

RECESSION BAROMETER

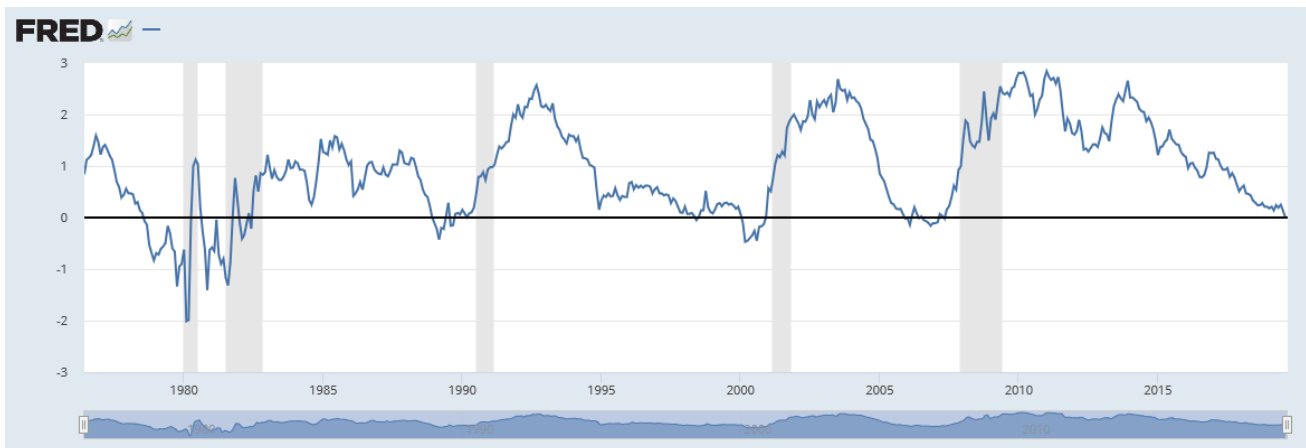
August 30, 2019

Spotlight on : Yield Curve Ratios – Canada and USA

SUMMARY

In Canada, the benchmark 10-Year/2-Year yield curve ratio continues to be inverted with the Spread consolidating between $-0.18x$ and $-0.20x$. With Inversion occurring for 10 consecutive days, we initiated our Economic Recession Count-Down for Canada on August 8th. This Inversion has continued and has now lasted for 26 consecutive days.

In the USA, using historic precedent, a recession has typically followed 15 to 20 months after an Inversion occurs. Using this guideline for Canada indicates that a Canadian recession could occur between November 2020 and April 2021. The predictor has correctly forecast the five U.S. recessions that have occurred over the past 43 years, as shown in the Federal Reserve Bank of St. Louis chart of “10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity”.



Some Inversions last for months, others for mere weeks; there is no consensus. Eventually, the yield curve returns to “normal”, i.e., the longer maturity has a higher yield than the shorter maturity. Even as the yield curve ratio increases, the actual Economic Recession has not yet occurred.

We use the standard definition for determining a recession, which is two consecutive quarters of negative GDP growth. Of course, an Economic Recession can occur either before or after that “usual” 15-20 month range.

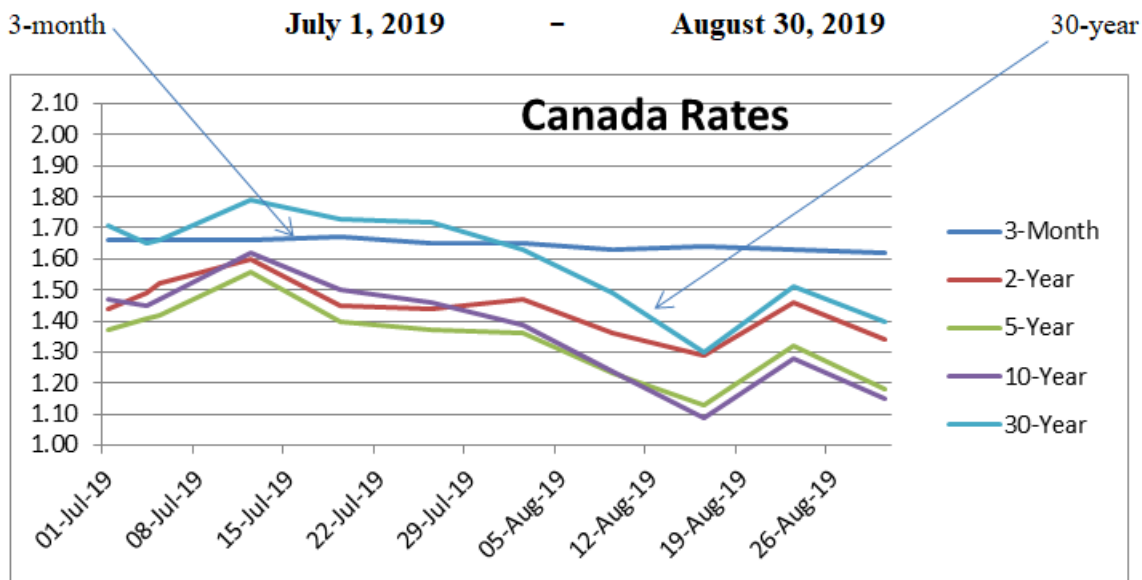
Using all of the yield curve ratios that we constantly monitor, and factoring these ratios into our internally-developed Recession Barometer, we conclude that the de facto Inversion has occurred in Canada and it is on the cusp in the United States.

A. FOCUS ON CANADA

Interest Rates: Various Maturities

In the chart below, we show Canadian interest rates since the start of Q3/2019 for various maturities ranging from 3 months to 30 years. As expected, 3-month Treasury Bills show fair stability. Not as expected is that these 3-month T Bills are yielding more than all of the other maturities. These other maturities have all declined appreciably over these two months. In particular, the 30-year rate declined to equal the 2-year rate in mid-August and then widened out only slightly since then.

Since July 1, 2019

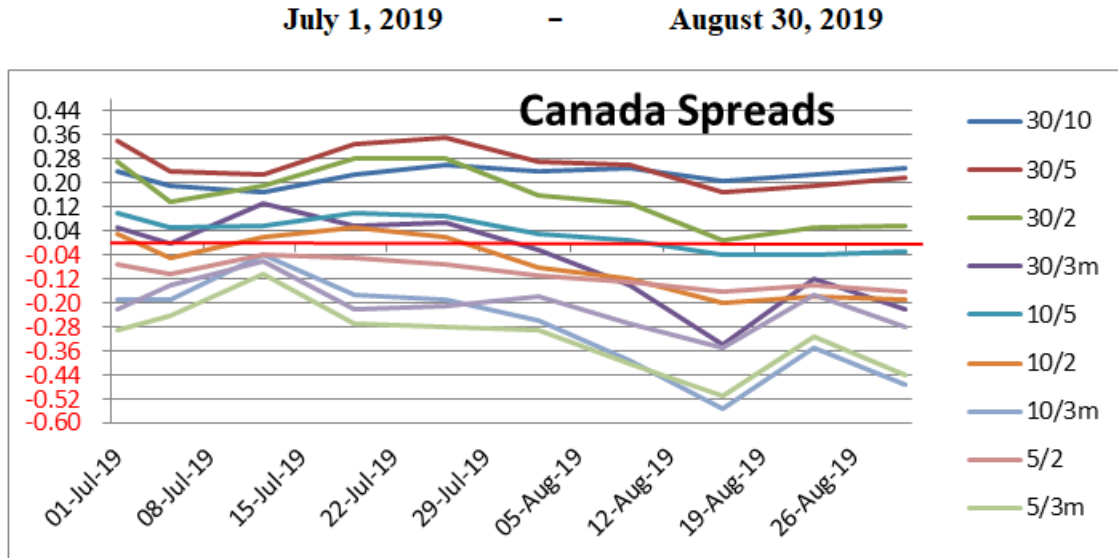


Here are the above graphics in table form. Notice the sharp drop in all rates, except the 3-month, in the latest week.

<u>Date</u>	<u>3-Month</u>	<u>2-Year</u>	<u>5-Year</u>	<u>10-Year</u>	<u>30-Year</u>
01-Jul-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
12-Jul-19	1.66	1.60	1.56	1.62	1.79
19-Jul-19	1.67	1.45	1.40	1.50	1.73
26-Jul-19	1.65	1.44	1.37	1.46	1.72
02-Aug-19	1.65	1.47	1.36	1.39	1.63
09-Aug-19	1.63	1.36	1.23	1.24	1.49
16-Aug-19	1.64	1.29	1.13	1.09	1.30
23-Aug-19	1.63	1.46	1.32	1.28	1.51
30-Aug-19	1.62	1.34	1.18	1.15	1.40

Spreads: Various Maturities

The next graph shows the Spreads for various combinations of maturities. The **Red** line demarks 0.00x. Many of the Spreads are below that line.



Here is the table for some of those Spreads.

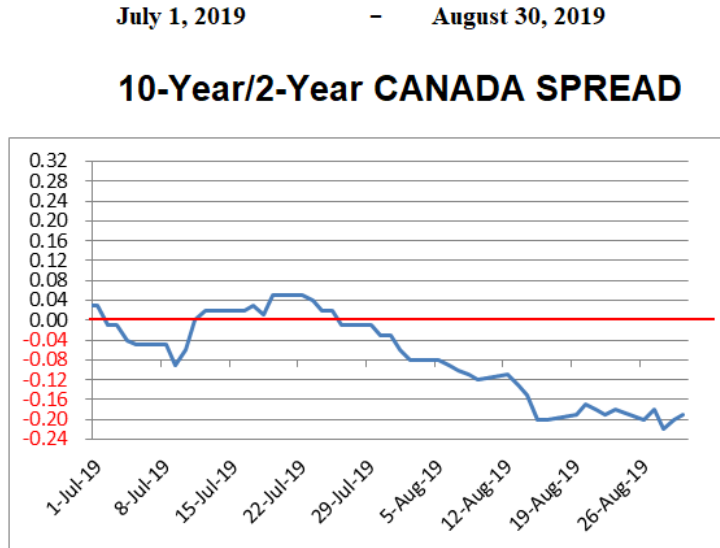
Date	<u>30/10</u>	<u>10/5</u>	<u>10/2</u>	<u>10/3m</u>	<u>5/2</u>
1-Jul-19	0.24	0.10	0.03	-0.19	-0.07
5-Jul-19	0.19	0.05	-0.05	-0.19	-0.10
12-Jul-19	0.17	0.06	0.02	-0.04	-0.04
19-Jul-19	0.23	0.10	0.05	-0.17	-0.05
26-Jul-19	0.26	0.09	0.02	-0.19	-0.07
2-Aug-19	0.24	0.03	-0.08	-0.26	-0.11
9-Aug-19	0.25	0.01	-0.12	-0.39	-0.13
16-Aug-19	0.21	-0.04	-0.20	-0.55	-0.16
23-Aug-19	0.23	-0.04	-0.18	-0.35	-0.14
30-Aug-19	0.25	-0.03	-0.19	-0.47	-0.16

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Recession Barometer: Canada

In Canada, we have already started our Count-Down to a possible recession. This was based on the 10-year/2-year Government of Canada bonds exhibiting Inversion for ten consecutive business days, which it did on August 8. (Our alternative criterion is that the 10/2 must be inverted for 20 out of 30 consecutive business days, and this has also occurred.)

The chart below shows the 10-year/2-year Spread for Canadas since July 1, 2019.



Observation: As shown above, there was an Inversion in the 10/2 from July 2 through July 10, being only seven consecutive days. However, starting on July 26, the 10/2 inverted again and it has remained inverted ever since. August 8 marked the tenth consecutive day of Inversion and, so, the Count-Down to an Economic Recession in Canada began. Historically, after an Inversion has occurred, it has taken between 15 and 20 months before a recession occurs.

Forecasting the Commencement of a Recession in Canada

Using eResearch
criteria, an
inversion in
Canada occurred
on August 8, 2019

Historically, a
recession begins
15 to 20 months
hence

<u>Inversion</u>	<u>Inversion</u>	<u>Inversion</u>
<u>Occurred</u>	<u>+15 Months</u>	<u>+20 Months</u>
August 8, 2019	November/2020	April/2021

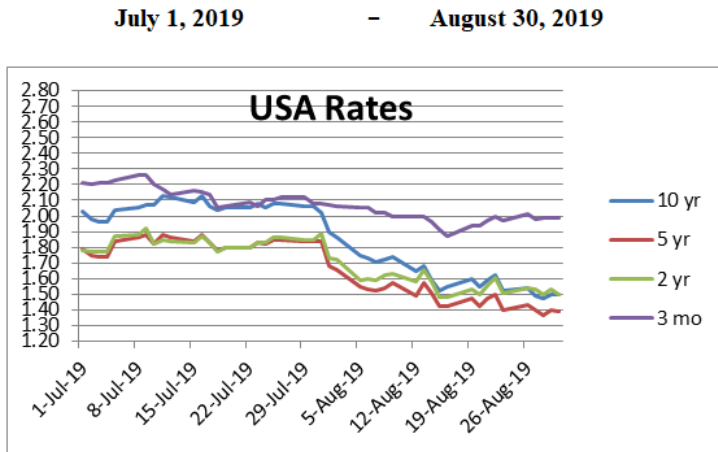
Source: eResearch

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B. FOCUS ON USA

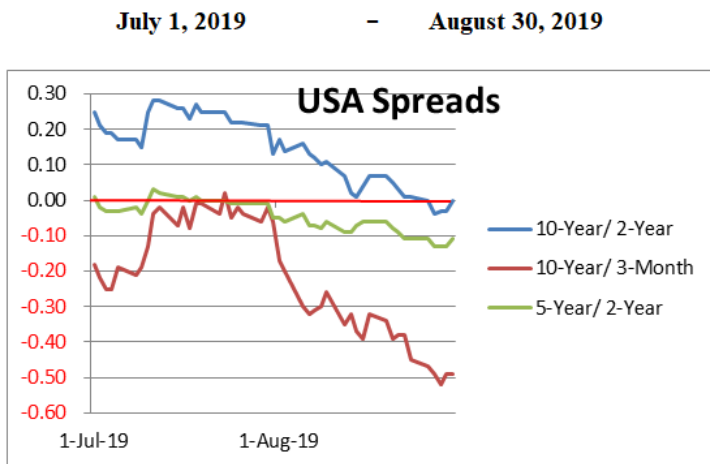
Interest Rates: Various Maturities

In the chart below, we show U.S. interest rates from July 1, 2019 for 10-year, 5-year, 2-year, and 3-month maturities.



Spreads: Various Maturities

Here is a graph of the Spreads of three maturity combinations. These are some of the Spreads that we highlight in our yield spread analysis for U.S. yield curve ratios.



The 10/2 has gone back to neutral at 0.00x after having been inverted for three days. The other two yield curve ratios are well inverted, almost continuously over the two months.

Recession Barometer: USA

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

- 10-Year/2-Year Spread
- Equal-Weight Average of Three Spreads: 20-Year/10-Year; 10-Year/3-Month; and 5-Year/2-Year
- 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 below shows how these metrics have evolved since the beginning of May 2019.

Date	10Year/2Year U.S. Spread		3 U.S. Spreads		12 U.S. Spreads		Combined Spreads	
	Spread	Reading	Spread	Reading	Spread	Reading	Spread	Reading
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
July 12, 2019	0.28	6.0 X	0.10	8.0 X	0.07	8.5 X	0.15	7.5X
July 19, 2019	0.25	6.5 X	0.10	8.0 X	0.08	8.5 X	0.14	7.5X
July 26, 2019	0.22	6.5 X	0.08	8.5 X	0.07	8.5 X	0.12	8.0X
August 2, 2019	0.14	7.5 X	0.01	9.5 X	0.02	9.5 X	0.06	8.5X
August 9, 2019	0.11	8.0 X	-0.01	10.0 X	0.00	9.5 X	0.03	9.0X
August 16, 2019	0.07	8.5 X	-0.04	10.0 X	0.03	9.0 X	0.02	9.5X
August 23, 2019	0.01	9.5 X	-0.09	10.0 X	0.06	9.0 X	0.00	9.5X
August 30, 2019	0.00	9.5 X	-0.11	10.0 X	0.08	9.0 X	0.00	9.5X

Observation: The 10/2 Spread is now at the lowest level in the last four months and has reached the neutral point of 0.00x. The “3 Spreads” has been negative, or “inverted”, for the past four weeks, and this negative ratio is widening. The “12 Spreads” has actually risen off the bottom the past three weeks, mainly because Spreads at the long end, 30-year and 20-year, have not been pressured as much as Spreads in shorter maturities. Overall, the Combined Spread has dropped to the base line, a reading of 0.00x, where it has registered for the last two weeks. Any weakness in the “12 Spreads” would inevitably result in the Combined Spread inverting.

CURRENT U.S. RECESSION BAROMETER READING, Week Ending August 30:

9.5x

This is the third consecutive week of a 9.5x reading. Still on the cusp!

OTHER CONSIDERATIONS

1. The Unbelievable OBFR Yield

We love showing this next table of interest rates because its results are truly unbelievable, and it illustrates just how dysfunctional the yield curve scenario is right now. (The **Green** numbers are the Overnight Bank Funding Rate (OBFR); the **Red** numbers comprise those maturities with a lower rate than the OBFR; and the **Black** numbers are at or higher than the OBFR.)

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
12-Jul-19	2.37	2.16	2.18	2.14	2.07	1.96	1.84	1.81	1.86	1.98	2.12	2.42	2.64
19-Jul-19	2.40	2.11	2.16	2.06	2.03	1.94	1.80	1.77	1.80	1.91	2.05	2.35	2.57
26-Jul-19	2.37	2.13	2.15	2.12	2.10	2.00	1.86	1.83	1.85	1.95	2.08	2.38	2.59
2-Aug-19	2.10	2.11	2.12	2.06	2.02	1.85	1.72	1.67	1.66	1.75	1.86	2.16	2.39
9-Aug-19	2.10	2.05	2.06	2.00	1.95	1.78	1.63	1.58	1.57	1.65	1.74	2.03	2.26
16-Aug-19	2.11	2.05	1.95	1.87	1.85	1.71	1.48	1.44	1.42	1.49	1.55	1.82	2.01
23-Aug-19	2.10	2.07	2.02	1.97	1.87	1.73	1.51	1.43	1.40	1.46	1.52	1.82	2.02
30-Aug-19	2.10	2.10	2.04	1.99	1.89	1.76	1.50	1.42	1.39	1.45	1.50	1.78	1.96

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

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

2. U.S. Inversions

We monitor 24 different yield curve ratios. Of these, 15 are inverted.

30Y	30Y	30Y	30Y	20Y	20Y	20Y	10Y	10Y	10Y	10Y	10Y	5Y	5Y	5Y	5Y	5Y	2Y	2Y	2Y	2Y	1Y	1Y	1Y
20Y	10Y	5Y	2Y	10Y	5Y	2Y	5Y	2Y	1Y	6M	3M	2Y	1Y	6M	3M	1M	1Y	6M	3M	1M	6M	3M	1M
0.18	0.46	0.57	0.46	0.28	0.39	0.28	0.11	0.00	-0.26	-0.39	-0.49	-0.11	-0.37	-0.50	-0.60	-0.71	-0.26	-0.39	-0.49	-0.60	-0.13	-0.23	-0.34

All of the metrics are not inverted but so many are and these have been inverted for quite some time. This strongly suggests that an Economic Recession in the USA is coming.

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