Macro Strategy

YIELD CURVE: THE SIGNAL AND THE NOISE

Oliver Brennan

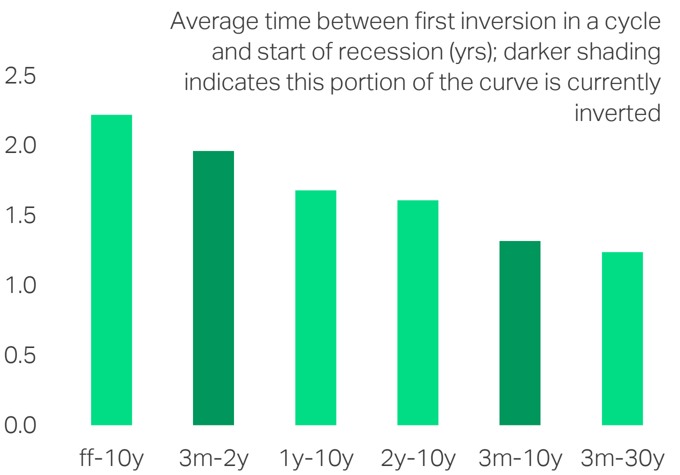
- **3m-10y inversion always precedes a recession**
- **S&P sectoral performance tends to switch to safety upon inversion: we go long a safe basket vs short a growth basket**
- **We also take profit on our long October fed funds future as market now discounts high chance of a cut this year**

The most-watched economic indicator of the last few months has not been US payrolls or Chinese credit growth. Instead, many commentators have put the shape of the US yield curve on the pedestal of economic prescience, so the creeping inversion of various parts of the curve has become a clarion call for bears to proclaim the end of the current expansion.

As sure as night follows day, a yield curve inversion precedes a recession (and as sure as night follows day, it does not necessarily follow that a yield curve inversion *causes* a recession). But more importantly for investors is the timing and trading signal of such a move. We crunched the numbers for all previous inversions since the 1960s. We took a one-week moving average of spreads to avoid one-off signals and measured the time from the first inversion in a cycle to the subsequent recession for all (sensible) combinations of spreads. The results are below.

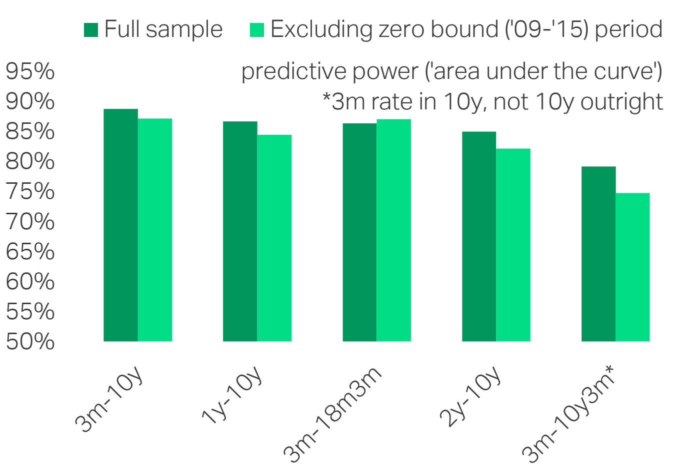
The 3m-10y portion of the curve is the most reliable signal. Inversion simply describes when a longer-tenor bond yields less than a shorter-tenor bond. But a 2y-5y inversion contains less

Recessions always follow inversions



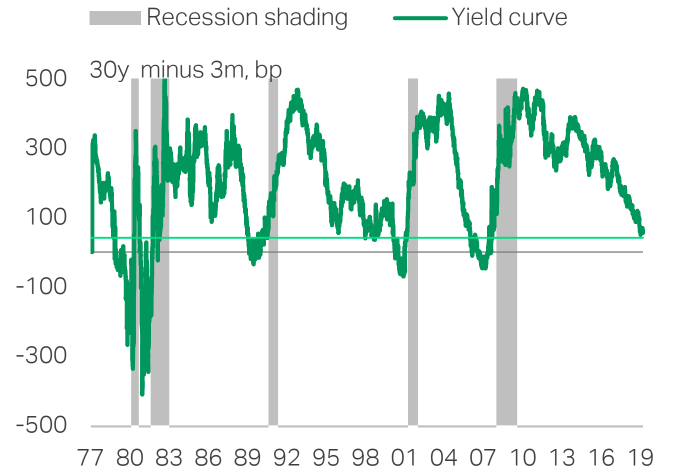
Source: Bloomberg, NBER, TS Lombard

3m-10y is the 'strongest' recession signal



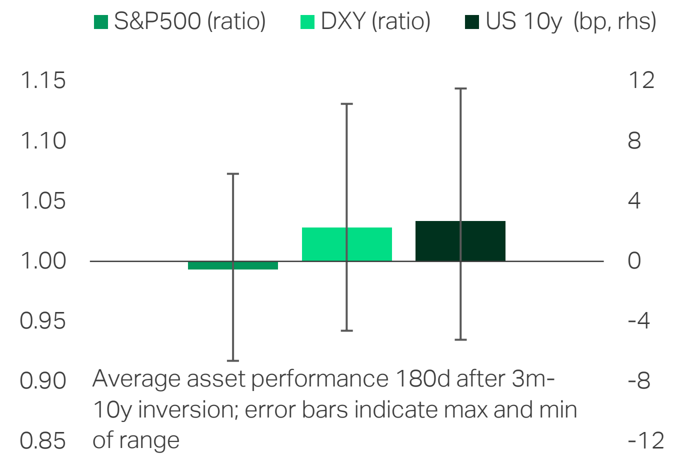
Source: SF Fed Bauer and Mertens 2018

Yield curve has rarely been flatter than currently



Source: Bloomberg, NBER, TS Lombard

Inversion signal weaker than noise here



Source: Bloomberg, TS Lombard

useful information than a 3m-10y inversion. The NY Fed and SF Fed analysed yield curve inversions in research papers last year (here and here). The NY Fed found that the signalling function of inversion was as much about investors betting on FOMC policy easing, but the SF Fed found that the 3m-10y portion was the most predictive of recession. As of today, the 3m-10y spread has flipped to -3bp (negative for the first time since 2007) and its one-week average is exactly zero.

Long and variable lag. It is always said that monetary policy operates with long and variable lags, but so does the predictive power of the yield curve. The average time between the first 3m-10y inversion in a cycle and the subsequent recession is 17 months. Before the last recession, the 3m-10y inverted in February 2006, a full 22 months before the recession officially started. This is also the longest lag for the last six recessions.

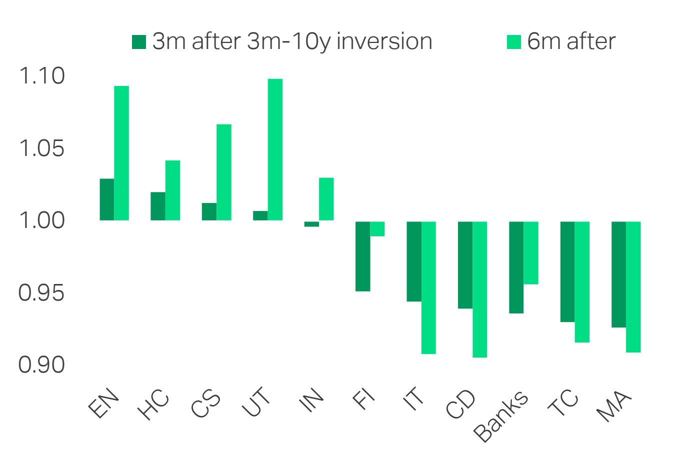
Confirmatory signal. The chart on the first page shows that a 3m-30y inversion is a more proximate indicator of recession (on average it inverts 14m before a recession). This spread is currently 40bp, and historical analysis suggests that at such a level the spread usually continues into negative territory. The 3m-10y is the right signal to follow; a continued decline in the 3m-30y would confirm the signal.

The 1998 risk. In 1998 the yield curve inverted as blowback from Russia's default and the collapse of LTCM threatened to induce a US slowdown. In the event, contagion was not as bad as feared, and the Greenspan Fed reacted rapidly to the risk by cutting the fed funds rate by 75bp. There is an echo of 1998 today in that the Powell Fed is likely to respond more quickly to a yield curve inversion than Yellen or Bernanke might have done, so the risk is that the current inversion could be a 'false' signal (then again, it was still only three years before the US economy did slip into recession). Importantly, the one-week average level of the 3m-10y did not invert at that time.

Our US economist, Steve Blitz, regularly examines the likely economic consequences of yield curve inversion in US Watch, e.g. "Will a pause work" in December. Rather than going over the same ground here, we analyse the likely market repercussions. We use the dates for the last six 3m-10y inversions and dissect subsequent asset performance.

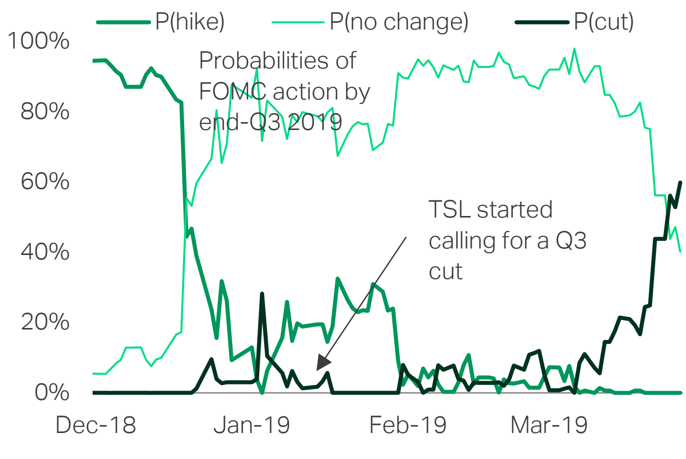
Yield curve inversion is more noise than signal for asset class returns. The average S&P500 level after 3m and after 6m is pretty much unchanged, and the range of outcomes (max return to min return) is 10% after 3m and 15% after 6m. Given the average 6-month S&P 500

S&P sectoral response to inversion less noisy



Source: Bloomberg, TS Lombard

Consensus has moved to us on Fed rate cuts



Source: Bloomberg, TS Lombard

returns over the same period is around +4%, one could argue that the inversion does really depress returns and therefore one should reconsider outright long positions following this inversion, but the performance signal is not strong enough to advocate for an outright short. For the dollar, there is a slight bullish bias after 6m, but with the average level 3% higher in a range of almost 20%, it is not a statistically significant move. Ditto Treasury bonds – inversion adds noise, not signal.

On a sectoral level there is more signal[1]. For the last three inversions (since sectoral data became available in the 1980s), there is a little more information: materials (MT), banks, consumer discretionary (CD) and IT tend to underperform; energy (EN), healthcare (HC), utilities (UT) and consumer staples (CS) tend to outperform. This relative performance suggests there is some signal in the yield curve inversion, as it reflects a rotation away from growth-style towards safety-style stocks. And there is persistence in some of this performance. Post-inversion strength in EN and weakness in CD is consistent across all three of the inversions tested.

We buy a basket of EN, HC and UT against a basket of CD, MT and banks. Although the strongest signals on each side are energy and cons disc, we add more sectors to avoid possible idiosyncratic effects, especially the risk of a flare-up in the trade wars. The basket exhibits a correlation of close to zero with the S&P500 so should be shielded from top-line market moves. We pencil in a target of +7% with a stop at -3%.

Portfolio update

The model portfolio made around 30bp in the last week, largely thanks to the Fed's dovish pivot. **We take profit on our long October fed funds future** position today after it hit our target of 97.80 for a 27bp gain. The market is now discounting an 80% chance of a rate cut by year-end and 60% by the end of Q3 (which is our view). **We move the stop on our long Indonesian bonds** position once again, this time to 7.9%; this now locks-in positive p&l on the position.

Our EUR/TRY position came back from the dead yesterday as liquidity was withheld from TRY sellers and the lira rallied by 7%. At one point the cross traded through our short strike of 6.00. We reckoned we could take profit given yesterday's move, but with only only 2bp of value now left on the trade, we leave it and roll the dice on where the expiry will land tomorrow.

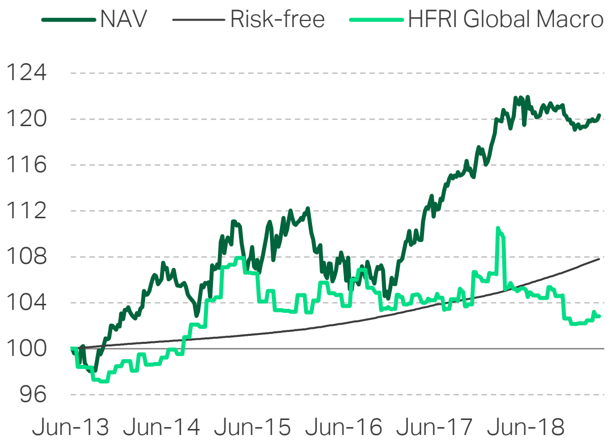
[1] This paragraph and the top-left chart have been corrected from the original publication to correct labels (CS was incorrectly labelled as TC) and the conclusion. The basket trade has been left unchanged.

Current trade recommendations

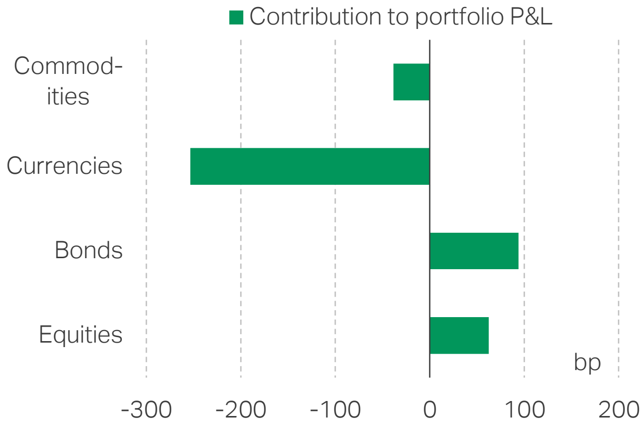
Theme / Trade	Date opened	Entry level	Last	P&L	Target	Stop	Original rationale / comment
Next Fed rate move is a cut							
Long October fed funds future (t/p)	**23-Jan-19**	**97.53**	**97.82**	**28bp**	**97.80**	**97.59**	**Curve near-inversion, trade war and slowing growth warrants easing**
Long CDX IG S31 protection**	20-Feb-19	69bp	69bp	-	78bp	63bp	Market vol, spreads too low as growth downside risks underpriced
Long EUR/TRY 1m put spread	27-Feb-19	0.32%	0.02%	-0.30%			Powell put, China put, trade deal support falling vol and rising risk appetite
Long Indonesian local rates	6-Mar-19	7.89%	7.63%	26bp	7.15%	**7.90%**	EM disinflation, high real rates and risk appetite support bond rally
Time to buy sterling							
Long GBP/USD 3m call spread*	13-Feb-19	0.31%	0.52%	28bp			With time almost up, an extension or deal is more likely than no deal
Inversion signal							
Long EN, HC, UT vs CD, MT, banks	**27-Mar-19**	**100**		**0.00%**	**107**	**97**	**Safety-style stocks outperform following 3m-10y inversion**

Bold indicates new trades or changes made this week. *P&l includes profit taken on half of position **Rolled from S31; levels adjusted for 8bp roll cost

Model portfolio historical performance



Performance contribution – last 12 months



Model portfolio metrics since inception

	Portfolio	HFRI Global Macro
Since Inception return	20.32%	2.84%
Annualized Return	**3.24%**	**0.48%**
2016	-4.89%	0.14%
2017	9.67%	2.47%
2018	2.98%	-3.45%
YTD	0.65%	0.85%
MTD	-0.10%	
Volatility (ann.)	4.39%	3.95%
Sharpe ratio	**0.43**	**-0.19**
Sortino ratio	**1.33**	**0.19**
Alpha (12m, vs HFRI)	0.58%	
Beta (12m, vs HFRI)	-0.20	
Corr (12m, vs HFRI)	-0.23	
Corr (12m,vs MSCI World)	-0.06	
Corr (12m, vs JPM GBI)	-0.37	
Max draw down (12m)	-3.05%	-3.26%

Best and worst trades – last 12 months

Best and worst performing trades of last 12 months	
Best	**Contrib. (bp)**
Long OIH US equity (14-Feb-18)	74
Long BRL / MXN (17-Oct-18)	55
Long US Consumer Disc. (09-May-18)	47
US 2s10s steepener (07-Nov-18)	47
Long GBP/USD 3m call spd (13-Feb-19)	42
Worst	**Contrib. (bp)**
Long EUR / short GBP, CHF, AUD, USD (04-Oct-17)	-115
Short Brent /WTI spread (19-Sep-18)	-70
EUR/USD Call Spread (16-May-18)	-45
Long USD/RUB put spd (10-Jan-18)	-40
Long EUR / short AUD (03-Oct-18)	-38

Authors

Oliver Brennan
Senior Macro Strategist

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