

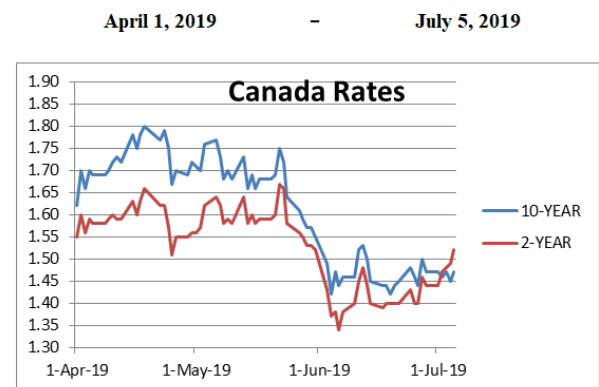
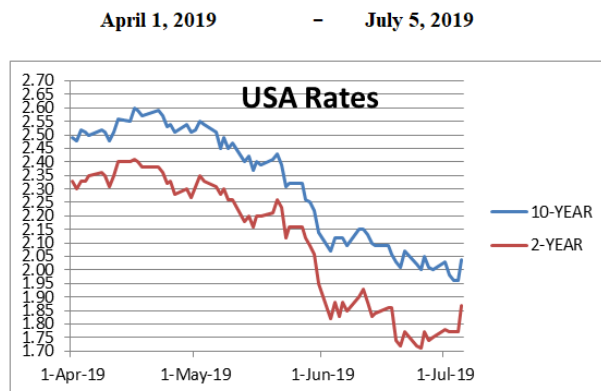
RECESSION BAROMETER

July 5, 2019

Spotlight on : Recession Barometer Reading

INTEREST RATES

The two charts below show the trend in interest rates in the United States and Canada since April 1, 2019, for 10-year and 2-year maturities.



Observation: There is a marked difference in the level of interest rates in the two countries, and in the Spread.

COMMENT: Did you notice in the Canadian chart that the 2-year (**red** line) crossed over and is now higher than the 10-year (**blue** line)? Guess what? That represents Inversion! More on this later.

Observation: The U.S. interest rates are moving up, with the 2-year rising faster than the 10-year. This is lowering the Spread. The Canadian 10-year is fairly stable but the 2-year is rising and has caused an Inversion.

Here are the actual interest rates over the last ten days. See the next page.

U.S. Rates			Cdn. Rates				
10Yr	2Yr	Spread	10Yr	2Yr	Spread		
24-Jun-19	2.02	1.72	0.30	24-Jun-19	1.48	1.43	0.05
25-Jun-19	2.00	1.71	0.29	25-Jun-19	1.46	1.40	0.06
26-Jun-19	2.05	1.77	0.28	26-Jun-19	1.44	1.40	0.04
27-Jun-19	2.01	1.74	0.27	27-Jun-19	1.50	1.46	0.04
28-Jun-19	2.00	1.75	0.25	28-Jun-19	1.47	1.44	0.03
1-Jul-19	2.03	1.78	0.25	1-Jul-19	1.47	1.44	0.03
2-Jul-19	1.98	1.77	0.21	2-Jul-19	1.46	1.47	-0.01
3-Jul-19	1.96	1.77	0.19	3-Jul-19	1.47	1.48	-0.01
4-Jul-19	1.96	1.77	0.19	4-Jul-19	1.45	1.49	-0.04
5-Jul-19	2.04	1.87	0.17	5-Jul-19	1.47	1.52	-0.05

Observation: The U.S. 10-year jumped on Friday, July 5 but the U.S. 2-year jumped even more. In Canada, we have had an Inversion for four straight days and the negative spread is getting wider.

Let us have a look at the Spreads in chart form.

April 1, 2019 - July 5, 2019

10-Year/2-Year USA SPREAD



10-Year/2-Year CANADA SPREAD



Observation: What a difference! The U.S. Spread is far from Inversion (at 0.00x), but in the last two weeks, the U.S. Spread has been falling quite quickly, from 0.30x to the latest 0.17x.

COMMENT: *The Canadian Spread has been negative, for four days, which means that the 10Y/2Y yield curve is inverted. Inversion usually precedes an Economic Recession by an average of 15-20 months. There is no standard answer to the question as to when do you start the Count-Down from Inversion to expected Recession?*

COMMENT: *At eResearch, we start the Count-Down when there is an Inversion for ten consecutive days, or when there is Inversion for 20 out of 30 days.*

So, Canada is on watch.

DEFINING AN ECONOMIC RECESSION

From Wikipedia:

In the United States, the National Bureau of Economic Research defines an economic recession as: "a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales.

In the United Kingdom, recessions are generally defined as two consecutive quarters of negative economic growth, as measured by the seasonal adjusted quarter-on-quarter figures for real GDP, with the same definition being used for all other member states of the European Union.

From The Canadian Encyclopedia:

In Canada, authorities use the same definition as Europe. A recession occurs when two or more successive quarters (six months) show a drop in real gross domestic product (GDP), i.e., the measure of total economic output in the economy after accounting for inflation.

COMMENT: *At eResearch, we use the Canadian/European definition and define an economic recession as two successive quarters of negative real GDP growth.*

THE eRESEARCH RECESSION BAROMETER

Our Recession Barometer for the United States reflects the average of three different yield spreads. These are:

1. 10-Year/2-Year Spread
2. Equal-Weight Average of Three Spreads: 20-Year/10-Year; 10-Year/3Month; and 5-Year/2-Year
3. Equal-Weight Average of Twelve Spreads: 30-year/20-year, 30-year/10-year, 20-year/10-year, 20-year/5-year, 10-year/2-year, 10-year/3-month, 5-year/2-year, 5-year/3-month, 2-year/1-year, 2-year/3-month, 1-year/6-month, and 1-year/3-month.

The Spreads from these three metrics are then averaged to derive the Reading for the Recession Barometer.

The table on the next page shows how these metrics have evolved since the beginning of May 2019.

Date	<u>10Year/2Year U.S. Spread</u>		<u>3 U.S. Spreads</u>		<u>12 U.S. Spreads</u>		<u>Combined Spreads</u>	
	<u>Spread</u>	<u>Reading</u>	<u>Spread</u>	<u>Reading</u>	<u>Spread</u>	<u>Reading</u>	<u>Spread</u>	<u>Reading</u>
May 3, 2019	0.21	6.5 X	0.11	8.0 X	0.10	8.0 X	0.14	7.5X
May 10, 2019	0.21	6.5 X	0.09	8.0 X	0.08	8.5 X	0.13	7.5X
May 17, 2019	0.19	7.0 X	0.07	8.5 X	0.07	8.5 X	0.11	7.5X
May 24, 2019	0.16	7.5 X	0.06	8.5 X	0.06	8.5 X	0.09	8.0X
May 31, 2019	0.19	7.0 X	0.01	9.5 X	-0.01	10.0 X	0.06	8.5X
June 7, 2019	0.24	6.5 X	0.03	9.0 X	0.00	9.5 X	0.09	8.0X
June 14, 2019	0.25	6.5 X	0.06	8.5 X	0.04	9.0 X	0.12	7.5X
June 21, 2019	0.30	6.0 X	0.10	8.0 X	0.07	8.5 X	0.15	7.5X
June 28, 2019	0.25	6.5 X	0.07	8.5 X	0.04	9.0 X	0.12	7.5X
July 5, 2019	0.17	7.0 X	0.03	9.0 X	0.02	9.5 X	0.07	8.5X

Current Recession Barometer Reading: Week Ending July 5: 8.5x. This is up 1.0x from the preceding week, and represents the highest level since the beginning of June.

U.S. Recession Forecast

The following chart shows when a recession could occur for various post-inversion dates. For inversion, we are monitoring three yield spread ratios, a widely-followed two-maturity metric, an equal-weighted average of three spread readings, and an equal-weighted average of twelve spread readings.

Our criterion for declaring Inversion is that: (1) the Recession Barometer reading must be 10; and (2) two of the three Series must be inverted and one of these must be the 10-Year/2-Year Yield Curve.

Our current “guess” is that a recession could occur 15 months post-inversion (shown in Red in the table below). This is a “moving target” and will change with each ensuing month. It will also change with changes in global economic conditions.

We are mindful that a substantial number of Spreads at the short-end are inverted. However, the overall Recession Barometer Reading is 8.5x and the Spreads for all three Series are still positive, although two of the three are getting close to the Inversion mark. So, for the moment, there seems to be no need to change our 15-month Count-Down period once our Inversion criterion is reached.

Forecasting the Commencement of a Recession

If an inversion occurs during the current month ... then a recession will begin at stated date projections.

<u>Current Month</u>	<u>Inversion +12 Months</u>	<u>Inversion +15 Months</u>	<u>Inversion +20 Months</u>	<u>Inversion +24 Months</u>	<u>Inversion +30 Months</u>	<u>Inversion +36 Months</u>
July/2019	July/2020	Oct/2020	Mar/2021	July/2021	Jan/2022	July/2022

Source: eResearch

U.S. YIELD CURVE RATIOS

As mentioned, we monitor three separate yield spreads. We have previously provided charts and commentary on the First Series, the 10-year/2-year yield curve. The current reading is 0.17x.

The Second Series is an equal-weighted average of three spreads: (i) 20-year/10-year (currently 0.30x); (ii) 10-year/3-month (currently -0.19x); and (iii) 5-year/2-year (currently -0.03x). The equal-weighted average of the three is 0.03x.

Here is the data for the Third Series, which comprise twelve yield curves. As shown, there is Inversion for all spreads from 10-year/3-months and shorter. This is why this Third Series has an equal-weighted average reading of just 0.02x.

	<u>30Y</u>	<u>30Y</u>	<u>20Y</u>	<u>20Y</u>	<u>10Y</u>	<u>10Y</u>	<u>5Y</u>	<u>5Y</u>	<u>2Y</u>	<u>2Y</u>	<u>1Y</u>	<u>1Y</u>
	<u>20Y</u>	<u>10Y</u>	<u>10Y</u>	<u>5Y</u>	<u>2Y</u>	<u>3M</u>	<u>2Y</u>	<u>3M</u>	<u>1Y</u>	<u>3M</u>	<u>6M</u>	<u>3M</u>
May 3, 2019	0.18	0.39	0.21	0.42	0.21	0.11	0.00	-0.10	-0.08	-0.10	-0.05	-0.02
May 10, 2019	0.19	0.42	0.23	0.44	0.21	0.04	0.00	-0.17	-0.10	-0.17	-0.09	-0.07
May 17, 2019	0.19	0.43	0.24	0.46	0.19	0.00	-0.03	-0.22	-0.13	-0.19	-0.09	-0.06
May 24, 2019	0.18	0.43	0.25	0.45	0.16	-0.03	-0.04	-0.23	-0.17	-0.19	-0.06	-0.02
May 31, 2019	0.19	0.44	0.25	0.46	0.19	-0.21	-0.02	-0.42	-0.26	-0.40	-0.14	-0.14
June 7, 2019	0.21	0.48	0.27	0.51	0.24	-0.19	0.00	-0.43	-0.12	-0.43	-0.18	-0.31
June 14, 2019	0.21	0.50	0.29	0.53	0.25	-0.11	0.01	-0.35	-0.16	-0.36	-0.18	-0.20
June 21, 2019	0.22	0.52	0.30	0.57	0.30	-0.04	0.03	-0.31	-0.18	-0.34	-0.10	-0.16
June 28, 2019	0.21	0.52	0.31	0.55	0.25	-0.12	0.01	-0.36	-0.17	-0.37	-0.17	-0.20
July 5, 2019	0.20	0.50	0.30	0.50	0.17	-0.19	-0.03	-0.39	-0.11	-0.36	-0.16	-0.25

As we have stated many times, we put a lot of emphasis on the 10-year/2-year Spread and, at 0.17x, it is nowhere near an Inversion, although it has fallen substantially in the last two weeks, the main reason being a quicker rise in the 2-year than the 10-year. The 10-year/2-year Spread is our First Spread Series above.

The next table is most troubling. It shows that the Fed overnight rate is higher than all of the longer-term maturities except the 30-year. How can this be?

Date	OBFR	1 mo	2 mo	3 mo	6 mo	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	20 yr	30 yr
1-Mar-19	2.40	2.44	2.46	2.44	2.52	2.55	2.55	2.54	2.56	2.67	2.76	2.97	3.13
15-Mar-19	2.41	2.46	2.46	2.45	2.52	2.52	2.43	2.39	2.40	2.49	2.59	2.83	3.02
22-Mar-19	2.40	2.49	2.48	2.46	2.48	2.45	2.31	2.24	2.24	2.34	2.44	2.69	2.88
1-Apr-19	2.41	2.42	2.43	2.43	2.46	2.41	2.33	2.29	2.31	2.40	2.49	2.71	2.89
8-Apr-19	2.41	2.43	2.44	2.43	2.48	2.43	2.36	2.31	2.33	2.42	2.52	2.74	2.93
15-Apr-19	2.41	2.42	2.43	2.43	2.46	2.43	2.40	2.36	2.37	2.46	2.55	2.77	2.96
23-Apr-19	2.44	2.43	2.44	2.45	2.46	2.43	2.36	2.34	2.36	2.46	2.57	2.81	2.98
1-May-19	2.44	2.42	2.41	2.43	2.44	2.39	2.31	2.28	2.31	2.41	2.52	2.74	2.92
8-May-19	2.38	2.42	2.43	2.43	2.45	2.37	2.30	2.26	2.28	2.38	2.49	2.71	2.89
15-May-19	2.39	2.40	2.41	2.42	2.43	2.30	2.16	2.12	2.15	2.25	2.37	2.63	2.82
22-May-19	2.37	2.36	2.37	2.38	2.41	2.37	2.23	2.17	2.19	2.28	2.39	2.64	2.82
31-May-19	2.38	2.35	2.38	2.35	2.35	2.21	1.95	1.90	1.93	2.03	2.14	2.39	2.58
14-Jun-19	2.35	2.23	2.21	2.20	2.18	2.00	1.84	1.79	1.85	1.96	2.09	2.38	2.59
21-Jun-19	2.37	2.16	2.16	2.11	2.05	1.95	1.77	1.74	1.80	1.93	2.07	2.37	2.59
28-Jun-19	2.38	2.18	2.15	2.12	2.09	1.92	1.75	1.71	1.76	1.87	2.00	2.31	2.52
5-Jul-19	2.40	2.26	2.22	2.23	2.14	1.98	1.87	1.82	1.84	1.93	2.04	2.34	2.54

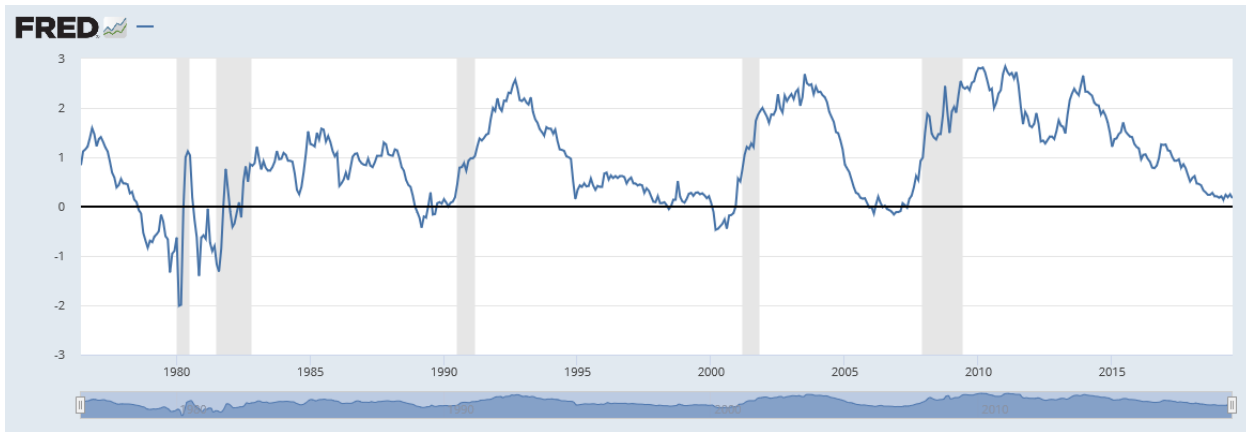
Note: The green numbers are the Overnight Banking Fund Rates (OBFR).

Note: The red numbers are those rates that are lower than the OBFR.

Let us return to the St. Louis Fed charts that we have not incorporated in these analyses for some time. The charts are for our First Series (the 10-year/2-year), which we put the most emphasis on.

U.S. Treasuries 10-2 Yield Ratio Since July 1, 1979 (40 Years)

Here is the 10-2 yield curve going back 40 years to July 1979. Inversions occur below the black “zero” line. The recessions are shaded.



Source: Federal Reserve Bank of St. Louis

U.S. Treasuries 10-2 Yield Ratio Since July 1, 1999 (20 Years)

Here is a look at the 10-2 yield curve going back 20 years to July 1999. It shows the negative occurrences (below 0.0x) and the corresponding two recessions (shaded areas) that soon followed. Currently, despite the falling trend-line, there is still further to go to reach the inversion level and the possibility of a resulting recession.



Source: Federal Reserve Bank of St. Louis

The current ratio is 0.17x, down from 0.21x a week ago, but comfortably above the 0.00x inversion level. And, as shown, the down-trend line could soon be breached. To examine this more closely, let us look at the last six years, in the next chart, with the same down-trend line.

U.S. Treasuries 10-2 Yield Ratio Since July 1, 2013 (6 Years)

The chart below shows that the 10/2 yield curve ratio is right at the down-trend line. Two weeks ago, when the ratio reached 0.30x, it was ever so slightly above it, but the decline in the last two weeks has brought it below the down-trend line again. Will the down-trend line prevail and the ratio stay below, or will it break out? Our opinion is that with so many other Inversions out there, the ratio is most likely to move lower in the near-term.

**INVERSIONS AND RECESSIONS**

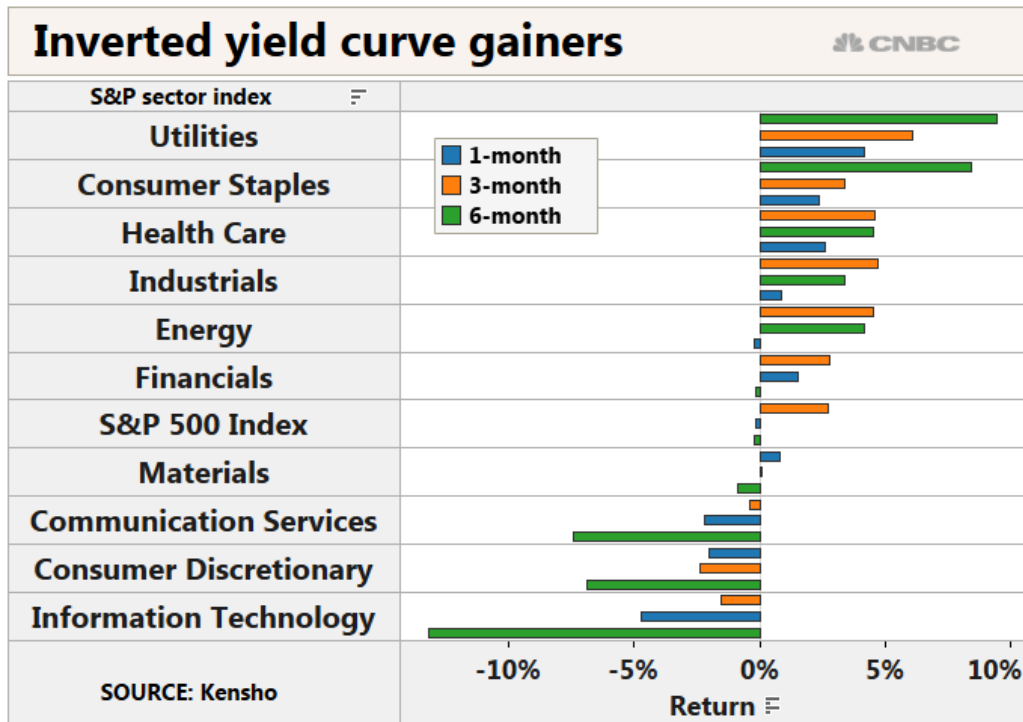
An inversion occurs when the yield on long-term debt drops below its shorter-term peers, potentially signifying a lack of confidence in the economic outlook. It has also become a crucial early warning signal for economic down-turns. Research from the San Francisco Federal Reserve shows that every U.S. recession in the past 60 years was preceded by an inverted yield curve.

Tony Dwyer, chief U.S. markets strategist for Canaccord Genuity, views a yield curve inversion as an opportunity rather than a death knell. He says,

“An inversion of the yield curve does predict recession but, historically, it is a better buy signal (*for stocks*) than pointing to a time to get sustainably defensive.”

CNBC used hedge fund analytics tool, Kensho, to find which kinds of stocks do well when the yield curve inverts, which is a reliable recession indicator.

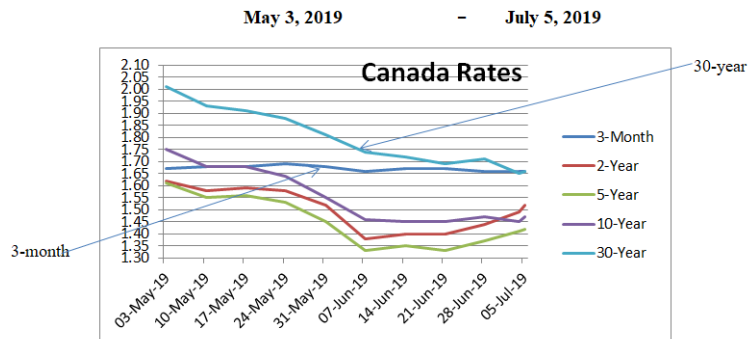
Those findings are presented in the table on the next page.



CANADIAN INVERSION

Here is a list and a chart of interest rates since May 3, 2019 for various Canadian maturities:

	3-Month	2-Year	5-Year	10-Year	30-Year
03-May-19	1.67	1.62	1.61	1.75	2.01
10-May-19	1.68	1.58	1.55	1.68	1.93
17-May-19	1.68	1.59	1.56	1.68	1.91
24-May-19	1.69	1.58	1.53	1.64	1.88
31-May-19	1.68	1.52	1.45	1.55	1.81
07-Jun-19	1.66	1.38	1.33	1.46	1.74
14-Jun-19	1.67	1.40	1.35	1.45	1.72
21-Jun-19	1.67	1.40	1.33	1.45	1.69
28-Jun-19	1.66	1.44	1.37	1.47	1.71
04-Jul-19	1.66	1.49	1.41	1.45	1.65
05-Jul-19	1.66	1.52	1.42	1.47	1.66



Observation: Let us look at various yield ratios for July 5.

- (1) 30-year/10-year: 0.19X
- (2) 30-year/5-year: 0.22X
- (3) 30-year/2-year: 0.12X
- (4) 30-year/3-month: 0.00X
- (5) 10-year/5-year: 0.05X
- (6) 10-year/2-year: -0.05X Inversion
- (7) 10-year/3-month: -0.19X Inversion
- (8) 5-year/2-year: -0.10X Inversion
- (9) 5-year/3-month: -0.24X Inversion
- (10) 2-year/3-month: -0.14X Inversion

Conclusion: The three main yield curve ratios that we monitor for the possibility of a pending Economic Recession occurring in Canada are:

- (1) 10-year/2-year;
- (2) 10-year/3-month; and
- (3) 5-year/2-year.

All three of these metrics are inverted.

COMMENT: *The Canadian 10-year/2-year yield curve ratio was the last of the three metrics to become inverted. It has been inverted for the past four days. Should the ratio remain inverted for another six sessions, then we will declare “Inversion!” and begin our Count-Down to Economic Recession in Canada.*

Bob Weir, CFA: Contributing Analyst

See the Disclaimer below.

eRESEARCH DISCLAIMER

eResearch is engaged solely in the provision of equity research to the investment community. eResearch provides published research and analysis to its Subscribers on its website (www.eresearch.com), and to the general investing public through its extensive electronic distribution network and through newswire agencies.

With regards to distribution of its research material, eResearch makes all reasonable efforts to provide its publications, via e-mail, simultaneously to all of its Subscribers.

eResearch does not manage money or trade with the general public, provides full disclosure of all fee arrangements, and adheres to the strict application of its Best Practices Guidelines.