Sankala Group

Photo Credit: *Private Client*

The Trillion Dollar Question

Thomas Denkenberger

We are currently in the tenth year of a U.S. stock bull market which has made undervalued investment opportunities increasingly hard to find. Now, in the face of growing political tensions, trade war risks and spiking interest rates, many are starting to wonder if value investors should just sit in cash and short-term bonds waiting for the coming bear market to produce more undervalued investment opportunities. That is the trillion dollar question: when will the next bear market begin?

This question reminds me of the wise words of Yogi Berra:
"It's tough to make predictions, especially about the future."

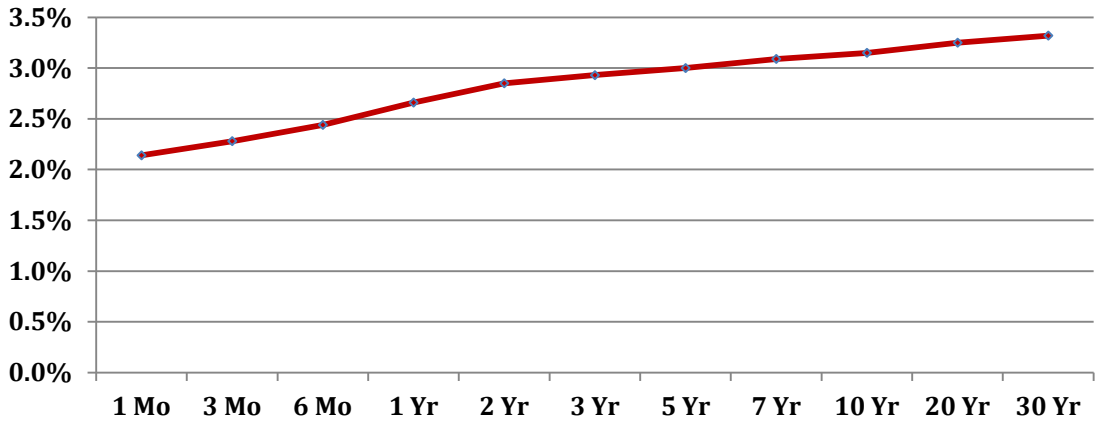
And also of the old joke:
"Economists have predicted 11 of the past 7 recessions."

All joking aside, there is a deep wisdom in Yogi's words. Making accurate timing predictions about the market is notoriously difficult. Even some of the greatest predictions were viewed as dead wrong because they were made too early. For example, Michael Burry, the hedge fund manager made famous by the movie "The Big Short," bet against subprime mortgages two years before they started to collapse. With hindsight bias, we look back and say to ourselves, "Of course I would have stuck with him to wait for the huge payoff." But in reality, most of his investors couldn't stand losing 19% during two years while the S&P 500 went up over 20%. They revolted and demanded to have their money returned. As a hedge fund owner, Michael was able to refuse some redemption requests under the fund's legal terms, and ultimately earned his clients more than 400%. The lesson to be learned is that even brilliant predictions, that ultimately prove to be correct, are apt to be painful between the prediction and the ultimate resolution.

As historically informed data driven investors, we start by turning to the academic literature in finance and economics to see what other researchers have found. There are a myriad of economic indicators of varying predictive power. There are certain indicators that give a signal before every significant market drop, but they also produce many false positives. There are other indicators that have a perfect track record, but they don't give their signal until the market has already sustained significant losses. Unsurprisingly, the perfect indicator does not exist. So from the basket of imperfect indicators, which one is the most promising?

From our research, one of the best indicators is the yield curve. While it has some weaknesses, the yield curve is often said to have the highest predictive power in forecasting recessions and stock bear markets. To be clear on the terms, a *recession* is defined by negative GDP growth for 2 calendar quarters and a *bear market* is a drop in equity prices of more than 20 percent.

For a detailed review of the yield curve itself, please see the Sankala Group letter from Q1 of 2016: Understanding the Yield Curve. Briefly, the yield curve refers to the line drawn when plotting the maturity of U.S. Treasury bonds on the X axis versus their interest rates on the Y axis. See below the yield curve directly from the Federal Reserve data as of 10/12/2018:



During the normal expansion phase of the business cycle, the yield curve has a positive slope in which short maturity Treasuries have a lower yield and long maturity Treasuries have a higher yield. This situation is good for expansion because banks are happy to pay out low CD interest rates at the short end of the curve (1 to 5 years), and charge high interest rates on business and mortgage loans at the long end of the curve (10 to 30 years). When banks are happy, they make more loans, and when people get more loans, they spend more money. That helps the economy expand.

The Federal Reserve, currently led by Jerome Powell, functions under what has come to be known as the *dual mandate* which states that it must, "promote effectively the goals of maximum employment and stable prices." In order to achieve these two goals, the Fed's primary tool is to raise or lower the Fed Funds rate which is the interest rate at which banks and credit unions lend to each other overnight—the leftmost part of the curve. Thus, when the Fed wants to promote maximum employment after a recession, it sets the Fed Funds rate very low to encourage easy lending and a portentous positively sloped yield curve.

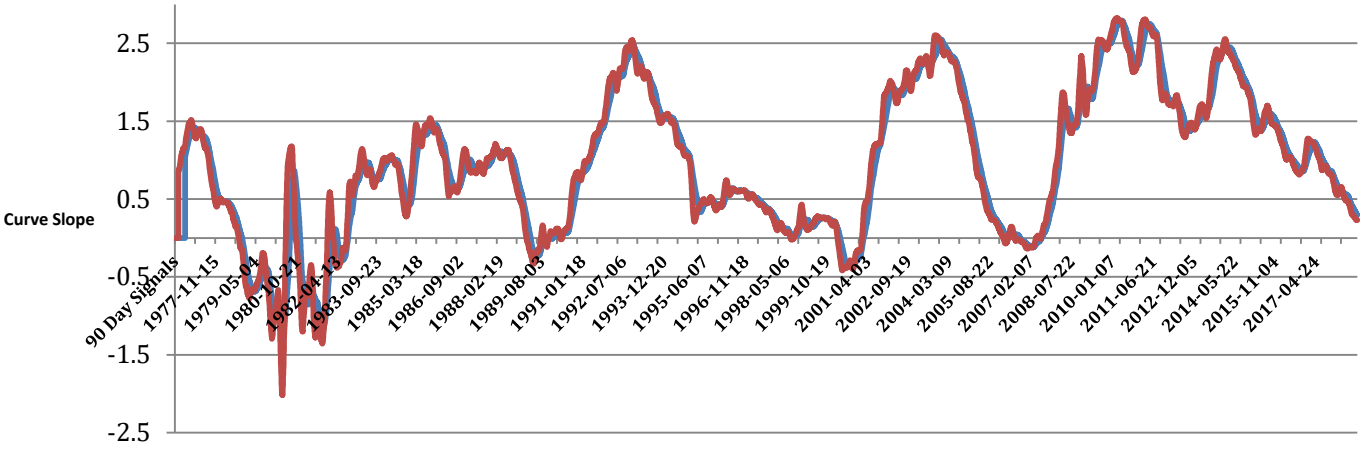
The positively sloped yield curve can last for years, but ultimately, the economy begins to reach full employment. Around this time, employers are forced to start raising wages in order to compete for employees as the supply of unemployed people becomes low. This wage inflation leads to more dollars in more employees pockets, which leads to broader inflation across the economy. Having achieved near maximal employment, the Fed must then focus on maintaining stable prices, which means it must act to control growing inflation. By raising the Fed Funds rate, the Fed makes it more costly for banks to borrow, which makes the banks less enthusiastic about making loans. This slows the economy and cools inflation. During this cooling period, the interest rates on short term Treasuries go higher than the rates on long term Treasuries, producing what is called an *inverted yield curve*.

According to the San Francisco Fed, in the past 63 years, whenever the yield curve has inverted, it has correctly predicted 9 out of 9 recessions, with only one false positive in the mid 1960s when the economy did slow but did not officially enter a recession. The recessions followed within 6 to 24 months of the inversions. In that time period there was only one stock bear market which was not accompanied by an inverted yield curve or a recession, and that occurred in 1987.

While the predictive power of an inverted yield curve is very high, the timing is imprecise. Also, every time the yield curve inverts, financial analysts postulate new and reasonable explanations why things are different this time—why the inverted yield curve is no longer a valid indicator. Despite these issues, if we follow the time courses, the yield curve remains inverted to flat for about 6 to 24 months until the recession starts. Around the time it becomes apparent that the economy has slowed enough to contain inflation and jobs are starting to be lost, the Fed moves to promote employment by lowering the Fed Funds rate. This move un-inverts the yield curve.

The historical predictive power of the yield curve, plus its straightforward logic adds up to a very interesting economic indicator. Thus, we did our own in-house analysis to determine if the yield curve could also be used to generate meaningful investment signals. Our S&P 500 data set ran from 1976 to 2018 and included 5 recessions; and our Treasury data set ran from 1986 to 2018 which included 3 recessions. The small number of recessions contained within our sample makes us cautious about over-interpreting the strength of our results, but with that caveat, we came to four important observations about the yield curve signals plotted below:

2Y/10Y Slope Inversions ***(30D & 90D Averages)***



1. Contrary to the general message in the financial media, an inversion (as defined by either a 30 day or 90 day inversion of 2y over 10y rates) does not necessarily portend a bear market in equities. It portends a period of less than average returns. Specifically, our full data set showed the average monthly return of the S&P was 0.73%, but during post-inversion periods of 1.5 to 3 years, average returns were more in the 0.3% per month range.

2. **A better equity signal was actually found after the un-inversion of the yield curve on a 90 day basis.** For a period of 18 months after that signal, average monthly returns were lowest at 0.15%. This quantitative fact supports our qualitative understanding of how the Fed, which by that time is again dropping interest rates, is admitting fear of recession.

3. Coincidentally, we also found the exact same 90 day un-inversion signal appeared to portend a period of uniquely above average long-dated Treasury bond returns. Specifically, we found for the same 18 month window after the signal, bond returns were 0.96% per month on average, versus the sample average of 0.66%.

4. Finally, the yield curve now appears to be racing towards inversion, so we are glad we did this work prior to any potential signal.

With full understanding this statistical work essentially "back-fits" the data for the most optimized rear-view approach, we see these results as meaningful. The next un-inversion obviously won't see an outcome in stocks and bonds that exactly matches these historical averages, but without doubt we are far better off with this knowledge than stumbling in the dark or relying on hearsay. We are now also clear where the financial media is a bit misguided on this signal.

How will we use this knowledge to inform our portfolio construction? During the rising interest rate period from now until the yield curve inverts, we will bias towards positioning our bond allocation in shorter duration, higher yielding bonds. These bonds have lower interest rate sensitivity, so they are less hurt by rising interest rates, and their higher credit risk is supported by the still expanding economy.

Once the yield curve inverts, higher credit risk bonds will likely start to suffer as investors worry about a coming default cycle. Thus, we will move to higher quality, low duration bonds that will be safe as the economy starts to weaken. During a recession, the only primary asset that typically makes money is long term Treasuries. While interest rates are cut, rates will likely fall along the whole curve, which provides a tailwind to long bond performance.

In equities, from now until the yield curve un-inverts, we should maintain our value conscious stock exposure with a moderate tilt towards natural resource stocks, which tend to go up more with rising inflation. When the yield curve gives our signal, we should then get more nervous. When the Fed finally cuts interest rates we should consider going to our lowest stock exposure of the entire business cycle. At this point, stock valuations will be the most overvalued, the future expected returns will be the lowest, and the economy will likely be starting to contract.

Of course it is quite possible to see a contraction or price declines without the inversion of the yield curve. That is why we don't ignore valuations and run outsized equity risk straight into this signal. As we enter the final phases of this ten year expansion, it is best to have this data driven plan for reference alongside our core valuation work. In the end, Sankala Group will always be a value investing firm. As such, we reduce risk as asset prices become overvalued relative to history and we take on risk as asset prices become undervalued: this will never change. But in our quest to always be learning and getting better, we will carefully add this investment overlay which is informed by the strongest economic indicator we can find, and which our own statistical work confirms. We are also pleased to have pushed the work beyond recession predictions and into asset prices, signal calculation and hold period nuances.

While we can't definitively answer the trillion dollar question of when the market will crash, we can understand where we are in the business cycle and offer our clients an informed strategy based on that knowledge.

Best,

Thomas M. Denkenberger
Sankala Group LLC
T: (720) 549-3355

Sankala Group

Sankala Group LLC's communications should not be considered by any client or prospective client as a solicitation or recommendation to affect any transactions in securities. Any direct communication by Sankala Group LLC with a client or prospective client will be carried out by a representative that is either registered with or qualifies for an exemption or exclusion from registration in the state where the prospective client resides. Sankala Group LLC does not make any representations or warranties as to the accuracy, timeliness, suitability, completeness, or relevance of any information presented in this communication, or by any unaffiliated third party. All such information is provided solely for illustrative purposes.