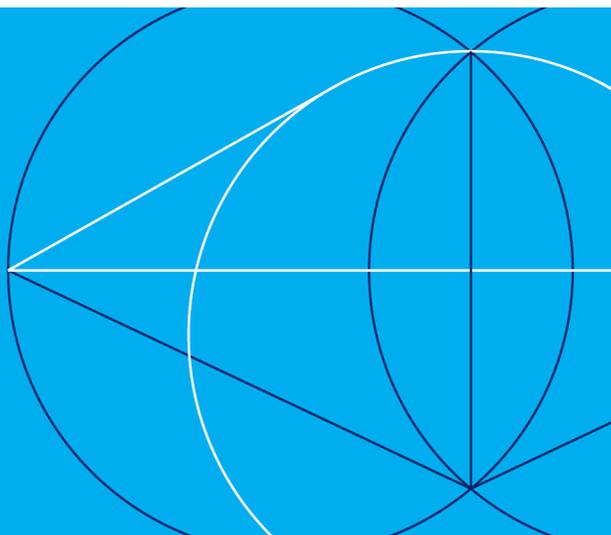




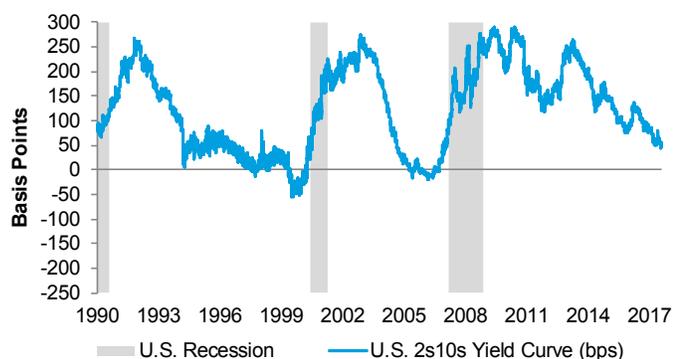
Macro Wrap-Up



The Yield Curve Is a Very Interesting Topic

May 4, 2018 —The yield curve has been a hot topic of discussion because of its alleged usefulness as a leading indicator of the economy. Articles often use dramatic language like *whenever the yield curve inverts, a recession has followed*. They also bring up how the last time the yield curve inverted in the U.S., some well-known policy makers doubted its predictive power, only to be set straight by the worst recession since the Great Depression. It sounds scary. It also happens be true...in the U.S....in recent times. Internationally, the yield curve's predictive power has been mixed. As quants, we would probably say there isn't enough data to draw firm conclusions ("*you always say that!*"), but there could still be some useful information in the yield curve.

U.S. 2s10s Yield Curve & Recessions



Source: Bloomberg, NBER, IMF. U.S. recession bars are based on NBER Business Cycle definitions

For those of you not immersed in fixed income jargon, the yield curve refers to the differing rates of interest (yields) for different maturity bonds. Often these rates are shown in a graph that looks like a curve. So unlike the Holy Roman Empire, the yield curve is both yield and a curve.¹ Economists like to focus on the two-year and ten-year maturities when using the yield curve as a predictor of recession. Usually ten-year rates are higher than the two-year rates, because there is a term premium for borrowing for longer periods. Sometimes, however, the two-year rate becomes higher than the ten-year. This state, known as "inversion," gets some economists worried.

There are two main theories as to why a yield curve inversion could be a harbinger of bad economic times. The first is the bank lending argument. Banks generally borrow short-term and lend long. That's another way of saying they take in deposits that can be called daily, but lend in mortgages and other loans that last as long as thirty years. When long rates are very high relative to short rates, it is profitable for them to lend—they can earn a bigger spread on the loans. When the yield curve inverts or is very flat, they may not want to lend for lower margins. If banks stop lending, it can hurt the economy.

The second possibility is that yield curve inversion is simply an indicator that monetary policy is tight. Central banks usually target short rates and therefore have a more direct influence on the two-year rate than on the ten-year, which is determined more by market forces. If a central bank aggressively pushes up short rates, then two-year yields will likely go up more than yields on tens, possibly to the point of inverting the yield curve. An inverted curve may be a signal that the central bank has gone too far with its rate increases.

These factors should be the same across different developed markets, but in practice the indicator has varying results. In Australia, for example, the yield curve has not been a perfect forecaster of recessions.² Since 1990, the yield curve has been inverted four times, but there has only been one recession. Perhaps Australia is protected from recession by geography, foreign investment, and crocodiles. And in fairness, the other three times the curve inverted were followed by a period of weaker growth. Therefore, Australia is not a reason to dismiss the yield curve as a forecasting tool.³

Japan is more vexing for yield curve aficionados. Japan's yield curve has not been inverted since 1991, yet Japan has had multiple recessions. In fact, it's hard to find any relationship between the yield curve and the economy there. It is possible to argue that the banking system in Japan is so broken that it doesn't matter how steep the yield curve is, banks won't lend anyway. But, more likely, the relationship has broken down because interest rates have been stuck at or near zero for so long. The yield curve can no longer tell you whether the Bank of Japan has raised rates too much or not, because it hasn't raised rates at all.

Germany gives us some more insight. The German yield curve inverted in the early 1990s, which was quickly followed by a recession. The German yield curve then inverted again in the mid-2000s, followed by the Great Recession. Since 2009, the German yield curve has been fairly steep, but that did not prevent Germany from falling into recession during the European sovereign crisis in 2012. However, the situation is more complex because there is a single central bank for all of the euro currency countries, and the German recession was probably caused by events outside of Germany. As in Japan, the yield curve may not be telling much about the tightness of monetary policy or credit in such a scenario.

The yield curve remains a decent indicator of how tight monetary policy is in countries with active central banks in normal times.⁴ Right now none of these aforementioned countries' yield curves are inverted, but both Japan and the U.S. curves have flattened in the past couple of years. In Japan, it's the result of the Yield Curve Control policy – the BOJ has taken more direct action on the ten-year yield than in the past.⁵ As a result, investors should probably not draw any conclusions from the shape of the Japanese yield curve. In the U.S., however, it is worth following. The current yield curve is saying that monetary policy is tightening, but isn't too tight yet. It's flashing an orange warning but isn't red. The Fed certainly has the potential to overshoot in the coming months and years. In the past, recessions haven't come immediately after inversion, so even when the signal works, the timeframe can vary.⁶ If you don't have the patience to use it as an indicator, you may admit that "yield curve" would have made a good name for a horse in the Kentucky Derby. It's certainly better than naming one after a football player.⁷

Germany 2s10s Yield Curve & Recessions



Source: Bloomberg, NBER, IMF. Germany recession bars are based on two consecutive quarters of negative real GDP.

What We Are Watching

U.S. CPI (Thursday)

U.S. inflation data dipped unexpectedly in early 2017, in part due to a large drop in the index for mobile service prices related to unlimited data plans. More than a year has now passed since this one-off price decline, and CPI readings (most commonly viewed in terms of YoY% changes) have now rebounded to a bit more than 2%.⁸ With gasoline prices rising in recent months and slower-moving factors like wage growth also showing signs of acceleration, there may be upward pressure on inflation moving forward. If upcoming data releases do in fact show rising inflation, it could cause markets to price additional rate hikes from the Federal Reserve over the next few quarters.

Bank of England Meeting (Thursday)

Compared with their predecessors a few decades ago, today's central bankers make a much larger effort to communicate with market participants and the general public. The thinking is that central bank transparency increases the effectiveness of monetary policy and reduces unnecessary financial market volatility. At times, however, an active communications strategy has its drawbacks. On more than one occasion since taking the reins at the Bank of England (BoE) in 2013, Governor Mark Carney has issued market-moving guidance to the public, only to reverse himself a short time later. In February, the Bank of England strongly signaled a more aggressive approach to future rate hikes, declaring in its post-meeting statement that if its forecasts for the economy were correct, "policy would need to be tightened somewhat earlier and by a somewhat greater extent" than previously expected.⁹ Markets moved to price high odds of a rate hike at the May BoE Meeting.¹⁰ However, growth numbers have been weaker than expected over the last couple of months, and Governor Carney delivered comments a couple of weeks ago playing down expectations for a May hike, noting that the BoE will go into that meeting "conscious that there are other meetings over the course of this year."¹¹ These comments, along with softer GDP numbers last week, have reduced expectations for BoE hikes in May and beyond. Most forecasters now expect no move at this week's meeting, but it is unclear if the central bank will continue to signal an intention to hike rates later in the year instead.¹² The details of the post-meeting statement and Governor Carney's press conference could potentially lead to further swings in the value of the pound and U.K. fixed income markets.

New Zealand Central Bank Meeting (Thursday)

New Zealand inflation is running below the RBNZ's target, and growth has slowed somewhat over the last couple of years.¹³ Forecasters are not looking for any change in policy at this month's meeting, and markets price only modest odds of any increase in policy rates in 2018. However, the upcoming meeting does bear watching as it will be the first under new RBNZ Governor Adrian Orr. If the post-meeting statement features significant changes from prior RBNZ communications, markets may conclude that the central bank's reaction function may be different under new management.

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1 Voltaire said the Holy Roman Empire is neither holy, nor Roman, nor an empire.

2 There is no one definition of "recession." If you look across different sources, you find varying measures. For the purpose of this weekly, we used the crude and imperfect two consecutive quarters of negative real GDP, just to have a simple, consistent measure across countries. Sources for real GDP data and yield curve data are the IMF and Bloomberg.

3 Take that, strawman!

4 Only two caveats – not bad.

5 Bank of Japan: "New Framework for Strengthening Monetary Easing: 'Quantitative and Qualitative Monetary Easing with Yield Curve Control,'" 9/21/16.

6 For example, in the U.S. the yield curve first inverted in mid-2006 and recession didn't come until late 2007.

7 You can hear the announcer "It's Yield Curve in the lead into the final furlong ahead of Gronkowski! The winner is Yield Curve, Yield Curve, Yield Curve!!"

8 Source: Bank of England: "Bank Rate maintained at 0.50%," 2/8/18.

9 Source: Reuters. "BoE's Carney dampens expectations for May rate hike, sees 'mixed' data," 4/19/18.

10 Source: Bloomberg. Odds derived from market pricing of Short Sterling futures contracts.

11 Source: Reuters. "BoE's Carney dampens expectations for May rate hike, sees 'mixed' data," 4/19/18.

12 As of 5/4/18, 52 out of 54 economists surveyed by Bloomberg expect no change in interest rate policy on May 10th. Source: Bloomberg economist estimates.

13 Source: Statistics New Zealand.

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