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INVESTMENT PERSPECTIVE 2Q 2019

NEWTON AND SELF-DRIVING CARS

'I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.

-Sir Isaac Newton

If you woke up on December 22, 2012 with a mild sense of relief that the Sun had indeed dawned, you probably harbored a vestige of respect for first millennium Meso-american astronomy. Sunset on the prior eve marked the last day of the Mayan long-count calendar – the end of time. That notable error notwithstanding, the Mayans were expert astronomers. With only the naked eye, they calculated the solar year more accurately than the much later Gregorian calendar. Their almanacs predicted the precise appearance of Venus as both a morning star and an evening star. The Spanish explorers first disparaged the Mayans' inability to construct right angles. It took 20th century archaeologists to comprehend that the temples were out of square so they could be oriented to the sunrise and sunset at the equinoxes. For all that, however, their genius was confined to rigorous measurement and record-keeping. They were the prototypical data-driven culture. But they did not divine the true mechanisms. Perhaps they would have had an Enlightenment had they survived ecological collapse. Another 1000 years would elapse till Kepler and Newton (with telescopes) could ascertain the planetary orbits and universal gravitation.

The current U.S. economic recovery - at 120 months - has now exceeded every expansion of the 20th century. [1] As you have probably read, rigorous measurements of past cycles indicate that we are on the precipice of a recession. It does not really matter exactly how it is worded — whether described as 'long-in-the-tooth,' 'living on borrowed time' or the completely vapid 'late cycle.' To compare this analysis to Mayan astronomy does a disservice to their skill. At least the Mayans understood they were observing a regular system. By contrast the global economy has only a passing resemblance to the regularity of the observed universe. The models devised to understand and predict its trajectory have singularly failed. Much of what passes for market forecasting in the general financial media seems to rely on pattern recognition where patterns are illusory. Perhaps the better physical analog to financial markets lies not in the stars but in the most mundane of our daily routines – the daily commute.

Anyone who has visited Pittsburgh or Phoenix in the past several years has come back in thrall to the sights of autonomous vehicles test piloting the streets. Listening to press releases from the automakers and their technology vendors, it seemed as if self-driving vehicles were close to mass adoption. [2] Then came a few accidents, and the grand visions seemed to morph into vaporware. Ford's CEO recently admitted that Ford had "overestimated the arrival of autonomous vehicles." Apparently the first 80% of driving through sensors and software was straightforward.

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What has vexed the services in the real world are the so-called 'edge conditions.' That is shorthand for saying that the real world is full of very messy imperfections – anticipating the actions of cyclists and pedestrians who don't conform to the model behaviors. Sound familiar? Maybe the model system for financial markets is more akin to traffic in an urban setting – broadly understood, but full of irrational behaviors. So, the next time you read a financial prognostication that starts with some historical pattern, it's worth considering whether the series of interest is more like a planetary orbit or predicting the movements of cars on a freeway.

Our investment approach has evolved over the past several years to account for the complexity, noise and inherent instability of global markets and economies. Negative real rates on safe government bonds, extraordinary monetary policy actions, the breakdown of the inflationary response to labor tightness are just a few of the many conditions that are squarely part of our reality – but that were only remotely fathomable to an expert looking forward from 10 years ago. We have tried to adapt our investment approach to the current reality of unforeseen and unforeseeable conditions. Our goal is to read the financial traffic patterns with a humility and awareness of their fragility. More importantly, we are focused on building portfolios that are more resilient to the unexpected and less dependent on a particular historical pattern asserting itself.

—T. Brad Conger, CFA
   Deputy Chief Investment Officer

[1] National Bureau of Economic Research. https://www.nber.org/cycles.html
[2] New York Times. N. Boudette. July 17, 2019. https://www.nytimes.com/2019/07/17/business/self-driving-autonomous-cars.html?searchResultPosition=2&login=google