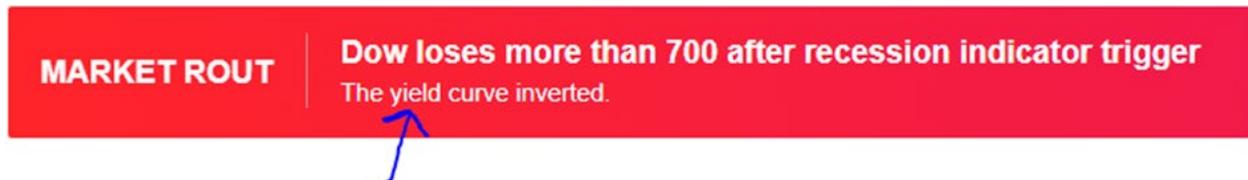


August 19, 2019

Yield Curve Inversion

Ten years ago, the average person probably didn't know what the yield curve was, and even fewer knew what "yield curve inversion" meant. Those days, it seems, are in the past. The very brief inversion of two- and 10-year US Treasury yields yesterday morning was widely cited as the cause of the largest single-day sell-off in the US equities market this year by sites like Yahoo Finance, which displayed the banner below.

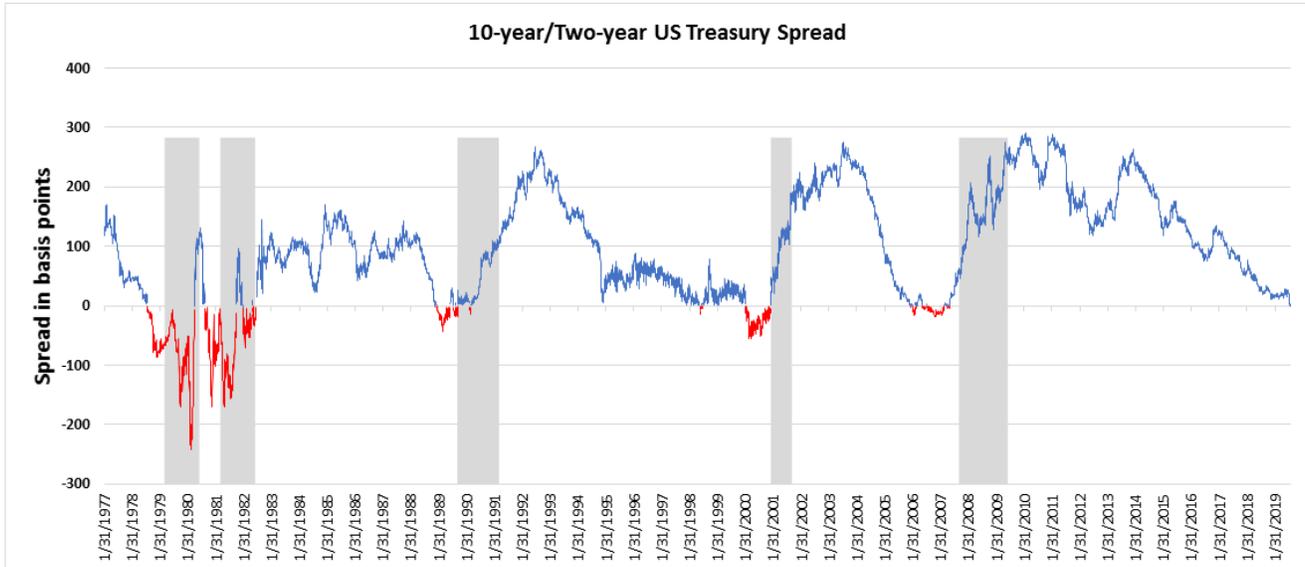


(Image Source: Yahoo Finance)

With coverage like this, we expect that you may be receiving calls from panicked clients asking about what the inverted yield curve means and if a market crash is imminent. Therefore, today we'll take a look at what has actually happened following yield curve inversions in the past.

First of all, despite yesterday's reporting, the spread between the two-year and 10-year Treasuries is not actually inverted. The 10-year closed to yield 1.59% yesterday (8/14) one basis point above the two-year's yield of 1.58%. And as of noon on Thursday (8/15), the spread has widened slightly, to around three basis points. Furthermore, we have typically seen recessions after the yield curve has remained inverted for a sustained period of time. And even then, we have not typically entered a recession for 9 to 18 months after the yield curve inverted, with the US equities market typically advancing in the interim.

As you can see in the chart below, which shows the spread between the 10-year and two-year US Treasuries since 1977, there have periods where the yield curve briefly inverted and then returned to normal. For example, the curve was inverted in June and July of 1998, but returned to normal by August, which was more than two and half years before the next recession which began in March 2001. The curve also briefly inverted in December 2005, which was two years prior to the most recent recession which began in December 2007. It is also worth noting that the data below relies on closing prices and does not show inversions that reverse intraday.



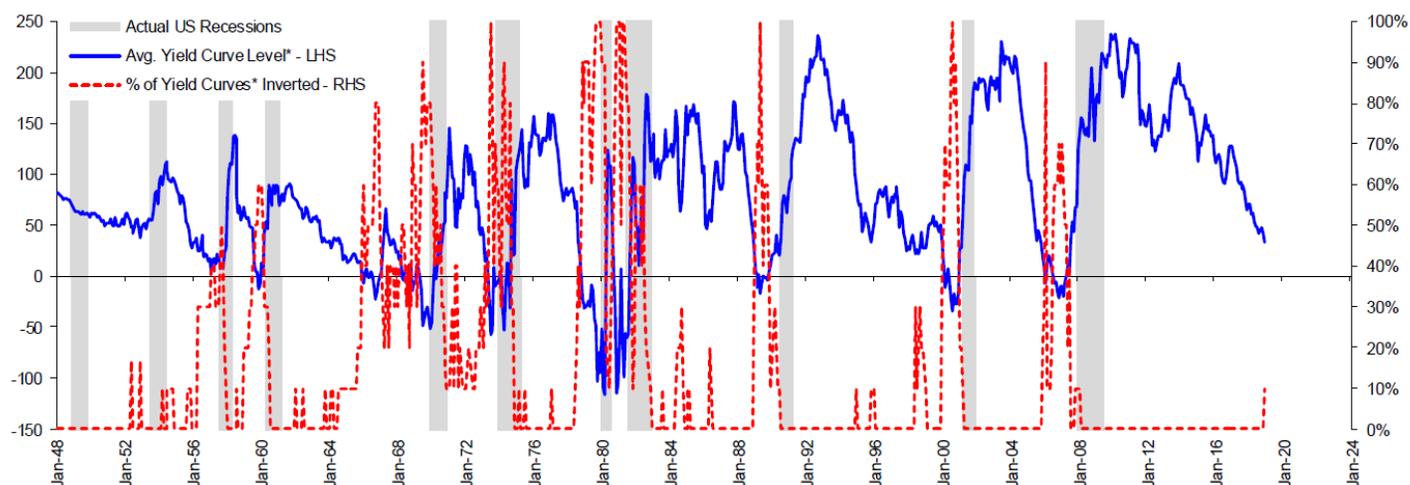
*Shaded regions denote U.S. recessions.

Data Source: U.S. Treasury and the Federal Reserve

If we could add in all of the intraday inversions, it's likely we would find many more instances of inversions that did not closely precede a recession. For instance, in December 1994, the two-ten spread got below 10 basis points based only closing values. With additional data, we might very well find that there was an intraday inversion like the one that occurred yesterday around this period, and of course, the 2001 recession was still more than six years away. The point here is that almost all of the data cited when discussing yield curve inversions and recessions is based on daily, monthly, or even quarterly closing values and by any of these metrics, an inversion has not even occurred, so, announcing the next recession is at hand may be a bit premature.

Although it is perhaps the most widely cited relationship by the financial media, the preferred relationship for inversion-as-an-indicator-of-recession for the Federal Reserve and many economists is not the two-year vs. 10-year yield spread, but, the three-month vs. 10-year yield spread. The bad news here is that the three-month vs. 10-year curve has been inverted for some time now. However, others have argued that, more than any single relationship being inverted, the overall level of inversion across the yield curve is a more reliable indicator. Intuitively this makes sense - generally speaking, it is typically prudent not to rely too heavily on any one data point. Relying on additional data points seems especially advisable now, as many economists have argued that the Fed's quantitative easing program has put downward pressure on longer-term yields, altering the "natural" state of the yield curve, and inducing inversions that would not have occurred otherwise. As the graphic from Scotiabank below shows, since the late 1960s we have generally seen 80%, 90%, or even 100% of the yield curve become inverted ahead of a recession.

Exhibit 3: U.S. Average Yield Curve Level & Recessions



*Looking at all yield curve combinations between 3M, 2Yr, 5Yr, 10Yr, and 30Yr yields

Source: Scotiabank GBM Portfolio Strategy, Bloomberg, NBER, Federal Reserve.

Looking at the yield curve as of the close on 8/14, we find that 35% of the yield curve is currently inverted if we look at every maturity that is currently issued. If we look at only at the maturities in previous graphic – the three-month, two-year, five-year, 10-year, and 30-year yields, that number is higher at 60%, but still well below the 90% to 100% levels we have seen ahead of prior recessions.

Date	1 Mo	2 Mo	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr	
8/14/2019	1.98	1.98	1.96	1.92	1.79	1.58	1.53	1.51	1.55	1.59	1.84	2.03	
		0	-0.02	-0.06	-0.19	-0.4	-0.45	-0.47	-0.43	-0.39	-0.14	0.05	X - 1 MO
			-0.02	-0.06	-0.19	-0.4	-0.45	-0.47	-0.43	-0.39	-0.14	0.05	X - 2 MO
				-0.04	-0.17	-0.38	-0.43	-0.45	-0.41	-0.37	-0.12	0.07	X - 3 MO
					-0.13	-0.34	-0.39	-0.41	-0.37	-0.33	-0.08	0.11	X - 6 MO
						-0.21	-0.26	-0.28	-0.24	-0.2	0.05	0.24	X - 1 YR
							-0.05	-0.07	-0.03	0.01	0.26	0.45	X - 2 YR
								-0.02	0.02	0.06	0.31	0.50	X - 3 YR
									0.04	0.08	0.33	0.52	X - 5 YR
										0.04	0.29	0.48	X - 7 YR
											0.25	0.44	X - 10 YR
												0.19	X - 20 YR
											Inverted	23	
											Total	66	
											Percent Inverted	34.85%	

Data Source: treasury.gov

So, to summarize, yes, we have often seen inversion of the two-year and 10-year US Treasury yields ahead of recessions. However:

Date	3 Mo	2 Yr	5 Yr	10 Yr	30 Yr	
8/14/2019	1.96	1.58	1.51	1.59	2.03	
		-0.38	-0.45	-0.37	0.07	X - 3 MO
			-0.07	0.01	0.45	X - 2 YR
				0.08	0.52	X - 5 YR
					0.44	X - 10 YR
			Inverted		6	
			Total		10	
			Percent Inverted		60.00%	

Data Source: treasury.gov

- Recessions have typically only come after an extended period of inversion and even then, they have typically been 9 – 18 months away.
- The two-ten spread has not yet actually inverted when looking at closing values.
- Looking at the overall level of inversion across the yield curve may be a better metric, especially given the effect that quantitative easing has had on longer-term bond yields.
- The portion of the yield curve that is inverted remains well below that of the levels seen ahead of previous recessions.