

The Economy and Markets:

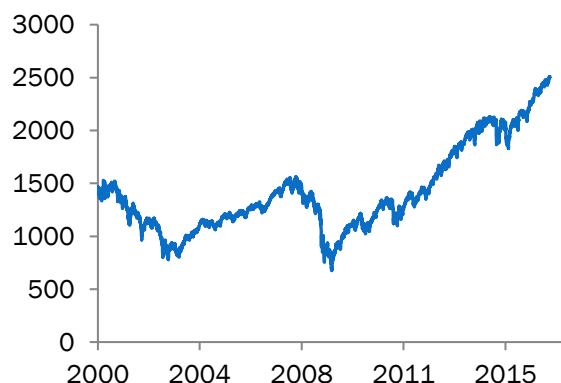
The steady-return, low-volatility upward march of the U.S. stock market continued this past quarter. The S&P 500 closed Sept 29 at a value of 2,519.36, which is 3.96% higher than its value of 2,423.41 on June 30. The S&P 500 finished off the quarter with a second straight daily closing that hit a record high.

At Madison Financial Research, there are two broad risk metrics that we tend to keep an eye on (bearing in mind that no one metric, or even two metrics, can

Markets at a Glance (Sept 29, 2017)

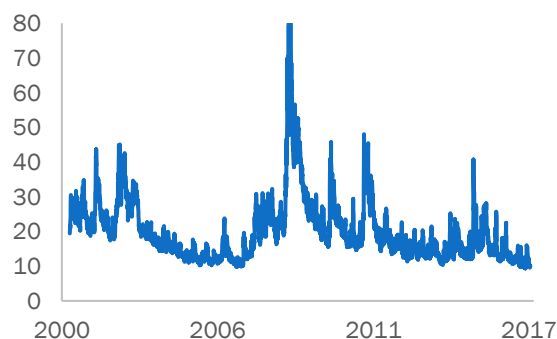
S&P 500	2,519.36
Dow Jones	22,405.09
10 yr. U.S. Treasury	2.33%
3mo U.S. Treasury	1.06%
GDP Growth (last quarter)	3.1%
Unemployment Rate	4.4%

S&P 500 Price Level



alone tell the entire story), both of which we have discussed in detail in past newsletters.¹ The first is the VIX risk measure. The VIX measure comes from the price of options traded on the S&P 500, and is a market-derived measure of the expected variability of price movements in that index. The VIX ended the quarter at a level of 9.51, down from 11.04 last quarter, and close to the all-time low for this index of 9.31. For reference, the long-run average of the VIX is around 18, and its evolution over the last few decades can be seen in the figure below. The VIX measure effectively reports how much the value of the overall market tends to “move around.” As you can see in the figure above that illustrates the price level of the S&P 500, stock prices have not been moving around all that much lately – they have been primarily just calmly and quietly moving upward. The VIX is effectively just a reflection of this. It is important to note that the VIX, while it has been relatively tame for the past year or two, is subject to change quite quickly. If you again refer to the VIX figure, notice how quickly it increased during the onset of the financial crisis. The VIX is derived from the options market (the details are well beyond our scope here), but one direct implication of the low VIX is that “insurance” on the broad market, in the form of put options, is comparatively cheap to acquire right now.

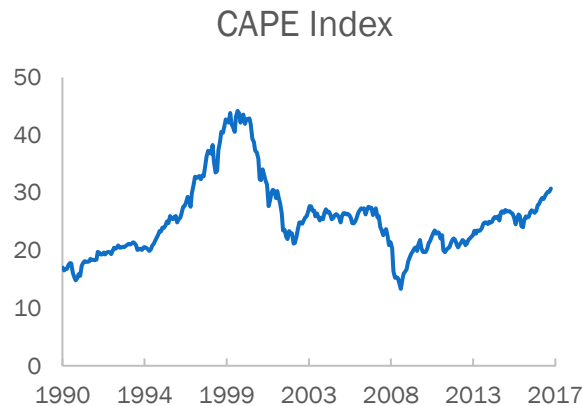
VIX



¹ All past newsletters, and some other useful resources, may be downloaded at <http://www.madisonfinancialresearch.com/Resources.html>.

In contrast to the VIX, the CAPE measure (CAPE is an acronym for “cyclically adjusted price to earnings”) is a measure of the “value” of the stock market – which is a notion for which it is very difficult to assign a measurement. The CAPE measures the price of the S&P 500 index compared to its earnings over the past decade. When the CAPE measure is high, long-term (7 – 10 years) future

stock returns tend to be low. When the measure is low, long term future stock returns tend to be high. The average for the CAPE measure is also around 18 or so. Over this past quarter, the CAPE has been consistently above 30 – a value it had not breached in fifteen years. As we mentioned in the last newsletter, there is some debate among professionals about the best way to compute CAPE (the debate is about the various ways to compute the earnings portion of the ratio). Regardless of the method of computation, by this measure the market is relatively expensive by historical standards, and this tends to imply

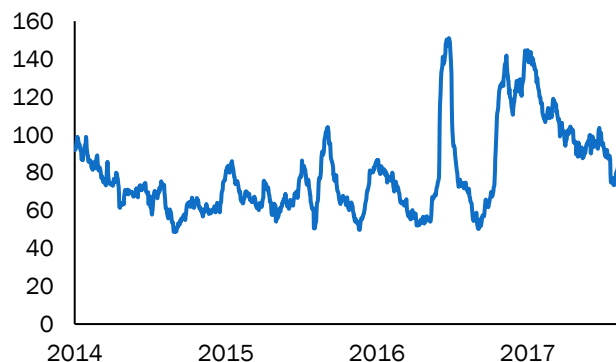


lower than expected returns going forward.

Taken together, the VIX and CAPE seem to imply a stock market that returns less than its historical average, while not moving around too much. To us, this seems a reasonable interpretation that best fits with the empirics. However, it should be clearly noted: market forecasts, whether they employ the VIX, CAPE, or otherwise, are notoriously difficult to provide with any accuracy. The VIX in particular is prone to rapid changes, which tends to make a mockery of well-thought-out forecasts. Here at MFR, our favorite such forecast is by Yale economist Irving Fisher – a true giant in the field of macroeconomics, praised by the likes of intellects as substantial and varied as Joseph Schumpeter, James Tobin and Milton Friedman. Neither the VIX nor CAPE had been invented yet, but in early October of 1929, in the New York Times, Fisher pronounced that “Stock prices have reached what looks like a permanently high plateau.” The Dow Jones index was on its way to over 380 later that month...and then on to lose about 90% of its value over the subsequent 3 years. Please don’t take this as a forecast for our current situation! But like all financial practitioners should, do take it as a reminder that humility goes a long way.

Politics has been at the forefront of much of the news recently. Like so many people that we interact with, we wish this weren’t the case. But with the political fate of health care (which comprises over 20% of GDP) thrust into so much uncertainty, with geopolitical concerns regarding North Korea escalating, and with Congress set to try to substantially alter the tax code, there

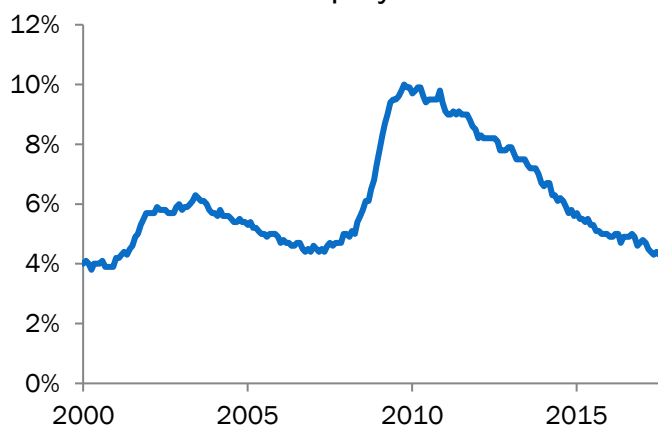
Economic Policy Uncertainty
(30 day moving average)



really is no completely ignoring it. Therefore, we have begun to track another form of uncertainty, the Economic Policy Uncertainty (EPU) Index. This measure relies on aggregation of keywords from news stories to develop a measure of policy uncertainty, and was discussed in detail in a previous newsletter.² This measure was only recently developed, and as such should naturally be viewed with skepticism.³ Yet, the EPU provides an interesting quantification of policy uncertainty. As can be seen in the figure on the previous page, EPU remains at an elevated level. It has been since the presidential election. However, this political uncertainty measure has generally declined since February. We also can't help but laughingly notice the recent dip that we can only attribute to the brief time Congress was in recess.

The U.S. economy continues to perform quite well. While estimates of 1st quarter 2017 GDP growth have been revised downward to 1.2%, 2nd quarter GDP growth (the most recent for which estimates are available) registered a strong 3.1%. The unemployment rate is also strong, and now stands at 4.4%, up just slightly from the 4.3% reported last quarter.

U.S. Unemployment Rate



The unemployment rate has now been low enough, long enough, that it is a little bit of a puzzle as to why we haven't seen more inflation to this point in the economic cycle. There are several ways to estimate U.S. inflation, but current estimates from market trading are about 1.3% over the next two years, and about 1.6% per year over the next 5 years. These are quite low levels of inflation. Inflation expectations are low enough that the Federal Reserve doesn't appear to be in a particular hurry to raise interest rates, which are still quite low by historical standards. The Federal Funds target rate is currently in the of 1.00% - 1.25% range, the same as last quarter.

In the last newsletter, we commented that the "yield curve" comprised of U.S. Treasury bonds had flattened a bit. We noted that short-term U.S. Treasury debt with a 3-month expiration had a yield that had risen up to 1.03%, and that long-term U.S. Treasury debt with a 10-year maturity had declined to a yield of about 2.30%. The "flattening" of the relationship simply implied that these two quantities were closer than they had been before. This quarter, the relationship has stabilized. Three month Treasuries are trading with a yield of around 1.06%, while 10-year Treasuries are yielding around 2.33%. Since these values had been drifting closer to each other for a while prior to this quarter, this

² You can find that discussion here: http://www.madisonfinancialresearch.com/files/2016_Q4_Newsletter.pdf

³ Development of the EPU is detailed here: Baker, S. R., N. Bloom, and S. J. Davis, 2016. "Measuring Economic Policy Uncertainty," *Quarterly Journal of Economics*, 131, no. 4 (November), 1593-1636. Importantly, in light of our special topic this quarter, the *Quarterly Journal of Economics* is a peer-reviewed academic journal, published by Oxford University Press since 1886, that is the oldest English-language academic journal in economics. And yet, they're still wrong sometimes.

is a welcome development. When short-term Treasuries yield higher than long-term Treasuries (a situation known as an “inverted yield curve”), it is often a quite negative signal for the economy.

Quarterly Special Topic: The Quality of Information Sources

News quality has, ironically, been in the news quite a bit this past quarter. From President Trump’s frequent use of the phrase “fake news,” to critiques of President Trump, to debates about the “settled” science of climate change, to the tremendously difficult task of replicating many academic studies, the quality of information in various forms has been much debated as of late.

But why does a finance newsletter care about this? As it turns out, the answer to that is quite simple: a fundamental driver of changes in asset prices is changes in the “information set” of investors. Markets are just collections of individuals, each of whom have opinions about the values of assets that are dictated by the information those individuals believe, filtered through their thoughts and emotions. Some of that information is individual-specific, and some of that information is jointly shared with others in the market. Either way, changes in the information (i.e. “news”) will generally change asset prices. News stories, academic articles, etc... change the “information set” set of large numbers of individuals, and thus affect asset prices. The nature of finance is such that fundamentally, asset prices are driven by uncertainty, and the resolution of this uncertainty gradually comes about by market participants receiving news.

A large determinant of the extent to which a piece of news should influence the store of information in individuals is the reliability of that piece of news. Naturally, different news sources have different degrees of reliability. Individuals who are not able to determine the reliability of their information sources are much more likely to err in their appraisal of the probabilities of various economic outcomes. Today we look at some common information sources, along with their strengths and weaknesses, and examine how they influence our collective perceptions of the world around us.

1) The Gold Standard – Blind Peer Review

Publishing in academic journals is the lifeblood of a professorial career. Universities the world over follow a model first established by the University of Bologna in 1088, and later followed by such institutions as the University of Paris and as well as the universities of Oxford and later Cambridge. A bit later, Medieval universities such as the University of St. Andrews and KU Leuven were founded. Universities were strongly influenced by the structure of Roman Catholic schools when they weren’t founded directly by the Church, and retain many traditions and structures that began in Roman Catholicism (ever notice how similar graduation robes and the robes of Catholic priests are?). These universities were founded to develop critical thinking, to train professionals and to undertake research. The success of this model – the hybrid development of teaching and research – is such that universities continue to follow it today. The American system of schooling was particularly influenced by the German Humboldtian system. While certainly some universities put a stronger emphasis on research than others, the synergistic qualities of teaching and research have been known for close to

a thousand years, and the best universities in the world, not coincidentally, tend to be those that invest most heavily in research.

Of course, initially, university faculty did not publish in academic journals. It would have been difficult to do this prior to the invention of moveable type! But the current system of higher education requires tenured faculty (whether in natural or social sciences), and those seeking tenure, to publish in academic journals. These academic journals undertake a process known as peer review – usually “blind” peer review. To publish in an academic journal, an author (usually a faculty member) sends a paper to the editor of the journal. The editor then sends the paper to 2 or 3 experts in the field of the article. These experts are not told who the author of the paper is, nor will the names of these experts be supplied to the author. This is referred to as “double blind peer review,” and variants of it exist throughout academia. The experts make recommendations to the editor about whether the article should be published, and ways the article can be improved. In finance and economics, this process entails a back-and-forth between the author and the experts that lasts a few months to a few years. In the end, about 20% of papers are published, the rest rejected (the very top journals have acceptance rates of around 5%). Here at MFR, our experience is in publishing in economics and finance journals, but the publication procedure in the natural sciences, where this all originated, is similar.

The modern system of peer review is structured to vet articles in academic journals. The idea is to have nothing published that is inaccurate, and the length of time to ensure this is not considered. Of course this ideal is not reached. There are disputes over biases that exist in scientific publishing, and even outright fraud has been alleged and supported from time to time.⁴ It is often believed that editors (who have final say on article acceptances) have too much sway over the process. But in terms of establishing validity of information, no system exists that provides more accurate information, and has led to the discovery of more knowledge, than the system of peer review at academic journals.

An interesting modern case involving this process is that of anthropomorphic climate change. Scientists who study climate change generally don't follow or care about the political ramifications of their findings, but the nature of the findings in this case have ended up being political. On one side of the debate, advocates claim that the overwhelming evidence supplied in peer-reviewed journals over a couple of decades demonstrating human-caused climate change indicates that this avenue of research is “settled science.” On the other side, contrarians claim that climate change research is politically biased. Both are incorrect. Science is virtually never “settled,” there is always room for more questioning, and more research to provide greater understanding of any issue. An extreme case in point - a Google Scholar search on publications about gravity over the past few years yield heavily cited papers expanding our understanding of the subject. However, the overwhelming numbers of blind peer-reviewed high-quality experiments and simulations indicate that the best science in existence overwhelmingly agrees that the human-affected climate change exists. This is a subject with *enormous* asset price implications. If sea levels are expected to rise three feet by 2100, real estate prices in Miami (and New York, and Amsterdam, and Shanghai) will begin to reflect that expectation long before 2100.⁵ Such an expectation would also have an effect on the values of insurance

⁴ The retracted link between autism and vaccinations being a relatively recent prominent such kerfuffle.

⁵ *Nature* is one of the truly premier scientific journals (and of course, is peer-reviewed):
<https://www.nature.com/nature/journal/v531/n7596/full/nature17145.html>

companies, energy companies, real estate, commodities, and so forth. People who disagree about this topic will arrive at very different values for certain asset classes.

2) Not Perfect, but Impressive Given the Timeframe – Newspapers and Periodicals

Climate change also gives a great segue into a different source of information with a completely different set of criteria for publication: news periodicals (newspapers, news magazines, etc...). Newspapers have long been structured to gather news from throughout the world. There is generally an editor-in-chief who has the final say on content that will end up in the paper. Content is delivered to the editor-in-chief, or one of the subordinate subject editors underneath him or her, from the team of reporters that work for the newspaper. The journalists gather the data, and then file with the editorial team, who make the final decisions of what news is included in the paper, and what is not. Journalists follow a professional code of verification. It is their method by which they attempt to ensure accuracy in their reporting of a story. This method is then assisted and verified by the editor.

The more diffuse nature of news gathering, and the speed with which it is re-transmitted, makes the process of writing a newspaper (or similarly, producing a news television show) necessarily less precise than the peer-reviewed academic model. Similarly, it is likely more affected by bias and personal belief. This is of course by necessity. The peer-review process takes months or years, newspapers go out daily. Nonetheless, news outlets have developed a system by which reliable information may be produced, verified, and quickly disseminated.

Importantly, the editorial page of a newspaper is completely separate from the news gathering arm. There is a principle that the two organizations are not to influence one another. At times (and when done correctly), this can be seen quite clearly. The *Wall Street Journal* is a shining example of this separation, but most major newspapers are devotees of this practice.

Weekly periodicals (we here at Madison Financial Research are particularly partial to *The Economist*) tend to be able to reflect a bit more on the news, and provide more detailed, well-researched coverage. However, in all cases beyond the peer-review setup of academic journals, simplification is evident. One of the big complaints made by scientists of all stripes is that the details of scientific research are lost in the translation to the “popular press.” A scientific study might be titled “Resveratrol delays age-related deterioration and mimics transcriptional aspects of dietary restriction without extending life span.” The headline in the newspaper, however, may be something like “Drink More Wine – Scientists Say It’s Good For You!”⁶ This disconnect can have important ramifications for financial decisions – the value of an established winery can vary considerably depending on which version of the article makes its way into the public consciousness. Similar findings, for example, directly affect the cost of olive oil and salmon.

3) Perhaps Useful, Often Completely Worthless, and Sometimes Worse – News from Blogs, Tweets, Talk Shows and Facebook

⁶ See <http://www.sciencedirect.com/science/article/pii/S1550413108001824> for the scientific article. The newspaper headline was fabricated for effect.

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In contrast to the information sources above, this last set of information has little to no vetting. That is both a blessing and a curse. The most recent incarnation of this kind of news is overwhelmingly electronic, distributed at very low cost over the internet. Virtually anything may be presented as new information. No widely accepted procedures exist to verify its accuracy.

The merit of this kind of information, of course, is found in speed and volume. Using the recent spate of hurricanes as an example, thousands of personally recorded video clips have been uploaded to Facebook, YouTube, and so forth, recording the affected areas. Everyday, countless clips of interest to the poster are uploaded to social networks and reported on blogs and linked to via Twitter. They provide immediate feedback concerning the ongoing events the world over. However, with no vetting, there is the risk in every one of them that they could be fake, or terribly misleading, biased, or even just badly mis-interpreted or mis-communicated. Indeed, this past U.S. presidential election provided a platform for the purveyors of deliberately fake news to attempt to influence the election. Their success in that endeavor is still debated, though if nothing else everyone is likely to agree that the credibility of online information has been impugned as a result. Even Facebook itself has taken a recent pro-active stance in trying to minimize deliberately fake news on the site.

The study of finance is the study of business decision making under uncertainty. By availing themselves of the most reliable information sources, investors can decrease that uncertainty. Decreased uncertainty makes better decisions more likely. It is therefore of paramount importance that an investor know how to evaluate the quality of the mountains of information that arrive on his or her desk (or cluttered counter). It is prudent to give more weight to more reliable information. But before that can happen, it is crucial to identify which information is indeed more reliable.

We hope you have enjoyed our newsletter this quarter. As always, our aim is to provide our readers with quality information that can both entertain and give our readers something to think about. Then again, for a newsletter such as this, the editorial process is completely ad-hoc. For all you know, we may have made it up...

About Us

Madison Financial Research, LLC (MFR) is a registered Investment Adviser.⁷ Jason Fink provides all of the investment advising offered by MFR. Dr. Fink has a PhD in Economics from the University of Virginia, and is a Professor and Wachovia Securities Faculty Fellow at James Madison University. He has over two decades of industry and academic experience, including previous positions at First Union Capital Markets, Fannie Mae, the University of Virginia and Florida State University.

What is Madison Financial Research?

MFR exists to provide *unbiased* answers to any financial questions its clients might have, and any help that its clients might need. We are comfortable working with a wide range of clients. For example, we are happy to explain the process of constructing an inexpensive and effective portfolio to novice investors, but also have particular knowledge on endowment spending policies to aid charitable institutions. We want to help investors understand their investments.

In the finance industry, almost all the people an individual can go to for advice have something they are trying to sell. A bank tells you why you need a mortgage. A financial adviser tells you why you should buy an annuity. An insurance agent tells you why their insurance product is ideal.

We are designed differently. We have nothing to sell but our time, which we use to convey knowledge to you. Whatever financial questions you might have, we will work to provide a solution.

These questions can be simple –

“Can you help me get started in understanding online brokerages?”

“Is purchasing this particular annuity a good idea?”

“Is my financial adviser charging me a lot for what he or she is providing?”

They can be complicated –

“When can I retire, and how can I optimally construct my portfolio?”

“Can you provide an overall assessment of my portfolio, including insurance, 401 (k), and other major holdings? How can I improve my approach? Should I diversify internationally?”

“What is a sustainable spending rate from a given portfolio?”

We have the expertise to handle virtually any financial question, and the patience and teaching experience to provide understandable and actionable answers. And outside of our time, *we have no products to sell* - our advice is unburdened by an alternate agenda.

As an investment adviser, we have a fiduciary responsibility to put our clients first. Investment brokers, insurance agents, mortgage lenders – *none of these have such an obligation to you*. We do, and we embrace it.

The financial world is complex. We can simplify it.

To Contact Us

Phone: (540) 816-0203

Email: Jason.Fink@madisonfinancialresearch.com

⁷ Madison Financial Research is registered in the states of Florida and Virginia. Registration does not imply any certain level of skill or training. So, always ask your adviser about their skill and training – it's important.

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September 2017

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