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Valuing the Markets with the CAPE Ratio

The financial media has given a lot of coverage to the concept of timing the market using Robert Shiller's "CAPE ratio." As a statistic, we think the CAPE ratio is interesting but it has a number of shortcomings. More importantly, we believe the activity of market timing is fraught with severe risk.

What is the CAPE ratio and how is it used?

One statistical measure of overall market valuation, the Cyclically Adjusted Price-to-Earnings ratio ("CAPE" ratio), is getting a lot of play in the financial press as "the single best forecaster of long-term future stock returns." Nobel Prize-winning economist Robert Shiller and his co-author John Campbell first published information on the CAPE ratio in 1998. Based on backtesting this ratio to 1871, the CAPE ratio has an impressive record. Naturally, the statistical nature of this forecasting tool has some appeal to quantitatively focused investment managers such as Bridgeway. So what does Bridgeway think about it?

As a statistically driven, evidence-based investment manager, Bridgeway employs many tools to help our clients achieve their goals. Part of the process is evaluating the resources that will best assist us – including the CAPE ratio – as a forecasting tool. Below are a few of our thoughts:

Advantages and Disadvantages

Bridgeway's investment management team likes the concept of valuation — buying stocks at a discount to some measure of a company's actual worth. Price-to-earnings is among a handful of valuation metrics shown to statistically distinguish cheaper companies from more expensive companies based on long-term price appreciation. Also, we like the fact that Shiller smoothes earnings across a decade and that the specific calculation for the CAPE ratio takes inflation into consideration.

Despite our positive view of the concept of valuation, applying that concept to a whole asset class on an absolute basis rather than to a cross-section of many companies at one point in time is problematic. Further, while a proven and valid measure of valuation, earnings do have some disadvantages. First, they can be manipulated by management. Second, since accounting standards change over time, a dollar of earnings in 1880 may not mean the same thing as a dollar of earnings in 1990 or in 2014.

In addition, we agree with Jeremy Siegel's critique that significant changes in U.S. accounting standards have resulted in inconsistent corporate earnings estimates over the last decade and a half (Siegel, 2013). Siegel's analysis doesn't just stop with criticism. He proposes some adjustments and an alternative data set that we believe have promise as an improvement over the basic CAPE ratio. However, Siegel's proposal introduces some new problems of its own that are outside the scope of this thought capsule.

The CAPE Ratio as a Market Timing Tool

CAPE has been remarkably effective at predicting the 10-year forward pricing of the stock market from 1871 through today. But the only person we personally know who has been using the CAPE ratio in real time over the last decade and a half says, "You should think of the CAPE ratio as getting you within a year or two of the actual peak or bottom; don't think you'll be getting it right year to year." The CAPE ratio was never intended to be a short-term indicator of market movements. Recently, however, it seems that people may be using it this way.

Dr. Shiller's Record

According to Jeremy Siegel, the CAPE ratio was first noted in early December of 1996 when Campbell and Shiller delivered a paper to the Federal Reserve Board of Governors, cautioning that stock prices were significantly outpacing earnings (Siegel, 2013). The "sell signal," if you could call it that, was more than three years early. From December 3, 1996 through the market peak on September 1, 2000, the S&P 500 Index (with dividends reinvested) appreciated 112.36%. In spite of the market rout from 2000 through 2002, the S&P 500 Index has never again dropped to the December 1996 level, adjusting for dividends. More recently, on May 17, 2011, Shiller stated, "Equity returns will be disappointing over the next decade." From that date through September 30, 2014, more than three years later, the S&P 500 Index total return is up 59.6% (14.8% annualized). The decade is far from over yet, but the market will have to fall a long way before the decade he refers to is disappointing.

The Bottom Line

We believe the use of basic CAPE ratio is fraught with significant problems. As Jeremy Siegel states, a significant one is with the consistency of data across time, especially due to changes in accounting standards. There are also statistical issues such as look-ahead bias, which we plan to address in future commentary. However, even more problematic for us at Bridgeway is the concept of fishing in a bad pond. Bridgeway's investment management team likes to ask the question, "Is the pond we are fishing in a good one based on history and one's investment objective?" For example, small-cap value stocks have done well relative to the broader market over many decades and may be appropriate for a portion of an investor's total asset allocation plan. Thus, we would say small value stocks are "a good pond" for an investor with a high risk tolerance or an investor using small value stocks for diversification on the periphery of a well-diversified portfolio. At the other end of the spectrum, initial public offerings tend to underperform the broader market from the opening on the first day of trading. We would say, "The IPO pond is a bad one to fish in." It doesn't necessarily mean there aren't some good fish in the pond, but, statistically, it is more dangerous to fish there.

We think the "market timing pond" is a very bad pond in which to go fishing. Does it mean market timing can't be done? Not necessarily. But the overall results of many professionals who have tried to do so are abysmal. With this kind of risk, we have to ask, "Even with some promising results, is market timing of any kind worth the risk?"

What is that risk? The risk is that the market appreciates very substantially while you're waiting on the sidelines in cash. Or even worse, that you get whipsawed and end up out of the market as it's going up, only to reinvest just before it declines. Unlike market risk (historically, if the market goes down, it will bounce back if you are able to wait long enough), market-timing risk can be one-directional (when you lose money, you have a good probability of never getting it back). We believe this is a very serious risk.

Robert Shiller was awarded the Nobel Prize in Economics in 2013. It goes without saying he is a very smart man. In a *New York Times* article published on October 19, 2013 immediately after learning he had received the Nobel Prize, Dr. Shiller said, "I'm just naturally skeptical of people who look impressive." We think humility in research is extremely important and are even more impressed with Dr. Shiller for this reason. Even with his amazing credentials, we still remain skeptical of the CAPE ratio as a method of valuing the market and caution against market timing with the CAPE ratio or any other tool.

References:

Campbell, J. Y., Shiller, R. J. (Winter, 1998). *Valuation Ratios and the Long-Run Stock Market*

Outlook. Journal of Portfolio Management, 11-26.

Siegel, J. J. (May, 2013). The Shiller CAPE Ratio: A New Look. Presented at the Q-Group, Fall 2013.

Sommer, J. (2013, October 19). Robert Shiller: A Skeptic and a Nobel Winner. *The New York Times*. Retrieved from *nytimes.com*