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Yield Curve Inversions

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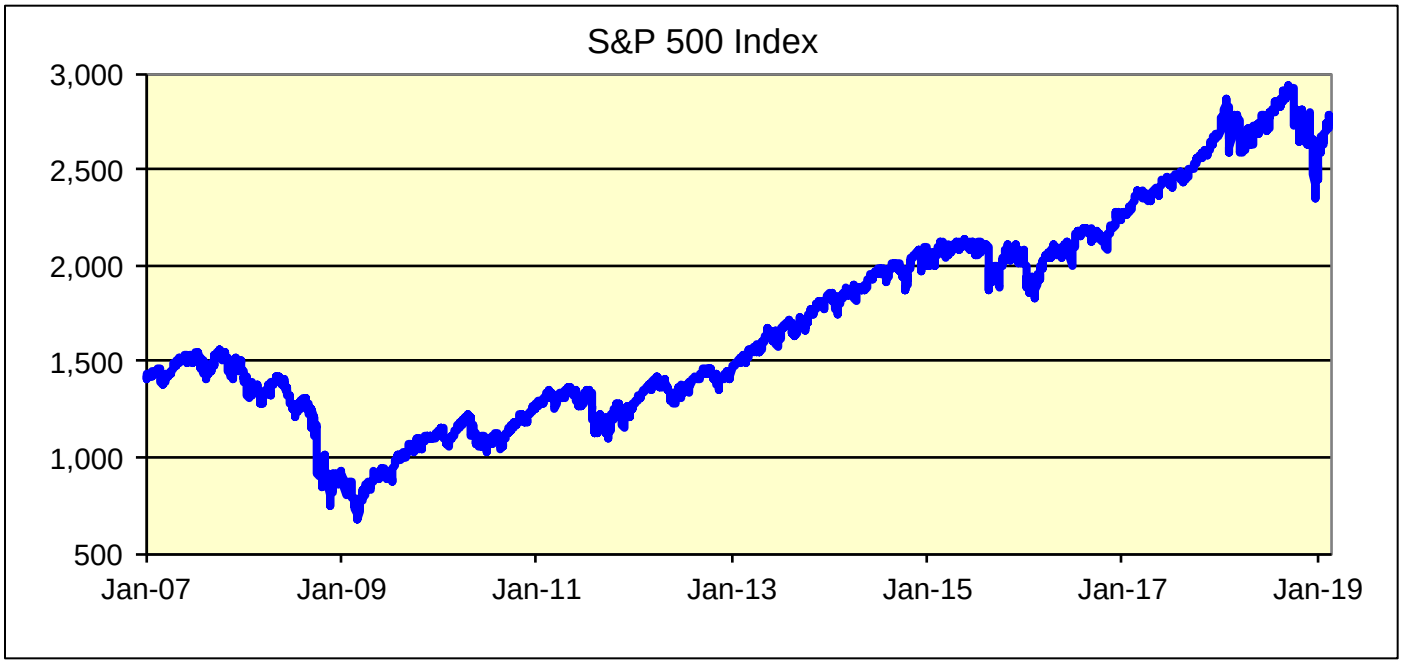
December 2018 was a very weak month for equity markets and the U.S. proved to be the epicentre of stock-selling activity. Certainly, the political wrangling, which partially shut down U.S. government operations, contributed to the prevailing uncertainty. Ongoing trade disputes between the U.S. and many of its major trading partners also added to the equity malaise. As well, one of the key factors in the U.S. equity sell-off can be traced to activity in the U.S. bond market. Specifically, the emergence of a yield curve "inversion" prompted additional downward pressure in U.S. equities. The combined effect was enough for analysts to raise the spectre of an outright "bear" market[1]. Regardless of the causes, investors who take advantage of professional advice are typically better able to weather these market episodes.

U.S. Equities

Figure 1



Source: Bloomberg

The S&P 500 Index opened with steady gains in 2018. Of the 21 trading days in January 2018, new high closing levels were recorded on 14 of those days. As can be seen in Figure 1, the U.S. market's second

[1] A bear market is generally considered to occur when a market index declines by 20% or more from a recent high.

correction[2] of the post-recovery[3] period did follow, as the index racked up a cumulative 10.2% loss by February 8, 2018. Following that correction, investors were sufficiently optimistic to produce five more all-time highs over the balance of the year. At the time of writing, the most recent high close for the S&P 500 Index occurred on September 20, 2018. At the time, it was on track for another year of positive performance. However, the index came within a thin margin of entering a bear market, as it plunged 19.8% from the September high to a low on December 24, 2018.

It is no exaggeration to state that 2018 saw the worst December decline for the U.S. stock market since December 1931, when the global economy was in the grip of the Great Depression. The S&P 500 Index lost 9.2% in December 2018, closing out a poor quarter, and ending the year with a negative return. For the 2018 calendar year, the index was down 6.2%, the biggest annual loss since 2008 (-38.5%), during the financial crisis. It also marked the first time since 1948 that the S&P 500 Index finished the year in the red after rising over the first three quarters of the year. For many market participants, the emergence of a yield curve "inversion" in the U.S. provided the basis for additional worries against a backdrop of already heightened uncertainty.

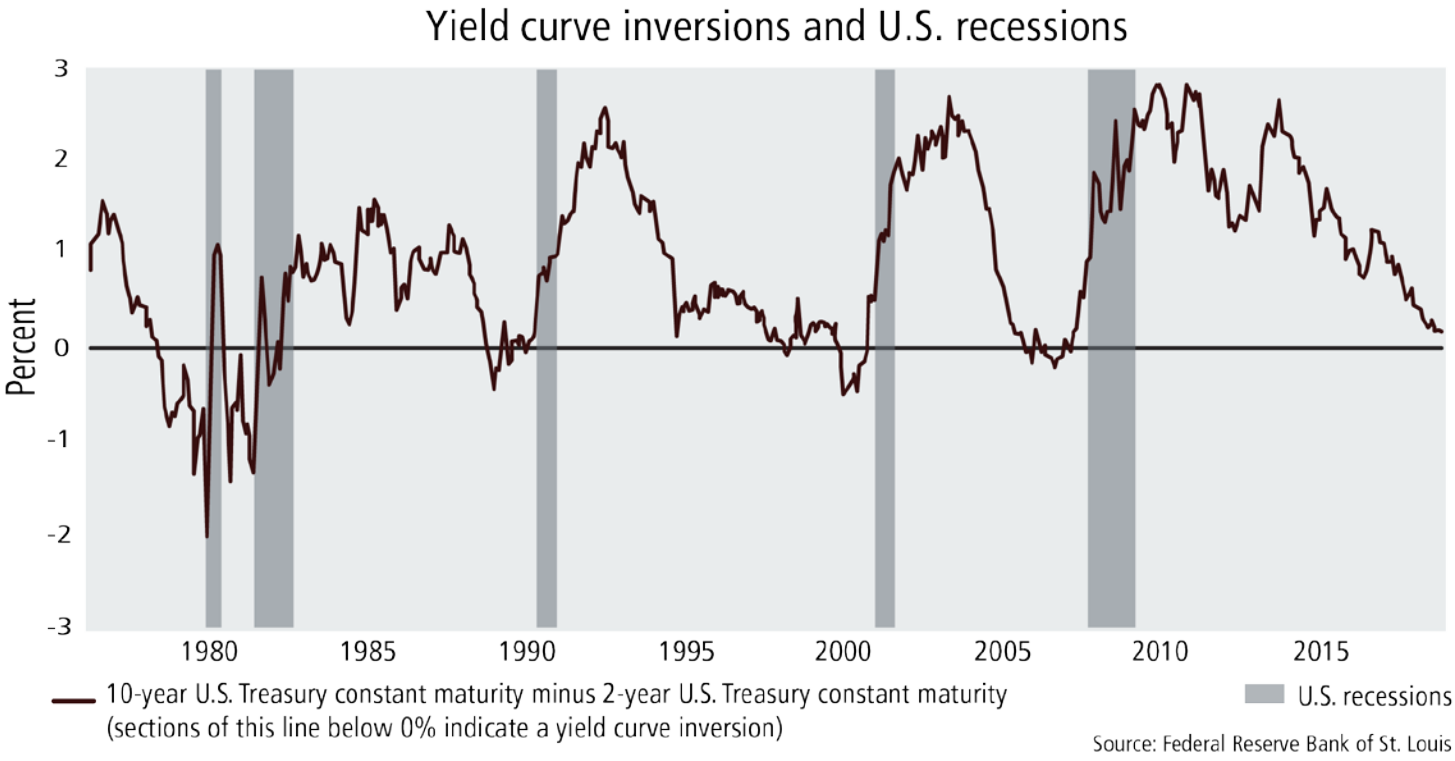
U.S. Yield Curve

Stock market watchers have often looked to the bond market when concerns over future economic growth are prevalent. Usually, the benchmark yield curve, which represents the market yields of U.S. Treasury debt instruments, is upward sloping. That is, debt issues that are closer to their maturity date have lower market yields than debt issues with longer terms to maturity. The reason for this is that investors usually require a greater reward (interest payment) for taking the risk of holding a longer-dated instrument from the same debt issuer. When the market perceives that this risk relationship has changed (the relative risks of shorter-dated instruments have increased or the relative risks of longer-dated instruments have declined) an "inversion" occurs. Looking at it another way, an inversion has occurred when the market yields on shorter-dated instruments rise above those of longer-dated ones.

On December 4, 2018, the yield on the benchmark two-year U.S. Treasury note was higher than the corresponding rate on the five-year note for the first time since June 6, 2007. On the surface, this may simply seem to be a market aberration. Still, historically, the emergence of a yield curve "inversion" has often been treated as a warning that a recession is close. Thus, the rationale for additional selling pressure in the U.S. equity market. Even though it may seem to be a case of splitting hairs, it is a market convention that when the yield on the two-year note is higher than the ***10-year note***, specifically, the curve is inverted. This market convention is strong enough that the U.S. Federal Reserve publishes the data on the difference between the two-year and 10-year yields. As can be seen in Figure 2, these yield curve inversions and recessions have been closely correlated for the last four decades. Still, the two-year/10-year inversion has been a necessary, but not sufficient, precursor for the U.S. economy's move into recession. Curve inversions of this type have preceded each of the recessions in the chart, but each curve inversion was not always followed by a recession. At the time of writing, though it is very close, the yield on the two-year Treasury has not moved above that of the 10-year Treasury.

[2] The first correction occurred on February 11, 2016 when the S&P 500 recorded a cumulative 14.2% decline. A market correction is widely viewed as a decline of between 10% and 20% from a recent high.
[3] The S&P 500 recovered to its pre-financial crisis high (set on October 9, 2007) on March 28, 2013.

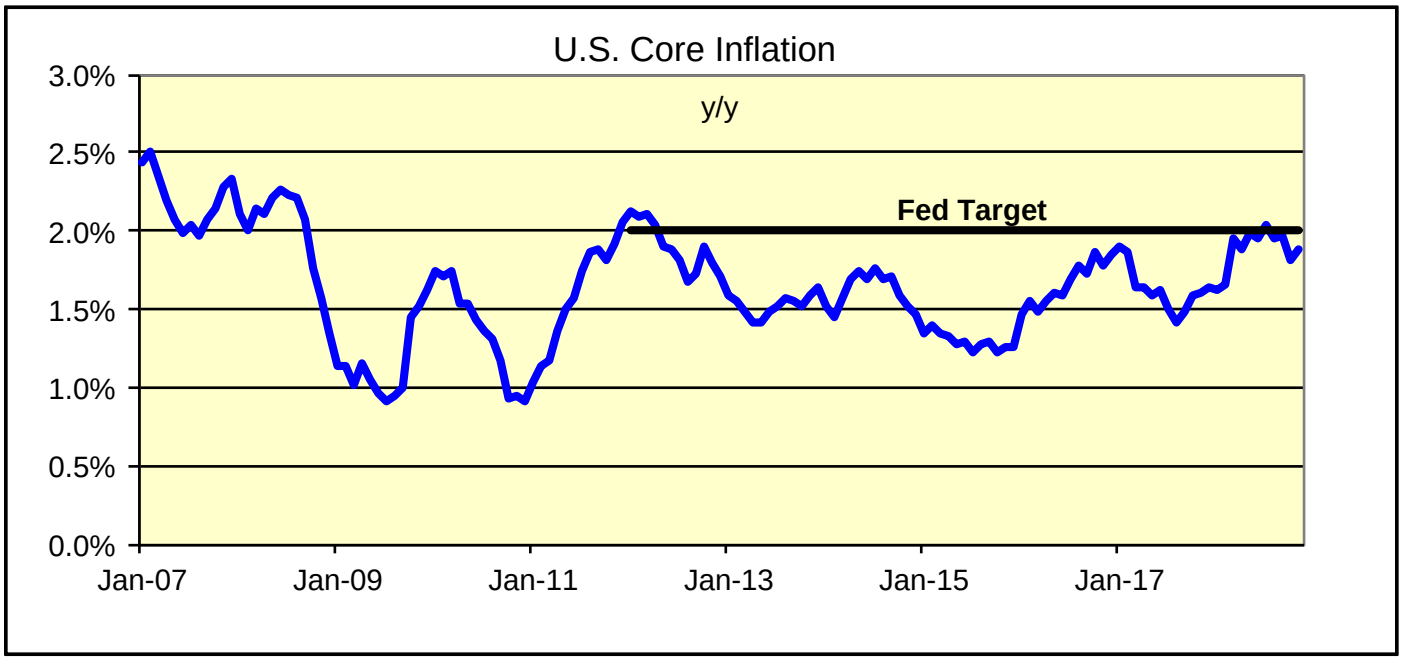
Figure 2



U.S. Federal Reserve

What about the Fed? Even though one part of the Fed's mandate, full employment, is a nebulous concept, its inflation target is not. As indicated in Figure 3, the Fed adopted its current 2% inflation target in January 2012. Specifically, it targets the annual change in the personal consumption expenditures price index, excluding food and energy, and not the consumer price index. With market participants keenly focused on U.S. Treasury yields, all eyes turned to the Fed on December 19, 2018, when it raised administered interest rates by 0.25%. This was the ninth interest rate hike of the current tightening cycle that began on December 16, 2015. However, in the documents that accompanied the hike, the Fed moved to scale back expectations for further interest rate moves in 2019 to two additional moves. Previously, three rate hikes of 0.25% had been anticipated. The length of the U.S. tightening cycle and the extent of future interest rates are unknown (descriptions of the tightening cycles are available in the Appendix). Expectations that the U.S. economy had or was entering a slower period of economic growth appeared to be reflected in this information, despite the increase in interest rates. No doubt U.S. economic data and the shape of the yield curve will continue to preoccupy market participants as the business cycle evolves.

Figure 3



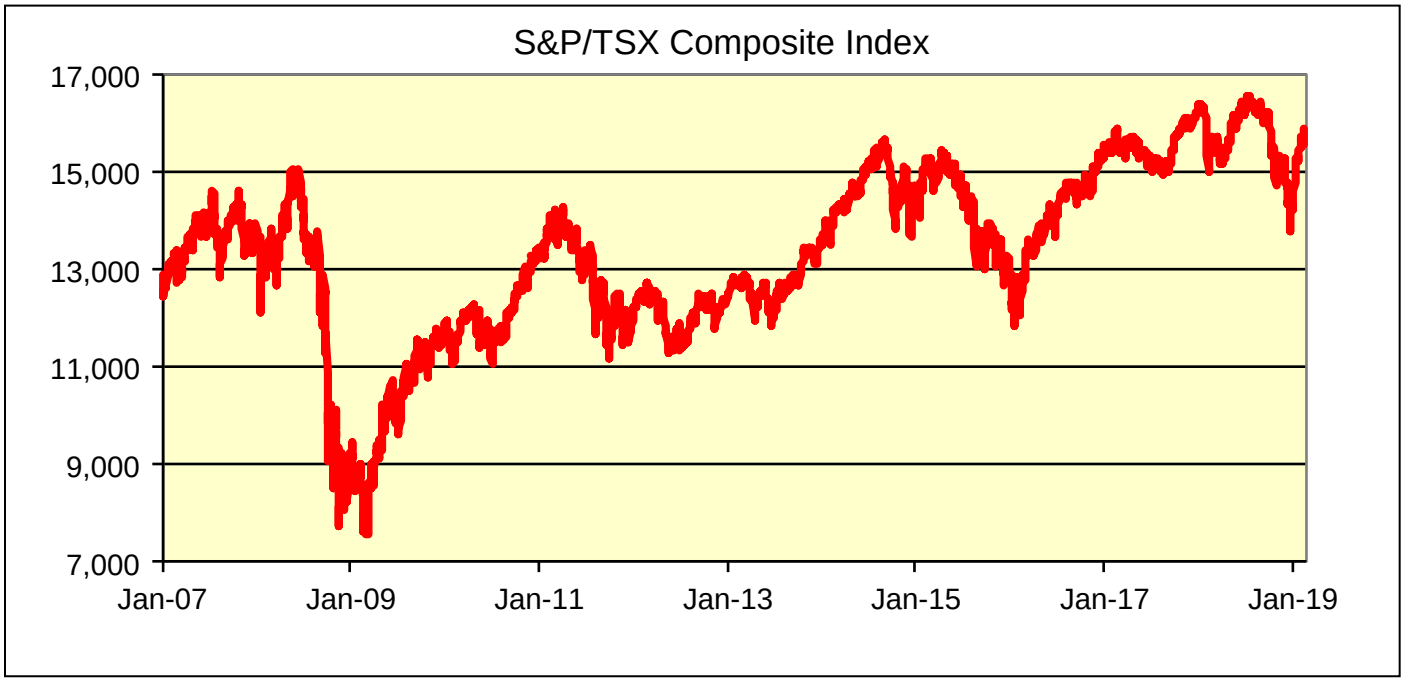
Source: U.S. Bureau of Economic Analysis; U.S. Federal Reserve

Canadian Markets

The Canadian equity market has provided an investor experience that has been very different from its U.S. counterpart for much of the post-recovery period. Even though both markets bottomed out on March 9, 2009, the S&P 500 Index's cumulative advance (to the high on September 20, 2018) was 333.2%. As shown in Figure 4, the broader Canadian equity market index, the S&P/TSX Composite Index, posted its most recent high on July 12, 2018. However, the cumulative advance was a far less impressive 118.9%. The late-year decline through to the end of 2018 produced a 5.8% loss for December, a 16.8% reversal from the July high, and an 11.6% drop for the 2018 calendar year. This calendar-year return was also the worst since 2008 (-35.0%).

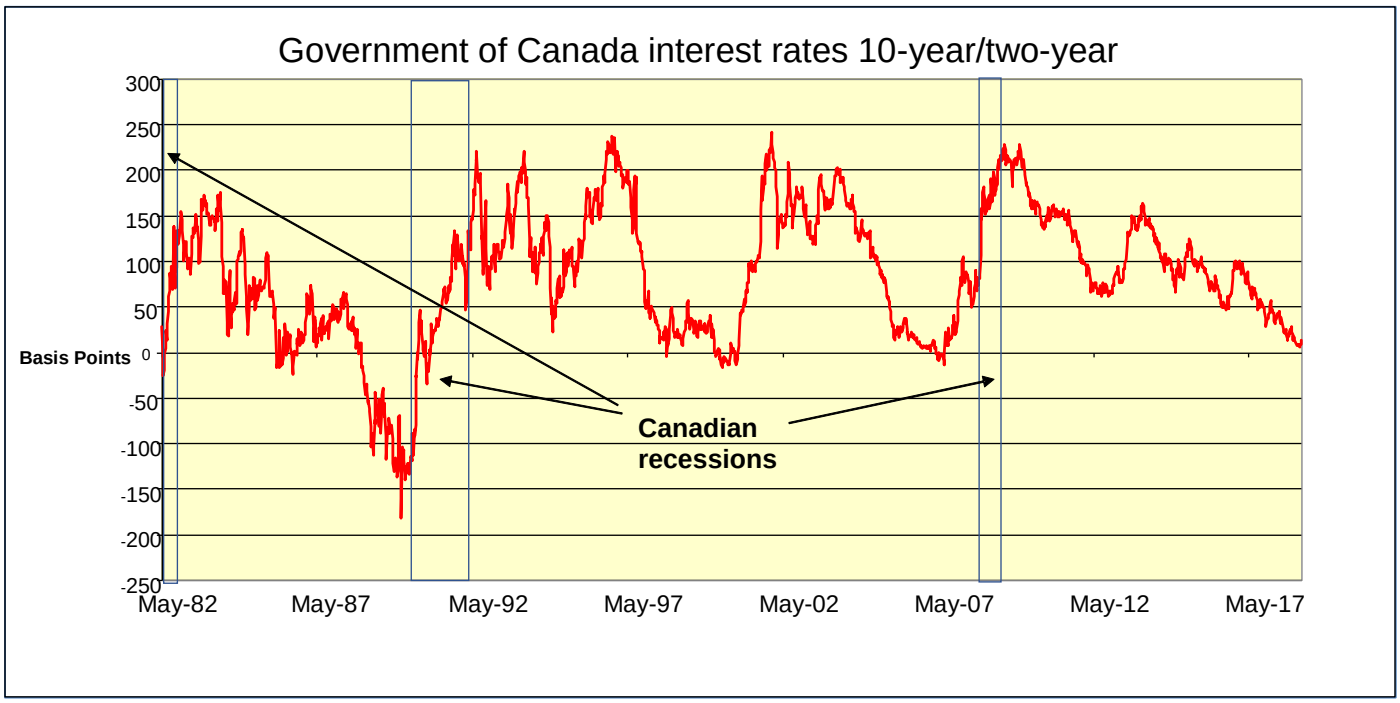
The Canadian fixed-income market bears a much stronger comparison to the U.S., particularly with respect to the predictive powers of the 10-year/two-year yield curve inversion, as can be seen in Figure 5. Nevertheless, like the U.S. market, Canadian fixed-income trading has yet to produce the anticipated inversion.

Figure 4



Source: Bloomberg

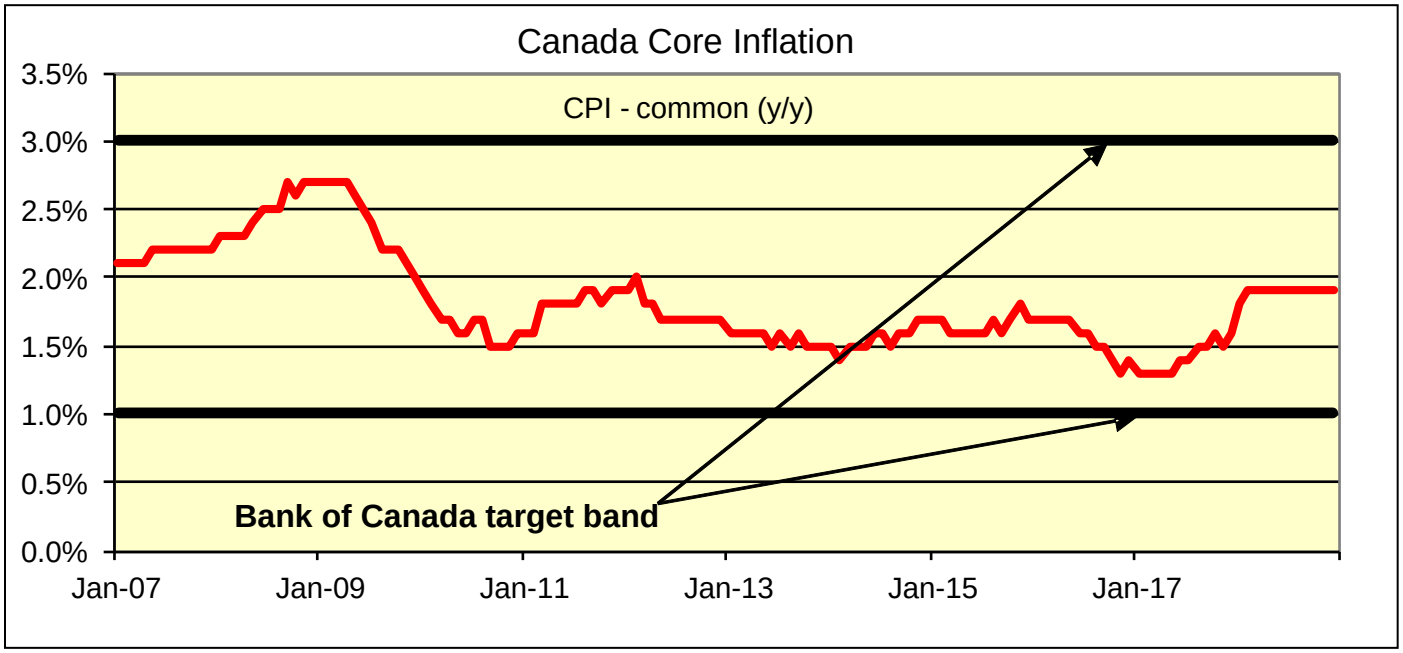
Figure 5



Source: U.S. Bureau of Labor Statistics; Statistics Canada

Bank of Canada

Figure 6



Source: Bank of Canada; Statistics Canada

While the Fed was a relatively late adopter of inflation targets, the Bank of Canada, under Governor John Crow, adopted an inflation control target in 1991. While it has evolved over time, it was renewed most recently in October 2016 for five years to the end of 2021. The target aims to keep inflation at the 2% midpoint of a target range of 1 to 3% over the medium term. According to the bank, it raises or lowers its policy interest rate, as appropriate, in order to achieve the target typically within a horizon of six to eight quarters – the time that it usually takes for policy actions to work their way through the economy and have their full effect on inflation. Like the Fed, the Bank of Canada does not use CPI as its inflation target. Instead, it developed its own core measures of inflation in 2016. Of these, "CPI-common" is typically referenced as the bank's preferred measure as it is most closely correlated with the output gap (the difference between actual economic output and Canada's potential economic output). As shown in Figure 6, this measure was exceptionally stable in 2018. Given the relatively slow growth in Canada, there is limited justification for much additional tightening of monetary policy domestically (descriptions of the tightening cycles over the past 40 years are also available in the Appendix).

Conclusions

- Market participants often get caught up in looking for clues or signals as to what will happen next. Understandably, these signals may not work all of the time and investors should avoid knee-jerk reactions when they observe them. Having the advantage of professional advice allows greater discipline in the investing process.
- The markets in Canada and the U.S. have not followed the same pattern over the past decade just as their respective economies have exhibited different performances. This highlights the advantage of maintaining a well-diversified portfolio.
- Monetary policies in the U.S. and domestically may have both moved to a less restrictive stance. It is only well after the fact that the starting dates and ending dates for business cycles are established.

Appendix: North American Tightening Cycles (1977 – Present)

U.S. Federal Reserve

Date of first interest rate hike	Fed Funds rate prior to first rate hike	Number of rate hikes	Total change in rates	Fed Funds rate after final rate hike	Date of first rate cut	Length of tightening cycle (years)
December 15, 1977	4.750%		10.750%	15.500%	November 15, 1979	1.9
January 3, 1980	12.000%		8.000%	20.000%	April 1, 1980	0.2
June 5, 1980	8.500%		11.500%	20.000%	December 15, 1980	0.5
December 29, 1980	17.000%		3.000%	20.000%	January 20, 1981	0.1
May 8, 1981	18.000%		2.000%	20.000%	June 15, 1981	0.1
January 5, 1982	12.000%		3.000%	15.000%	April 15, 1982	0.3
May 20, 1983	8.500%		1.125%	9.625%	August 20, 1983	0.3
March 5, 1984	9.500%		2.250%	11.750%	September 5, 1984	0.5
February 15, 1985	8.250%		0.750%	9.000%	March 20, 1985	0.1
July 20, 1985	7.625%		0.375%	8.000%	December 18, 1985	0.4
May 20, 1986	6.750%		0.125%	6.875%	July 11, 1986	0.1
December 20, 1986	5.875%		1.375%	7.250%	October 25, 1987	0.8
January 20, 1988	6.500%		3.250%	9.750%	June 7, 1989	1.4
February 4, 1994	3.000%	7	3.000%	6.000%	July 6, 1995	1.4
March 25, 1997	5.250%	1	0.250%	5.500%	September 29, 1998	1.5
June 30, 1999	4.750%	6	1.750%	6.500%	January 3, 2001	1.5
June 30, 2004	1.000%	17	4.250%	5.250%	August 17, 2007	3.1
December 16, 2015	0.125%	9	2.250%	2.375%	To Date	3.2

Bank of Canada

Date of first interest rate hike	Bank Rate prior to first rate hike	Number of rate hikes	Total change in rates	Bank Rate after final rate hike	Date of first rate cut	Length of tightening cycle (years)
March 7, 1978	7.500%		8.700%	16.200%	April 15, 1980	2.1
July 29, 1980	10.180%		7.180%	17.360%	December 23, 1980	0.4
January 20, 1981	16.970%		4.270%	21.240%	August 11, 1981	0.6
February 2, 1982	14.590%		2.000%	16.590%	June 22, 1982	0.4
May 17, 1983	9.270%		3.990%	13.260%	July 17, 1984	1.2
January 29, 1985	9.660%		2.150%	11.810%	March 12, 1985	0.1
October 29, 1985	8.770%		3.330%	12.100%	February 18, 1986	0.3
March 31, 1987	7.050%		2.780%	9.830%	October 20, 1987	0.6
November 3, 1987	8.090%	17	5.960%	14.050%	May 29, 1990	2.6
November 16, 1994	5.250%	7	3.000%	8.250%	May 8, 1995	0.5
June 26, 1997	3.250%	6	2.750%	6.000%	September 29, 1998	1.3
November 17, 1999	4.750%	4	1.250%	6.000%	January 23, 2001	1.2
April 16, 2002	2.250%	5	1.250%	3.500%	July 15, 2003	1.2
September 8, 2004	2.250%	10	2.500%	4.750%	December 4, 2007	3.2
June 1, 2010	0.500%	3	0.750%	1.250%	January 21, 2015	4.6
July 12, 2017	0.750%	5	1.250%	2.000%	To Date	1.6

The U.S. Fed Funds rate and the Bank of Canada Bank Rate became the explicit monetary policy instruments in the late 1980s.