak of Euphoria, begin to redeploy capital to buy up the good assets (the surviving species) at distressed prices and the cycle begins anew. The biggest problem that has emerged over the past few decades is that the central banks have made the lender of last resort role a permanent part of their existence (starting with the BOJ, then the Fed and ECB) and that constant monetary stimulus has created a constant erosion of the value of currencies. Kindleberger warned about this risk saying, “Money is a public good; as such, it lends itself to private exploitation.” Once countries allowed the creation of money to be governed by central banks (allowed the creation of fiat currency) it was inevitable that the value of that money would be destroyed over time as governments are prone to overspend, to issue debt and inflate it away through the debasement of the currency (and begin the horrific cycle anew). Kindleberger described how this is not a new phenomenon (it has occurred many times over the millennia) when he wrote, “Debasement was limited at first to one’s own territory. Some entrepreneurial spirit then found that it was more profitable to take bad coins across the border into neighboring principalities to exchange them for good coins with ignorant common people; the good coins were then brought back to the home territory and debased... More and more mints were established... Debasement accelerated in hyper-fashion until the subsidiary coins became practically worthless, and children played with them in the street, much as recounted in Leo Tolstoy’s short story, ‘Ivan the Fool.’” This

fool's story is where we find ourselves today with the developed market governments locked in a race to the bottom to see who can beggar thy neighbor the most effectively and we are well on our way to the same outcome for the yen, euro and dollar that the Roman Solidus experienced, once the most powerful coin in the world can now be bought as a trinket on the streets of Rome for a dollar.

We are big believers that everything happens for a reason and while there is embarrassment about the tardiness of this letter, the fact that being late allowed the inclusion in this section of some of the highlights from one of the best meetings of our career was one of those happy accidents that have been part of our life over the years. Murray (pretty close to Charlie) Stahl is one of the true investing legends in our business and we have been huge fans of his value investment style for many years. Murray began his career at Bankers Trust in 1978 and left with his team in 1994 (he felt the bank wasn't behaving in the best manner, shocking we know) to form Horizon Kinetics Asset Management. From humble beginnings, the firm has grown to manage \$6 billion across thousands of individual accounts (taking care of real people) and commingled funds. Their investment philosophy is based on deep fundamental research and analysis, and they are quite unique in the way they share their research and encourage dialogue and debate with clients and peers to improve the quality of their research and ensure that their focus remains on the best investment opportunities that emerge as the investment landscape evolves. Their process is actually rooted in natural selection in that they are drawn to areas of special situation opportunities when an emerging idea or technology creates the potential for outsized investment gains, but requires them to believe in that evolution before others even understand an adaptation is occurring. Murray has been an early investor in countless paradigm shifts over the years and his latest special situation theme has been blockchain technology and cryptocurrencies. Murray (unlike Darwin) was a "math nerd" in college and actually had a passing interest in cryptography from his early math training. He was first introduced to Bitcoin in 2014 and read three papers that he says changed his world view forever, 1 - an examination of the Byzantine Generals' Problem (making decision with decentralized information), 2 - a description of trustless proof and 3 - Friedrich Hayek's book on the Denationalization of Money written in 1976 that discussed the authentication problem that couldn't be solved at that time. Blockchain technology solved those problems and Murray was hooked. The thing that made the meeting so powerful for us, however, was Murray's explanation of why cryptocurrencies (and Bitcoin in particular) will be so much bigger than most can understand or appreciate. The biggest virtue is that cryptocurrencies with a fixed issuance (Bitcoin) are far superior to fiat currencies because of Gresham's Law, which says that good money always drives out bad. In other words, given the choice between spending sound money (crypto) and unsound money (fiat), rational investors will spend the fiat and save the crypto. Like the experience in Ivan the Fool (or what is happening in Venezuela today where people are exchanging depreciating bolivars for Bitcoin), that exchange of bad for good means that ultimately the value of Bitcoin should migrate to the value of global M2 (around \$80 trillion). Plenty of readers will scoff at that number given Bitcoin's market cap of \$68 billion today, but let's think about the construct in small steps rather than all at once. We would all agree that the Brazilian real is a notoriously inflationary currency, prone to hyper-volatility and constant devaluation. The value of the real is \$720 billion, so isn't it possible to imagine a world where a sound currency (no inflation possible because no central bank) like Bitcoin should be worth more than the real? Seems quite logical and it doesn't take much of a leap to add all the horrible currencies in the world (pesos, bolivars and rupiah, oh my) and think that Bitcoin could surpass them. Why stop there? Let's think about all of the global assets that are readily convertible to cash (credit, loans, money markets etc.) and that number quickly spirals to \$600 trillion, which if we divide by the 21 million, (actually less due to destruction) the price of a Bitcoin could be a very large number. The logic of Murray's argument is very sound, and the asymmetry of the investment opportunity is why they have 2% of their client assets in cryptocurrencies (makes them one of top two crypto managers in the world).

Okay, so one really smart investment manager with a long track record of success likes magic internet money, what does that really prove? Isn't his positive view of crypto and Bitcoin completely offset by Charlie number three in our tale, Charles Thomas Munger (of Berkshire Hathaway fame) who has a completely negative view of crypto and Bitcoin? We mean to say that this Charlie is really negative about this stuff, saying, "The computer science behind Bitcoin is a great triumph of the human mind, that's what's captivated all these people. They've created a product that is hard to create more of but not impossible... But I see an artificial speculative medium... I regard the whole business as anti-social, stupid and immoral." Well, tell us how you really feel Chuck. Cheerfully, Charlie continued, "Suppose you could make a lot of money trading freshly harvested baby brains. Would you do it, or would you say that's immoral? You wouldn't trade them, would you? It's too awful a concept. Well, to me Bitcoin is almost as bad." Seriously? Comparing one of the greatest technological innovations of all-time to trading in dead baby brains seems a little extreme. Why stop there, he goes on saying, "I regard the whole thing as a combination of dementia and immorality. I think the people pushing it are a disgrace. There ought to be some things that are beneath you, that you just don't do, and this is one." So, let me get this straight, some of the smartest people in the world across a number of industries from technology, finance and academia have left promising positions and careers to develop and promote the transition to the Digital Age and they are demented, immoral and a disgrace? Something seems amiss here, like the Shakespeare quote that "The lady doth protest too much, methinks," and we are reminded that one should never ask an incumbent what they think about disruptive technology (like asking street sweepers what they think about horseless carriages). Given that Berkshire has 46% in financial services (the rent-seeking middlemen that blockchain and crypto will displace), maybe, just maybe, Charlie is a bit conflicted. Or maybe it goes to one of his own quips from his book that "Forgetting your mistakes is a terrible error if you're trying to improve your cognition. Reality doesn't remind you. Why not celebrate stupidities in both categories?" Charlie and Warren chose not to invest in technology for many years and BRK/A dramatically underperformed those companies in the past couple of decades (also lagged the S&P 500 badly over last decade too, but that is another story for another day). Perhaps there is the potential for Charlie to seek some of his own wisdom when he says, "Acknowledging what you don't know is the dawning of wisdom." Curiously, Charlie also says, "I believe in the discipline of mastering the best that other people have ever figured out. I don't believe in just sitting down and trying to dream it all up yourself. Nobody's that smart." There is no shame in taking advantage of others' great ideas...the defense they used all these years for not investing in technology was that they didn't understand technology (which seems weak at best and ill-advised at worst). Do any of us really know how our iPhone gets HD quality video to us in the middle of nowhere (and do we actually need to know in order to benefit?). Finally, Charlie says that inside Berkshire, "We all are learning, modifying, or destroying ideas all the time. Rapid destruction of your ideas when the time is right is one of the most valuable qualities you can acquire. You must force yourself to consider arguments on the other side." Given his emotional dismissal of crypto and Bitcoin, this sounds like a pithy quote that he might not actually be following in this case.

Now we don't mean to pick too much on Poor Charlie (especially because he has been more successful and is wealthier than we are), but we do believe he is doing a disservice to the scientific process here and he might find himself on the wrong of financial natural selection if he is not careful. Charlie does have a lot of wisdom for investors who aspire to his level of greatness that we want to share. One of our favorites (since we practice the trait as well) is when Charlie says, "In my whole life, I have known no wise people (over a broad subject matter area) who didn't read all the time - none, zero. You'd be amazed at how much Warren reads and at how much I read. My children laugh at me. They think I'm a book with a couple of legs sticking out." We are in violent agreement here and given the length of these letters, we clearly hope our readers appreciate how we contribute to the opportunity

to spend some time immersed in these pages. Charlie also says, “I constantly see people rise in life who are not the smartest, sometimes not even the most diligent, but they are learning machines. They go to bed every night a little wiser than they were when they got up and boy does that help, particularly when you have a long run ahead of you.” Like Darwin, it is not necessarily about having the most towering intellect, but rather being a life-long learner. Another favorite of Munger’s that Kindleberger would endorse is “There is no better teacher than history in determining the future... There are answers worth billions of dollars in a \$30 history book.” The George Santayana (the Spanish poet and essayist) quote that “those who cannot remember the past are condemned to repeat it” has always been a go-to for us, and we believe that studying history is one of the very best ways to become a great investor as it teaches pattern recognition and allows you to experience things that occurred before you were around (more reps). On the subject of “figures lie and liars figure” Charlie adds that “people calculate too much and think too little” and we are huge believers in the power of solitude, reflection and independent thought making great investors. Thinking about where we are in the markets today and why we are so cautious and recommending hedged postures (and lots of cash), Charlie echoes the Kindleberger cycle problem of Euphoria saying, “Crowd folly, the tendency of humans, under some circumstances, to resemble lemmings, explains much foolish thinking of brilliant men and much foolish behavior.” He continues, saying, “Mimicking the herd invites regression to the mean (merely average performance).” If you always run with the herd, you will eventually step in what they leave behind, and we are there today with lots of land mines all around. Charlie points to one of the biggest challenges of investing when he says, “It takes character to sit with all that cash and to do nothing. I didn’t get top where I am by going after mediocre opportunities.” Sometimes (like right now), we believe the best investment advice is “don’t just do something, sit there.” Like Darwin, Munger would say that math skills are one of the most important characteristics of great investors, but specifically “If you don’t get this elementary, but mildly unnatural, mathematics of probability into your repertoire, then you go through a long life like a one-legged man in an ass-kicking contest.” Probabilities beat possibilities and great investors seek out the former and avoid the latter. It is certainly possible that the second worst valuation in history runs further to become the greatest overvaluation in history, but it is not probable. In summary, Charlie says, “Acquire worldly wisdom and adjust your behavior accordingly. If your new behavior gives you a little temporary unpopularity with your peer group... then to hell with them.” Our views on the overvaluation in the S&P 500 and the undervaluation in Bitcoin make us two for two in the temporary unpopularity contest, but we are good with that. We reiterate what one of our good friends in the business said during the stress of being conservative going into the Global Financial Crisis, “We would rather lose half our clients, than lose half our clients’ money”.

Our fourth Charlie in our tale comes from a story that our friend, John Burbank, told at a conference where we were both speaking about blockchain and crypto (where the title to this letter was inspired). John told the Tale of Two Charlies, Charlie Munger and Charlie Noyes, and asked the audience whom they would trust more about Bitcoin (after Munger’s comments in the press). He presented a bunch of side-by-side stats on the two Charlies, like age 95 for Munger and age 19 for Noyes and time spent on Bitcoin, ten minutes for Munger and 10,000 hours for Noyes. He then remarked how someone had challenged him about the 10,000 hours given Noyes young age and gave some remarkable stats to back up the claim. It turns out that Charlie Noyes was a fairly talented child growing up in Orange County, CA and commented in an interview when asked about his early interest in computer science “When I was 6, I got a Game Boy and I played Pokémon a lot. By the time I was seven, I had taught myself cheats to ‘catch them all.’ When I was 9, I taught myself linear algebra to learn cheats for another game I was playing.” So, it also turns out he was a fast learner as learning to code at nine, he discovered Bitcoin at age 11 and began writing programs to mine Bitcoin on his computer in 2010. At age 16 (as a high school junior), he wrote a paper titled “Sybil Resistant P2P Range Queries over the Blockchain,” which won a national competition for papers

on Distributed Ledger Technologies (beating out graduate students from the best Universities, see the picture above). In simple terms, his paper was about how to make search results on your computer even faster and more precise using blockchain technology. Some of the judges took notice and he was offered a scholarship to MIT, skipped his senior year of high school to enroll, but was bored after a year and asked if he could take a test to get his degree. When the Dean said no, he dropped out and joined Pantera Capital in San Francisco to build a crypto trading business. In responding to a question on why he dropped out, Noyes said (and we agree) that he felt the education system was not focused on the right things, specifically that schools should “educate with the goal of building the most widely useful and generalizable intuitions. Pretty crazy that kids go through the most rigorous courses available to them today without learning anything about *how* to think.” After a couple of years, Charlie was recruited by one of the co-founders of Coinbase and a former partner of Sequoia Capital to join Paradigm Capital, a venture capital fund focused on crypto. So, upon review it does appear that the math foots that young Charlie has indeed put in his 10,000 hours despite his young age (which according to the Malcolm Gladwell book *Outliers* makes one an expert). When Charlie left Pantera, he described the transition in a half-joking way (like a typical 19-year-old) saying “everyone’s kind of just accepted that I go do my own thing and hopefully don’t mess up too badly. I wanted to try my hand at sort of re-architecting the internet in a way that I think is more democratized.” Oh, is that all? We have always admired people with big, hairy, audacious goals (BHAGs).

To provide a sense of how Noyes, and all the other Crypto Charlies (new code name for smart people that have flocked to the space in recent years), think about the blockchain ecosystem and the emergence of a new financial system built around crypto, consider some of his public commentary. On why Bitcoin is the most secure network in world, he says, “strongly secure systems are those with incentive designs that, in arbitrarily efficient markets, become strictly costlier to corrupt with infinite marginal scale.” Security is critical for the development of the crypto ecosystem and the evolution of Bitcoin building on the characteristics of earlier systems and solving the weaknesses (like the double spend problem and authentication) is a great example of technological natural selection. When we think about the application of the technology to finance, Noyes sums it up very nicely saying, “Decentralized finance is much easier to talk about once you accept that it’s just traditional financial engineering made permissionless and trustless; we might as well use the same terminology and be way less confusing.” The key is the enabling of true peer-to-peer exchange of value and the elimination of the trusted third party. Noyes continues, saying “an underappreciated truth: fractional reserve isn’t inherently bad, what’s bad is the lack of any credible alternative models for depository institutions and the regulatory capture/entanglement that leads that lack of alternatives.” The key point here is that the fractional reserve system of allowing deposits in an institution to be re-hypothecated and loaned against is not inherently bad, it is the central banking devaluation of fiat currency that is the problem. Finally, Noyes says, “in crypto it seems quite likely that service pools for lightning, staking, etc. turn out looking like fractional reserve banks, able to offer fractional liquidity timelines and yield on depositors’ assets. The major difference to Fiat-land is that you can choose not to participate.” The ability to engage the system on your terms with a sound currency is part of the genius of Bitcoin and why Murray Stahl’s vision of the Gresham crowding out (bad money replaced by good money) is so inevitable.

The final point we will make in our Tale of Four Charlies is that despite all the reports of the demise of crypto and Bitcoin, the data doesn’t support that hypothesis and sticking to the scientific method of trusting the data is critical. We outline all the developments in the crypto ecosystem that show that 2018, while clearly a Bear Market year for prices, was a Bull Market year for development and adoption. Noyes had a great comment on this perspective when he tweeted, “knowing 8 years ago that we’d end up with this rich landscape of novelties,

from fields as far flung as mechanism design to the bleeding edge of zero knowledge proofs, would have made eleven-year-old me very, very happy.” Geeks gonna geek it seems, but we know that in the Age of Technology the nerds have taken the leadership roles and as we move into the Digital Age that trend will accelerate. We loved another tweet from Charlie when he acknowledged, “I still have the attention span of an eleven-year-old so really it's just nice that there's more stuff to spend time on than the Bitcoin whitepaper.” One of the most interesting things we have observed over our three-decade investment career is the biggest technological advances are driven by the youngsters (e.g. Andreessen created Mosaic (Netscape) at 23, Brin and Page created Google at 25 and Zuckerberg built Facemash (Facebook) at 19). There are all kinds of theories on why that is, but we favor the construct that having a Beginner’s Mind (not encumbered by traditional approaches and accepted ideas) is the most likely reason and probably having the boundless energy and enthusiasm of youth don’t hurt either. The other reason for why this blockchain evolution is being driven by the young is that they are the Digital Natives (they grew up with technology that we older folks didn’t) and they are simply more comfortable with their lives being completely digital and unencumbered from traditional financial services (they don’t have brokerage accounts and don’t carry cash). Importantly, they came of age in the Global Financial Crisis and they don’t trust the banks. They are happy to develop and support a system that frees them from the shackles of the banking cabal. But, but, but, what about the massive Bear Market in the price of Bitcoin and other crypto assets in 2018? Noyes speaks wisdom beyond his young years on this topic when he says, “in 2017 we got a lot of bad crypto econometric models, in 2018 the market realized they were bad, in 2019 we’ll see more good ones at a higher hit-rate and the best will get to scale.” The past eighteen months have been a normal stage in the path of financial natural selection and the survival of the fittest process will make the crypto ecosystem stronger and more durable. While it is always painful to watch the weakest projects become extinct (especially if you deployed capital to them), the Darwinian evolution of the new financial system is setting up the greatest wealth creation opportunity we will likely see in our lifetimes. In a rapidly changing environment, we all must learn to adapt our thinking about the optimal way to invest our capital for long-term success and that entails taking our cue from Charlie Kindleberger on the equity markets today and our cues from Charlie Noyes (and the other Crypto Charlies) about blockchain, crypto and Bitcoin. Charlie Darwin truly was a good man and he was right, it is the one that is most adaptable to change that survives (and thrives).

FOURTH QUARTER MARKET REVIEW AND OUTLOOK

Our January Around the World with Yusko (#ATWWY) Webinar each year is entitled *Channeling Byron: 10 Potential Surprises for the New Year* (#MCCMSurprises), with a nod to Byron Wien, the former Morgan Stanley and Blackstone Strategist who originated the annual 10 Surprises idea. The nice thing about doing the Surprises in late January is that their production coincides with writing the Q4 letter. The process of looking back over the past year's Surprises (counting up hits and misses), gathering information on precisely what the consensus is for each asset class, geography and sector 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 that we can cover the vast majority of global markets and can even drill down further, when necessary, to look at investment sectors and individual company ideas that allow for the optimal expression of the investment themes. That Annual Investment Outlook then lends itself quite nicely to a quarterly update throughout the year to check in on the Surprises themselves and the related investment ideas we have come up with to capitalize on those opportunities. So, let's get to the update for the fourth quarter of 2018 (and year), which is basically a review of Surprises for the year (hits and misses) and see how the final stanza of 2018 played out (spoiler alert, it was wild).

A couple of important reminders before we begin. 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 this 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 uncertain 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." Michael's key point is being different and being wrong are not very valuable because you won't make any money (the whole purpose of the investment business). One other important point to keep in mind is that a year is a long time in the investment world and things can change (sometimes dramatically) so we need to remember the wisdom of what John Maynard Keynes is often quoted as saying, "When the facts change, I change my mind. What do you do, sir?" We were vigilant during the year, tracking the progress of each Surprise and are continually looking for opportunities to capitalize on them in the portfolios, but we will also be ready, willing and able to change our minds (and our positioning), should the facts change.

The 2018 Surprises played out in a very interesting manner in that there was a normal 50/50 split between right and wrong, but there was a huge swing in which ones turned out to be right and wrong in the fourth quarter, as global capital markets shifted abruptly from risk-on to risk-off in late September (right on the Sept 21 Gann Date). It turns out that the title of last quarter's letter, #PatienceIsAVirtue, was fairly prophetic and those investors who were patient in setting up strong defensive positions in their portfolios were amply rewarded in Q4 (and for the year). Given we are always writing parts of the Q4 Letter over Super Bowl weekend, we always seem to be compelled to include the famous gridiron quote that Defense Wins Championships (and did again in 2019 as the Patriots held the Rams to only three points). That strategy produced winning returns in 2018 (and produced the winner of the Super Bowl once again) and we continue to expect that posture to produce

winning results in the next couple of years, as our #2000Redux theme (2018 to 2020 looks like 2000 to 2002) plays out. With all that said, let's see how the Surprises played out for the past year and we will review the various global market segments for Q4 and 2018 within the context of the Surprises.

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.

As we penned the letter last quarter, it appeared that there was no chance that this Surprise could turn out to be right. Treasury yields had moved steadily higher during the first ten months, but after a dramatic turn of events in Q4 it turned out to be **Mostly Right** after all, as global rates turned sharply lower and dragged USTs down with them. Quite surprisingly, the 10-year Treasury actually ended up unchanged over the past year, while other global government bond yields plummeted to new lows. Given the upward movement in rates, we had resigned ourselves to the consensus being right this year and we wrote that "it does appear that this Surprise will turn out to be wrong and that rates will end the year higher than where they began. With the benefit of new information, we see why investors could have been compelled by the strong economic and earnings data during the middle of the year, but as that data continues to erode, we will make the case that this Surprise is just early (oftentimes called the euphemism for wrong) and that Lacy Hunt (from Hoisington Management) will turn out to be

right; we will see the secular low in rates in the future (rather than in the past)." This Surprise was clearly the most non-consensus view a year ago (sounded the craziest and got the most consistent pushback) and the bond bears were definitely in charge for the bulk of 2018, but capital markets sentiment turned dramatically after the U.S. mid-term elections, global yields collapsed (along with equity markets) and bonds actually ended up outperforming equities pretty much across the board for the year (the biggest surprise of all). The primary reason we believed this Surprise could materialize was summed up in the question we kept asking in prior letters, saying that "if things are so great, then why is the Fed holding interest rates at levels as if the U.S. were still in a financial crisis?" In fact, the real quandary for the bond bears to explain was why the effective Fed Funds rate remained negative, why the Goldman Sachs Financial Conditions Index showed financial conditions to be as loose as during the Global Financial Crisis and why longer duration interest rates remained stubbornly low in the face of rising short-term rates (threatening the dreaded yield curve inversion). On the last point, we wrote last time that "our thesis has been that perhaps investors have a collective fear that the Fed is actually making a policy error by raising rates so late in an economic cycle," but when Sheriff Powell doubled down on his hawkish rhetoric around election day in the U.S., his comments pushed the 10-Year to 3.2% (and the 30-Year to 3.5%) and it appeared that the bond bears may have finally been vindicated (after numerous false alarms over the past decade).

However, as Lee Corso (of ESPN Gameday Fame) likes to say, "Not so fast my friend." We have pointed out on many occasions in these pages that the long-term downward trend in rates would remain intact until the "chart of truth's" downward trend was violated. We wrote last time that, "Ultimately, it is the 10-year Treasury Yield, what we like to call the 'chart of truth,' 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 now 2018. Sir John Templeton would be proud, as it was not different this time, and the breaching of the upper bound of the descending channel triggered another crisis (equity markets collapsed) for investors to endure. The most interesting thing to have watched in Q4 was how rapidly the interest rate narrative shifted from Goldilocks (everything is just right) to the Big Bad Wolf (he is blowing our house down), as investors went from believing that the Fed should raise rates because economic activity was so strong to the Fed needed to immediately stop raising rates because economic activity was too soft (that tale will likely be continued in the coming months). What investors were really reacting to was not the shift in economic data (clearly slower), but rather to the fact that equity prices were suddenly spiraling lower. Why this was a surprise to investors is beyond us given that we have been writing since last January that “should this Surprise turn out to be wrong and if rates do actually begin to creep higher, it will be increasingly challenging for equity multiples to expand and as the earnings recovery fades over the course of the year, there could be double trouble for the equity Bulls (equity Surprises more likely to be right).” We wrote about the impact on equities of the sudden rise in rates last time, saying “this sudden spike was all that the highly-valued equity markets needed to spark a painful correction (more on that later) and investors didn’t have to hunt very far to find Red October. An interesting development was that the normal flight to safety (rush to bonds) during an equity sell-off didn’t happen this time...” Red October, however, bled (literally and figuratively) into Maroon November and Crimson December and as equities went into freefall the more normal flight to safety in bonds did occur, and bond yields collapsed. Almost to the day of our capitulation (always works that way) on the Surprise, yields turned on a dime and headed sharply lower, finishing the year at 2.7% and 3% respectively. The downward trend has continued (albeit less rapidly) in January, as the 10-Year yield finished the month at 2.6% and the 30-Year yield hit 3%.

The result of the global collapse in yields during the quarter was that bond investors ruled the roost in Q4, and the Barclay’s Aggregate Index was up 1.6%, which erased the (1.6%) loss incurred during the first nine months of 2018, resulting in the Index being flat for the year at 0.01%. Investors who took on more duration risk (purchased long bonds as a deflation hedge) fared even better as the Barclay’s Long Treasury Index jumped 4.2% during the period and was the best performing asset class by an extremely wide margin. While those strong returns were not enough to offset completely the (5.8%) loss racked up in the first nine months of the year, the 2018 return of (1.84%) was significantly better than the (4.4%) loss in the S&P 500. Looking back to last January, the idea that long Treasuries would outperform stocks was perhaps the most heretical concept in the investment business, as all the self-anointed Bond Kings were declaring the end of the bond bull market and all of the self-anointed Equity Kings were forecasting another year of easy double digit returns in stocks for the year. Clearly, through the first nine months of the year those Kings’ proclamations were looking really good with bonds trailing equities by 16.3%, but what a difference a quarter can make, as bonds beat stocks by 17.7% in a matter of weeks and totally flipped the leader board for the year. We did bring up an interesting issue last summer saying that “the counter to the smart money buying safe havens is the risk that the masses begin to notice that the returns on the bond side of their account statements has flipped to negative over the past year.” While that trend did reverse a bit in Q4, we wrote about this issue last time saying, “a significant story is developing in that the longer-term returns in the bond market have now turned universally negative... While these are not huge losses, they are red numbers and retail investors are prone to selling what isn’t working, which invariably turns out to be just what they are about to need.” Again (as if on cue), those investors that sold bonds at the end of Q3 (to chase equities) were ruing the day all throughout Q4, as those same bonds would have played some Patriot-esque defense in their portfolios

during the crunch time of 2018. To illustrate the point, recall that at the end of Q1 the TLT:SPX Ratio (long bonds to stocks) was a slightly positive 1% (long Treasuries down (3%), but S&P 500 down (4%) to that point). Then by the end of Q2, the ratio had flipped to negative (4%) (TLT still down (3%) but SPX now up 1%) and we wrote (as usual, a little early...) that “at the halfway point, this Surprise looks challenged, but that is precisely why there is so much return potential in buying TLT; or even better, buying out of the money call options on TLT as a pure Safe Haven hedge trade.” As we wrote last time, “No one wanted any stinking hedges in Q3 and the spread blew out to a near record wide (15%) (TLT down (7%) and SPX up 8%).” We provided some historical perspective as well, noting that the TLT:SPX spread had been negative from 2014-16, reversed sharply when China injected \$1 trillion to save the world in Q1 2016 and stood at a five-year high of (30%) in September. We also highlighted the strange development during Red October that as stocks collapsed, long bonds did not see any safe haven flows and TLT fell another (3%). As value investors, we are conditioned to like a good asset even more when the price falls for illogical reasons (rather than sell just because the price went down), so we wrote that “Those out of the money call options on TLT are even cheaper today than they were last quarter, and we think they will turn out to be a great investment in 2019.” Investors who stayed the course were amply rewarded as the TLT:SPX gap closed completely, and actually reversed back to 4%, in the following weeks.

Part of the challenge for this surprise in 2018 was that there were some economic developments in the first half of 2018 that were positive for the bond bears (supported higher rates) in that Q2 GDP had come in hot at 4.2% as the steroid injection of Tax Deform was at full strength. As expected, however, the high began to fade (as they always do, basic chemistry) and Q3 GDP slipped back to 3.5%, which was still warm enough for the “Everything is Awesome” crowd to say that the economy was strong and getting better. The curious thing for us was that despite the fact that the

economic data continued to surprise to the downside all throughout Q3 and into Q4, we wrote last time about how “Chairman Powell recently reiterated his commitment to hike again in December and also removed the ‘accommodative’ language from the Fed statement, so it does appear that we will reach a neutral monetary policy by year-end (even if that is a long way from the jawboning about how tight policy is today...)” Our point being that the Fed’s commitment to raising rates theoretically was based on some perception of economic improvement (they do, after all, have hundreds of PhDs working on these things...) even if we couldn’t find it in the data. In fact, the Q4 GDP estimates continued to fall like a stone and the advance estimates of Q1 2019 were starting to get really ugly the longer the government shutdown continued. Ironically, the Q4 number will be delayed because of the shutdown and given the disastrous December retail sales number, down (1.8%), no one in the Administration seems that upset that the bad news will be delayed. The other place where there was support for the idea of higher interest rates was in the U.S. inflation data in the first half of 2018. The inflation data starting rising last summer (coincident with the oil price recovery). Core CPI jumped from 2.1% to begin 2018 to a peak of 2.9% in June (remember that WTI had risen 76% over the past year) and commentators were starting to use the tired phrase of the Fed “being behind the curve” in raising rates. As we discussed last time, inflation data began to roll over gently during the summer and then proceeded to drop like a stone (along with oil prices) in Q4 with Core CPI plunging from 2.5% in October to 1.9% in December (Headline CPI was more stable at 2.2% during Q4). The Fed’s favorite measure of inflation, Core PCE, jumped from 1.3% to 2% in the first half of 2018, but fell back to 1.9% during Q4. While the “inflationistas” were panicking about the threat of hyperinflation in June, we recalled last time something we wrote in May that indicated things were likely to mean revert (not runaway to the upside) saying “Before everyone gets too excited about runaway inflation, consider that the Core PPI slipped back below 2%, at 1.9%, and has crashed over the past

nine months from last summer's heady 4% levels." Core PPI remained flat again in Q4 at 2.4%, but the Headline PPI number kept crashing down to 1.3% in December (nearly 3% lower than during the summer), indicating we may see lower levels of inflation ahead. We have also cautioned in the past how these inflation figures are lagging indicators, so it is more instructive to monitor forward-looking data like the 5-year/5-year Forward Inflation Expectation Rate and the 10-Year Breakeven Inflation Rate. These data series both peaked in February (at 2.4% and 2.2%, respectively) and were fairly stable throughout the summer and fall, but fell off a cliff in Q4, dropping to 1.9% and 1.7%, respectively. We point out (yet again) that "these inflation levels are the same as where the Fed was implementing QE II and QE III, where they were expanding liquidity rather than reducing liquidity" and the question remains how committed the Fed will be to QT "in the face of fading inflation data and falling commodity prices." The challenge for Chairman Powell was that in the first half of 2018, inflation was rising faster than Fed Funds so financial conditions were actually getting looser, not tighter, but that changed dramatically in the second half of 2018 and the Fed was finally able to engineer some positive real rates (barely, but positive nonetheless).

The last part of the story on interest rates was that despite all the jawboning by all the talking heads about how great the economy was, we had written in the spring about "how the continually flattening yield curve was causing stress in the 'Everything is Awesome' ("EIA") crowd who were sure that the yield curve would steepen (and who had pushed financial stocks higher in anticipation)." The YC flatness reached an extreme in June with the 10-Year/30-Year spread hitting a low of 11bps and the real problem for the EIA crowd was that by the beginning of Q4 there were parts of the curve that actually did invert (causing all kinds of mayhem on financial news channels). We had written in the original text of the Surprise that "with the Fed promising more rate hikes soon, we are getting very close to Inversion Day" and we wrote last time that "Chairman Powell is also not

backing down (even a little bit) from his commitment to keep normalizing short rates (committing to another bump in December). Given his stated plan for 2019 to move the Fed Funds closer to the 'neutral' (Fed's definition) level of 3% to 3.25%, dreaded Yield-Curve Inversion is nearing. We know that history says that recessions follow a Yield-Curve Inversion by 12 to 18 months, but we also know that Japan has had six recessions in recent years without having an inversion." We postulated last time that "there appears to be increasing evidence that the Fed is not only not behind the curve, but perhaps has indeed made a policy error by tightening liquidity this late in the economic cycle." If we believe that the equity markets anticipate future economic activity, the rapid (20%) peak to trough collapse in the SPX during Q4 may give us some insight into the economic weakness that is to come in 2019. We have pondered this the last few times, "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...We have seen this movie before when the Bank of Japan ("BOJ") tried to remove qualitative and quantitative easing ("QQE") stimulus back in 2007 (coincidentally 11 years ago that matches 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." We didn't have to wait long for an answer as within four short weeks of penning those words, under constant criticism from the media, a barrage of tweets from the Tweeter in Chief and an accelerating decline in equity prices in the day before Christmas, we got the Powell Pause. The Fed Chairman caved to the political pressure and said that they would go on hold on future rate hikes in 2019 (after telegraphing three or four only weeks earlier) until they received more data. In a classic case of "be careful what you ask for, you might get it," investors (and the President) may have wanted to look a little more closely at history before begging for a pause, given that in every instance where the Fed has paused or reversed course from a hiking cycle, there

has been a short relief rally followed by a very significant Bear Market in stocks over the next year (more on that next time).

Where this Surprise really came true (and created some compelling investment opportunities) was in global interest rates, which after being volatile during the first three quarters of 2018, universally collapsed in Q4 as evidence continued to mount showing a global economic slowdown. The Barclay's Global Aggregate Ex-US Bond Index rose 1.2%, recapturing half of the losses from earlier in the year and bringing 2018 returns to (1.2%). While the absolute number is not tremendous, the relative performance versus other global asset classes was very strong (a gap of 15% relative to global equities) during the quarter and solid over the entire year (a gap of 8.5%). Looking at some of the raw numbers, you can see just how strong the downward momentum in rates was and how ominous the signal from those moves is for the Bond Bears. In Japan, 10-Year JGBs began Q4 at 0.13% (moving away from the Kuroda-san target of 0%) and while there had been consistent upward momentum during Q3, that momentum vanished as more disappointing economic data was released and JGBs collapsed all the way back to zero (right on target) to end the year. Looking at the absolute numbers it is easy to dismiss a 13 basis point move, but when one stops to consider moving from a positive yield all the way back to zero in a matter of weeks, the impact of that type of percentage movement becomes more apparent. As we reminded readers last time, "When you look at the short end of the Japanese YC it is stunning to think that everything out to the 5-year JGB still has a negative yield (paying the government to borrow money?)." Why that is important to ponder is that Japan still has greater than \$5 trillion (with a T...) of government debt with negative yields, a truly amazing statistic. Moreover, with GDP falling back into negative territory for Q3, down (0.6%), we asked the question "with Trillions of yen in QQE stimulus unable to create positive GDP growth, why do all the central banks still believe in the magic of QE to generate growth? (rhetorical question, we know...)"

The other problem for Japan was that inflation had been cratering in early 2018 and that trend accelerated in Q4 as Japanese CPI absolutely collapsed from 1.2% to 0.3% from September to December. We wrote in February that "despite Super Mario (Draghi) and Krazy Kuroda-san's best efforts, the specter of deflation still hangs over the majority of the developed world." Clearly, ground zero for deflation is in Tokyo.

In Europe, German 10-year bunds started Q4 at 0.5% (up from 0.3% in Q3), so the consensus was that clearly rates were rising, but given that bunds yielded 0.8% in February it was tough to make that case (although plenty of people were). As German GDP turned unexpectedly negative and the European Banking Crisis fears reemerged, bund yields absolutely collapsed all the way down to 0.24% to end 2018 (and slipped further to 0.15% in the first week of January). French 10-Year bond yields fell from 0.8% in September down to 0.7% in January and in the biggest surprise, Italian 10-year yields fell from 3.2% to 2.7% during Q4. Remember that Italy is a country with the third highest government debt levels in the world (behind Japan and the U.S.), has a crippled banking system and massive demographic challenges, yet global investors are willing to loan the Italian government money for a decade at sub-3% rates. (Or maybe it is still just the ECB buying.) Recall that EU GDP had been recovering in recent years, hitting a high of 2.8% annualized in Q3 2017, but the past year has been brutal for EU growth and GDP collapsed to 1.2% in the most recent quarter, down from 1.6% in the summer (now lower than during the global slowdown in 2016). We have written over the past year that "unexpected euro strength and slowing global growth (from Trade War fears) were dragging down EU exports (particularly Germany and France) and that future EU growth was likely to disappoint investors," so we will give ourselves a check on that forecast. We also wrote that the slight uptick in EU inflation was likely to prove transitory (mostly oil related) and with EU CPI falling from 2.1% to 1.6% in Q4, we will give ourselves a check on that forecast as well. As we wrote in the spring, we believe that "the

patient continues to not be strong enough for Dr. Draghi to pull out the main line of QE morphine just quite yet” and while Super Mario said he would stop buying EU government bonds in December, we have a sneaking suspicion he will be doing a Terminator impersonation any moment (“I’ll be back...”) because as we posited last time “who in the world would buy a 10-year Italian Government bond at 2% other than the ECB (we wouldn’t, would you?). We noted last time how we continued to scratch our heads to understand how global interest rates could rise meaningfully in a world dominated by depressed economic activity. However, we wrote that we “have to acknowledge the Fed’s commitment toward continued normalization of rates (more hikes)...and that while the rest of the world continues to need more liquidity, they could be forced to follow the Fed into tightening to defend their currencies.” We also summarized the dilemma for global central bankers that “all eyes really are on Judicious Jerome to see if he can walk the fine line between monetary normalization or plunge the global economy into recession (no pressure JP...)” The data is telling us that Jerome perhaps was not judicious enough and it appears that the damage is done. The global economy is teetering on recession as we continue with Q1. Perhaps, the Powell Pause will save the world, perhaps not, and we will discuss our thoughts on this question in the 2019 Surprises below.

Closing this section with some thoughts on Absolute Return (“A/R”) strategies where “we have been making the case for the past year that if rates actually did rise they would be a far superior alternative to Fixed Income exposure for the average investor.” The problem with a zero interest rate policy (“ZIRP”) environment for A/R strategies is that given most strategies rely on the cash returns from the reinvested proceeds from the short side of the dollar neutral trades to make up a significant proportion of the overall returns from the strategy, the balance coming from alpha (manager skill) and leverage. When interest rates are held at zero (versus the long-term average of close to 4%), it creates significant

headwinds for these investment strategies. As we discussed last time, in a ZIRP world, “these strategies will generate low single digit returns (at best) and may even have bouts of negative returns if volatility spikes or if short side costs rise too high.” With that said, there is a more important characteristic of A/R strategies that we highlighted last summer saying, “The most important point here is that Absolute Return strategies are positively correlated to interest rates (core return rises along with rates) rather than negatively correlated like bonds, so they provide equivalent return characteristics and superior hedging characteristics in the current economic environment.” The problem for bond investors coming into 2018 was that everyone (and we do mean everyone) was convinced interest rates would rise, so the likelihood of fixed income generating positive returns was very low (they didn’t, but as we discussed above it wasn’t a disaster either) and the likelihood that Absolute Return would outperform in that type of environment was relatively high. Returns were solid (if unspectacular) for the first three quarters of the year, but for the most part better than the negative returns in bonds. The fourth quarter was the mirror image of Q1 through Q3 and bonds trounced A/R strategies as negative alpha was fairly consistent across the board. The losses in Q4 erased the gains in the first three quarters and the year was about a push overall between fixed income and A/R; and given that U.S. rates were about flat, that seems about right. The HFRI Market Neutral Index was down (1.8%) in Q4 and ended up down (0.7%) for the year (just about right in the middle of the Aggregate Index and the Long Bond Index). The HFRI Relative Value Index (which has a little more directionality) was worse in Q4, falling (3.1%), but had built up more cushion and finished the year about flat at (0.2%). The one bright spot was the HFRI Merger Arbitrage Index which was strong all year (after a rough 2017) and lost only (0.2%) in Q4 but was up a solid 3.1% for the full year. As we noted last time, the one A/R sector that has struggled over the past few years has been the Macro/Quant area. The HFRI Macro and HFRI Systematic Indexes both struggled again in Q4, dropping (0.5%)

and (0.8%), respectively during the quarter and added to their losses for the year, dropping (4%) and (6.7%), respectively in 2018. We discussed one theory on the persistent weakness in the quant space last summer, saying that perhaps “the vast quantities of capital that have poured into quant strategies has put pressure on alpha generation.” We closed this section last time saying, “Even though we don’t expect rates to explode upwards (hence our view that this Surprise may still come true), we do believe that Absolute Return strategies will continue to benefit from a tailwind in the years ahead versus bonds as the process of interest rate normalization on the short-end of the curve continues.” We might modify that view in the near term as it appears the Powell Pause (or worse, QE IV...) could complicate the environment for A/R strategies in the short-term and maybe having some fixed income in the portfolio as a deflation hedge makes some sense until we see evidence that a recession has been averted.

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 Bear hitches 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.

We noted last time, “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.” As it turned out, global central banks kept the spigots open a little longer than we originally thought. We have written the last few times that “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).” As such, when the CBs kept the taps open a bit longer, it appeared that this Surprise would be the one to miss, but when they did get around to closing them off in Q2, the resulting contraction of the global money supply triggered a broad-based equity correction that plunged most global equity markets into a Bear Market and made this Surprise turn out to be **Right**. Interestingly, many global equity markets peaked just three short days after the 10 Surprises webinar (right on the Jan 26 Bradley Turn Date) and those corrections were swift and deep (but short-lived, the buy the dip mentality is still strong). EM skidded the hardest and kept falling throughout the balance of the year as EM central banks were forced to follow the Fed hiking cycle (to protect their currencies) and as liquidity drained from the system, returns drained from emerging markets stocks (particularly China). European and Japanese equities got a boost over the summer from falling currencies (the dollar took a turn with the FX hot potato), but when their economies showed unexpected negative growth in the fall, their markets rolled over hard in Q4 and ended up in Bear Markets as well. In the U.S., strong earnings induced by the Tax Deform Plan (can’t call it reform since it is such a bad idea) spurred the S&P 500 to new highs on Sept 21 (not only a Gann Date, but around the time Roger Babson issued his famous warnings in 1929), but when the Yield Curve began to flirt with inversion, investors got skittish and SPX joined the rest of global equity markets in a race to the bottom in Q4. The numbers were really terrible in Q4, as SPX was down (13.5%), MSCI Europe was down (12.7%), MSCI Japan was down (14.2%) and the MSCI EM Index was modestly less bad (a lot of damage had already been done), down only (7.5%). When looking at the numbers for the full year, the U.S. was the “winner” (smallest loser), down just (4.4%), Japan was down (12.9%), EM was down (14.6%) and Europe was the biggest loser, down (14.9%). Looking at the peak-to-trough drawdowns, Europe, Japan and EM crossed

the (20%) Bear Market official threshold falling (20.4%), (21.7%) and (27%), respectively, during the quarter, and while SPX managed to bounce at down (19.8%) that is close enough to declare victory (and we expect even lower lows in 2019 and 2020, more on that later). The Bears were indeed back in 2018.

We have begun this section of the letter each of the past few quarters saying that “the primary point was that no matter what else was happening in the world (economic growth, earnings, geopolitics, etc.), global stock markets just kept focusing on the central bank stimulus and continued to defy gravity, reaching valuation extremes only exceeded during the Tech Bubble in 2000.” The volume of liquidity provided by the global central banks had been simply jaw-dropping, totaling a stunning \$13 trillion since the beginning of the QE Era in 2009. In Q4 we got our first glimpse of what might happen to global equity markets should the liquidity cycle turn in the opposite direction and global money supply actually declined with stocks following suit, dropping across the board (in some cases quite dramatically). The real problem, however, was that the CBs had been telegraphing all year that this reversal of the spigots was coming, and that total liquidity would turn down even more sharply in 2019. We wrote last time “With Jumpy Jerome intent on raising interest rates, some investors actually did the math to realize that higher discount rates meant lower multiples and it actually appeared (for a few days) that the ‘central bank put narrative’ was finally coming to an end.” Equity markets tend to anticipate monetary and fiscal policy moves, so as the downward spiral in prices accelerated the calls from politicians to the central bankers to change their course became cacophonous. Given that the CBs are supposedly independent, it was almost comical to watch the unabashed politicizing of the issue and the near daily tweets from the Tweeter in Chief in the U.S. about how Chairman Powell was hurting the country. The really sad (and scary) part of this phenomenon is that if global economic growth and equity market valuations are so broken that stock prices can only remain buoyant if central banks continually put

liquidity in the system to facilitate asset purchases, then one has to ask if global equity markets have ceased being markets at all? As we have written before, “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.’”

We have written many times about the formula created by Larry Jeddelloh at TIS Group outlining the relationship of the liquidity provided by QE purchases and S&P 500 price increases. The TIS model “showed every \$100 billion of QE has translated into 40 S&P 500 points.” With the Fed switching from QE to QT and committing (at least for now...) to remove that excess liquidity from the financial system, we wrote last summer, “It will be very interesting to see if this relationship holds in reverse.” The Fed was supposed to sell around \$150 billion of Treasuries and Mortgages in Q4 so there should have been (60) S&P points of equity headwind (negative return) during the period, but they only executed \$120 billion of sales, so that headwind dropped back to (48) points. However, as we also wrote last fall, “It turns out there is more than one way to get liquidity into the equity markets and since the Fed is prohibited by law from buying stocks (unlike the Swiss and Japanese central banks) then all Congress had to do was propose a massive tax cut package and (perhaps...) cut a deal with corporations that, should Congress pass the bill, corporations would use the vast majority of that money to buy back stock. We even nicknamed the deal, #StealthQE.” U.S. buybacks hit an all-time record in every quarter during 2018 and when those equity share repurchases halted the February slide, we wrote that there seemed to be a “constant bid under the equity markets over the past few months, causing the indices to steadily rise over the course of Q2.” This rise continued through Q3 as well. The early evidence was that Stealth QE was as effective as central bank QE, but tough to call it a definitive trend after only two quarters. If Stealth QE was as effective, then there should have been some offset to the Fed QT and, using the formula, there would have been around 80

S&P points of equity market tailwind given the \$200 billion of buybacks (estimated) during Q4. The S&P 500 Index actually fell a staggering 407 points during Q4, so if we attribute (48) points to QT, (218) points to multiple contraction (beginning level of 2,914 times (7.5%) decrease in P/E from 21.4X to 19.8X) and 80 points to buybacks, that would leave 221 points for earnings growth, which is almost spot on the 242 points that would be expected given the 13.3% rise in EPS during Q4. Seems like we get a pretty good fit for the model.

Given how badly the numbers did not foot last quarter (we posited there was actually pollution in EPS data from excessive buybacks), it is nice to see the fit of the model back on track. The degree of financial engineering that has occurred in the U.S. equity markets over the past decade is nothing short of staggering and the abuse of buybacks has gotten completely out of hand (so much so that both sides of the aisle in Washington are talking about making them illegal again, more on that next time). When the final data is compiled for 2018 later this quarter, the total buybacks for the S&P 500 will come very close to \$800 billion and will crush the previous annual record of \$588 billion set in 2007 (just before the Global Financial Crisis) by more than 30%. For perspective, in the decade leading up the Housing Bubble, buybacks averaged only \$100 billion a year, surged to nearly \$600 billion over three years to the 2007 peak (the first wave of abuse), collapsed back to \$100 billion in 2009 (GFC impaired debt markets and corporate cash flows), jumped back to average \$500 billion during most of the QE Era, and then exploded to the crazy levels of the past year after the announcement of the Tax Deform Plan (Stealth QE). Digging down even a little deeper into the craziness, the top five buybacks in Q3 (still waiting on data for Q4) were QCOM (\$21.2 billion), AAPL (\$19.4 billion), ORCL (\$10.3 billion), WFC (\$7.4 billion) and CSCO (\$5.4 billion), so five companies purchased more than half as much in a single quarter compared to occurrences in the entire S&P 500 in a normal year (read that again). Further, what continues to make no sense to

us is that no one adjusts EPS for the impact of buybacks (reducing share count increases EPS and that “growth” is not real), in the same way that no adjustments are made for retail sales numbers to reflect that the population grows over time (seems we like to see numbers go up and to the right even if not accurate). Perhaps it is a byproduct of the “participation trophy” world in which we live today that we only tell ourselves how great we are, no matter the outcome (everyone is a winner) or no matter how much we have to torture the data to make it confess.

We noted last quarter, “With the companies buying shares hand over fist, the S&P 500 had a good ‘year’ in Q3, jumping a very robust 7.7% (rising back above our 2,800 target to 2,914)...and the frenzy reached manic levels that we would describe as panic buying.” #FOMO (fear of missing out) was the dominant emotion in the equity markets and that FOMO morphed into MOMO (momentum) as the momentum was cresting and equity markets were going parabolic. Then just as suddenly on the September 21 Gann Date, the MOMO morphed into NOMO (no more) and markets began to slide, slowly at first and then at an accelerating pace. When the Saudi Arabia fiasco hit in early October, earnings surprises turned much less positive as the sugar high of Tax Deform began to fade and the realization that YC inversion was signaling even slower growth ahead. The NOMO quickly morphed to OONO (oh no!) in December. The selling reached the same manic levels as the buying panic of Q3; things were getting really ugly by Christmas Eve as there was a collective scream of NOOO by global equity investors as the SPX had erased all the gains for the year and was down (19.8%) from the September peak (on the verge of the official Bear Market). That morning (as most investors were actually on vacation), Secretary Mnuchin sent a letter to the media saying that he had spoken to the CEOs of all the U.S. Banks and they assured him that they had sufficient liquidity. The funny (or horrifying, depending on how you look at it) thing was that no one had asked the question about whether the banks had sufficient liquidity and simply raising a question

that no one asked actually pushed the equity markets into a serious panic mode and SPX fell a cathartic (2.5%) that day to 2,351. Markets were obviously closed the next day for the holiday, but on December 26, we learned what the actual purpose of Stimulating Steven's call to the bank CEOs (aka the Plunge Protection Team, #PPT) was, and "Operation HELLNO" (Not-So-Stealth QE) commenced. Equities jumped 5% that day alone and surged a stunning 15% off that trough level back to 2,704 by the end of January. After a long absence, the Tweeter in Chief was back in January (after a long absence in Q4) tweeting about how great the stock market was thanks to all his policies. We wrote in the summer, "It will be very interesting to watch the tug-o-war between the Fed and the corporations in the great liquidity battle over the balance of the year" and followed up last time saying, "clearly the companies had the upper hand in Q3. However, they lost their grip on the rope in October..." The rope burn was real in Q4, as the world's greatest indicator ("WGI") the \$OEXA200R, which had been hovering around the edge of the Red Zone (below 50) during late November, plunged to a low of 16 in the last week of December. The WGI could have saved investors a lot a pain in 2018 as it had been signaling that #CashIsKing since the beginning of the turmoil in February. With the PPT working overtime in January, they pushed the \$OEXA200R all the way back to 50 by the end of the month and back into the Yellow Zone (between 50 and 65), signaling a half-hedged position. We will make the case that the more hedging, the better in 2019, but more on that later.

Taking a look at the U.S. Style Index returns during Q4 gives a glimpse into the systemic risk that has crept into the equity markets as the passive investing bubble has expanded over the years. The Fed recently released a report discussing how the concentration of assets in these capitalization-weighted strategies and the increased volume of high-frequency trading could create a systemic risk to the financial system should there be some catalyst to trigger the proverbial run on the bank. The acceleration of the losses in December

was strong evidence of the presence of this risk, but digging into the style indices shows another risk that could present even bigger problems in the future - the evaporation of liquidity below the large-cap segment of the market. With very few organizations left who will actually commit risk capital to the markets (the markets have been Dodd-Franked...), the air pocket risk as you move down the capitalization spectrum is very apparent. The last issue that we have discussed in the past in this section is the dominance of Growth over Value during the QE Era (logical given passive, cap-weighted, momentum strategies are favored) and we see the beginning signs of a shift back in favor of Value (and active management) that we believe could run for a decade. Looking at the numbers, the RTop200G fell a stunning (15.9%), while the RTop200V fell slightly less, down (10.1%). The RMidG slumped an equally stunning (16%) while the RMidV unfortunately did not fare much better, down (15%). The pain accelerated very quickly as you proceed down the capitalization spectrum, as the R2000G crashed (21.7%), and the R2000V was not much better, shedding (18.7%). Back in Q2, the spread between Large Growth and Small Value had finally narrowed and the (1.7%) reading was the smallest in over a year. We thought the crossover below zero might finally signal a reversal in the Growth/Value momentum, but when the spread blew out to 8% in Q3, it appeared that the Growth Bulls were still firmly in charge. We discussed last time how we believed that we were early (often the euphemism for wrong) and wrote, "we see signs of stress that tell us we were just a little early, but we will be quick to acknowledge that we were simply wrong should the gap not close and reverse in the coming months." The gap did close in Q4, falling back to 2.8%, but surprisingly Value just has not been able to get a lot of momentum even during a swiftly falling market. That actually was frustrating given the very high valuations of the Growth names, but we know from history that during true panic selling the Large/Small factor overrides the Value/Growth factor. After reaching a near all-time record high of 24.1%, the TTM Growth/Value spread did collapse a bit back to 13.4%, which confirms our

contention that (unfortunately) passive capital flows continue to be the primary drivers of short-term returns.

We came into 2018 calling the investment environment “The Great Separation,” a time that we believed would be “similar to the 2000 to 2010 period, where there is finally differentiation between good and bad companies again” and we expected that it would be a good environment for fundamental long/short stock pickers (hedge funds). There were plenty of reasons to be optimistic about the prospective returns for hedged strategies (and pessimistic about long only) and we highlighted those reasons last time saying, near record high equity valuations (second only to 2000), slowing global economic growth and a tighter liquidity from global Central Banks was a potentially lethal combination for stock market returns. For all those reasons, we were pretty convinced that hedge funds would break their seven-year string of losses to the S&P 500. Things had looked good for the long/short crew in 1H18, but after the huge surge in Q3 things were looking bleak again and just when you thought the game was over, Q4 turned into what should have been the perfect environment for hedge funds. The overconfidence of the long-only crowd reached a fevered pitch in October and we wrote last time that it actually harkened back to the ebullient days of October 1929 “much like when Irving Fisher tried to correct Babson by saying that stocks had reached a ‘permanently higher plateau...’ We have always believed (and many times have written about the idea) that the laws of gravity are immutable, they have not been repealed (even by the mighty #FANG stocks) and that it was simply a matter of time before the Tech Bubble 2.0 would pop and equity valuations would revert back toward fair value. Global equity markets fell dramatically in Q4 and looked fairly similar to those dramatic days of late 1929, as the MSCI World Index and the ACWI Index ended the month at (13.4%) and (12.8%), respectively. This type of calamitous short-term move in stocks should have been the perfect opening for hedge funds to make up a lot of ground on the indices and recapture

the top of the leader board for the year (and end the streak). Best laid plans. Unfortunately, the bulk of hedge funds “lost the D,” meaning they forgot they are supposed to be hedged, and after so many years of losing to the indices they let their net exposure climb too high and they didn’t protect capital the way they should have in Q4. The HFRI Equity Hedge Index did fall much less than the equity markets, down (8.2%), but given how poorly they performed on a relative basis during the melt-up, they needed much more alpha in the meltdown. If you make an assumption that an average net exposure should be 50%, then the HFRI Index should have been down (6.4%) before alpha, should have been down less given normal alpha, and actually should have been closer to flat given that short alpha is normally stronger in drawdowns (and there should have been some leverage). Again, best laid plans. The average alpha for the average fund was negative and when you look at the entire year, the HFRI Index was down (6.9%). While that number did narrowly beat the ACWI, which was down (9.4%), it lagged the SPX, which was down only (4.4%), so now the streak of losses to the S&P 500 equals the New England Patriots’ streak of consecutive AFC Championship games.

We made an important point last time, saying, “These are the average hedge fund returns and we believe there is significant alpha to be had by superior manager selection.” There was evidence of superior skill in the hedge fund universe in 2018 as a number of managers posted very strong returns. Odey Asset Management led the pack, jumping 53%, which is a spectacular number, but has to be put in context of the dreadful returns the previous three years, as Crispin Odey, the founding partner, was super “early” (wrong) in his decision to be net short. A couple other notable performers were Crescat, up 41%, Autonomy Global Macro Fund, up 16.7%, Bridgewater Pure Alpha, up 14.6%, (truly impressive given their huge size) and Tiger Global, up 14%. On the flipside, there were plenty of truly awful performances and many of the glamour names had horrific years, most notable being Greenlight, which

had their worst year ever, down (34%). In the middle, there were a lot of managers who were able to tread water, like Baupost who was down only a fraction at (0.5%), but to give a sense of just how bad the sentiment is about hedge funds, there was an article written about how Seth Klarman had essentially lost his magic touch. The silliness of this statement reminds us of the last time this type of article was written about Seth in 2000 (Value was dead), just before he went on a ten-year run of compounding at 17.5% versus the S&P 500 at (1.9%).

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 was perhaps the most non-consensus when we compiled the Surprises last January as we had just come off a year where the volatility in the S&P 500 was the lowest ever and there was widespread belief that the Fed had essentially eradicated equity volatility going forward (bad case of recency bias). Things were so bad that we had used a cartoon showing an R.I.P. VIX tombstone and we noted last time that our clear variant perception on volatility “received a ton of trolling on Twitter (which we have found is perfectly negatively correlated to the quality of the idea).” The inverse correlation worked like a charm and it wasn’t but a few weeks before VIX spiked massively and markets crashed in February, pushing stocks to their first (10%) correction in nearly three years and making this Surprise **Right** very early. Recall that the absence of volatility at the time was

almost eerie, (like the abnormal stillness right before a tornado strikes or in the eye of a hurricane) as there had not been a (5%) correction in eighteen months, and was not even a (3%) correction in 2017. Moreover, it had been more than three months since there was so much as a 1% move (in either direction) in the S&P 500, SPX had been above its 200dma for more than a year (2nd longest streak ever) and the Index had been up a record fifteen months in a row (breaking record from 1950s). We noted in the original Surprise just how crazy it was, saying “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 then went on to make our normal point that alligator jaws (spread between two related data series) always close and that it was likely that both the SPX and VIX would revert toward the mean (SPX down, VIX up) sometime soon. We were clear eyed about the cause of the VIX vacation and understood that central bank largesse was creating an endless string of bubbles, as we wrote “abundant CB liquidity was causing an avalanche of capital into passive strategies and widespread adoption of volatility selling products that pushed VIX to record lows just in time for the Bear Market to come out of hibernation and catch investors napping.” Like our second cartoon implied, the VIX alarm rang, the Bears awakened, and volatility came back with a vengeance over the second half of Q1. Things were looking good for this Surprise for a few weeks, but as we wrote last time “just as investors have been conditioned to Buy-The-Dip in stocks, they have been trained to Sell-The-Rip in Vol (they have been told it is free money...) and from a high of 37 in February, the VIX was back to 16 to start Q3.” The potent combination of incessant buybacks and constant media hype that the Buy-The-Dip strategy was still sound ground the VIX even lower during the equity melt-up in Q3. We entered Q4 with the VIX at

12.7 and then watched it collapse further to 11.6 on Oct 3. We asked the question to begin the year, “Will this tightly coiled spring unleash again in the coming months?” Our construct for the Great Separation could also be called the Great Unwind as the abnormal levels of volatility are storing a lot of energy and that, once unleashed, could cause a lot of damage to equity markets. We actually described this last time, saying “We all know how springs work, the tighter the tension, the worse the release; as it appears that vol has finally awoken from its slumber, the damage could be significant.”

The spring let loose immediately in Q4 and VIX spiked back to 21.2 by Halloween, was fairly contained in November settling at 18.1 on Nov/30, but then absolutely unwound in December and careened out of control all the way back near the February highs, hitting 36 on Christmas Eve. As the VIX story unfolded and investors began to sell, an insidious thing began to happen. We have argued in the past that the worst ETF idea ever conceived was the Low Volatility ETF as its sole criteria for buying a stock is the volatility of the price, which is a dumb idea, at best, and a downright dangerous idea, at worst. Money had flooded into passive strategies and these “dumb” (meaning rules based) strategies created reflexive, virtuous cycles that drove stock prices higher and no strategy was worse in this regard than the LowVol ETFs. In short, as you buy more of a stock, prices rise and volatility falls triggering the algorithm to buy more, which reflexively spirals prices higher. The dark side is that when the trend changes, that reflexivity becomes vicious and selling causes volatility to rise, which begets more selling and prices spiral lower. We warned last time, “the rapidly escalating volatility is causing a cascade of selling from passive strategies and things could get really bad, really fast, but we will have to wait until next time to see just how vicious this cycle turns.” December was incredibly vicious as equity prices were actually locked in a downward reflexive spiral, culminating in the cathartic sell off on Christmas Eve. The powers that be had seen enough and they called in the “big guns” (the

PPT) and a ferocious short-covering rally ensued which drove VIX back down to 25.4 to end the year, which made everyone feel better, but was still more than double where it began the year. We wrote in the summer and last time, “Volatility tends to move in ‘regimes’ of roughly six years and we believe that after an abnormally low regime during the QE Era, we have shifted back to a more normal regime for the next few years during the QT Era of interest rate normalization.” We are convinced that the volatility regime has indeed shifted and the fact that the average VIX level for 2018 of 16.6 was greater than the highest level VIX hit during 2017 (16) supports that hypothesis. We also said that VIX would trend higher in 2H18, which it clearly did, and, despite the final week plunge, the overall trend was that volatility was back in 2018. We warned last time “We do appreciate that the Pavlovian vol sellers are not going to go away quietly (as they have proven repeatedly), but it is precisely their unwillingness to believe that market risks have reached extreme levels that actually creates the asymmetry within this Surprise.” To that point, we recommended last time that investors could play that asymmetry with UVXY and TVIX and in December those ETNs were up 56.5% and 77.7%, respectively (asymmetric returns indeed). Importantly, we did caveat the idea, “to remember that when utilizing the leveraged ETFs that they are not intended to be long-term holding vehicles, but rather short-term trading and hedging vehicles, so paying attention to entry points (at exhaustion points) and holding periods (short) is critical.”

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.

We summarized this Surprise in January saying the elephant in the room concerning the #FANG (FB, AMZN, NFLX, GOOGL, and the broader #FANGMAN group, MSFT, AAPL, NVDA) stocks was that “Any way you look at it, this is a very narrow group of companies exhibiting a dominance of the Indexes that we haven’t seen since the glory (or horror depending on your perspective...) days of 2000.” The FANGs bit a little during the sell-off in Q1 2018, but “the anti-venom cocktail of Trade War Rhetoric (flight to U.S. safety), monster earnings surprises (Tax Deform sugar high) and even more monstrous buyback announcements (Stealth QE) made everyone better. It also appeared that this Surprise was in serious danger of not only being wrong but being wrong in a spectacular way.” Thankfully, we also reiterated, “the mania could last another quarter, or even a few quarters, before investors shook off the FOMO haze and acknowledged that trees don’t grow to the sky.” That FOMO (really fear of neighbor getting rich while you didn’t...) was in full force in Q2, as investors piled into tech and the FANGMAN stocks had a spectacular first half of 2018, rising 10%, 45%, 104%, 8%, 10%, 15% and 22%, respectively, versus the SPX which was only up 2%. When looking at the trailing twelve months those returns were even more gaudy, with the group up an astonishing 30%, 76%, 163%, 20%, 30%, 43% and 65%, respectively. As we have written on numerous occasions, when the adjective gaudy is used to describe returns, it tends to be about time for those returns to reverse. We actually discussed how this feeding frenzy was developing into a serious risk coming into Q3 last summer, saying “The #FANG momentum had reached an amazing extreme coming into the Q2 earnings season and the euphoria around the positive impact of tax cuts and cash repatriation had reached a fevered pitch.” We went on to discuss how a law governing natural phenomena called Sand Pile Theory (a single grain topples the pile eventually) looked increasingly like

the right frame of reference for the FANGMAN stocks. The “grain” (event) turned out to be the Q3 NFLX earnings call where the big miss on subscriber growth triggered the pile to begin toppling and the descent accelerated as other companies in the group reported poor earnings as the sugar high of Tax Deform began to fade. The FANGs really did bite (hard) in Q4 as the previously Fab Four fell (20%), (25%), (30%) and (14%) respectively and the MAN group fared equally poorly, plunging (12%), (30%) and (54%), respectively during the period, so this Surprise turned out to be **Mostly Right** after all.

We have written many times in the past that we have seen this movie before in technology and the script is always the same, that some innovation wave has rendered valuation obsolete and that a certain group of stocks is safe to buy “at any price.” We know that the obsession with FANG was no different than the obsession with CIMQ (Cisco, Intel, Microsoft and Qualcomm) back in 2000 during Tech Bubble 1.0. Cisco (“CSCO”) was the poster child for the mania of the day back then as everyone was certain that it would become the first \$1 trillion market cap company (never came close) and every single analyst on Wall Street had a buy rating on the stock. We reminded readers last time, “The key here is there is a huge difference between a great company (Cisco was that, as were many other tech companies) and a great stock (CSCO was not that, nor were most of the other tech darlings). Ultimately (although timing is indeed tricky), valuation matters, math actually is important and the force of gravity rules.” We pointed to the old saying (sayings become old because they are true) that if something seems too good to be true, it usually is, and the valuations of the CIMQ group were indeed too good to be true and turned out not to be true after all (massive earnings restatements in later years). We also reminded readers, “The result of buying stocks at triple digit multiples in 2000 was a portfolio of “dead money” for nearly two decades (basket of Fab Four - CSCO, MSFT, INTC, QCOM - is still underwater today)” and went further to predict that “The result of buying stocks at triple digit multiples today will have

the same result.” The basic problem for egregiously high valuations (particularly in tech) is pretty straightforward: “capitalism works, innovation continues, and competition erodes even the best businesses’ edge over time, so growth rates fall, multiples compress, and stratospherically-priced stocks return to earth.” Our primary point in the original Surprise was that “One thing to remember about fangs is that they always eventually bite (it is their nature) so rotating away from the #FANG stocks will likely prove to have been a wise move with the benefit of hindsight in the coming years.” One nice thing about investing is that there is a scoreboard, the numbers are tabulated and we can determine a winner or a loser. For the year, the FANGs did bite and, as a group, fell around (5%), which was slightly worse than the overall market, but it was the speed and severity of the losses in Q4 that really pointed to the risks embedded in owning the FANGMAN (and broader technology) group. Our mantra lately (given the extreme valuations in broad equity markets) has been that #RiskHappensFast and that clearly applied in Q4, but the flipside is also true in these hyper-volatile markets that have emerged in recent months. With the summoning of the Plunge Protection Team on Christmas Eve, Short-Squeezing Steven (Mnuchin) engineered a stunning recovery in the FANGMAN complex (hanging the shorts out to dry so to speak) as the stocks jumped 27%, 14%, 27%, 8%, 3%, 6% and 8%, respectively, in January so we will get to write more about this topic next time. This is a good time for a reminder on the mathematics of losses. Despite the huge rally in January, the FANGMAN stocks had returns of 3%, (14%), (11%), (8%), (10%), (27%) and (50%), respectively, over the past four months because it takes exponentially more subsequent gains to recapture large losses (e.g. down (50%) requires up 100%).

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 Checker

board 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.

Getting the Surprise on the dollar right has become increasingly important in recent years and we have written on many occasions that the dollar has emerged as the most important economic variable impacting investor returns, saying, “Getting the dollar right might be the most important investment decision an investor could make during the year. The reason for the hyperbole on the Greenback (beyond our normal hyperbolic style) was that so many of the other market opportunities had become so tightly correlated to the dollar that if you got the dollar call right you could make better returns in equities, bonds, commodities and (obviously) currencies.” To this point, the dollar had surprised everyone in 2017, tumbling when everyone was certain it would strengthen, and that weakness helped support equally surprising upside returns in commodities and international equities. The downside in the Greenback continued apace in Q1 2018, as the DXY hit new lows at 89.42 on April 16 and things were looking good for this Surprise to play out in a similar fashion to the previous year. With that said, we wrote in the summer, “Then a funny thing happened, funny in that fundamentals were suddenly trumped (pun intended) by the Trade War rhetoric coming out of Washington” and the dollar turned sharply upwards despite the deteriorating fundamentals for the American currency and turned this Surprise from looking good early to simply **Wrong**. We went on to describe that perhaps rather than dollar strength there was something else happening in global FX markets. We wrote in the original Surprise that “there is another issue that investors have to pay close attention to today given how currencies have become political

weapons of mass destruction in a world where global trade is shrinking, and all of the major developed nations have realized it is a Race to the Bottom in competitive devaluations (to try and inflate the gargantuan government debt away).” When Team Trump began to talk tough about tariffs and protectionism, we saw other countries around the world seize the opportunity to talk down (or actually intervene in FX markets to weaken) their currencies in order to attempt to grab a larger portion of the shrinking global trade pie. When the DXY (mostly Euro and Yen) surged to 95.1 on Sept 30 the Dollar Bulls (who had been trampled over the past two years) began to trumpet how King Dollar had recaptured its rightful throne (American exceptionalism at its finest). Just to keep things in perspective, we reminded readers last time that “DXY is at the same level that it was on January 23, 2015 and is down (5.2%) since we penned the original #KingDollarDethroned Surprise in January 2016 (pesky details).”

The dollar had a tumultuous Q4, rising strongly over the first half of the quarter on hawkish rhetoric from Chairman Powell and then giving back most of those gains in the last six weeks of the year, as Jumpy Jerome walked back his rhetoric to try to stem the flow of red ink in the U.S. equity markets. DXY ran from 95.1 to a peak of 97.5 days after the U.S. elections, up 2.5% through November 12, and then fell back to 96.2 on December 31, up a scant 1.2% for the quarter. The rest of those gains dissipated in the first week of January when DXY touched 95.2 briefly on January 9 before settling at 95.6 at the end of the month (up only 0.5% over the four months). When we look at the fact that the DXY has been essentially flat for the past seven months and that there appears to be a large rounding top being formed, we reiterate what we said last summer that “we remain highly convinced that the dollar is in a secular decline and that the cyclical peak was in Q1 2016 when the Fed began the latest tightening cycle. Further, we can (and will) make the case that rather than dollar strength over the past few months, what we are really seeing is

other FX weakness as countries around the world continue to devalue their currencies to win the race to the bottom.” The sharp move in the dollar in Q2 was the direct result of the narrative change toward the dollar being the safe haven of choice during the Trump Trade War (or maybe it was just America’s turn to take a turn with the strong currency hot potato). We take a notably different view on the Trade War, saying last time, “We have commented repeatedly that Xi is far ahead of Trump in the trade gambit and that, in fact, Team Trump is being completely outmaneuvered by a very formidable Team China and that China is using the RMB as a weapon (despite protestations to the contrary) to reverse the effects of any potential trade tariffs on Chinese exports.” While the Administration prefers rhetoric and bluster, we prefer data to determine who has the upper hand in the trade negotiations. We wrote last time, “We have argued that the Chinese have a very deliberate plan to weaken the RMB (strengthen the dollar) at precisely the same rate as the combined impact of the Trump tariffs, which will essentially negate their intended impact (#ChinaPlayingGo).” The data continues to support the assertion that China has the upper hand in this FX game, as “the USDCNY troughed precisely on the date of the first Trade War salvo, April 11 at 6.27 and has steadily climbed ever since...” That steady climb took the USDCNY all the way up to 6.98 on Halloween before settling at 6.88 by the end of Q4, essentially unchanged during the period, but up 9.7% from April (just about exactly offsetting the tariffs). We wrote in the summer how “The Western media frenzy was buzzing about how China would crash when USDCNY broke through 7 (as if there is some material difference between 6.94 and the round 7 number), once again proving that they didn’t understand which player held the better cards. Team Trump keeps trying to bluff their way out of a bad hand, but China holds all the cards (and \$1.2 trillion of Treasuries) and Team Xi continues to call the bluff time after time.” The data again shows who is in charge as once China had secured the truce in the tariff escalation, they moved back to strengthening the

RMB in order to help re-inject liquidity in their economy. The USDCNY has steadily declined from 6.98 all the way to 6.7 by the end of January as the PBoC injected record stimulus into the system in late December and early January. We will clearly have a lot to write about on this tug-o-war over the rest of the year. The China versus U.S. trade tug-o-war theme is so important that Van Eck adorned their annual, themed necktie this year with an Eagle and a Panda pulling on a tug-o-war rope. We wrote last time about how the Administration has been using the Trade War as a mechanism to manipulate the stock market, saying that “with every plunge during Red October some official (or Trump) would leak a rumor that ‘China wants a deal’ or ‘China is ready to comply with our terms.’ Unfortunately, each and every time, after a brief short-squeeze induced rally, some Chinese official would deny the rumor and the markets would head back down.” We had written last summer about what a bad idea we believed this tactic to be, saying, “The Administration is heading down the road to ruin and (importantly) these actions could be the spark that ignites the dumpster fire that will be equity markets when valuations finally revert to the mean.” Indeed, the fires ignited and equity markets were crashing back toward fair value during Q4 and the trade deal rumors suddenly had the same impact as trying to battle the horrific California fires with a garden hose. Normally, during this type of turmoil, the dollar becomes a safe haven, but the fact that the DXY has been flat since August 15 through February gives a signal that global investors are seeking options to USD hegemony.

Looking at the other major developed markets currencies (euro and yen) that most impact the DXY Index, Q4 showed more evidence of global FX weakness rather than dollar strength (some might say it is the same thing, but actually not exactly). One trend that became very clear in 2018 was the increasing desire for many countries around the world to become less dependent on the dollar and to reduce the global USD hegemony, thereby moving toward a more multi-polar currency system. We summarized

this view last time saying, “It is clear to us that the global balance on power is shifting dramatically, and systematically, the Chinese are asserting their power in all aspects of global financial markets. The Europeans are happy to play along as they see the massive markets in Asia for their export-oriented economies and have been supportive of the regime shift.” The problem for the Europeans in 2018 was that the euro had strengthened far too much at the end of 2017 (the EU’s turn with the FX hot potato) and the impact on trade was much larger than anticipated, pushing economic growth down, industrial profits lower and putting significant stress on the banking system. As we have discussed many times, the most important thing to appreciate about the euro is “understanding that the creators of the EU and euro experiment (Germany and France) are highly incented to have a weak euro relative to other global currencies given their reliance on export-led growth.” The Europeans (and most importantly the Germans and the French) are the most mercantilist people in the world (contrary to the belief that the Chinese hold this mantle) and their entire economic system relies on exporting goods (mostly cars and machine tools) to the rest of the world. German GDP growth absolutely collapsed in 2018 (actually turning negative (0.2%) in Q3) and that stunning reversal of fortune (despite massive ECB stimulus) gave us a high degree of confidence that the ECB would jawbone down the euro and weaken the EURUSD exchange rate. Super Mario did not disappoint, as he promised to remain accommodative, despite also promising (with fingers crossed, we bet) to end the ECB Bond Purchase Plan (don’t call it QE) at the end of the year. The EURUSD fell dramatically from 1.24 all the way to 1.14 by the middle of August and troughed (not coincidentally) on the same day as the USDCNY peaked at 6.98. We wrote last time “That drop of (8.5%) in the euro since March fully explains the entire movement upwards in the DXY (not surprising given the high weighting to the euro). Interestingly, the euro has been flat for the last three months (again like the RMB) so perhaps we have seen the top for the dollar bounce (more on that next time).” So here we are at

next time and the euro was essentially flat again in Q4, moving slightly from 1.16 on September 30 to 1.15 by December 31 (and closed at 1.145 at the end of January) and it appears that the dollar and the euro have indeed made a top and a bottom for the time being. There is a great deal of speculation that a Shanghai Accord 2.0 (agreement similar to 2016 when China took the FX hot potato) was reached at the December G-7 meeting in Canada. That would mean that the RMB would continue to strengthen and the Big Three currencies would resume their race to the bottom in order to try to stimulate global growth and avoid a recession.

While the Administration has been searching for a way to label the Chinese as currency manipulators (should look in the mirror first) as part of the propaganda of the New Cold War, it is the Japanese that are the true masters of the craft of currency management. One of the central tenets of Abenomics is to dramatically weaken the yen to stimulate economic growth and inflation, or so that is the politically correct set of reasons, but the simple truth is that given the massive debt burden Japan is saddled with today (260% of GDP), there is no way out but to massively devalue the currency and inflate away the debt. The yen's race to the bottom, however, has not been a straight line as there have been the policy errors like Kuroda-san's experiment (or more appropriately, total failure) with negative rates and the periodic (yet persistent) bouts of yen strength during global equity market corrections. We commented in the original Surprise that the strength of the yen in early 2018 was quite puzzling, saying "The conundrum of a stronger yen in a country with interest rates pegged at zero and declining GDP growth continued to puzzle investors for the bulk of Q1 as the USDJPY fell from 112.7 to 104.7 (despite Kuroda-san pledging to buy 10-year bonds indefinitely)." Kuroda-san was significantly more effective during Q2 and Q3 as he was able to jawbone the yen lower (and stocks higher, more on that later) and got the USDJPY all the way up to 113.7 by the end of September. The yen weakness continued a little

while longer in Q4, rising just a bit to 114.5 by early October, but did an about face as global equities began to crumble during Red October and strengthened back to 112.9 by Halloween. A pause that refreshes in the global equity Bear Market in November took some pressure off the USDJPY and Kuroda-san was able to get back on track and pushed the yen down to 114 by mid-November (coincidentally hitting a low on same day USDCNY hit a high). Then the fireworks really started as global equities went into a serious tailspin and no matter what Kamikaze Kuroda tried to do, the yen just kept strengthening during the final six weeks of 2018 to finish at 109.6. Whether it was safe haven demand (we still don't get this one) or Japanese institutional investors and banks being forced to sell overseas assets as prices crashed (we think more likely), the powerful move in the yen caused significant stress in the Japanese equity markets as well as roiling global currency markets. One thing that was very interesting (that we are sure to write about next time) is how the USDJPY kept falling during January despite the reversal and subsequent melt-up in global equities as the Fed changed their stance in future hikes (for now) and the PBoC injected record stimulus into their economy in advance of the Lunar New Year. As we wrote last time, "It is very well known that Abenomics is absolutely dependent on a weaker yen and only through a relentless devaluation of their currency (or a debt jubilee) can they manage the crushing debt load that has resulted from decades of 'fiscal mismanagement and the demographic nightmare in the island nation.'" If Kuroda-san can't engineer a lower yen, the wheels will come off on the Abenomics plan, as the other two arrows of fiscal stimulus and regulatory reform have been more elusive than anticipated. Restating our central view on the Big Three currencies in the U.S., Japan, and Europe (that we will address in one of the new Surprises below), it will be fascinating to see who wins the race to the bottom in devaluing their currencies, but as we said last summer "one thing is certain, the overall direction for the group is inexorably down."

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.

For the third year in a row, our oil Surprise completely nailed the path of oil prices (in fact, maybe we need to start an oil hedge fund...). WTI rallied right toward our \$70 target in Q1, was then range bound around \$70 during Q2 and Q3 (averaged almost exactly \$70 over the nine months) and then collapsed in Q4 right back toward \$50 in December to make this Surprise about as **Right** as we could expect. Interestingly, the downward momentum was so great in the last couple of weeks of 2018 that oil actually spent a few days in the \$40s during the final week, closing at \$45.41 on December 31, before rallying back to \$50 in the second week of January. When we look back at the beginning of the year, there were some conflicting signals about the oil markets that made trying to forecast the direction of prices a little more challenging than normal. We discussed the mixed signals in the original Surprise, describing how the world’s largest fund (Norway’s SWF) was selling all their oil and gas stocks (which would normally be a contrarian buy signal) while there was still the largest net long position in oil futures in history (which would normally be a big sell signal). In the end, we believed that the long history of oil speculators (opposite side of hedgers in futures markets) being on the wrong side of the market (they chase momentum) would prove to be the better indicator over the course of the year. We discussed last time how the oil

markets had broken the erratic pattern of behavior over the last few years and moved back into a more normal seasonal pattern, but how that seasonal pattern was exacerbated by the ample liquidity supplied by the central banks (all markets were on steroids). The normal seasonal pattern for WTI is that prices rise sharply (up 5%) from mid-December through mid-January, then turn down (4%) in the “shoulder season” (refinery maintenance) through the end of February, rally sharply (up 8%) from March to May, spend the summer bouncing around a tight 2% range, rally sharply again (another 5%) from late July until the first week of October and then collapse during Q4, giving back all the gains from the first nine months through mid-December and then rallying 4% to close an average year. 2018 followed the normal seasonal pattern almost to the day, but all the moves were 2X to 3X the normal and we began Q4 with WTI up nearly 20% through September 30 (versus the normal 9% gain). It was going to take an even more volatile than normal downward adjustment in Q4 to bring oil markets back into their normal pattern and make the Surprise come true (and more volatile than normal is exactly what we got). We had written at the beginning of Q3 that “history shows that we are entering the seasonally-challenging period for oil prices, so there are now a number of tailwinds for this Surprise to turn out positively in the second half of the year” and it didn’t take long for things to get quite volatile.

We wrote last time, “It turns out Presidents don’t like high oil prices before elections, so Trump started jawboning the Saudis to increase production, but when they politely declined, he simply issued waivers to the eight largest importers of Iranian oil that they would be exempt from the sanctions ban.” This unanticipated (and seemingly impossible) move caught everyone in the oil markets on the wrong side of the trade, super net long oil with pundits predicting \$100 prices. The giddiness in the markets about the tightening of Iran sanctions was actually palpable in Q3, as the idea that more than 1 million bpd of production would be forced off-line led to the final

mini-spike in WTI prices to \$76.41 on October 3 (the day after the Khashoggi murder). We discussed last time that “\$70 oil is simply not a good thing for the average American and particularly not a good thing for the Trump base, as gas prices are a meaningful portion of the family budget; therefore, any relief on that front would have been welcomed during coming into the Election.”

It had become clear to us last summer that the about face on the Iran sanctions was curious (at best, and nefarious at worst), saying “These two events appear ostensibly to be an agreement that Saudi will help push oil prices down in advance of the mid-term elections in exchange for the U.S. punishing Saudi’s sworn enemy. Even if that seems a little too conspiracy theorist for you, the timing is at least a little suspicious.” Oil prices turned down very sharply on October 3, fell precipitously over the two and a half months hitting \$65.31 by the end of October, \$50.93 by the end of November, and came to rest at a staggeringly low \$42.53 on Christmas Eve. We wrote last time, “Sometimes you need to be careful what you ask for, as the oil markets went into freefall and plunged over the past few weeks hitting our target of \$50 on Black Friday (when prices collapsed (7%) in one day) to settle at \$50.43. For perspective, the drop from \$76.41 is a (34%) decline in less than two months. As a reminder, the last two times we have seen this kind of linear drop in prices was in June 2008 when prices fell (69%) over seven months and June 2014 when prices fell (69%) over the next nineteen months.” Oil prices did indeed follow that historical pattern and were in absolute freefall over the next month, dropping another (15.6%) in those four short weeks. We also wrote last quarter, “We are also reminded of the time before those two, when back in November 2000 prices fell (44%) over the next year and were the leading indicator of the impending recession in 2001.” We have written extensively about our view that 2018 to 2020 will be a #2000Redux and look very much like the 2000 to 2002 bursting of the Tech Bubble. We also said, “It will be very interesting to watch which scenario plays out in the coming

months and we will posit that the Saudis will make a large cut at the OPEC meeting in December to try to arrest the descent of oil prices given the massive budget problems they have in a sub-\$50 oil world.” Right on cue, the Saudis convinced the group to make a meaningful production cut of 1.2 million bpd during the first six months of 2019, with OPEC members cutting by 800k bpd and Russia cutting 400k bpd. The only problem was that since everyone expected OPEC to do something drastic, the cuts were seemingly already in the price and WTI actually accelerated to the downside from December 7 to December 24, falling close to (20%), because there were some market participants who thought the cuts should have been larger. Prices did turn on a dime on Christmas Eve and rose consistently during January, jumping from \$45.41 on December 31 to \$53.79 on January 31 (an 18.5% increase) as evidence of the production cuts was released. The curious thing is that despite the OPEC cuts there was a record oil surplus build in January and given pure supply/demand forces prices should have been weaker (not stronger), and we believe that the Chinese are intervening in the oil futures markets again just like they did in 2016. As Q1 unfolds, we are likely to see evidence of slower growth in demand, less than stellar compliance by OPEC and Russia to the proposed production cuts and continued growth in U.S. supply, so it seems like this will be a challenging environment for oil prices to rise.

We wrote in the original Surprise that “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.” Ten million barrels per day of production was a virtual pipe dream (pun intended) for U.S. oil production only a few short years ago and the idea that domestic production would hit that level in 2018 was not in anyone’s forecast. In fact, EIA (the government agency who is supposed to have the best data) had estimates well under ten million bpd for the full year 2018, so it was a shock to everyone when the

January results came in at a staggering 10.25 million bpd (so much for EIA annual forecasts). We also discussed in August that “We had insight from our private investments in both oil and gas that extraction volumes were exploding and there was a likelihood that total U.S. supply could surge to record levels (surpassing Saudi and Russia for the number one position).” Yet even as bullish as we were on U.S. production, we were still too conservative in projecting just how huge the increase would be in 2018. When the final data was tabulated, domestic U.S. oil production was an astonishing 11.7 million bpd during the final week of 2018, up an even more astonishing 1.9 million bpd over the course of the twelve months and the most astonishing 2.4 million bpd higher than the EIA estimate from a year earlier (let that sink in that the government energy agency was wrong by 25% of total production volumes). That increase was significantly higher than the 1.5 million bpd increase in global oil demand and that imbalance pushed the global oil markets from deficit to surplus in the final quarter of the year and triggered the massive price declines. We also wrote last time, “The really problematic part for oil prices was that despite the jawboning and posturing by the Administration and the Saudis about supply cuts, Saudi production has actually increased 500k bpd in 2018 and OPEC production grew 700k bpd from 32.2 million bpd to 32.9 million bpd through October.” So, the issue was that while the Saudis and OPEC were making noises about their willingness to cut production, it appears that they simply boosted production to levels that they would claim to cut from and end up at the same level of production as a year ago (hence very little net supply reduction). Curiously, the EIA has now changed their forecast (remember this does not seem to be their strong suit) that there would be an inventory build in every quarter this year to an inventory draw (based on the proposed cuts), but the January data was the exact opposite. Further, despite pundits forecasting a collapse in U.S. production in response to the dramatic declines in prices in Q4, (logic being that less profitable operators will have to shut in wells at \$50 prices) the total U.S. production

numbers just keep cranking upwards. January data showed a jump to 11.9 million bpd and the mid-February number was just released at a truly remarkable 12 million bpd. That increase in production offset about 40% of the OPEC cuts that came in at a very strong (800k) bpd in January and, with Russia hitting a new post-Soviet record level of production at 11.2 million bpd, there is very little room for any demand weakness before the impact of the OPEC decision is completely offset. There is no question that oil prices have firmed in January (and early February); we are not convinced that the movement in spot prices is based on the fundamentals, but rather on speculative activity in the futures markets.

Shifting over to the dollar, we pointed out last time that oil prices “were ignoring a rising dollar (normally bad for commodity prices) as well as total supply data that continued to show a coming glut.” The oil markets finally got the memo in Q4 and fell back into balance with the movement in the currency markets. A strong dollar has historically been bearish for oil prices and given the strength of the Greenback in 2018 it was quite odd that oil prices had been so strong in the first three quarters of the year. Over time, a DXY level in the 90s was correlated to oil prices in the \$50s (not the \$70s) and the persistent climb of DXY from the high 80s to the mid-90s should have resulted in WTI falling materially from fall highs. We discussed in the summer that it appeared that “the DXY/oil relationship had been suspended temporarily and with the DXY rallying back toward 95, there was no way that oil should have run to the mid-\$70s to end Q2 (but it did) and we were left to scratch our heads as to what was holding prices up.” We saw an interesting analysis recently that explained how the dollar/oil relationship had morphed from traditional (inversely correlated) to complex (less clear what the correlation would be), and while one might simply say that is just Monday morning quarterbacking of an observation that defies historical relationships, there is some evidence that with the introduction of the Chinese oil futures

contracts denominated in RMB and the increasing number of countries pricing oil in currencies other than the dollar that perhaps the decline of the petrodollar standard is indeed creating a more complex environment. That said, after a Q3 where both the dollar and oil were relatively flat, we wrote, “the problem was that oil prices were pinned nearly \$20 too high based on the historical relationship between levels.” Our view was that with the hawkish rhetoric coming from Powell, the negative GDP data from the EU, and Japan and the U.S. equity weakness in Q4, there would be increased upward pressure on the dollar as a safe haven asset. More upward pressure in the Greenback meant more downward pressure on oil (normally) and we wrote that “DXY has now surged toward 97 in the first half of Q4 and oil finally started adjusting downward toward \$50; the problem is now that as we approach the 100 level oil should have a four-handle.” That is exactly what happened in the final months of 2018, WTI wiped out the \$20 spread and plunged all the way to a four-handle to end the year. The other element of the currency markets which has had some predictive power for oil is the USDEUR exchange rate and while DXY has been a strong coincident indicator, the USDEUR has historically had a very strong correlation with oil on a six-week leading basis. Looking at the USDEUR, we observed in February the same anomaly as the DXY, saying, “here is where the data breaks down again - as the euro has been crashing for the past seven weeks, falling all the way to 1.18, which would imply oil prices should decline to around \$55 by the end of June. There is another Bradley Turn Date on June 1 so we will be watching oil very closely.” As we noted last time, oil did turn on the Bradley Date, “it just went the wrong way, and turned back up.” We wrote in the summer (and reiterated again last time) that “given all the geopolitical gamesmanship, we can give this indicator a pass for the current period, but we will have to watch closely in the future to see if the correlation returns.” The euro had been basically flat during Q3 around 1.16, so we shouldn’t have expected to see much movement in oil prices in the first part of Q4, but there was this persistent gap between where

the euro had moved in 1H18 and the stubborn rise in oil prices that needed to correct. We reiterated last time what we wrote in the summer, that the EURUSD (and DXY) was calling for prices closer to \$50 (versus \$70) and said “we remain biased to the downside in our forecast given the positive supply surprises and the potential for an even larger political move by Saudi as the election draws closer (and is only a couple weeks before the big annual OPEC meeting).” During the first half of Q4, the EURUSD began to grind even lower (exactly what Germany and France need to rekindle economic growth), falling all the way to 1.13 in mid-November, so it was likely that we would see a “catch down” in oil prices in the back half of Q4 (six-week lead) and that is precisely what occurred. At 1.13, WTI should have had a four-handle, which is what happened, and the recovery back to 1.15 by the end of the year pointed to a recovery in oil prices back into the low 50s, which happened as well. With the euro now leaking back down to 1.13 in February, we should see more weakness in oil prices in the back half of Q1, so we should have some interesting things to write about next quarter.

In closing this section last time, we wrote, “The last thing to remember is that the normal seasonal pattern favors a strong Santa Claus rally in the last two weeks of December that continues into the first couple of weeks of the New Year, so we would expect that pattern to hold this year.” That normal seasonal pattern did hold (albeit a week late), WTI prices rallied strongly into the New Year and that price recovery enabled the oil and gas sector to get up off the mat after a brutal Q4. We had said last time, “We continue to believe there are some compelling values in the oil and gas sectors (getting more compelling every day, euphemism for falling prices) and that high-quality Permian oil producers and Marcellus/Utica gas producers should deliver strong returns from these levels.” We were a little early, as the final month of 2018 saw some absolutely brutal selling of the energy names while retail investors harvested tax losses and institutional investors did a little window

un-dressing to try and show that they didn't own these stocks on their year-end statements. That said, while the last month was rough on the energy complex, the resulting recovery from the December 24 lows has been nothing short of spectacular. In a classic worst-to-first move (common occurrence where worst sector of the market in prior year performs the best in January of next year), the quality oil and gas names had explosive rallies over the past couple of months. While it is important for perspective to remember that the S&P 500 has been spectacular over this period as well (post the Mnuchin call to the Plunge Protection Team), rising 19%, the energy names are up significantly more, as oil-related names FANG rallied 21%, PXD rose 18%, CLR jumped 24%, PE surged 33%, XOP climbed 27%, and the gas-related names EQT and COG rose 10%, SWN surged 30% and GPOR soared 28%. The volatility in these segments is likely to be very high in 2019, so we would be cautious in entering at these levels and will look for better entry points later in the year. We also said last time, "Oil services companies, which we had thought might finally have some pricing power, have been pummeled despite rapidly rising activity levels (I guess if you lose money on every rig you don't make it up on volume). We also thought offshore drillers, which had been left for dead, could be interesting in a higher price environment, but that thesis is off the table should prices keep declining." There were signs of life in the services side of the energy complex in recent months as well, while the downside was severe in December, the recoveries have been substantial, (OIH jumped 30% from the Christmas Eve lows and HAL and SLB jumped 25%). The offshore drillers did see some signs of life as NOV rallied 17% and RIG soared 30%; there could be more interesting opportunities in the offshore space should oil prices firm. Finally, one of our favorite names from a couple years ago, SLCA showed that despite a bear market and loads of excess supply, there is still demand for sand to frack wells, and the stock was up an amazing 54% in the past few weeks (for perspective, that makes the loss over the past year only 50% instead of 67% where it was at the trough, the mathematics of loss are brutal). Over the

long-term the oil services names should eventually get some pricing power back and there should continue to be opportunities in this segment for strong stock pickers.

We made the case last year that MLPs were an appealing investment in an environment where oil and gas production was skyrocketing "since these companies make money not based on the prices of the commodities, but rather on the volume of hydrocarbons they transport." While the veracity of our views was incontrovertible, MLP investors did not seem to appreciate the difference between oil and gas prices and oil and gas volumes in the final few months of 2018, and as oil prices collapsed, the damage in MLPs was quite severe in Q4. The Alerian MLP Index was down a very frustrating (17.3%) in Q4 (despite strong fundamentals), totally erasing the gains in the first three quarters and leaving the sector down (12.4%) for the year. We highlighted last time "There is an added nuance in MLP investing in that the marginal investor has been a yield investor and with the threat of rising rates on more traditional yield instruments (read bonds) there has been some siphoning off of capital back toward those traditional markets (which we can't understand given MLP yields are double bond yields)." Had interest rates actually kept rising on the lower risk bonds, we could have understood some capital flight, but with the sell-off in equities during Q4, bond yields headed sharply downwards and the 8% yield in MLPs should have been coveted and accumulated (so much for math and best-laid plans). We had also made the case last time that investors should have been drawn to companies that were generating significant real cash flow (MLPs) rather than incinerating cash (#FANGs and TSLA), so when those stocks finally got their comeuppance in Q4, we would have expected to see flight to safety capital flock toward MLPs. We said this quite clearly last time when we wrote that "we expected there to be a huge 'catch down' in growth equities (like the #FANGs) and we thought that the impressive yield in MLPs would provide a nice margin of safety should things turn really ugly in the equity markets." We

definitely got the catch down in stocks, but we did not anticipate the inability of energy investors to not discriminate between E&P (exploration and production) and MLP (transportation). After the bludgeoning of MLPs during Red October, we wrote, “we continue to like the prospects for MLPs and would anticipate that they will recover all of the relative underperformance of the past year in the coming quarters. As an added incentive, should management teams get comfortable with the prospects for continued positive cash flows and begin to raise dividends again, the returns here could be explosive.” The January recovery lived up to the billing, the Alerian Index jumped a very strong 12.6%, and some of the best names like ET, WMB and PAGP were up even more. We mentioned last time that we have heard from multiple management teams that they will raise distributions in 2019 and that should get investors to refocus on cash flow and earnings in the equity space. To that end, we repeat our forward view on MLPs that “investing in companies that actually generate cash (rather than incinerate cash like TSLA) has been a time-tested strategy for generating wealth and we expect MLPs to enhance investors’ wealth for many quarters and years ahead.”

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 became Prime Minister in 2012, he laid out a plan (dubbed Abenomics) on how to stimulate the moribund Japanese economy with a three-arrow plan of 1 - aggressive monetary easing

(weakening the yen), 2 - aggressive fiscal expansion (drive the real economy) and 3 - aggressive reduction of regulation (encourage innovation and revive domestic investment). Abe-san appointed Kuroda-san to lead the BOJ and the dynamic duo proceeded to get the party started in early 2013, firing the first arrow with pinpoint accuracy, hitting the bullseye with a substantial weakening of the yen and a related surge in equity prices. The problem is that the other two arrows have proved much more difficult to launch and they remain firmly ensconced in the quiver as there has been very little fiscal stimulus and very little regulatory relief in Japan. Coming into 2018, there were two things that provided us with support for the variant perception that Abe-san and Kuroda-san could turn Japan back in to the Land of the Rising Stocks, first “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,” and secondly, “Everyone is buying Japanese stocks, from the BOJ, to large Japanese Pension Funds, to corporations that are buying back stock for the first time.” We posited that even foreign investors finally would get back into the Japanese markets and return to the Land of the Rising Stocks. The twist to our Surprise (that proved to be its undoing) was that we hypothesized, even if the USDJPY were to remain range bound (it actually did), the Nikkei Index could rocket ahead (it didn’t), so while we got the yen part of the Surprise right, Japanese stocks got no love at all from global investors and fell 4,000 points to 20,000 (a far cry from 27,000) making this Surprise **Mostly Wrong**. Perhaps the most frustrating part of the outcome was that Japanese equities continued to be some of the cheapest in the world (only Taiwan, Columbia and Korea were cheaper) and earnings continued to be strongest in the world on a relative basis, but basically, no one cared. Other than one big run in the Nikkei during the summer (while the yen was actually weakening), there were not many things to be excited about in Japan in 2018.

We discussed the problem for the Japanese equity markets in Q2 saying that “the yen had begun to strengthen again (safe haven bid), inflation had begun to plummet (hit a low of 0.3%) and GDP inexplicably contracted by (0.2%), breaking a string of eleven consecutive expansionary quarters. This perfect storm of bad news was enough to prompt foreign holders of Japanese equities to sell and the Nikkei Index crashed (14.5%) from the January peak to a trough of 20,618 on March 23.” That March 23 date was important, as it was both a Bradly Turn Date and a Gann Date, so it was not surprising to see the Japanese market turn sharply on that date and surge throughout the middle part of the year. The USDJPY had plunged to 104.7 and Kuroda-san got back to work weakening the yen and drove it all the way back to 113.8 by the end of Q3, which produced the same result in the equity markets as the previous six years. The Nikkei recaptured all the losses from the first quarter, jumping all the way back to 24,271 on the second day of October (day of the Khashoggi murder in Turkey). We discussed last time how “In addition to the currency ‘management’ (no one seems to call it manipulation when Japan, Europe or the U.S. does it, only when China does)...The BOJ and the Japanese government are doing their part to boost stock prices by buying anything that isn’t nailed down and the BOJ now owns close to 75% of all the ETFs in the market, but foreigners have not been impressed and remain net sellers.” When you read that number again it is fairly staggering to think that the central bank of Japan had printed money out of thin air to buy three-quarters of all the equity ETFs in the Japanese equity market and the markets were still having trouble exceeding their January highs (this should have been the tell that something else was wrong). The other problem for global investors was that all of the gains in equities would be wiped out if investors didn’t hedge their currency exposure since the Abenomics linkage of a lower yen to higher stocks had been reinitiated. We wrote last time, “Very (perhaps should add an extra ‘very’ here) curiously, the yen and the Nikkei both peaked the day before the Khashoggi assassination.” The fourth quarter saw the immediate

reversal of the summer gains as the yen strengthened all the way back to 109.6 by the end of the year (and a further move to 107.4 by January9) and all of the Nikkei gains evaporated as the Index fell all the way back to 20,015, losing (14.2%) for the quarter and (12.9%) for the year. Checking in on the other economic indicators, we highlighted last time, “To make matters worse, the Q3 GDP turned negative again at (0.3%) after moving back to a positive 0.8% in Q2 and the annualized growth rate plunged to 0.3%, down from 2% a year ago.” Things did get marginally better in Q4 as GDP came in at a positive 0.3%, but the annual rate slipped to 0.0% (essentially in recession), so there is increasing evidence that without the other two arrows being fired Abenomics may not end up having the desired outcome after all. We noted last time also that there was some positive news in that inflation was recovering (albeit modestly), saying, “Inflation has recovered from 0.6% in April back to 1.4% in October where it was to begin the year.” Unfortunately, that good news did not last very long, as Q4 witnessed a total collapse in inflation all the way down to 0.2% in January and there is increasing evidence that the specter of deflation is placing its icy grip back on the Japanese economy. There has been some good news in early 2019 as the global flood of liquidity has stemmed the safe haven demand for the yen and the USDJPY was widened back out to 110 in recent weeks. The Nikkei has rallied some 7% in the first half of Q1, so there will likely be some interesting developments to write about in Japan next quarter.

Even when the broad markets are challenging for investors, there will always be segments of the markets where the current environment is favorable for a particular investment style, geography or industry. For example, when economic growth falters, investors can seek refuge in less cyclical industries or more defensive sectors (healthcare, utilities or consumer staples). Investors can also focus on areas where innovation is driving above average profitability and growth (technology), the latter being attractive insofar as valuations have not become extreme. We sought out opportunities in both the Value (banks) and

Growth (tech) segments of Japan during 2018 and the results were less than fulfilling on the Value side and quite fulfilling on the Growth side. Unfortunately, there was nowhere to run, nowhere to hide (channeling Pat Benatar) in Q4, as everything got pummeled during the last few months of 2018. On the Growth side, the four Big Dogs in Japanese technology, Sony (SNE), Softbank (SFTBY), Trend Micro (TMICY) and Nintendo (NTDOY) were down a staggering (20%), (35%), (22%) and (29%), respectively in Q4, which erased nearly all the gains accrued during the first three quarters of the year. We noted last summer how there were some really smart investors taking big stakes in Japanese tech companies in 2018, saying, “Interestingly, one of our favorite managers is wildly bullish on SNE and sees 100% upside from here. Tiger Global made a big splash in the media by taking a major stake in SFTBY a few weeks ago so the momentum here is likely to continue.” Clearly, no investor is right all the time and those investments were not looking so well timed after a couple of quarters, but it appears that some behind the scenes “soft activism” (or maybe not so soft) has been taking place. Softbank announced a radical buyback plan recently (radical because Japanese management teams have been resistant to buybacks) and the stock jumped 40% on the news, pushing the Tiger Global position back into the black. On the Value side, we wrote last summer “We have been patiently waiting for the value in the big Japanese banks to be unlocked, but that patience has been wearing thin. While these stocks continue to be extremely cheap, the inability for the BOJ to engineer a steeper yield curve has continued to drag down earnings growth and these stocks have languished.” In Q4, the mega-banks provided no relief from the big drawdowns in Japan as Sumitomo Mitsui (SMFG) fell (20%), Mitsubishi UFJ (MUFG) also fell (20%) and Mizhuo (MFG) fell (14%). We appreciate that readers (and this letter writer) are now completely tired of hearing about the Japanese banks, as they have been dead money over the past five years while the Nikkei is up 70%. We wrote last time, “We are reminded that, in investing, it is often when everyone is ready to walk

away from the idea that things begin to turn, but until the BOJ can get the yield curve to steepen, we just can’t see how these banks really rally (but they are agonizingly cheap and really unloved...)” There have been some faint glimmers of light in 2019 as the group is up 9%, 6% and 3%, respectively so far, but given that the Nikkei is up 7%, these moves are still not interesting. Perhaps we should simply just stop spending time looking at the banks until the yield curve steepens, the problem being that given the debt burden, bad demographics and persistent deflation (Killer Ds) we might not be writing about these names for a long time. We will dive deeper into the outlook for Japan in the 2019 Surprises below but perhaps instead of the Land of the Rising Stocks, Japan has become the Land that Time Forgot.

Surprise #8: #NoOpenAirMuseum

Byron Wein once wrote 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.

We summarized the bullish case for Europe in the original Surprise, saying, “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).” One of the interesting things that we also observed was the huge jump in confidence in the region, but we did warn,

“Confidence may even be running a little hotter than the actual economic recovery.” As such, there were some reasons to remain a little bit cautious about the upside potential in the European equity markets (even if the Surprise was tilted to the more positive side). We went further to say that given how the ECB had the stimulus spigots wide open, there were now trillions of euros of negative yielding government bonds in the region and with loads of cheap debt available there was the potential for a strong recovery in corporate profits from the extreme operating advantage. That said, we also made the counter point that there was “one wrinkle in the plot is 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).” As it turns out, it appears that Byron was right after all, as the animal spirits vanished in 2018, banking crisis fears re-emerged, GDP turned down sharply (perhaps even to recession levels in Germany) and the European markets ended up being some of the worst performers in 2018, making this Surprise simply **Wrong**. Sometimes the consensus is right (translation, the Surprise is wrong) and the negativity toward Europe certainly seems to have been well placed in 2018.

We also identified one of the big risks to the Surprise was the ECB making noises about ending the “bank welfare program” (the ECB Expanded Asset Purchase Program, but never call it QE) last year. We made the case that since “We often repeat the phrase that #LiquidityDrivesMarkets and the lack of a permanent safety bid under risk assets in Europe will certainly convert a brisk tailwind for equity markets into a headwind over the coming quarters.” That said, we also believed that European stocks were cheap enough coming into 2018 to attract foreign buyers and not only did buyers never appear, the sellers came out in force in Q4 and drove markets to very significant losses. The Euro Stoxx 50 Index plunged from 3,399 to begin Q4 to 2,987 to end the year, shedding (12.7%) for the quarter and (14.9%) for the year. As an extra

for this Surprise we had added that “Greece is the word in Europe in 2018,” as we believed the resolution of the debt crisis (Greek two-year yields are below Treasuries) and prospects for significant offshore capital to be repatriated back to Greece might mitigate some of the bank capital needs and spur an equity recovery. We wrote, “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.” It would have been hard to have been more wrong about Europe (and Greece in particular), as there were not only no winners in the region, but some of the losers (like Greek stocks) were down substantially more than the indices as GREK fell (17%) in Q4 and (35%) for 2018.

Not only did the global buyers of European stocks never materialize, but with the ECB cutting the monthly bond purchases back from \$60 billion in 2017 to \$30 billion for the first three quarters of 2018 and \$15 billion during Q4, there simply was not enough demand to support equity prices. That said, the \$15 billion of ECB purchases a month during the quarter should have been a modest positive and should have been worth about nine Euro Stoxx 50 points based on our formula derived from the work of Larry Jeddleloh at TIS Group (20 points for every \$100 billion of bonds purchased). The problem was that, unfortunately, the Euro Stoxx 50 Index collapsed during Q4 and fell (412) points, so clearly the sellers swamped the buyers in the final months of 2018. To make matters worse for the formulaic approach, the flat performance in Q2 and Q3 had built up a reserve of 36 Euro Stoxx 50 stimulus points, so the Draghi induced bump should have been 45 points. We have noted on many occasions that the concept of a central bank Put that is so popular as an explanation for why global equity markets have been so strong over recent years is a temporal phenomenon. CB Puts, like 85% of options, all eventually expire worthless when the fundamentals eventually become evident and the wave of liquidity finally recedes. Like the old Buffett quote

about you get to see who is swimming naked when the tide goes out, we now know what Super Mario looks like without trunks and it is an image we would all rather forget (unfortunately can't un-see it). We had discussed this problem last time when we wrote, "One of the major problems for Europe right now is how to stabilize their government bond market in the absence of central bank largesse. It does not appear that there is a long line of investors willing to lend money to the Italian or Greek governments for ten years at sub-3% rates." As the tide began to ebb in Q4 and investors got a glimpse of the Italian and Greek bond markets sans the ECB's constant bid, yields exploded higher and spooked equity investors. The Italian 10-year yield surged from 2.8% at the end of September to 3.6% in late November while GGBs ran from 4% in September to 4.7% in late November. We also noted last quarter that "Higher interest rates are the last thing that overleveraged companies and countries can manage today, so there does seem to be more risk to the downside than we observed coming into the year." That sentiment turned out to be shared by global central bankers, who seemingly used the time at the G7 Summit to come up with a plan for one last coordinated effort to buy up the worst-of-the-worst bonds and try to save the equity markets from a full-blown crash. We will have to say "mission accomplished" in the early innings of 2019, as Italian and Greek yields are back to September levels and equity markets have rallied hard off the Christmas Eve lows. That said, despite a 15% and 19% surge in Italian and Greek equities, respectively, both markets are still down about (8%) since the September 21 market peak as the mathematics of loss are very tough to overcome in investing even when you have help from your friends in Brussels. This tug-o-war (common theme) between the reality of the Killer Ds and central banks in the developed markets will give us plenty to write about in the quarters and years ahead.

We made the case in the original Surprise that "What Europe needed in order to break out of the trading range was some solid domestic GDP growth to overcome the headwind of the stronger euro that was

hampering exports in the near term." The EU did see a short growth spurt in Q3 2017, and GDP hit 2.8%, but the euro strength overwhelmed the ECB induced economic growth spurt and GDP fell all the way back to 1.6% by Q3 2018. The decline accelerated throughout 2018, as the sequential quarterly rates were 0.4%, 0.4% and 0.2% through September. As we said last summer (perhaps simply stating the obvious), "There are some signs that the strong recovery remains elusive." It was not really much of an intellectual leap to make the case that the surprising strength of the Euro in 2017 was going to hurt a collection of economies that were deeply dependent on exports (particularly Germany and France). It also was not a surprise that the Q4 number came in at an equally anemic 0.2% rate and dragged down the annualized EU GDP to 1.2% for 2018. If we take a moment to look at the German data, the story is even worse as the past four quarterly numbers have been 0.4%, 0.5%, (0.2%), 0.0% (we think they rounded this to keep it "positive") and that terrible quartet of numbers dragged the annualized rate from 2.8% a year ago to 0.6% for 2018. We have read a number of reports for local analysts in Europe that contend that Germany (and even the rest of the EU) have slipped back into recession and it is simply a matter of time before the return to contraction is officially proclaimed. We wrote last time how "Mario 'Whatever it Takes' Draghi was on the case over the past few months and has jawboned the euro lower, which should arrest the decline in exports and perhaps can forestall what appeared to be an assured return trip into recession." While Super Mario did get the euro down, it appears that it might have been too little, too late, to avert the dreaded R-word (we will have to wait until next time to find out). We discussed over the past year that the one "kinda" bright spot for developed markets Bulls was that inflation had ticked up modestly in late 2017 and into 2018, but we had warned that there could be a reason for the surge and that it might prove transitory, saying last time, "Not to be a complete wet blanket, but it is highly possible that much of that gain in inflation was merely the oil price recovery over the March to October period. With the

meaningful correction in the past couple of months, CPI will head right back down and the central bank will be staring at a lethal combination of declining inflation and economic growth and may have to fire back up the printing presses almost as soon as they had planned to shut them down in December.” Sure enough, EU CPI collapsed in Q4 (along with oil prices), falling from 2.3% in October to 1.5% in January and the ECB is literally staring at the inhospitable combination of rapidly declining GDP and inflation. How will they respond? Quite interestingly, despite the promises to cease bond purchases in the New Year, the ECB expanded the balance sheet (and European equity market prices) in January (in response to the emergency discussions at the G7), but have since reversed that move in February. It will be very interesting to see what develops over the course of the balance of the quarter and year ahead (we still maintain cupboard is bare). At the end of the day, nothing went right for Europe in 2018 and the terrible returns for investors reflected the reality that it is really, really hard to overcome the headwinds of poor demographics, excess debt and deflation (no matter how super your central banker believes they are).

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.

There were a number of reasons to be enthusiastic about Emerging Markets coming into 2018; 1 - EM

countries were the star performers in 2017, 2 - it appeared that EM equities had broken out of a multi-year consolidation and wedge pattern, 3 - EM Leading Economic Indicators had turned up sharply in a number of countries, 4 - the Citi Economic Surprise Index (CESI) was at trough levels and appeared to be turning up and 5 - it appeared that EM equities were at the beginning of a multi-year move relative to the developed markets (based on similar historical cycles). On the final point, we monitor the EEM/SPY ratio and after a six-year period from 2010 to 2016 where SPY dominated, there were a number of clear signals that EEM had re-emerged as the leader. When EM equities dominated global returns in January of last year, things were looking good for this Surprise. That said, we repeat (again) that we had no idea how prophetic (and painful) our opening statement in this section would be from the original Surprise when we wrote “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. 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.” We did not think volatility really meant carnage and we certainly didn’t think that this Surprise would turn out to be just plain **Wrong** by the end of the year (but it did, and it was, was it ever...). Perhaps there just has to be balance in the world and as right as we were about the oil Surprise, we were equally wrong about EM. Emerging Markets equities ran into perfect storm of the Fed (tighter), Trade War (Trump channeling Smoot and Hawley) and China draining liquidity from the system (PBoC doing what they do to control economic growth) and fell (25%) from their January 26 peak (right on the Bradley Turn Date). We have talked in the past about how global investors are conditioned to shoot first and ask questions later, as they are still conditioned to the old adage that when the U.S. sneezes, the rest of the world catches a cold, but that was not the primary problem for EM in 2018. While there was some slowing in

economic data in the U.S. (and in other DMs) we wrote last time that “there didn’t appear to be enough deterioration in economic or profits growth to warrant the kind of sell-off that we witnessed over the course of the first half of 2018.” We also noted last time that what we clearly missed in 2018 (with the benefit of hindsight) was “that the relative growth in both profits and GDP was temporarily skewed significantly in favor of the U.S. by the tax reform changes.” In an investment world now dominated by machines, the constant search for relative advantages across geographies and industries has created a very harsh environment for the long-term investor as capital now moves between and among markets at a blistering pace based on the slightest change in economic, geopolitical or liquidity conditions. EM went from the belle of the ball to a wallflower in a matter of weeks in Q1 (and was banished to the wall for the rest of the year).

The relentless selling of EM stocks had paused in Q3, but came back with vengeance in Q4 and the MSCI EM Index dropped (7.5%) during the quarter, which (while only about half as much as the S&P 500 drop of (13.5%)), was roughly equal to the first half of 2018 losses and for the full year the Index was down (14.6%). The Bears were back in EM and there were plenty of markets around the world that fared far worse than the averages, particularly those with current account problems or liquidity problems caused by local central banks having to match the Fed’s tightening stance to defend their currencies. At the bottom of the leader board in Q4 were Mexico, down (18.8%), Columbia, down (19%) and Pakistan, down (22.4%), as collapsing oil prices and geopolitical turmoil roiled a number of markets around the globe. We had said last summer that in 1H18, the cellar-dwellers were mostly impacted by “their currencies getting smashed by the rising dollar (and rising U.S. rates) as the boo-birds were out in force calling for yet another EM Crisis.” We believe it is important to keep the dollar move in perspective and point out that while the DXY did bounce smartly off the lows in March, most of the upwards adjustment occurred in

Q2 and the dollar was relatively flat in 2H18, so the FX damage was much more country specific than a global EM issue for the second half of the year. At the top of the leader board (and showing the massive dispersion across EM) in Q4 were Qatar, up 8.4%, Indonesia, up 9.7% and Brazil, up a stunning 13.4%. These moves are significant not only because they are so dramatically different from the carnage that occurred in global equity markets in Q4, but also because they show (once again) how you make the most money in Emerging Markets when things go from truly awful to merely bad. Brazil was the poster child for this adage, as a new President helped put the previous Administration’s shenanigans in the rear-view mirror and investors rushed back to the market to buy what was on sale in Rio and Sao Paulo. Looking at some country results for the full year, it is readily apparent that the EM Index numbers mask both incredible opportunities and significant risks that exist across the Developing Markets. Pakistan shed an astonishing (34.8%) of its market capitalization in 2018, Greece was definitely not the word and crashed (36.8%) and Turkey proved that bad leadership can destroy capital faster than just about anything else (anyone listening in the U.S.?) as Turkish equities lost a mind-numbing (41.4%) in just four short quarters. Jumping back to the big picture again for one second, recall that only a year ago the trailing returns for EM and the SPX were 37.3% and 21.8% respectively (a spread of 15.5% in favor of EM) and at the end of 2018 that relative spread had nearly completely reversed as the TTM returns were (14.6%) and (4.4%) respectively (a spread of 10.2% in favor of SPX). Had you told us a year ago that global equity markets would correct, we would have predicted (actually did predict) that the cheaper assets (EM) would have held up better than the expensive assets (SPX), but so it goes in the New Abnormal that things don’t always work out as expected (at least in the short-run).

While there were actually a few Emerging Markets worthy of cheer in Q4 that we mentioned above, the overall results for the full year were pretty rough, as only Qatar managed a strong outcome in 2018,

surging 29.8% (really small market). Other somewhat notable performances (translation, they didn't lose a lot) for the year included Peru up 1.6%, Brazil down (0.5%) and Russia down (0.4%). One notable point here is that we mentioned last time that historically "Countries with solid current account balances have been more immune to the FX contagion that has smashed the Fragile Five (Brazil, Turkey, South Africa, Indonesia and India) in 2018." However, during 2018, Brazil extricated themselves from the Fragile Five and got back to a current account surplus (small, but positive) and that development helped foreign investors as the real recaptured some of the losses of the past few years. As we discussed last time, "There are times (like during Q3) when investors are well served to choose a selection of less well-developed markets that are a little bit off the radar screen of most investors because of the risks of herd behavior in the more well-trafficked markets (that are prone to boom and bust based on ETF flows). Alternatively, there are times (like last year) where simply gaining exposure to the largest, most liquid, developing markets is a superior strategy because the tsunami of capital flooding into the market (again ETF flows) raises all boats." We believe strongly that EM markets will be in the former type of market environment for the near future and reiterate the case we made last time that "investors will be well served to focus on niche markets where they can gain an analytical or informational advantage due to relationships, knowledge or expertise." The Q4 results reflect that our analysis was solid and the wide spread between the winners and losers in EM was a target-rich environment for skilled country allocators, stock pickers and hedge fund managers (lots of moneymaking opportunities on the short side). The biggest problem for investors in Q4 was dodging the impact of the momentum moves when capital started to flow out of the markets (when prices fall, people sell). We warned on many occasions in the past year that the massive amount of money that flowed into passive and ETF strategies would eventually turn from a virtuous cycle (rising prices begets more inflows begets rising prices) to a vicious cycle (falling prices

begets outflows begets falling prices) and when that transition occurred in Q4, things got ugly in a hurry, especially for investors in the big, liquid ETFs like EEM. The biggest problem with EEM is that it has become not only a way to gain exposure to EM equities, but also a tool for generalist funds to go "risk-on" (long) or "risk-off" (short) and those flows further skew the instrument from its original intended objective. Finally, on this point, if you only do what everyone else is doing (buy the Index) you will make the same return as everyone (beta) and while that may feel good in a Bull Market, it is far less optimal in volatile markets or in a Bear Market. Now is the time for alpha and active management is likely to outperform for a significant period.

One of the great anomalies of global capital markets is that EM countries are responsible for 42% of all global GDP, yet only have an 11% weight in the MSCI All Country World Index, so there is plenty of room for expansion of the EM allocation. The biggest glaring hole in the global equity indexes was the exclusion of Chinese A-Shares given that China local shares are the second largest equity market behind the U.S. and while there were plenty of reasons given over the years to excluding these markets, none of them were very good reasons and it basically came down to geopolitics. Finally, last year, MSCI could not justify their bias against China any longer (the RMB being included in the IMF SDR was the final straw) and the Index Committee voted for inclusion of A-Shares starting last June. There was still some gamesmanship (Cold War 2.0) going on insofar as the schedule for inclusion was agonizingly slow since an immediate capitalization weighting would put the China weight over 20% and the initial percentage was only 0.6% then (growing by a couple percent a year going forward - some is better than none even if it is slower than should be). Given the inclusion decision, we came into 2018 believing that "China A-Shares would be one of the biggest stories in global equity markets in 2018 courtesy of the MSCI Committee decision to include A-Shares in their Indices beginning in June." The reality on global portfolio allocation was that the

MSCI inclusion decision meant that every global equity manager (particularly passive funds) had to immediately begin buying these stocks in order to minimize benchmark risk. In fact, our conviction was so strong that we made the topic of our Around the World Webinar in April a focus on the tremendous opportunity in Chinese equities and made the case for “why the Great Wall of Money was headed for Shanghai.” The reality about Surprises is that they only occur a little over half the time and oftentimes even the most well-reasoned arguments for why an event should occur in the capital markets fail to anticipate some element that overwhelms the original thesis and leads to a disappointing outcome. Such was the case in 2018 in China, as the PBoC withdrawal of liquidity and the Trump Trade War completely swamped the incremental demand from MSCI inclusion buyers.. We wrote last time how “the Trade War rhetoric has triggered a strong response by the Chinese leadership to weaken the RMB, has global investors in full-on panic mode and dumping Chinese stocks.” The panic turned to desperation in Q4 and the China indices crashed hard with the MSCI China Index down (10.7%), the MSCI China A50 Index down (11.8%) and the MSCI Hong Kong Index down (4.5%) as well. As the Chinese deftly weakened the RMB to counteract the tariffs (#ChinaPlayingGo), foreigners headed for the exits. As we noted last time, “We still contend that China is winning the trade game as they use the RMB as a weapon (despite saying they wouldn’t) to neutralize the impact of tariffs. We also misjudged the extent of that RMB weakness as a headwind for stock prices.” For the full year, the numbers were really ugly as the MSCI China Index slumped (18.9%), the MSCI China A50 Index crashed (24%) and the MSCI Hong Kong Index shed (7.8%). Just when things couldn’t look any darker, the PBoC reversed course (right after the G7 meeting, shades of Shanghai Accord 2.0) and lowered reserve requirements on the banks (free up liquidity) and injected a record \$84 billion of stimulus into the economy in January. As one might expect, the patient reacted well to the steroid shot and the indexes jumped 11.1%, 8.7% and 7.9%, respectively in January

and continued to rally in February as well.

The most compelling reason for staying the course in China equities is the extreme attractiveness of valuations (both relative and absolute) that emerged over the course of the difficult performance in 2018.

Index	P/E	Forward P/E
MSCI China	12.9X	10.9X
MSCI HK	13.1X	14.8X
MSCI China A50 (A-shares)	12.2X	10X
MSCI EM	12.8X	11.4X
ACWI	16.5X	14.1X
MSCI USA	19.6X	16X

To note, when P/Es are around 10X they have historically produced strong returns in subsequent periods. Compared to other global equity markets overall, China valuations are in line, but they remain compellingly attractive relative to the broader global benchmarks. The ACWI Index P/E is high and the MSCI USA Index is truly egregious at 50% higher than the Chinese valuations.

We asked the question in the original Surprise, “So, with valuations so compelling, why do investors remain underweight China?” Our answer today is the same as it was then, in a word, fear. In the summer, we discussed how Team Trump and the western media have worked overtime in the past year of “making China out as an enemy and reinvigorating a New Cold War mentality that has kept investors on the sidelines when it comes to Chinese equity exposure.” The Cold War 2.0 Propaganda flew fast and furious in Q4, culminating in wild (and unproven) accusations of corporate espionage by Huawei (China’s largest telecom company) that resulted in the arrest and detention of the CFO in Canada. If we peel back the onion, there were indeed many cases of IP theft by Huawei many years ago when they were an upstart

company trying to compete with Cisco. However, over the past two decades the technological advantage has moved to Huawei (particularly in 5G) and the truth is that the anti-China rhetoric is more about trying to build alliances around this groundbreaking new telecommunications standard (he who controls the data controls the world). Anecdotally, in a recent visit to see clients in Mexico City, we were greeted as we disembarked the plane into the terminal to dozens of large sign boards sponsored by Huawei, so it appears that the alliances are rapidly being formed and it is likely we will end up with a dual technology system in the future where half the world aligns with the U.S. and half the world aligns with China.

Back to investing, we reiterated last time that “We steadfastly believe that the MSCI inclusion decision will create a Great Wall of Money that must enter the Chinese equity markets over the coming years and sitting on the sidelines is going to become an increasingly expensive decision for global portfolio managers in the years ahead. We believe investors should focus on maximizing exposure to the highest growth sectors of the Chinese economy; consumer, technology and healthcare in particular.” While we know that there will be myriad opportunities in the public markets where we can look to make significant returns, we also know that investors should explore opportunities to participate in the Chinese economic transformation in the private markets (where the returns will be even higher courtesy of the illiquidity premium). We have mentioned in these pages many times that we are so compelled by these opportunities that we have built a team and raised a dedicated private investment fund to capitalize on these tremendous growth sectors. As we said in the original Surprise, “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 goals of adding uncorrelated assets to a portfolio is that they perform in a manner that is different from your core assets (zig when they zag or

vice versa) and one of the great objectives in investing is to find assets that actually deliver that differentiated performance (particularly when markets go down). We had discussed on numerous occasions how there was a surprising resilience of the Frontier Markets relative to other equity markets over the past few years and this was an example of how the theory (different return drivers) and practice (different return patterns) had been more in synch than in some more traditional alternative strategies (like hedge funds and arbitrage). Frontier Markets had been quite uncorrelated in the first half of 2018 but had become more volatile in the summer and had given back all the accumulated excess returns earned in Q1 through the beginning of Q4. The extreme volatility of Q4 across traditional equity markets was a perfect opportunity for Frontier Markets to shine and they did not disappoint overall (there was extreme dispersion) as the MSCI FM Index fell only (4.3%) during the quarter, only half as much as EM and only one-third of the losses in DM. That result was actually not surprising to us given how cheap many of these markets had become and we did see many bargains around the world in these truly developing markets. We reached back to one of our early letters about Sir John Templeton last time, reminding readers that Sir John “always told investors to steer clear of opportunities where everyone is crowding around (the consensus) and seek opportunities where no one seems to be (the variant perceptions). He says the right question is, ‘Where is the outlook the most miserable?’” FM is a target rich environment for misery and there are myriad examples of how the discipline of selling consensus (Argentina, best market in 2017) and buying variant perceptions (Saudi, worst market in 2017) has been a recipe for strong returns over time. Sir John was right again (not surprising) in 2018, as Argentina was the worst market for the year, down a stunning (50.8%) while Saudi was the third best performing market, up 19.2%. We were bullish on Saudi right up until the horrific events in the Saudi Embassy in Turkey on October 2 and said last time how “we will retract our support for that market as we would expect that the global fallout from the murder is far from over,” yet

despite the turmoil, Saudi was flat in Q4. We got quite bullish on Argentina after the peso devaluation, believing that “the support of the IMF should provide a floor to equity valuations at this point.” While the bounce didn’t happen in Q4, down (1.3%), we see significant upside in 2019. As we pointed out in the original Surprise, “In FM (even more than other markets), an active management strategy of rotating capital away from recent winners toward recent losers has produced superior results...” By that strategy (and following Sir John’s admonition to seek misery) perhaps there will be some significant opportunities in Botswana and Panama to go along with Argentina this coming year and we should probably steer clear of Zimbabwe and Jamaica in 2019 as those markets surged 126.7% and 25.8%, respectively in 2018 on inflation challenges. In any event, when looking for opportunities in Frontier Markets we are always reminded of one of our favorite managers who said his secret to making 30% long-term returns over many decades was to buy banks, telephone companies, cement companies and breweries in countries where he wouldn’t drink the water.

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 were a number of tailwinds that appeared to be blowing in favor of real assets coming into 2018, with the most compelling perhaps being that paper assets (stocks) had never been more overvalued relative to

real assets in all of history. We believed (concurring with 13D Research) that a new commodity super cycle had begun in the first quarter of 2016 stemming from withdrawal of excess global production capacity during the bruising Bear Market that began in 2011. We made the case in the original Surprise that with prices of commodities still 60% lower than those 2011 highs, the time was now to swap paper assets for “stuff.” Cue the old adage about how the market can remain irrational longer than the rational investor can remain solvent and after a decent start to the year, commodities simply could not get on track in 2018 and this Surprise turned out to be **Mostly Wrong**. While some commodities (particularly oil) were very strong in the first half of 2018, the Trade War rhetoric and global growth concerns sank prices in the back half of the year, and the GSCI and CRB Indexes fell in line with the S&P 500. The fourth quarter was particularly brutal for the commodity complex as the CRB shed (14%) and the GSCI plunged (24%) as oil’s Q4 collapse punished the GSCI Index given its large energy weighting. To provide a little perspective, we have discussed over the past year 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 alligator jaws finally closed a little bit in Q4, as the law of large numbers finally caught up with the SPX. While the negative returns were worse for GSCI during the quarter, the impact on the smaller base was dampened somewhat by the earlier period losses, while conversely the losses on the S&P 500 were magnified by the large earlier period gains. The S&P 500 cumulative return (since the 2011 commodity peak) slumped from 113% to 83%, while the GSCI cumulative return fell from down (53%) to down (63%), but the gap shrunk materially from 166% to 146%. We said last time that “there are still plenty of returns to capture when those jaws close (they always do...)” and it was nice to see some ground made up by the real assets group.

One of the biggest headwinds for this Surprise was

something we discussed in the summer, that there were emerging signs of slowing global growth (exacerbated by the Trump Trade War rhetoric) that had made the road rockier for commodities (like Lord Keynes says, when the facts change, change your mind) and wrote “As we entered 2018 there was some concern as to whether that strong growth could continue (particularly in China) and while the GDP growth numbers have come in strong, copper and iron ore prices fell slightly in Q1...copper markets could get quite volatile in the balance of Q1 should China continue to pull liquidity from the system.” China did drain massive amounts of liquidity from the financial system and metals prices were incredibly volatile in the middle of the year. Copper had surged to \$3.30 in early June, but then plunged (22%) over ten weeks and just when Dr. Copper was looking sick enough to need intensive care, the central bank cabal huddled at the Jackson Hole Fed meeting, channeled their best Draghi, and promised more of “whatever it takes to keep markets levitating.” Copper responded, jumping 10% back to \$2.81 by the end of September and prices looked fairly stable in Q4 until copper joined the global collapse in December and slid (6.4%) to end the year at \$2.63. The copper stocks (along with other commodity related stocks) struggled in Q4 as the Fab Five, SCCO, GLEN.L, FCX, CA:FM and UK:AAL returned (29%), (12%), (24%), (25%) and 2%, respectively. As we said last time, given the big losses “it appears that Dr. Copper is once again trying to warn us of an impending slowdown in global growth (and likely recession).” Curiously, iron ore prices had begun to strengthen in Q4, rising from \$67 in September to \$71 by Halloween, but then fell like a stone (pun intended) in November all the way back to \$62, before surging back to \$69, to end almost unchanged during the quarter. The swift surge in iron ore after the G7 meeting seemed to have some significant information content. Like the wild prices, iron ore stocks were volatile in Q4, and this Fab Five of VALE, BHP, CLF, AU:FMG and RIO returned (12%), (5%), (40%), 7% and (5%), respectively. As we noted last time “These companies are rebounding from very depressed levels and once again point to the

Value of Value in buying things that go on sale.” Investment opportunities are created when good assets are sold for bad reasons at bad prices and we began to sense last time that there were some babies being thrown out with the proverbial bathwater, as the selling panic accelerated around Thanksgiving. We wrote that “if the rumors we hear about the changes to the Chinese tax law are right, the signal from iron ore prices is likely to trump the signal from copper and we could see a very powerful rally in the metals stocks in the New Year.” We didn’t have to wait long for the rally. Copper prices turned on a dime on January 3 and joined iron ore in a New Year’s celebration that lasted all month, as copper jumped 8.6% and iron ore surged 20% (both rose nearly every day) and the metals stocks followed their lead, partying like it was 2016 (more on that in a minute). The copper stocks were up 10%, 6%, 13%, 38% and 11%, respectively, while the iron ore stocks moved (5%), 6%, 40%, 35% and 16%, respectively (VALE was hurt by a scandal around a mine accident). Something is clearly going on in the industrial metals space and it very much feels like déjà vu 2016 when China poured hundreds of billions directly into the commodity futures markets, but we will have to wait until next time to get the Q1 data and confirm that China is trying to save the world again and that we really did have a Shanghai Accord 2.0 (I guess should be called Montreal Accord since meeting was there this time).

The consensus was absolutely certain that Natural Gas (“NatGas”) was headed straight for \$4 last January, so it was a fairly safe bet that prices would likely fall should any of the elements of the bull case not play out the way investors and traders were positioned (net long). As is usually the case when everyone lines up on one side of the boat, the boat lists the other way and NatGas prices fell below \$3 and stayed there until the end of Q3. We wrote last time about the challenges of trying to call NatGas in the short-term, saying “So much of the speculation around Gas revolves around trying to estimate demand, which we believe is far too difficult to decipher given the extreme unpredictability of the weather.” We have

written on many occasions, “The consensus is too focused on the demand side (weather) in NatGas, while the real story is on the supply side (production technology) where massive technological advances in fracking have unleashed unprecedented supply onto the markets in recent years which has kept a lid on prices.” With not much weather news to speak of, NatGas prices were range bound for most of the year and began Q4 right around where they started the year at \$3. We have seen Gann Dates trigger a new trend on many occasions in the past and right on September 21 NatGas started trending higher, jumping to \$3.26 by the end of October and then exploding higher in mid-November, rocketing to a peak of \$4.84 before settling back down to \$4.63 to end the month. We wrote last time “We will go into more depth of what happened to cause this giant spike in prices next quarter, but there appears to have been some dueling traders (perhaps similar to the John Arnold, Brian Hunter, death match when Amaranth went under) that we are sure will come to light in the coming weeks.” So, it is next time and sure enough there is a story to tell and it does indeed resemble the John Arnold Angler Fish story (JA asked me if I knew what an Angler Fish was, I said sure, why? He said that he was luring another trader in and was going to eat him and the next day Brian Hunter lost \$6 billion dollars...). It turns out there was a relatively small (\$150 million reportedly) asset manager named James Cordier who was using a complex options strategy that goes under water and Mr. Cordier tried to trade his way out of the losses by expanding leverage (and position sizes) and ended up “getting eaten” (or squeezed out of trades) by the professional NatGas traders (there were rumors that JA was back in the markets, but he denied those rumors...). In a tearful (and pretty strange) video posted on YouTube, Mr. Cordier admitted that he had lost all of his clients’ money, said that he was very sorry and (here is the strange part) said he would miss vacationing with those clients in a number of hot spots around the world (we might have left that part out). This story reminded us of the SemGroup debacle in 2008, where a famous KU basketball star, Thomas Kivisto, had

built a huge oil trading operation in Tulsa, OK and got caught in an overleveraged trade when prices spiked to \$161 and then plunged to \$50 over a few short weeks. SemGroup (and all the clients’ money) was wiped out. Such is the life of the leveraged speculator, from rags to riches and back to rags, oftentimes in the blink of an eye. NatGas prices reverted to the mean in December, ended the year at \$3.25 and then kept plunging down to \$2.81 by the end of January, as weather was once again not as bad as forecasters had predicted. We have discussed how NatGas stocks have bifurcated into higher quality operators (EQT, COG) and lower quality operators (SWN, RRC, AR, GPOR) and we posited in the original Surprise that it might make sense to buy the high-quality names in this environment. It turns out that buying anything related to NatGas in 2018 was a dumb idea (not as dumb as taking on John Arnold, but dumb) as all the stocks crashed, the high-quality names were down (40%) and (23%), respectively, while the low-quality names were down (43%), (47%), (53%) and (50%), respectively. The good news for us was that our closing advice in this section all year was that “We have never liked falling knives, so we will watch closely for signs of hitting the floor so we can safely pick up these names by their handles (save the fingers).” It is possible (not probable) that these names have hit the floor (and have even bounced around a little), but we still think it might be too soon to pick up the handles, except for the nimblest investors (those who will sell quickly should fundamentals deteriorate more).

When looking at gold and other precious metals (“PM”) at the beginning of the year there were some segments, like the miners, where prices had become excruciatingly cheap, but we just could not find any catalyst to bring investors back to the PM sector. We actually wrote in the original Surprise that “for the time being, we will stay on the sidelines in the precious metals markets but do believe that sometime soon investors will realize, in the upside-down world of the #NewAbnormal, rock will beat paper, real assets will beat paper assets.” After waiting patiently all year

(in fact, the theme of the last letter was #PatienceIsAVirtue), Q4 was finally the time and we wrote last quarter that “metals got their opportunity as Red October unfolded, and general equity markets began to accelerate downward, investors did finally seek safe haven assets and precious metals (with the exception of silver) were in favor (kind of...) again.” We closed the PM section last time by saying that “given our expectations for continued weakness in global equity markets and the seasonally strong period for gold and the miners in December, we would suggest making an allocation to the sector at these depressed prices as a hedge against other equity exposure.” Finally, we were early no longer, and as the equity correction accelerated in December, the preference for safe havens accelerated as well, and the demand for PMs really jumped during the final weeks of 2018. For the quarter, Gold (GLD) was up 8%, Silver (SLV) was up 6%, Platinum (PPLT) fell (4%) and Palladium (PALL) soared 19% (and was en fuego all year on supply disruptions). Remember the context of these returns is global equity markets plunging (13%), so the protective power of precious metals during market corrections is quite significant (a 21% spread in three months). All that said, despite the strong Q4, the weakness in the first three quarters was too much to overcome; however, as returns for the group were (3%), (10%), (17%) and 14%, respectively. The miners were even livelier in Q4, as GDX, GDXJ (juniors) and SIL were all up smartly, rising 14%, 10%, and 4%, respectively and only the junior silver miners (SILJ) kept getting cheaper, down another (9%). Like the metals, however, the strong Q4 was not enough to overcome the rough first three quarters and the group posted losses of (12%), (14%), (25%) and (33%), respectively. While we reiterated last time that we still expect the total lack of investor interest in PMs is not a permanent development, we did respect the fact that it took a near cataclysmic equity correction to send the metal bears back into hibernation. We continue to see economic signals that support what we wrote in the original Surprise, saying that “we believe that this period will prove to be an historic opportunity to swap fools’ gold for real gold with the benefit of a little

hindsight a few quarters hence.” It did indeed take a few quarters, but it is entirely possible that the new Gold Rush is on as investors’ collective concerns about central banker profligacy are beginning to stimulate changes in behavior and changes in portfolio allocations.

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 will 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...

Looking at the price of Bitcoin during 2018 it would be easy to say that this Surprise was just plain **Wrong**, given that BTC fell from \$14,156 on December 31, 2017 to \$3,743 on December 31, 2018, a (73.4%) decline. However, focusing on just the price over some short period misses the primary point of a developing technology and growing network. If we look at the fundamentals of Bitcoin in terms of adoption rates, increasing usage and network growth it would be hard to argue that this Surprise wasn’t **Right**. So, what should we conclude? Should we call it a draw, or should one criterion take precedence over the other? Let’s try a thought experiment - would the conclusion change if we backed up the start date to June 30, 2017 when BTC was at \$2,537 (a gain of 47.5%), or if we started on December 31, 2016 when the BTC price was \$952 (a gain of 293%)? We would argue that the conclusion does not change at all regardless of the price and that the most critical point is that the *price* of Bitcoin is not equal to the *value* of

Bitcoin (or any other asset for that matter). John Burbank says it best that “price is a liar,” his point being that the price of an asset is simply the level at which two parties are willing to exchange a small amount of that asset, while the value is the inherent worth of the total asset. Clearly it was a devastating year for the prices of crypto-related assets in 2018, as the speculators who bought in during the price bubble in late 2017 folded their hands when prices mean-reverted back toward fair value (the underlying value of the network) in Q1. We discussed this risk last year and said that it would likely be Q2 (or maybe even later) before the fundamentals improved enough to stabilize prices. It turns out that we were not conservative enough and the second half of 2018 was just as volatile as the first half and the qualified custody solution that we believed would attract institutional capital into the space was delayed until 2019. We believed this based on a number of models that determined the value of the underlying Bitcoin network through observations of the number of participants, the active number of nodes in the system and the transaction volumes that were likely to occur with a floor around \$6,000 (reflecting an overshoot below the fair value of \$10,000). We wrote back in Q2 that it appeared that level was confirmed when there were multiple tests of the February lows around \$5,900 during the summer and early fall.

Bitcoin prices had been extremely volatile in Q2 and traded in a very wide range of \$5,900 to \$10,000, but the general direction of the trend had been down over the summer. We discussed last summer, “One of the reasons for the high volatility of Bitcoin is that those willing to transact (not “Hold on for Dear Life”) make up a very small percentage of the overall network ownership today and tend toward emotional extremes of panic buying (surges) and panic selling (crashes).” Curiously, that volatility continued in July and August and then simply vanished in September as BTC prices went eerily flat-line, trading in a very tight range of \$6,300 to \$6,700. In what turned out to be the calm before the storm (like a tornado that comes out of nowhere without warning), October was more of the

same flat-line price action, then suddenly on November 13 the storm erupted. Prices crashed from \$6,359 to \$3,779 in two weeks. In trying to make some sense of the sudden plunge, we wrote last time “So, if everything is so great, what happened over the past few weeks that caused Bitcoin prices to crash from \$6,300 on Halloween (the 10th anniversary of the Satoshi white paper) to \$4,000 at the end of November? Some observers have said that the contentious Bitcoin Cash Fork was a catalyst for the drop, some have posited that Institutions are trying to manipulate the price lower (so they can buy in) and some think that the delay in the Bitcoin ETF approval and the slower than expected development of other use cases has created a supply/demand imbalance in the short-term.” We would argue that regardless of which narrative you prefer, the reality was that the crypto market (and Bitcoin, in particular as the largest crypto) became increasingly speculative in 2017 (a normal feature of the Frenzy Phase of S-Curve adoption), a price bubble formed, the marginal buyer was a price chaser (rather than a value buyer), the price bubble burst and those marginal buyers suddenly became marginal sellers, as they had no “investment” in their holdings and they fled when the losses began to mount. As we wrote last time, “we have seen this movie before (five times) over the life of Bitcoin as each parabolic advance is met with speculation that is then washed out in a subsequent crash (Newton was right).” Since we have seen the movie before, we actually know the ending and the good news is that these corrections do end, and we are likely getting very close to the end of this Bear Market (when we compare to duration of the 2015 period). So, a logical question is why were we so wrong on our estimate of the bottom for this cycle? The simple (but perhaps not satisfying) answer is that our decay factor in our Metcalfe Network Growth Model was too low and we were therefore a bit too aggressive in our calculation of fair value of the network (corrected now). That said, we believe that buying Bitcoin under \$4,000 will likely look like the deal of the decade with the benefit of hindsight ten years hence.

Given all of the volatility in 2018 and all of the “bithater” venom that has been spewed by the likes of Jamie Dimon (fraud), Warren Buffet (rat poison squared) and Charlie Munger (trading dead baby brains...seriously Chuck?), why do we still maintain that blockchain technology and Bitcoin are going to be Big, Really Big? These guys are wildly successful, very wealthy and clearly must know what they are talking about. One thing you have to remember about disruptive technology is that by its very name, it will be disruptive and someone, or some organization(s), must be disrupted. In the case of crypto, it will be the financial institutions that have played the role of trusted third party (aka rent-seeking middleman) and they are quite happy in their monopoly world taking fees for transactions and making the rules that govern the transfer of money and value. What blockchain technology allows us to do is change the nature of money as we know it. The traditional bank-centric model is going away (not tomorrow, but over time) and will be replaced by the Internet of Money (or Internet of Value, or our favorite label the #Trustnet) and value over IP will have the same impact to our traditional view of money that information over IP had on our concept of the value of the internet (yes Paul Krugman, it was more valuable than a fax machine). Something important to remember is that you should never ask an incumbent what they think about a new technology (think horseless carriage makers’ view of automobiles, not members of Henry Ford fan club) as incumbents have the most to lose, but also remember that the more they try and fight the new technology (blockchain and Bitcoin), the stronger it becomes. It is also important to keep in mind that we are still very early in the development of this technology. Bitcoin was born on January 3, 2009 (Genesis Block mined) and in just ten short years, we have seen unimaginable growth. We discussed last time, “Over the course of 2009, the daily transaction volume grew to 150, hit 600 by the end of 2010, jumped to 5,500 by the end of 2011 and then made a quantum leap in 2012 to average close to 35,000 transactions per day and hit one million transactions per month in June of that year. Over the course of the

past five years, that transaction volume has continued to climb to the current level of ten million transactions per month (the virus is spreading).”

In fact, the biggest reason why we would argue that this Surprise is right is that every metric we can find points to the fact that the Bitcoin network is growing quickly, and that adoption and usage are expanding exponentially (following Metcalfe’s Law). Today, there are an estimated 50 million global users of the Bitcoin network and the total wallet count has reached 33.9 million (many wallets are communal so represent many users), up from 23.4 million a year ago. Estimates are that about half of those users are in the U.S. and somewhere around 7.1 million are deemed active users (as opposed to HODLers, those who simply hold Bitcoin as a store of value). Coinbase (the largest U.S. exchange) has over thirteen million users and now has more accounts than Charles Schwab has (the average account size is much smaller, but the company is much younger). Overall, Bitcoin market statistics show that there have been 17,569,363 Bitcoin mined to this point (83.7% of total) and at current prices the network value is \$67.3 billion. Transaction activity has grown very dramatically in the past year as the number of transactions per day has doubled from 160,231 to 353,683 (just shy of the peak in late 2017 at 400k) and the number of transactions per block has doubled as well, up to 2,422 from 1,212 last February. Perhaps the most impressive indicator of the growth in usage of Bitcoin is that the average daily volume has surged to \$6.5 million in 2018 and the total volume of trades in 2018 was \$2.4 trillion, 2.75X the \$870 billion traded in 2017. To put that volume in perspective, MasterCard settled \$4.4 trillion in volume last year and averages \$12 billion a day. It won’t be long until Bitcoin transaction volume catches up to the big payment processors and it appears that our trust in Visa and MasterCard will soon be rivaled by our trust in the Bitcoin network. As the #Trustnet (we coined the term, please use liberally) evolves over the coming years it is becoming increasingly clear that it will be Big, Really Big. Beyond the use cases of Bitcoin that will certainly expand over time, the biggest

opportunity for blockchain technology to make a huge impact on society is through the transition from the Analog Age to the Digital Age. We are convinced that #Crypto assets will revolutionize the entire \$700 trillion global asset base (all things of value), as every asset migrates to digital form (#TokenizeTheWorld). Another impact from blockchain will come from the adoption of blockchain as the next computing platform (the evolution from DOS and iOS) and we believe that all of the most important (and valuable) companies in the Digital Age will run on blockchains. Finally, the adoption of blockchain as the de facto accounting standard (digital ledger technology) will enable market participants to exchange value across the blockchain without a trusted third party, in other words the technology provides that trust and we will have the ability to perform true peer-to-peer exchange of value on a global basis (value without borders). Cryptocurrencies will be the fuel that powers these networks and we believe that Bitcoin will be at the center of this paradigm shift.

There is still a lot of wailing and gnashing of teeth about the volatility of the price of Bitcoin and we have made the case that focusing on the daily price is precisely the wrong way to think about networks and cryptocurrencies. Given that this type of gut-wrenching volatility will be the norm in Bitcoin during its maturation as a technology, we repeat what we wrote in the original Surprise (and have tweeted very often this past year) that “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 also want to repeat a critical point about the nature of Bitcoin as an investment vehicle, “Perhaps the most important issue relating to cryptocurrencies (and Bitcoin in particular) is that these assets are networks and therefore they have unique properties that are very different from

traditional securities.” One of the essential characteristics of Bitcoin is how it provides very strong portfolio diversification benefits (low correlation to traditional assets), so it is very capital efficient. It doesn’t take much, only 1% to 5%, added to a diversified portfolio, to make a significant positive impact on performance. Most investors have the vast majority of their assets exposed to securities (stocks and bonds) that derive their value and returns from a combination of corporate profits, economic growth, interest rates and productivity. Because these sources of return are highly correlated with one another, it is not surprising that traditional investments have high levels of correlation (particularly during difficult periods). Networks, on the other hand, derive their value and returns from a combination of technological innovation, user adoption, network growth and regulatory changes. Because these sources of return are uncorrelated with the traditional sources of returns, adding exposure to networks provides not only an opportunity to benefit from the increase in value of the networks, but also from the diversification benefits of owning an asset that is truly uncorrelated from the traditional core assets.

Over the course of the past five year, we have spent a great deal of time exploring and researching blockchain technology and the implications of its adoption in the global financial system. We have come to the belief that the most important (and ultimately the most valuable) companies in the future will be powered by blockchain technology and that the Bitcoin blockchain will emerge as the primary currency of the Digital Age. As we have now closed and begun to invest our latest venture capital fund focused on the tremendous opportunities in the blockchain technology space, we repeat what we said last summer, “We are excited about having the opportunity to invest alongside these outstanding entrepreneurs who are building the future of money and value as they deploy blockchain technology focused on opportunities in the blockchain space... We are primarily focused on investing in companies that are building out the infrastructure to enable the

to develop and grow in the coming years.” Our team at Morgan Creek Digital has rapidly developed a reputation for being a value-added investment partner (and sought-after deal partner), which allows us to capitalize on our experience, expertise and the Morgan Creek brand to form very attractive partnerships with some of the leading companies in the blockchain ecosystem. We have a simple goal, to build Morgan Creek Digital into one of the preferred providers of investment solutions in the Digital Age.

2019 Outlook

The current 10 Surprises actually provide a good foundation upon which to build our outlook for the New Year. We cover all of the primary asset classes and major markets around the world in the Surprises themselves and we can interject some of our thoughts on how we see different markets playing out over the course of the year. In some cases, those comments may agree with the primary thesis for the Surprise and in other cases there may be some alternative viewpoints that we think have merit in considering how a particular market, region or industry may perform. In the spirit of active dialogue and debate, we focus on being objective about laying out the logic for each element of the Surprises, but also include competing views and discuss events or outcomes that could spoil the Surprise. I recently recorded a really fun interview for Real Vision with Grant Williams where we concluded that, in the end, in investing “nobody knows nothing,” meaning that we can’t (by definition) be certain about anything *a priori*, but that inability to reach definitive knowledge should not dissuade us from doing research, synthesizing information, forming conclusions and taking action. Of course, we will be wrong (likely about half the time), but investing is not about whether you are right or wrong, but about how much money you make when you are right and how much money you lose when you are wrong (risk management). Investing is all about taking intelligent risks (those you are compensated for) and it is very difficult (in fact, impossible) to take risks without having conviction on

an idea. We believe the key to success, however, is to have doubt to go along with that conviction and make sure to have strong opinions, loosely held and be willing to change your mind when the facts, and circumstances, change. With all that in mind, let’s dive into our outlook for 2019.

Surprise #1: #ReturnOfTheKillerDs

Accelerating negative demographic trends, a massive debt overhang and persistent deflation have created an economic environment that is critically dependent on massive liquidity provided by global central banks. The fragile state of global growth was highly vulnerable to the withdrawal of that stimulus and the decision by the Fed, ECB and PBoC to tighten financial conditions resulting in a global recession this year. The resulting decline in global growth and global profits provides stiff headwinds for equity markets around the world and interest rates continue on their downward path providing bond investors with better returns than stocks again in 2019.

The Killer Ds have been haunting the Developed Markets for the better part of two decades, causing risk assets to deliver inferior returns (equity returns in the low single digits) thanks to two significant financial crises that wiped out the all of the gains accumulated during the Tech Bubble (2000) and the Housing Bubble (2008). Traditional central bank liquidity fueled the prior Bubbles, but the Global Financial Crisis (“GFC”) damage was so severe (due to excess leverage in the system) that the Fed and friends (ECB, BOJ) had to dust off some old-school tools (QE, originally used in the 1930s) to try and revive the moribund global economy and stock markets. Starting in 2009, global central banks poured an inconceivable \$12 trillion of liquidity into the global financial system and were able to reinvigorate global equity markets, but have not been able to stimulate any consistent economic growth or inflation. Those who understand the Killer Ds are not surprised by this outcome at all. We understand that

demographics are destiny and the fact that every day in both the U.S. and Europe ten thousand people turn 65 (turns out 65 to 85 year-olds are less productive and spend less than 45 to 65 year-olds) is a massive headwind against high rates of economic growth. No matter how many times the CBs press “control-print” they cannot change the fact that the DM economies are aging at an alarming pace. We also understand that the crushing burden of nearly \$250 trillion (read that number again) of global debt will inhibit the growth of the most indebted economies (Japan, U.S., Europe) for many decades and the novel concept of a deleveraging after the GFC was a quaint idea that was completely impossible (total debt has surged \$75 trillion in past decade). The real problem with the debt is that in the early days (circa 1980s), each incremental unit of debt allowed for a leveraged expansion of GDP, but as we reached the economic tipping point over the past decade, each new unit of debt has generated exponentially less growth and the result was the worst decade of GDP growth in the history of the U.S. (similar in other DMs). Bulls like to point to the fact that the current economic expansion will turn out to be the longest ever, but the problem is that the cumulative gain in GDP is half the average (and, if adjusted for leverage, the gain nearly vanishes). The real problem for the U.S. is that nominal GDP is a simple formula, it is equal to working age population growth plus productivity and since both are easily forecastable to be around 1% for the next decade, the pipe dreams of the Administration to achieve 4% real growth is absurd. Yes, by giving free money to corporations in the Tax Deform Act, you could boost GDP above the 2% level one time, but as the current data shows, the reversion to the mean has already begun and it is highly likely that U.S. real GDP in 2019 will have a one-handle at best (at worst it could be close to 1% and be deemed a recession like 2001). We also understand that the last D, - deflation, is a persistent problem in all the Developed Markets and the Big Three have seen inflation rates plummet in the past couple of quarters to levels well below the 2% target set by the Fed, ECB and BOJ.

The fragility of global markets was on display in a huge way in Q4, as equity markets were in freefall, credit market liquidity was vanishing, global trade was contracting at rates not seen since the GFC and the decision by global central banks to tighten liquidity conditions had resulted in a meaningful contraction of the global money supply. We know that the contraction of credit growth and lending is a strong predictor of recessions and we began to see a growing number of indicators that global growth was falling off the proverbial cliff. Global leading economic indicators rolled over hard in Q4 and headed to levels associated with global recessions, stories about synchronized global growth all but vanished during the quarter (after a huge spurt in the summer). The Global Economic Surprise index crashed and plunged to levels normally associated with economic contraction and the Ned Davis Research Global Recession Model (that sums up all these indicators and more) surged to an 80% probability of recession in 2019 after starting the year at around 15% probability. Everywhere you look there is increasing evidence of a global slowdown whether it was OECD Manufacturing PMIs plunging toward 50 or the German 2019 GDP forecast from the Bundesbank collapsing to sub-1% from more than 2% in June. David Rosenberg, the Chief Economist for Gluskin-Sheff (formally of Merrill Lynch) has a great line about economic cycles, saying, “Cycles die, and you know how they die? Because the Fed puts a bullet in its forehead.” Shots were fired in 2018 as the Fed raised rates multiple times, but even more importantly also reduced their balance sheet (stopped reinvesting bond maturities) and that extra tightening of liquidity is the equivalent of nearly twice as many Fed Funds hikes, so we began to see economic conditions become more restrictive in the second half of 2018. Those rate hikes also resulted in an extremely flat yield curve and when the short-end rose to 2.5% in the late fall, the dreaded inversion occurred (in some segments of the curve) and suddenly the talk of imminent recession didn’t seem the exclusive purview of crazy letter writers and rogue economists. What we

know is that slowing global economic growth is resulting in slowing global profits and that ultimately leads to slowing (read falling) equity prices. The historical relationship between recessions and Bear Markets is very strong and the average recession leads to an average (30%) decline in stock prices (worse when valuations are extreme like in 1929, 1973, 2000, 2008 or likely today). In that type of correction, it will clearly be an easy task for bonds to outperform stocks in 2019, but even if the global economy (and U.S. economy) are able to side-step a full-blown recession, the data appears to show that there is sufficient broad-based weakness to result in a year like last year where bonds slipped past equities in Q4 for the win. The one spoiler to this Surprise is whether China is able to save the world again (like they did in 2016) by flooding the world with liquidity. We will argue in a number of Surprises below that the likelihood of the Shanghai Accord 2.0 scenario playing out this year is quite remote.

Surprise #2: #CupboardIsBare

With global equity markets under significant pressure in late 2018, a broad consensus developed that central banks would come to the rescue again in 2019 (just like they did in 2016 when the normal cyclical recession was developing) and save the Bull Market. The problem is that, like the old nursery rhyme about the grandmother who always wants to make her dog happy by giving her a bone, this time the QE cupboard is bare and global central bankers find themselves in a very precarious position facing a plethora of snarling investors and nothing on the shelves to appease the masses. Lots of jawboning is done, but there is no meat on those bones.

Global central banks have been channeling the nursery rhyme grandmother for a decade throwing bones out with reckless abandon to any dog who looked even the tiniest bit hungry. The end result was a doubling of the global money supply from \$35 trillion to \$70 trillion (read that again, now say it out

loud, seventy trillion dollars...) and a quadrupling of the S&P 500 index level over the same period. In early 2018, Mother Hubbard (collectively the central banks) decided that poor Rover (collectively global investors) needed to go on a diet and they broadcast (well in advance) that by the middle of 2019 Mother Hubbard would start to reduce her collective balance sheet (or so they promised, just like the BOJ promised a decade ago when the B/S was 26% of GDP and now it is over 100%...). Rover was clearly not happy about the potential end to the steady stream of free bones, so there was much snarling and gnashing of teeth and everybody got in on the act of criticizing poor old Mother Hubbard who was simply trying to return to the more frugal ways of her youth. The European media lambasted Super Mario for his commitment to actually stick to his timetable of ending the ECB asset purchase program (never call it QE), the Chinese media implored the PBoC to increase the selection of available bones to include RRR cuts, tax cuts and direct stimulus ahead of the Lunar New Year, and the Tweeter in Chief jumped all over Chairman Powell in December, as U.S. equity prices had slipped into freefall. Given that The Donald had tied his Presidency to the level of the S&P 500, there was no way he was going to tolerate any type of bone reduction while he still had a working smartphone in his hand. The Fed knows very well that they are in a difficult situation as they have been in this precise situation twice before, in early 1930 and again in 1937, when the central bank tried to divest their balance sheet of bonds purchased to support the equity markets. As with all nursery rhymes, we know how the story ends and the current Fed has continually erred on the side of excessive bone throwing when pressed to the edge on choosing between their stated mandates (price stability and employment) and equity prices since they don't like the end of the story (sad puppy dog eyes and growling stomach). Just like in 1937, as soon as equity prices began to fall hard in December, Jerome the Hawk turned to Jay the Dove literally overnight and delivered a Christmas Eve present to global capital markets. Stocks have roared off the December 24, 18 low for the past two months,

but despite all the excitement and expectations that the Powell Pause will remain in place throughout 2019, SPX is still below the Gann Date highs from September (when we contend the new Bear Market began). The real problem for Rover is that the last two times the Fed has paused in their hiking cycle (2000 and 2007) there has been a significant Bear Market in stocks, a sharp correction in economic growth and the Fed has had to cut rates dramatically to reverse the declines. The problem this time is that there is not enough ammunition in the gun for the Fed to cut rates enough to forestall a meaningful correction and recession.

The bigger issue that we see, however, is that it is highly likely that Mother Hubbard's cupboard is bare this time and when the central banks try to go back and conjure up a few more bones to throw in order to appease the snarling Rover, she might find herself empty handed. Given the big run in equities in the past eight weeks, some pundits are declaring that the current environment is just a mid-cycle correction (like 2016) and that a soft landing and reacceleration are easy to engineer with a handful of Scooby Snacks (dog biscuits that gave 1970s cartoon character Scooby Doo (check out YouTube) special energy to solve mysteries and fight bad guys). We would beg to differ insofar as the 2016 turnaround was indeed engineered by the PBoC blanketing the landscape with bones in the second half of Q1 2016 just when it appeared that the world was headed into Recession (global PMIs well below 50) and equity markets were headed for a crash (down double-digits in first six weeks of 2016). However, the huge flood of liquidity was the end of a remarkable \$1 trillion of stimulus put into the economy by the PBoC ahead of the Nineteenth Party Congress (regular pattern every five years to help with elections) while this time there does not seem to be the follow through beyond the normal January injection ahead of the Lunar New Year. Indeed, every year, the PBoC injects a huge amount of liquidity into the banking system in order to support the Red Envelopes custom (monetary gifts are given during celebrations in red, the color of good fortune,

envelopes to loved ones, relatives and friends) and we believe that the record \$84 billion injection in December is being misinterpreted as the beginning of a much larger monetary stimulus plan. The real problem that we see is that while PBoC liquidity rose and total social financing was up sharply, M1 continued to trend downward in both December and January, so we believe that the money transmission mechanism and multiplier effect is having difficulty boosting overall liquidity given the higher levels of debt and the somewhat slower economic growth. When looking at the combined liquidity provided by the Fed, BOJ, ECB and PBoC (Fab Four of CBs) there was a significant turn up in the days after the G7 meeting in early December (Montreal Accord), but after a month-long surge, that group went back to balance sheet reduction mode in January. In response to the CB largesse, total global money supply did rise in December and January (margin debt expanded again) and that can help explain the ebullience in the equity markets, but that growth reversed in February and we would expect to see continued weakness in the months ahead. It's not that Mother Hubbard is a stingy person; she is actually prone to over-feeding Rover. This time, however, we really think the cupboard is bare and investors who are basing their expectations for strong global equity returns in 2019 on Mother Hubbard's cupboard being fully stocked are going to find out the hard way that there really is no meat on those bones.

Surprise #3: #YouAintSeenNothingYet

In 2018, U.S. equity markets were full of exciting rises and terrifying falls, the new consensus is that the equity correction is over, and volatility will return to the New Abnormal levels that we saw in 2017 when the S&P 500 had its lowest volatility (and highest Sharpe ratio) in history. Investors are clearly convinced that the worst is behind them and that it is time to get back to risk-on positioning in the equity markets. Surprisingly, 2019 turns out to be more like 2001 (or worse yet, 1930 or 1937), the roller coaster ride continues,

volatility spikes higher again and the refrain from Bachman Turner Overdrive rings in investors' ears all year.

We wrote in the 2017 Surprises that after the Trump election it was likely that the U.S. equity market would surge to one last Bubble peak in September around 2,800 (the 1929 equivalent move) and then crash over a period of years and deliver us to a period similar to the Hoover Era (we dubbed that Surprise #WelcomeToHooverville). Markets did indeed rally during 2017, surged past our target date (which we thought would correlate with the famous Babson warning) and went just past the 2,800 level in January and then began to correct sharply and we thought that perhaps we had gotten the storyline right even if the timing was off by three months. What we did not anticipate was the creation of a very sneaky way to continue to get QE into the markets despite the Fed having taken themselves out of the game. The Administration agreed to cut corporate taxes in exchange (our theory, not confirmed facts) for companies committing to buy back \$1.2 trillion of stock over the coming year (this is a confirmed fact). In other words, since it was illegal for the Fed to buy stock, let's find a way to have someone else do it (with our money) and voila, #StealthQE was born. The relentless bid for the #FANGMAN names (largest buyback participants being those who got largest tax breaks) drove a nearly forty-five-degree angle ascent from April to October in the S&P 500 and stocks made a new high at 2,940 on September 21. We went on CNBC the first week of October and said that we believed SPX could correct (40%) to (50%) over the ensuing two years in a #2000Redux scenario where 2018 would be like 2000 (down 9%), 2019 would be like 2001 (down 12%) and 2020 would be like 2002 (down 22%). The hosts of the show literally dropped their jaws and said that it was essentially not possible, but when the bottom fell out on the markets over the next few weeks, we were actually invited back a number of times with the final segment of the year being a couple days before Christmas. This is where we posited that the (19.8%) drop was probably a little

“too far, too fast” for the powers that be and we would expect to see some sort of “engineered short squeeze” over the coming weeks in to the New Year. Clearly, we had no idea that the Mnuchin Memo to the Plunge Protection Team was coming three days later and we also didn't expect that upward momentum to last beyond the Bradley Turn Date on January 22 (and said as much on CNBC on January 23). If you step back and actually look at 2000, you see that despite being labeled as the year of the Tech Bubble breaking, the market was actually quite strong through March, made a low in April, recovered steadily through September, crashed through December 22 and then rallied into the end of the year to finish down (9%). 2018 followed almost that exact pattern and finished down (4.4%), following the script that we laid out on CNBC in October (when SPX was up double-digits).

At the intra-day bottom on December 26, the downside momentum was so strong that 99% of all S&P 500 stocks were below their 50dma and the SPX had not been that oversold since 1998, so it was not surprising at all that there would be a relief rally of some kind. In 2001, SPX had fallen (17%) in Q4 through the last week of December and then an extremely rapid 9% upward thrust was created by a similar type of short squeeze and assurances by the central bank and media that the Tech giants like MSFT, INTC, CSCO and MSFT would “return to normal” (the standard refrain after a Bubble bursts) any moment. The problem was that as EPS came in much weaker than expected and Q4 GDP turned out to be much slower than anticipated, the bottom fell out of the markets in early February and fell (30%) through the middle of September (right after the tragedy of September 11). From that point, a concerted intervention by the Fed (and other central banks) to stabilize the markets triggered an epic short squeeze that rallied the market all the way back to down only (12%) for the year. Including a 20% rally in April, there were three 20%+ Bear Market rallies during 2001 and each one of them was deemed to be the end of the Bear Market and a resumption of the glory days of the 1990s. However, every subsequent

downturn based on poor economic data (economy slipped into recession in Q1, but not called until Q3), poor earnings (earnings got really bad as there were huge reversals of prior period EPS for bad mergers and the famous CSCO inventory write-off) and an emerging debt crisis (culminating in the infamous WorldCom and Enron debacles) was actually worse. The trip resembled the analogy we used on CNBC in December, like a rubber ball bouncing down a set of stairs, each bounce is higher (kinetic energy), but the final resting place is a bad spot (much lower). Pundits are already declaring the end of the Bear Market and saying that things are all clear on the horizon, but we believe (strongly) that Bachman-Turner Overdrive (“BTO”) was right and *“You Ain’t Seen Nothing Yet.”* The problem with rallies that are short, and steep, is that they tend not to be durable as they are much more technical and liquidity (read short squeeze) driven than fundamental and new flows driven. To that point, we saw a great chart recently that showed a massive alligator jaws opening up between the SPX price and the flows to ETFs. Historically, there has been very high correlation (logical) between these two series as when new flows are positive prices should likely rise and when new flows are negative prices should likely fall, but so far in the current rally since Christmas, the ETF flows have continued downward while the SPX headed skyward. Faithful readers know our view on #AlligatorJaws, they always close.

Interestingly, this late December rally into the New Year pattern has only manifested a few times in history and the last two were in 2000 and 2008 and in both cases the recovery off the interim bottom failed at technical resistance and then prices headed meaningfully lower from there in a very short period of time. The technical resistance line for this rally is 2,815 (quite interesting given it being right near our Hooverville level) and the SPX bounce has now failed at that resistance on three occasions and is sitting just under that level today. Clearly, there is some possibility that equities could break through the resistance and surge on to achieve new all-time highs, but we remain skeptical that there is enough

fundamental support for that to occur. In fact, the Q4 earnings season was quite disappointing and, even worse, more than 70% of companies gave negative guidance for Q1, as there is more and more evidence that global trade challenges are resulting in global profits challenges and that does not bode well for global stock prices. The other problem for the bullish recovery argument is that U.S. equities remain wildly overvalued (contrary to Jim Cramer’s protestations to the contrary that stocks are cheap, I guess math is not his strong suit) on every measure from P/E, to P/E 10, to Q Ratio, to regression model to market cap/GDP indicator and the average level of overvaluation is 84% (implies a 46% drop to Fair Value). The facts are that SPX has only been more overvalued than today 2% of its existence and the P/E ratio has only been higher once since 1871, you guessed it, in 2000. So, JC can say that stocks are not as expensive as they were in the craziest period of overvaluation in history, but he cannot say they are cheap (period). When we look at small-caps, the data is crazier (and scarier) as more than one third of all the companies in the Russell 2000 don’t make money and the non-financial Debt/EBITDA ration is over 5X (up from flat in 2009). When this Bubble bursts, it will truly be BTO-esque as you really ain’t seen nothing yet when it comes to this level of insanity in terms of allowing zombie companies to exist. This is why we expect the debt crisis stage of this #2000Redux in 2020 to be even worse than 2002 (and that was a really bad year...). The real problem for investors though is that as bad as the near-term outlook for equities is, the long-term outlook is worse (much worse). Based on the GMO and Hussman models, the expected return for U.S. equities over the coming decade is negative in real terms (around zero nominally) and given that investors expect to make 6% real (closer to 10% nominal) from stocks there are going to be a lot of holes in people’s portfolios in the coming years. To make a 10% return in the S&P 500 over the next decade, the math works out to needing a (55%) decline immediately in order to compound at 10% going forward (and SPX level of 1,192). No one thinks that is even possible, let alone likely, and that is

precisely why this Surprise could be so profitable. As Michael Steinhardt was so fond of saying (and so good at monetizing), “all of our big money came from variant perceptions that turned out to be right...” As for timing, the \$OEXA200R has clawed its way back from the abyss level of 15 in December and has crossed back into the Yellow Zone (between 50 and 65) which signals a 50% hedged posture. There were three failed attempts to get back above 65 into the Green Zone (fully invested) in February, so caution (and hedging) continue to remain the best positioning.

Surprise #4: #GhostsOfGann

The #FANGMAN stocks (FB, AMZN, NFLX, GOOGL, MSFT, AAPL, NVDA) drove the equity Bull Market in the first half of 2018 in their quest to be the first \$1 trillion market-cap company (AAPL won), but as we forecast last year, #FANGsBite (it’s their nature) and the second half of 2018 was far less pleasant for the tech behemoths as the Bear Market took hold. Investors desperately want to believe that the Tech Bubble 2.0 hasn’t popped and that new all-time highs are ahead, but the Financial Time Table developed by W.D. Gann in 1909 says that 2019 will be a crisis year and the big Surprise would be that the tech darlings resume their decline and #FANGMAN really does turn into Hangman.

As we have discussed above, our #WelcomeToHooverville Surprise from two years ago hypothesized that Trump Fever (like Hoover Hysteria) would push the S&P 500 to 2,800 before a fall correction would ensue. Should the Administration and Congress make similar policy errors to then (seems like they are doing their best to hit that not-so-great standard), that correction could morph into a full-fledged crash. After reviewing the Gann Financial Time Table in more detail, we observed that the next crisis was predicted for 2019 (not 2017 as we originally projected) and 2017 looked eerily like 1927 in terms of solid returns and complete

lack of volatility. One of the biggest problems for investors’ returns over the long term is they have a predilection toward chasing the hot performer and waiting until after the upward move has occurred to rush in and buy. Nowhere was that behavior more acute in recent years than in the #FANG stocks as investors were collective net sellers of the FANGs from 2009 (when they were incredibly cheap) through 2017 (after they had rising by multiples with help from QE). It only started really piling into the stocks in the months right before the peak in September of last year (bad habits are hard to break). The constant stories of which of the FAANGs (including AAPL) would become the first trillion dollar company pulled even more dumb money into these stocks (insiders were happily selling to them at record levels). Just as AAPL won the crown (AMZN joined the club for a few nanoseconds too), some really bad earnings results from FB and NFLX pricked the Bubble and FANGMAN turned into hangman. Over a trillion dollars of market cap was wiped out in a matter of weeks in Q4. It was very much a déjà vu all over again (to quote the oh so quotable Yogi Berra) and the constant refrain of the financial media that Value investing was dead (just like in 2000) and that these Tech Growth stocks could be bought at any price (just like they said in Tech Bubble 1.0 in 2000), turned out to be bad advice (again). One of the 2018 Surprises was that #FANGsBite (it is their nature, pun intended) and while it took a while to materialize, when the jaws closed, the pain inflicted was quite significant. The rallying cry for buying the FANGs are the four most dangerous words in investing: “it is different this time.” True believers make a case (errantly, but vehemently) that these new age technology companies are not subject to the normal growth and margin erosion of other businesses (despite the fact that the data clearly shows that they are) and that paying triple-digit P/E ratios is an intelligent decision to own these monopoly-esque businesses. The problem is that we have heard this refrain before (about CSCO and MSFT in 2000) and we know that all businesses, no matter how great they appear to be, are subject to the laws of capitalism and competition. When the

inevitable slowing of growth and profits occurs, those multiples will decline, and returns will be poor (witness AAPL making only 8% CAR over past seven years as the revenue growth rate fell from 30% to zero).

When it comes to timing for the next leg down in the Hangman trade, there are a number of signs that point to mid to late March being a transition point. The first is that there is the Gann Date on March 22 that has oftentimes been a challenge for Bubble markets (most notably 2000) and that date also coincides with a Bradley Turn date a few days before on March 17. If we throw in the ancient “Beware the Ides of March” warning, we may need a whole bunch of luck of the Irish to enjoy St. Patrick’s Day this year. On top of the confluence of those events that look like a recipe for March Madness, we can throw on another analysis by the folks at the Elliott Wave Forecast that shows a rebound toward 2,800 on the SPX (similar to the resistance we discussed above) followed by a very severe Z-Wave down that would take the markets to new lows, well below the December trough. Beyond the technical indicators and cyclical triggers, the biggest reason for why the FANGMAN infatuation is likely to end soon is that the Tax Deform induced sugar high in earnings is wearing off rapidly. In the end, stock prices are the discounted stream of future cash flows and the multiple that investors are willing to pay for any security is impacted by the growth rate of future earnings. Simplistically, when things are going well and EPS estimates are rising, multiples expand and stock prices rise and when things turn down and EPS estimates start falling, multiples contract and stock prices fall. The amount of money given to the FANGMAN companies by the Tax Deform bill was truly shocking (actually sickening when you realize that it was highly correlated to the amount of lobbying dollars given to Trump) and while those windfalls clearly made 2018 earnings look great, and enabled massive buybacks that made the EPS look even better (better living through financial engineering), those windfalls are not recurring and the reality that 2019 will not be as robust as 2018 is

beginning to sink in. Revenue growth estimate beats in Q4 were down dramatically and fell to levels (49%) that we haven’t seen since 2008 when the percentage fell to 43%. Remember that the game of revenue and EPS “beats” is a complete farce as companies reduce the estimates continually leading up to the reporting date, so they are assured of beating the estimate. When companies actually miss, it is a really big deal. We describe the modern earnings process in these few basic steps: 1) take bar off high jump stand, 2) place bar on ground, 3) jump over bar, 4) claim you are the high jump gold medalist. The whole process has turned into Kabuki Theater, but the investment industry (and the algos) continue to trade around earnings reports as if they mean something. The real problem for the FANGMAN complex is that only a couple short months ago the estimates for 2019 EPS growth in the Tech sector were in the mid-teens and today they are hovering close to zero (and will likely go negative soon). We have never seen a time when an earnings squiggle (track of earnings estimates over time) has turned down ninety degrees (like Tech just did) and there hasn’t been a meaningful correction. So, while the media trumpets the huge bounce off the December bottom (and the bounce has been huge in some cases) by the FANGMAN group, remember that all of them (a couple just barely) are still under water since the peak in September. Slowing economic growth, slumping earnings growth, falling profit margins and extremely tough comps should make the coming months and quarters a very challenging environment for equities in general, and the FANGMAN group in particular, so sell the rip (#STFR) is likely to be a far better strategy than buy the dip (#BTFD) this year.

Surprise #5: #RaceToTheBottom

The #KillerDs have left Developed Markets governments with no choice but to engage in continuous devaluation of their currencies to try to ease the burden of excessive debt loads and hence have created a long-term “race to the bottom” in global currency markets. As one might

infer from the cartoon, there are only losers in this race and therefore the key to participating in the game is to be the first loser and force the other countries to chase you down the hill. The dollar has been in secular decline for decades but took a breather from being the pace car in the 2018 FX race but will resume its leadership (in a manner of speaking) position in 2019.

The dollar's secular decline began in the 1980s when DXY peaked at 160 at the end of Reagan's first term. Over the next decade, DXY was hammered and the dollar lost half its value relative to other currencies before starting a cyclical recovery from 1995 until 2001 where DXY rallied from 80 to 120. In the wake of the tech wreck and the debt crisis of 2002, the dollar had a second cyclical crash as DXY fell all the way back to 70 by 2009 and with the tailwind of QE the Greenback has staged a third cyclical rally, which peaked at 103 in the weeks following the Trump election in 2016. With DXY hovering around 96 today, we expect that a third cyclical crash is likely coming and the extension of the secular decline will see lower lows for DXY in the future. When broadening out the comparison set to a Trade Weighted Index (DXY is dominated by the euro and yen), the dollar has returned to the previous peak of 130 that was reached at the end of 2000. Given how many similarities we see with the current economic and market environment to the end of 2000/beginning of 2001, we would expect the dollar to run into formidable resistance at current levels. Interestingly, everyone agrees (survey data confirms) that the dollar is overvalued, and the actual survey data haven't been this strong in favor of the dollar since 2006 (right before the last downturn). That said, curiously, despite the agreement on the overvaluation, long dollar is the most crowded trade in the Merrill Lynch Global Fund Manager survey, so the wisdom of crowds is trumped once again by herd behavior and FOMO. The chart of DXY looks like it is making a large rounded top given that the Index peaked on November 12, 2018 at 97.5 and has unsuccessfully tried to breach that level five times in the past three

months and has now settled back toward 96. However, despite the apparent overhead resistance, there are still lots of dollar Bulls who make the case that the spring is coiling for a breakout in DXY back to the 120 levels of 2001.

One of the primary reasons we are less optimistic on the dollar than other market observers is that we see the erosion of the petrodollar system reducing the demand for dollars globally and the rapidly ascendant position of the RMB in the global oil trade makes us wonder if the days of USD hegemony are numbered. As a recent example, Russia recently sold \$100 billion of USD reserves and replaced them with euros and yuan and surprisingly, to most, the ruble has been the strongest currency globally in 2019 (perhaps a bit of make up after being pounded when oil prices fell in Q4). China is also working hard all over Asia and Africa to get other countries involved in their Belt and Road Initiative to trade directly in RMB, as opposed to using an interim step of translating into USD. That trend will only accelerate as China expands the recreation of the original Silk Road trading routes and further solidifies their place in the multi-polar currency world. There are a handful of other reasons why the dollar is likely to continue to weaken going forward: 1) being approximately 20% expensive on Purchasing Power Parity globally, 2) when the U.S. current account deficit reaches 3% as it has recently, the dollar has historically peaked and headed lower, 3) interest rate differentials will fall given the Powell Pause and that will attract global capital to other currencies and 4) the Trump Administration's goal of enhancing U.S. trade is entirely dependent on a weak dollar strategy and his constant drumbeat on social media is that the dollar is too strong. Elliott Wave analysis also confirms the likely downward trend in DXY as there has historically been around a 16-year cycle between peaks in the dollar including 1984, 2000 and now 2016. Supporting data comes from many global bank forecasts such as SocGen, who are forecasting a significantly stronger euro and yen in 2019, which would mean a weaker USD and lower DXY. The technical patterns are also supportive of

further weakness as the rebound from the April low to the December high in DXY was a perfect Fibonacci 0.618 retrace of the decline from late 2016 to early 2018 and the likely next wave down would take DXY back below 90. Finally (and perhaps most importantly), the Big Mac Index (price of a McDonald's Big Mac sandwich) shows that the dollar is overvalued against every global currency other than the Swiss franc (given our recent experience buying coffee in Zurich, we can confirm the craziness of the Franc) and is significantly overvalued relative to the EM currencies like the Brazilian real, Chinese yuan and Russian ruble. Just for perspective, the range of prices for the Big Mac globally are a low of \$0.60 in Venezuela (if you could actually find one) to \$6.44 in Switzerland versus \$3.99 in Chapel Hill, NC.

Surprise #6: #BlackSeaRising

Oil did indeed revert to a normal seasonal pattern in 2018 and followed our Surprise outlook almost to the letter, rising toward \$70 in Q1, averaging around \$70 for the first nine months of the year and then collapsing back to just under \$50 in Q4. Record production in the U.S. led by unprecedented output coming out of the Permian basin pushed the oil markets out of supply/demand equilibrium. The world is now swimming in a black sea of oil. Despite consensus that OPEC cuts will restore balance to the markets, supplies keep piling up in 2019 and the risks of a demand shock push prices back into a lower range of \$35 to \$55 for the year.

2018 was a textbook seasonal year for the oil markets as the price followed that standard calendar pattern to the letter, albeit with some extra volatility on both the up and down moves. Our oil Surprise from last year nailed both the seasonal pattern and the higher volatility over the course of the year (as we joked above, maybe we should open up an oil trading hedge fund). For the better part of 2018, oil market participants kept getting increasingly bullish about prices and as WTI ticked slowly upwards during the

first half of 2018 the media grew to a fevered pitch and by summertime there were lots of pundits calling for \$100 oil. What everyone seemed to miss was that U.S. production was accelerating at an unthinkable pace and just to give some perspective on how badly everyone estimated supply growth, the EIA (supposedly the experts in energy and those who have access to the best data) was off by an astonishing 2.4 million bpd in their year-end forecast for 2018 production when final results were compared to their year earlier projections. Let that sink in for a second, they were wrong by 2.4 million bpd. Remember, that was on a base of just under 9.8 million bpd, so close to 25%. If the government agency tasked with keeping tabs on the energy markets can't estimate supply to the nearest 25%, what hope do the rest of us have at forecasting production numbers? Just to make matters worse, the new forecasts for 2019 show a range of 5 million bpd from the low estimate to the high estimate of potential domestic production for year-end 2019 (12.8 million to 17.9 million), so it appears that when you actually have no idea what is going to happen, rather than say you don't know, you simply double up on your estimates (which, unfortunately throws your credibility to the wind and makes the forecasts fairly unusable). The primary problem for the EIA (and everyone else trying to make intelligent estimates of future supply) is the "permania" going on in the Permian Basin is causing things to occur that simply haven't ever occurred before. The application of technology to the multi-zone reservoirs outside of Midland, TX has made the claim that the Permian was the Saudi America of the West look less like a pipe dream than it appeared a decade ago.

The other problem for prices in 2018 was that OPEC did a lot of jawboning about cutting production, but actually ramped production all year, so they could ceremoniously cut at the end of the year back to original production levels. With the huge surprise from the Permian, the oil markets shifted from deficit to surplus at the end of Q3 and prices couldn't help but go down (and go down a lot in Q4). The strange thing about the oil markets is that all of the

participants constantly think they will achieve perfect balance between supply and demand and when you look at the EIA charts for 2019 demand/supply balance they magically come right back together in Q1 (after blowing apart in Q4) and stay aligned over the course of the year. There are a number of problems with that scenario: 1 - assumes perfect compliance by OPEC members on the cuts (unlikely), 2 - assumes no increase in production from Iran and Venezuela which are struggling with sanctions (possible), 3 - assumes no unplanned outages from suppliers (unlikely) and 4 - assumes much lower production increases from the U.S. than what currently appear to be occurring (in the early data). Part of the optimism (double negative, less U.S. production means lower supplies and higher prices) on supply comes from the decline in the U.S. Rig Count in the second half of 2018 and the expectation that domestic production growth will disappoint. We will take the over on that bet given how the early January and February production numbers have pushed the U.S. total to 12 million bpd (again, unthinkable even a few years ago). Another potential glitch in the system is that Russia agreed to the OPEC cuts at the meeting, but the early data show no slowdown at all in Russian production. A final wrinkle comes from the sudden interest by the U.S. in Venezuela politics and the support of the opposition party leader (opposed to Maduro), which seems curiously timed given that Venezuelan oil production has collapsed by more than (60%) over the past three years and they just happen to have more oil reserves than Saudi Arabia (go figure). When you put all this data together, the trouble for oil bulls is that total oil demand growth in 2019 is projected to be 1.4 million bpd (and is likely to be lower, as global growth slows) and non-OPEC supply is forecast to rise (too conservatively we think) by 2 million bpd, so it will take a very large cut by OPEC (greater than the 1.2 million bpd offered) to reduce the large inventories and lower prices. As evidence of the balance challenge, despite all the talk of cuts and rising demand, the January crude inventory build was the highest in history.

Despite all of the data that supports the case for stable to lower oil prices, the price action in the first months of 2019 have followed a very different path, straight up. WTI prices were in absolute freefall in December, plunging (20%) from \$53.25 on December 4 to \$42.53 on December 24 when something very strange happened, prices stopped going down and made a V-shaped recovery. The reason it was so strange is that the OPEC cut announcement had not helped oil prices at all (maybe investors were waiting to see if cuts actually happened in January?) and clearly the supply/demand data had not improved, but in a similar pattern to February 2016, oil prices just made an about face from one day to the next. What we learned later in 2016 was that China had pumped a huge amount on monetary stimulus into the economy and encouraged speculation in the global futures markets, particularly oil and iron ore, and those prices recovered sharply from what appeared to intractable declines. Since December 24, WTI prices have surged all the way to \$57 (slightly above what we believed would be the upper end of the trading band for the year) twice in recent weeks before settling back toward \$55. That is a 34% jump in oil prices in about ten weeks, which is unusual to say the least (normal seasonal pattern is down (5%) in January and February), and is particularly puzzling given that the supply picture has gotten worse and the demand picture has gotten more uncertain. Clearly, something else is happening in the oil markets and we can recall that the Chinese futures buying in 2016 pushed WTI prices from \$26 all the way back to \$53 from February to June, so we should remain vigilant in trying to gather intelligence on whether the Chinese speculators are back (we do see a similar trend in iron ore and copper). One piece of evidence that supports the China story is that margin debt exploded higher in January and that is usually a sign of increased speculative activity by retail investors in China. We won't get the futures data until the end of the quarter, but we are sure to have a lot to write about on this topic next time. We are always willing to change our minds when the facts change and we mentioned in January that there were three potential spoilers to this

Surprise: 1 - China tries to save the world again like in 2016, 2 - the speculative long futures positions in oil coming into 2019 were lighter than average and 3 - the normal inverse relationship between the dollar and oil (usually if dollar falls, oil rises and vice versa) had become more complex and there were some scenarios where a much weaker dollar could push WTI prices higher than we anticipated. It could be a wild ride in the oil markets this year and we will have to stick to the discipline of strong opinions, loosely held, to make solid returns in 2019.

Surprise #7: #BackInTheSaddleAgain

The Abenomics one-two punch of a weaker yen and fiscal stimulus has not generated the desired level of inflation and GDP growth in recent years, which has led investors in Japan to question the efficacy of the program (and the quality of the leadership...). Kuroda-san keeps up the consistent refrain familiar to Cubs fans saying it will all work out “Next Year”, but foreign investors have stopped believing and even domestic investors’ patience in wearing very thin. After another year of missed targets in 2018, there are signs of traction in 2019, the Nikkei rises smartly to 25,000 and Japan once again becomes the Land of the Rising Stocks.

The Abenomics plan was fairly simple: weaken the yen, increase fiscal spending and reduce regulatory burden on corporations. This three-arrow approach was designed to stimulate economic growth, increase inflation, enhance corporate profits, revive animal spirits and boost the equity markets. In the early days after Abe-san’s election in 2012, the efforts of Kuroda-san to weaken the yen dramatically was enough to achieve some economic growth and a lot of equity market appreciation and things were moving along quite nicely until the second two arrows proved much more challenging to fire than originally anticipated. Without the fiscal spending to drive economic expansion and without increased innovation and entrepreneurship from less governmental red tape, the

three-arrow plan turned into a one-trick pony and every time the yen strengthened due to geopolitical or economic turmoil, the benefits of Abenomics would fade and the Japanese began to tire of the “wait until next year” mantra coming from Tokyo. In essence, without the other reforms, the game in Japan has been for the BOJ to create rapidly rising money supply and to purchase JGBs and ETFs in an effort to support the capital markets. The wrinkle in the plan was that GDP slipped back toward recession, CPI slipped back toward deflation and the yield curve stayed stubbornly flat (not allowing banks to make any money). Just like in the U.S. and Europe, the Killer Ds continue to cause stress in the markets. Very poor demographics, a truly crushing debt burden and ever-present deflation zap the energy out of the Japanese system, which makes it challenging for investors to extract the types of returns that would normally accrue to companies that are making the highest profits in the developed world and are selling at bargain basement prices (P/Es stay low because profits are growing so quickly). After a volatile year in the FX markets in Japan where the tug-o-war between the flight to safety capital (yen stronger) and Kuroda Kash Machine (yen weaker) led to not much progress, we expect that Japan will reassert their leadership position in the global race to the bottom and the USDJPY and Japanese equities will rise. Given that overall corporate profits in Japan are so strong and that the Nikkei valuations relative to history are so low, any sort of yen weakness should trigger a very strong run in Japanese stocks. Supportive of the fundamental story is the fact that on the first day of trading in 2019, there was a big hammer signal in the Japanese candlestick chart of the Nikkei and that type of indicator usually portends strong returns going forward. The Nikkei Index has risen steadily over the early part of 2019 and is on the verge of regaining the 200dma, which would be another signal that Japan has indeed returned to being known as the Land of Rising Stocks.

Surprise #8: #TheNeverEndingStory

Despite trillions of ECB stimulus (don't call it QE) Europe simply can't get any traction in terms of economic growth. It appears that the "Japanification" of the Eurozone continues a pace and the EU seems to be trapped in a never-ending story of a lost decade of growth. With an over-levered banking system compounding the problem, there appears to be little chance that Europe can get back on the right track. They say it is darkest just before the dawn (or when you're about to exit the tunnel...) so the surprise in 2019 would be that European equities prove (with a few other markets) that you make the most money in investing when things go from truly awful to merely bad.

Many years ago, Byron Wein (the Morgan Stanley strategist at the time), quipped that Europe was well on its way to becoming a nice Open-Air Museum (his nice way of saying they were an economic basket case) and it appears that things really haven't changed much in the past couple of decades. One of the most interesting things about Europe is how the economy (and interest rates and equity markets) are following the well-worn path that Japan pioneered a decade ago. The reason for the strong similarity is that the demographics of Europe are precisely ten years behind the demographics of Japan (in terms of an aging population) so it shouldn't be surprising that many of the trends that we observed in Japan a decade ago (falling rates, moribund markets) are being repeated on the continent today. The "Japanification" of the EU will continue, as this never-ending story plays out over time and the result (looking back) will likely be a lost decade (or more) of growth and the end result will likely be something that closely resembles Byron's original prediction. One of the biggest challenges for the EU right now is that there are trillions of dollars of government bonds with negative yields (would you really pay one of the EU governments to hold your cash?). We can't decide which is worse, the fact that someone (anyone) thinks

that negative yields is a good idea, or that in a country like Switzerland you have negative yields all the way out to twelve year maturities. Perhaps you could make the case (as we said maybe you could, but we can't) that negative yields are a good idea for the shortest duration assets (cash substitutes) to try and force dis-saving and hoarding and encourage investors to put their capital into the economy rather than in the bank, but long-duration bonds with negative yields is simply a signal of very significant economic problems (high rates signal economic strength and low rates signal economic weakness). So, here we are having witnessed the ECB pour \$4 trillion (remember that a trillion is a dollar a second for 31,710 years) into the EU economy and all we got for it wasn't even a lousy t-shirt, but the lowest growth in many decades and a round trip back to recession given the recent slowdown. Curiously, European investors anticipated this economic downturn last summer, as there were huge outflows from European equities in June and July in advance of the dramatic sell-off in the second half of 2018. Even more curiously was that the relative valuations of European stocks versus the rest of the world had reached new lows, so there was some impetus for value-minded investors to actually run toward the apparent bargains, but the smart money proved to be smart enough to avoid the value trap that was the Euro Stoxx 50.

From that point, everything turned dark in Europe (like heading back into the tunnel on a circular track) and leading economic indicators collapsed across the continent, PMIs sunk rapidly toward the contraction zone of 50 (Germany and France just broke below), government bond spreads in the PIIGS blew out as Draghi warned he would end the ECB asset purchases in December (we keep asking the rhetorical question of who is the logical buyer from the buyer of last resort?), bond yields in the Core countries collapsed back toward zero as buyers rushed for the comfort of bunds and OATs and GDP came in close to zero across the region for Q4. As one might expect, European stocks were taken to the woodshed in Q4 and the financials were punished even more severely

as rumors began to fly about the failure of key institutions across the region like Deutsche Bank in Germany and Société Générale in France. In a normal world, when economic growth falls, profits fall and stock prices fall and given that is the situation we find ourselves observing in Europe today, one might naturally question why this might be the time to look to buy EU stocks. While it is true that the economic data looks universally poor in the region, the valuations of assets in the region have never been more attractive versus the rest of the world (particularly relative to the U.S.) and we know from history that economic growth (and profit growth) are quite cyclical, therefore the time to buy is when things look the darkest. We can't argue that the opposite was true last summer when what appeared to be a value was actually a value trap, and it would be logical to ask what has materially changed to turn the situation around? We won't make the argument that a lot has changed dramatically for the better, but we will make the suggestion that it is possible that Europe has entered the zone where things are so bad that they become good investments. The mantra in EM is that you make the most money when things go from truly awful (happens all the time in EM) to merely bad. It may be that the EU has bumbled its way to that tipping point of being truly awful and it won't take all that much improvement to get to merely bad (doesn't have to get good) and with prices at such deep discounts, there could be some places where the returns are quite strong in 2019.

As you might expect, European equities bounced along with everything else in the world (the "everything recovery") after the PPT intervened on December 24 and the Euro Stoxx 50 has basically gone up almost every day this year and just re-claimed the 200dma, so there could be some continued momentum in this story. Finally, our call on Greece being the word last year was about as wrong as you can get, as Greek equities (particularly the banks) plumbed new lows all year. We wrote last time, "The only reason to waste any more ink on the Greek equity market is that it is now nearing the 'down 95%'

zone where historically it has been tough not to make money buying assets at completely washed out levels (unfortunately, this also brings to mind the old joke - do you know the difference between down 90% and down 95%? You've lost half your money...)." When talking about things going from truly awful to merely bad, it may finally be the case that the Greek banks won't need another bailout and there could be some big moves if that does turn out to be the case. One of our favorite hedge fund managers has a great saying, "With every investment, we get richer or wiser, never both." We said last quarter, "We feel like we have gotten a Ph.D. this year in Europe" and it may turn out that all that schooling pays some dividend in 2019.

Surprise #9: #GoYourOwnWay

Emerging Markets began 2018 with a strong rally that looked like it was ushering in the "Decade of Dominance" that we discussed in last year's Surprise, but when the Fed raised rates more aggressively than expected and Trump declared a Trade War with China (and attacked NAFTA), the wheels came spinning off and EM suffered one of the worst absolute and relative performance years in a long time. Despite the poor price performance, the fundamentals of many of these developing markets have never been stronger and the EM equity markets buck the global downward trend and march steadily higher during 2019.

I always find it interesting that just about anywhere I travel around the world the background music is most often 70s and 80s music from the U.S., whether it is a cover band in a Shanghai club, Muzak on the speakers in the Zurich airport or on the radio of the Uber (couldn't do Lyft international) that picked me up last week in Mexico City. It is fitting that we use 70s music for the titles of a number of our Surprises this year. So, with the melodious voice of Lindsey Buckingham of Fleetwood Mac echoing in our heads, let's set the course for what promises to be the most controversial of the 2019 Surprises. Most investors are still stuck in the mindset that the Developed Markets set the tempo

for the rest of the global markets and that the Emerging Markets, in particular, always follow and could never lead on the dancefloor. In decades past that mindset was not without justification (and merit), as much of the EM world was simply a supplier of cheap raw materials (Russia, Brazil), or cheap labor (China, India) to the Big Three (U.S., Europe and Japan) and the fortunes of the suppliers was inextricably linked to the fortunes of the consumer-focused economies. One of the manifestations of that dynamic was that the majority of global GDP was produced by the Developed Markets and that dynamic really didn't change much until after the recovery began following the debt crisis that resulted from the Tech Bubble popping from 2000 to 2002. Beginning in 2003, the percentage of GDP that came from EM doubled over the next decade from 20% to 40% and the share of incremental annual growth in GDP began an increasing trend that is likely to continue for many decades. Curiously, despite the growth spurt in EM, the ability of EM companies to go public and increase the equityization of the countries (ratio of equity market cap to GDP) was limited to a small number of countries like the BRICs and Korea, Taiwan and a few others. The DM equityization ratios hit record highs thanks to ebullient capital markets and huge demand for stock from retirement accounts of the Baby Boomers. We see this relationship between the "haves" and the "have nots" changing rapidly and low equityization countries like Argentina (0.08) look very attractive as investments today, while those with very high ratios like the U.S. (1.49) look less attractive (in terms of expected future equity returns). Another important point to make here is that the lyrics that Buckingham was singing to his former girlfriend (and bandmate) Stevie Nicks also apply within EM, as not all EM countries are created equal and there are myriad opportunities to find strong recovery stories (Brazil, Russia, Turkey, India) alongside more challenging economic stories (Poland, Indonesia, Taiwan, Mexico), so a one size fits all portfolio approach is less effective than a more targeted allocation strategy.

After the painful correction in 2018, Emerging Markets are very cheap on both an absolute and relative basis (compared to DM) and while the overall EM Index is not quite at all-time lows in valuation, there are many areas within EM that are extremely cheap and full of bargains. When we overlay the relationship of straight value with earnings power, the attractiveness of EM rises even more given that forward earnings have begun to recover, and the forward P/E is 25% lower than the DM levels. The worst part of the correction in 2018 was the damage inflicted by currencies, as EM Central Banks were forced to match the Fed's early 2018 rate hikes (to defend their currencies) and the FX translation losses were quite significant in a number of markets like Argentina, Turkey and South Africa. As a whole, the EM FX Index is now at all-time lows and appears to provide a nice tailwind for EM investors in the coming years as global rates normalize. The Powell Pause (should it hold) also bodes well for EM FX and would actually be a central bank put that doesn't expire worthless. Looking around the world, EM had the lowest valuations (by far) of any major market in 2018, but with the big losses in Europe, the EU P/E has dropped into the EM neighborhood (as has Japan for a different reason, the EPS growth has been so strong), so it is only the U.S. now that stands out as the overvalued market globally. If we adjust for cyclical earnings growth (the Cyclically Adjusted PE Ratio or CAPE ratio), the data is even more compelling. While CAPE is a poor short-term timing tool, it is a fantastic indicator of long-term expected returns and from these levels, EM should compound in the low double-digits. DM is likely to limp along in the low single-digit range over the next couple of decades (the Decade of Dominance has begun for EM). Just for perspective, the U.S. CAPE (34) is nearly 3X the average EM CAPE (12) and all of that difference has accrued since 2009 when the U.S., Europe and EM all had CAPE ratios of 15 (the QE Era has been very lopsided in terms of price influence). Complementing the long-term indicators, these are a couple of short-term indicators that show why now is the time to buy EM equities and move away from DM

equities. The relative performance of EEM:SPX tends to run in seven-year cycles and the last cycle favored DM from 2011 to 2018 and that ratio also just made a significant double-bottom just like the one it made in 2002 when EM was about to begin its most significant run of relative outperformance in the past three decades. There is also a seasonal pattern to EM equity returns and the majority of those returns are concentrated in the February through May period, so there is likely to be some tailwind in the near term for EM investors. There are three strong technical indicators flashing “buy” in EM; 1 - the correction from the peak last January was a perfect Fibonacci 0.618 decline to strong support, 2 - EEM just reclaimed the 200dma and 3 - the EM Index is about to have a Golden Cross (50dma crossed up through the 200dma).

Back on October 3, we were invited to be on Fox Business and the host took our best ideas and came up with the #CARBS acronym (since our top ideas were from China, Argentina, Russia, Brazil and South Korea) and we made the case that while the Keto diet is good for the body, your portfolio needs CARBS. Since then, those ideas have nicely outperformed the SPX and we expect the positive relative returns to continue in 2019 given superior fundamentals, cheaper valuations and an FX tailwind. China looks the most attractive given the severe Bear Market in 2018 and the fact that the Chinese government has shifted from withdrawing liquidity from the system to injecting liquidity back into the system. When you look at the long-term trend in the Shanghai Composite Index (“SHCOMP”) you see that the last two times that the index hit this upward sloping support line there were very significant rallies (both in excess of 100%). On top of the strong valuation and technical support, the Chinese government is cutting taxes significantly for all citizens (doubling the personal exemption) to put money directly into the hands of people to increase consumption. Importantly, this move is just another in a long line of programs to speed the transition from a manufacturing economy to a consumer economy and

that should provide additional tailwinds for equities. Stocks are incredibly cheap in China and buying them at these levels have provided investors with strong returns over time and, finally, the MSCI inclusion decision means that every global portfolio manager must increase their exposure to A-Shares so that is a sector where we see very significant potential in 2019. The one potential spoiler in China is that PPI has fallen back to zero and we know that when PPI turns negative it has been very challenging for EM equities (China in particular) so we will have to keep a close eye on this indicator in the quarters ahead. Argentina was smashed hard by the peso devaluation in 2018, as the economic recovery proved more elusive than President Macri had anticipated. Stocks fell hard in line with the devaluation, investors fled in Q3, but we believe this period will turn out to be a tremendous buying opportunity with the benefit of hindsight in the coming years. Russia has been everybody’s whipping post ever since the U.S. elections and 2018 was no different. Add in pressure on the ruble from the collapse in oil prices in Q4 and there were very few buyers for Russian assets. To be greedy when others are fearful has always proved to be a winning strategy, so we expect that scooping up bargain in Moscow will prove to be equally profitable today. Brazil has been a great story of resilience and recovery as the emergence from a massive political corruption scandal and deep recession created a huge opportunity to buy cheap assets in the fall and make very meaningful returns in Q4 (while the rest of the world crashed). We still like the Brazil story and believe that the real will strengthen given the current account recovery, but the move was very fast in late 2018, so it might make sense to selectively buy any dips here rather than going all-in today. South Korea is really a developed market (but it stays in the EM Index because asset managers lobby MSCI to keep it, so they don’t have to give one-third of their asset back) and it is really a play on the supply chain for U.S. tech and, in that regard, we feel like it is not a pure play EM investment. That said, the innovation in Korea is very strong and there are a number of must-own tech companies that should provide strong returns in the coming year. As

a reminder, carbohydrates are high-energy foods and they can lead to crashes in the body when taken in excess doses, and CARBS are high-octane investments that will definitely be volatile, but we believe they will be better equity exposure than DM for investors in 2019 and over the next decade as well.

Surprise #10: #DazedButNotConfused

The commodity Bull Market started to emerge in early 2018 as global economic growth seemed strong, demand was picking up and the supply rationalization from the 2015 downturn was creating pricing power, but the Trump Trade War in April dropped an anvil on the Bull's head and put an end to the strength in real assets for the year. Commodities begin 2019 near record low valuations and fears of a global recession continue to put downward pressure on prices. With that said, there is mounting evidence that the cure for low prices in commodities is low prices, China is buying again, and it turns out that the next best thing to a Bull Market is a Boar Market.

Commodities began 2018 at the cheapest valuation relative to financial assets in history and the stage seemed set for the theme of #GetReal (assets that is) to play out well. Sometimes the best-laid plans just don't work out and 2018 was one of those years as most commodities ended up getting smashed, with the worst damage done to all things industrial, particularly oil and the metals. However, in a classic worst-to-first move in early 2019, the commodity complex came out cooking with gas and surged to the head of the leader board in January and that strength continued into February as well. Oil was the star performer in the New Year, but the metals surged as well and even the long beaten down Ags got in on the action and showed some resilience (after being collateral damage of the Trump Trade War in 2018). When we look across the commodity complex today, we see that valuations are fantastic on both an absolute and relative basis, as many of the individual commodities are trading very near to their all-time

lows (Ags actually at all-time lows). There is growing evidence that China is back playing directly in the commodity futures markets as we have seen moves in oil, copper and iron ore that very much resemble the straight up moves from 2016. Interestingly, the copper miners and iron ore miners anticipated the moves in the metals and turned nicely in the last week of December (maybe they got some of the PPT cash) and the metals followed in the last week of January and have been on a tear over the past month. One of the things we have seen over the past decade is as goes China, so goes commodities and that correlation was very strong during the 2018 decline, so the recent upward rebound in the SHCOMP is likely a very good omen for the CRB and GSCI Indices. The data shows that China is still the largest consumer of just about every commodity on the planet (and is likely to be for the foreseeable future) so it is not surprising that the uncertainty about China stimulus and trade tensions put a damper on commodity returns last year. The removal of some of that uncertainty in the New Year is fueling the fire that has been lit under commodity markets. Another challenge for commodities last year was the complete abandonment of the reflation trade by global investors that reduced the demand for commodity stocks, but as investors tiptoe back into the cyclical and reflation oriented names in 2019, we have seen some spectacular moves in commodity-related stocks (funny how increasing demand leads to increasing prices, it is almost like there is a formula for that). Elliott Wave analysis also supports an emerging commodity cycle over the next few years and if that new cycle develops into another super cycle (like the 2000 cycle) this Surprise could yield some significant returns. 2019 is the Chinese Year of the Boar (pig) and we are reminded of a fantastic quote from Stan Druckenmiller (channeling Soros) that says "The way to build superior long-term returns is through preservation of capital and home runs... When you have tremendous conviction on a trade, you have to go for the jugular. It takes courage to be a pig." Ben Graham said something similar and we will paraphrase here, "to produce superior returns you need two things, cash and courage." We said last year

that #CashIsKing and cash did indeed beat 95% of all other investments, but in the Year of the Boar, it is time to have courage to step up and go for it in those areas where you have conviction and have an #Edge.

Bonus Surprise: #DownButNotOut

2018 was a very challenging year for the price of cryptocurrencies, as prices fell dramatically from their December 2017 highs. Many observers and commentators have decried the “death of crypto” (again) and the Bithaters were out in force saying that the days of magical internet money were over. Contrary to that popular opinion, all of the reasons that cryptocurrencies (particularly Bitcoin) emerged as an alternative to fiat currency in 2008 are even more important today. Global usage and adoption of cryptoassets continued to grow in 2018 and the big Surprise in 2019 turns out to be that Bitcoin is not only not dead, it is actually #JustGettingWarmedUp.

“Everybody has a plan until they get punched in the mouth,” was the famous quip from Mike Tyson at the peak of his boxing career (when a single punch from Iron Mike sent many opponents home in just seconds) and 2018 was the year when the members of the cryptocurrency community got collectively punched in the mouth and looked to be down for the count (according to the Bithaters like Jamie Dimon and Warren Buffet). As Bitcoin prices fell (73.6% during the year (and (83.4%) from the December 15 peak), there were constant pronouncements that Bitcoin was dead and stories titled “RIP Bitcoin” and the growing consensus was the cryptocurrency had seen its peak, the Bubble had popped, and it was all over for this nascent technology. In fact, there have been an astonishing 339 stories written over the past decade declaring the death of Bitcoin (amazing that someone has chronicled all of them), but the funny thing is that Bitcoin is not only not dead, by just about every measure you can name (we will name them in a minute) is stronger today than it has ever been. The key to remember here is that you have to separate the

true cryptocurrencies (like Bitcoin) from the other cryptoassets (utility tokens) when thinking about who will and will not get up after the knockout blow. We have reminded readers on many occasions that the vast majority of tokens/coins that are referred to as crypto are not cryptocurrencies, as they are not intended to be a store of value or a medium of exchange. Rather, they are a means of crowdsourcing seed-stage venture capital (that has a 90% loss ratio) with some really negative features in that the utility tokens provide no ownership of equity or cash flow in the underlying business, no governance (no one to call if the promoters take the capital) and no covenants or rights to protect investors (yes, there should have been some more planning before the ICO craze took off). The handful of cryptocurrencies (like Bitcoin) don't suffer from these problems and provide investors with a means of participating in a currency system outside of the global fiat currency system. Cryptocurrencies emerged after the Global Financial Crisis as a response to the need for “sound money,” currency that would be free from the manipulation and devaluation of the global central banking system. The creator of Bitcoin (Satoshi Nakamoto) actually created the genesis block (first transaction) of the Bitcoin blockchain with the headline “Chancellor Alistair Darling on brink of second bailout for banks” as a statement about the political corruption in the current monetary system and the need for a monetary alternative that exists outside of the current system. On Bitcoin's 10th birthday in January, it was ironic that the headline in The Times (UK) was again related to the global debt crisis (and risks to the global monetary system) when it said, “University debt: credit crunch looms as debt spirals.”

If we step back and objectively look at the decline in the price of Bitcoin over the past year, we would see that concluding Bitcoin (or crypto more broadly) is a failure simply based on the price declining would be equivalent to saying that your home was worthless because the price of lumber declined sharply (it fell more than (50%) in 2018) or that your plumbing was worthless because the price of copper collapsed (it fell

20% in 2018). The constant din of crypto-doubters saying that Bitcoin is dead flies in the face of the Lindy Effect, which states that the longer something survives, the longer it is likely to live. Bitcoin is steadily climbing the Lindy Ladder from digital collectible to reliable store of value to widespread medium of exchange and ultimately to full global money, but only the passage of time will bring each milestone into view in the coming years. We are still in the infrastructure phase of building out the Internet of Value (or the Trustnet, as we like to call it) and we are still very early in the protocol phase where we will set the stage for the development of deeper capital markets and liquidity. Ultimately, we are also setting the stage for decentralized applications (DAPPs) that will provide ubiquitous access to crypto and create the tipping point in any technology whereby it eventually becomes invisible (like how you don't see cell towers any more or think about how you get Wi-Fi). The way to think about Bitcoin adoption is like a tree of lights, we are moving up the trunk today and while there appears to be a meaningful number of lights on the trunk, when you look up into the branches you see that adoption and usage are about to explode as we move farther up into the canopy. We have compared crypto and Bitcoin adoption to the Internet in 1995. When we think about how technologies are inculcated into societies, we know that the move slowly up the base of the S-curve - the innovators and early adopters experiment and improve the technology and then there is an explosive move up the knee of the curve as the early majority and masses begin to embrace the new technology as well as all of its use cases and applications. When we look at every metric for determining the growth of the Bitcoin network, from number of active wallets, to the size of the average daily transaction, to the number of daily transactions, to the average daily volume to the number of nodes in the lightning network (second layer payments network), we see that the Bitcoin network has never been larger, more robust and more active. One of the problems today is that casual observers are myopically focused on the losses from the peak in 2017 rather than looking at the fact that in every year of Bitcoin's

existence, the low for the year is higher than the previous year and the total value of the network continues to grow. Remember that if you were the worst Bitcoin trader in the world and you bought the exact high and sold of the cycle trough, you still make more than 4X your money in each of the three Bear Markets. Bitcoin is truly #JustGettingWarmedUp and those that accumulate ownership in the network at these levels will look back many years from now and be very happy with the returns generated by that decision to focus on the *value of the network* rather than the *price of an individual Bitcoin*. Finally, we know that over time the value of a dollar has been dramatically diminished by inflation (and the Fed), but a Bitcoin will always be worth a Bitcoin no matter how many dollars, yen, euro or RMB it converts to and owning "sound money" over the coming years is likely to prove to be one of the very best investments one can make.

Summary

Summarizing our overall asset allocation view, we continue to believe that the environment for risk taking is sub-optimal and that the best investment strategy is to 1 - harvest gains and reduce exposure to long-only equities, 2 - increase the quality of all portfolios (sell the junk), 3 - increase exposure to hedged strategies and 4 - raise exposure to lower volatility assets like private investments and real assets. Our perspective since early last year has been that #CashIsKing and despite the strong start to the equity markets this year, we maintain that 2019 will play out like 2001 and cash will end up preserving capital in a negative year for equities. We wrote last time, "It appears to us that after a very long QE-induced slumber, some rationality is returning to the markets and the wild ebullience driven by the solid earnings induced by the steroid shot from Tax Reform is tempering, while the bite of the Fed's higher rates, which has been felt all around the globe, is finally causing a 'catch down' here at home." Unfortunately, rationality is fleeting in the New Abnormal and with the Mnuchin call to the PPT on Christmas Eve,

irrationality is back in style in the early weeks of the New Year and the OHNO of December has turned back into FOMO in February. We expect that chasing these rallies will prove to be a costly exercise for investors this year. Repeating what we said last time, “We continue to see increasing evidence that the negative trends related to the Killer Ds (bad demographics, too much debt and persistent deflation) are accelerating again within the Developed Markets; therefore, investors should be prepared for a decade of below average returns (likely 3% for bonds and closer to 0% for equities).” We also discussed last quarter how the real problem for investors today is that the path to a long-term return of zero for equities will likely consist of a steep drop during the first five years (order of magnitude, down 40% to 50%) and a subsequent recovery over the following five years. We are not convinced that the nearly (20%) drop in Q4 was “the big one” and just like 2001 had three 20% rallies on the way to losing double digits for the year, we expect 2019 to follow a similar path. We still contend that the next decade will resemble the 2000 to 2010 period (or worse, the 1930 to 1940 period, #WelcomeToHooverville) and while we don’t see a repeat of the Global Financial Crisis (not as much leverage in banking system) we still see 2018-2020 looking very much like 2000-2002 (2018 was awfully close to 2000 already). In that type of challenging investment environment, focusing on margin of safety will be the key to preserving and growing capital, in other words, the return of Value investing. Investors will need to remain disciplined about rotating capital from overvalued assets toward undervalued assets and those that have the fortitude to do what is hard (especially when it is hard) will be richly rewarded. One of our favorite sayings is “life is better outside the comfort zone” and now is the time to do what is uncomfortable, to sell what has been working (technology, FANGMAN, small-caps and leverage) and buy what has been lagging (real assets, healthcare, quality, emerging markets and long treasuries/cash) not only to preserve capital during the volatile environment, but also to accumulate buying power to scoop up the discounted assets after they go on sale.

We understand that there are investors who feel that they just can’t imagine the idea of not owning public stocks (just to beat the dead horse one more time, we recommend as low an exposure as you can stand). We would weight global equity portfolios in the following manner; Emerging Markets > Europe > Japan > U.S., reversing the current capitalization-weighted profile in the MSCI ACWI Index (U.S. dominated and very little EM exposure). Emerging Markets are likely to remain volatile, but we have even more conviction that the long-term growth prospects and equity market returns in the Developing Markets will outpace Developed Markets from these levels, and we also believe that the economic power of EM will continue to grow as the New World Order emerges (actually the Old World Order which was dominated by Chindia for most of the last 2,000 years). We have said often we believe that “MSCI will eventually have to change 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).” This reallocation will be a tail wind for EM equities going forward (as we are seeing in China this year). History has always been kind to investors with the discipline (courage and patience too) to invest in the inverse of capitalization weighting (skate to where the puck is going, not to where it is). One example, making the decision to underweight Japan in 1989, when it was the largest country weight in the EAFE Index and being rewarded insofar as the Nikkei has been essentially flat for the past 30 years. When allocating risk capital across global markets today, given above average valuations in the public markets (actually extreme overvaluation in the U.S.) we continue to believe that the best place for investors to earn outsized returns will be in the private markets (small LBOs, China Growth Capital, Venture Capital, Energy & Natural Resources, Real Estate). We have said for the past couple of years that “Whatever weight an investor has been comfortable with historically for private investments, double it (that is, if you liked 20%, raise to 40%).” Thinking about other

diversification moves to make in portfolios, the raw data shows that now may be the best time in history to reallocate capital from financial assets (paper) toward real assets (rock) and we see compelling opportunities in commodities today. Finally, as you might infer from the themes of our last few letters, we believe that building an allocation to cryptoassets and digital securities (particularly Bitcoin) will add significant value to portfolios (in terms of both return enhancement and correlation benefits). We expect to be writing much more about these assets in the coming years as a new financial system emerges in the Digital Age. Our mission at Morgan Creek has remained consistent since our inception (and our tagline reaffirms our commitment), to help our clients be disciplined in their investment process, proactive in preserving and growing their wealth and always focused on integrating *Alternative Thinking About Investments* in to their portfolios.

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: *Keto Diet is Great For Your Body, But Your Portfolio Needs #CARBS* and *Channeling Byron: 10 Potential Surprises for 2019*. 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 website www.morgancreekcap.com.

We are also a proud sponsor of The Investment Institute, an Educational Membership Association for Institutional & Private Investors and Managers in the Southeast. The date of the next program is **May 20–21, 2019** at **The St. Regis, Atlanta, GA**. For more information on how to become a member 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
Chief Executive Officer & Chief Investment Officer

This document is for informational purposes only, and is neither an offer to sell nor a solicitation of an offer to buy interests in any security. Neither the Securities and Exchange Commission nor any State securities administrator has passed on or endorsed the merits of any such offerings, nor is it intended that they will. Morgan Creek Capital Management, LLC does not warrant the accuracy, adequacy, completeness, timeliness or availability of any information provided by non-Morgan Creek sources.

General

This is neither an offer to sell nor a solicitation of an offer to buy interests in any investment fund managed by Morgan Creek Capital Management, LLC or its affiliates, nor shall there be any sale of securities in any state or jurisdiction in which such offer or solicitation or sale would be unlawful prior to registration or qualification under the laws of such state or jurisdiction. Any such offering can be made only at the time a qualified offeree receives a Confidential Private Offering Memorandum and other operative documents which contain significant details with respect to risks and should be carefully read. Neither the Securities and Exchange Commission nor any State securities administrator has passed on or endorsed the merits of any such offerings of these securities, nor is it intended that they will. This document is for informational purposes only and should not be distributed. Securities distributed through Morgan Creek Capital Distributors, LLC, Member FINRA/SIPC

Performance Disclosures

There can be no assurance that the investment objectives of any fund managed by Morgan Creek Capital Management, LLC will be achieved or that its historical performance is indicative of the performance it will achieve in the future.

Forward-Looking Statements

This presentation contains certain statements that may include "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements, other than statements of historical fact, included herein are "forward-looking statements." Included among "forward-looking statements" are, among other things, statements about our future outlook on opportunities based upon current market conditions. Although the company believes that the expectations reflected in these forward-looking statements are reasonable, they do involve assumptions, risks and uncertainties, and these expectations may prove to be incorrect. Actual results could differ materially from those anticipated in these forward-looking statements as a result of a variety of factors. One should not place undue reliance on these forward-looking statements, which speak only as of the date of this discussion. Other than as required by law, the company does not assume a duty to update these forward-looking statements.

No Warranty

Morgan Creek Capital Management, LLC does not warrant the accuracy, adequacy, completeness, timeliness or availability of any information provided by non-Morgan Creek sources.

Risk Summary

Investment objectives are not projections of expected performance or guarantees of anticipated investment results. Actual performance and results may vary substantially from the stated objectives with respect to risks. Investments are speculative and are meant for sophisticated investors only. An investor may lose all or a substantial part of its investment in funds managed by Morgan Creek Capital Management, LLC. There are also substantial restrictions on transfers. Certain of the underlying investment managers in which the funds managed by Morgan Creek Capital Management, LLC invest may employ leverage (certain Morgan Creek funds also employ leverage) or short selling, may purchase or sell options or derivatives and may invest in speculative or illiquid securities. Funds of funds have a number of layers of fees and expenses which may offset profits. This is a brief summary of investment risks. Prospective investors should carefully review the risk disclosures contained in the funds' Confidential Private Offering Memoranda.

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.

HFRI 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.

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.

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.



MORGANCREEKCAP.COM



MORGAN CREEK CAPITAL MANAGEMENT