TMX THE FUTURE IS YOURS TO SEE.

**CGF** Five-Year Government of Canada Bond Futures

**CGB** Ten-Year Government of Canada Bond Futures

# Long Maturity Canada Yields Are Not For You

## Summary

Profit seeking investors with no inherent risk mitigation needs should look to the front end of the curve in Canada after the recent flattening as the long end has become unattractive. 5-year futures or perhaps even 10-year futures are far more likely to result in profits than bonds with a term to maturity longer than 10 years.

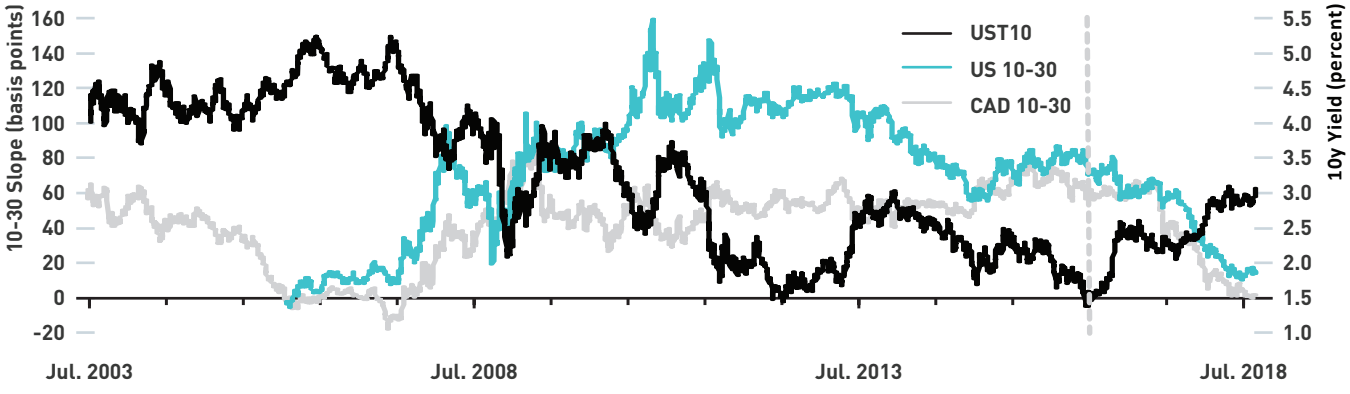
## 18 Months of 10-30 Flattening

The 60+ basis points of flattening that has occurred in the 10-30 bond curve slope in Canada since June 2017 has exposed the tendency for Canadian long bond yields to be explained by the Market Segmentation Theory of interest rates rather than the Rational Expectations Theory. If the latter were to prevail, we would infer from the completely flat 10-30 curve that market participants are predicting that the Bank of Canada (BoC) is currently at the end of a tightening cycle and/or that they are in the process of making a policy mistake. Given the strong performance of the domestic economy as well as that of our southern neighbour, there is scant economic evidence to support this view.

Instead, if we cast off the notion that rational expectations play a role in the long end of the curve, we can explain the powerful flattening of past years in another way. The long end of Canada has always been dominated by very large pension and insurance funds that, especially after 2008, embarked on various Liability Driven Investing[1] strategies in order to reduce risk and immunize, to the extent they weren't already, some of their very long-term liabilities. Note in Figure 1 that the slope of Canada 10-30, shown in blue, remained well below that of the US, shown in red, for the 5 years between the financial crisis and mid-2014.

**FIGURE 1**

### 10-30 Slope, U.S. & Canada




1. Also referred to as Asset-Liability Matching and closely related to the concepts of immunization and defeasance.

Source: BMO Capital Markets Fixed Income Sapphire database, Federal Reserve H.15 Selected Interest Rates

With a strong preference for domestic long bonds, large life insurers and pensions had significant appetite for Canadian long bonds which kept the 10-30 curve in a range of 40-60 basis points even as the US curve steepened from 60 basis points to 160 and then flattened to 60 again as the recovery progressed in fits and starts. As yields, shown in black, finally began to move off their lows in midsummer 2016 and finally reached 2.5% in 2017 accompanied by a surging stock market, liability hedgers who were not completely immunized were handed a gift; very positive funded positions as their assets surged and their partially-hedged liabilities fell. The response would be perfectly rational – lock in the positive funded status by immunizing as many of the liabilities as possible. Since the Federal government in Canada has a relatively smaller deficit versus the US and there are relatively more centralized assets to manage in the giant pensions and life insurers, demand for long term assets often outstrips supply which flattened the 10-30 curve to almost zero in mid-September 2018, significantly flatter again than a similar measure in the US[2].

Theories of interest rates aside, most readers are paid to generate returns rather than pontificate on the causes of the shape of the yield curve. For the pragmatic, the facts appear to be that, absent an urgent need to mitigate losses on current positions or hedge long duration liabilities, the average fixed income Portfolio Manager (PM) should be uninterested in buying long term bonds in Canada at these yields. One is currently paid almost no yield pickup to defer consumption from year 10 in the future to year 30. In addition, the 2.4% nominal yield for nearly two generations is a scarce 0.4% above the Bank of Canada's long-term target for inflation[3], suggesting a scant annual 0.4% real yield to defer consumption for 30 years. To be sure, the market is not "making a mistake" or "wrong." Rather the value of long term bonds could be in the immunization value to those with long-term liabilities. Managers who do not have such hedging needs will have a difficult time justifying the low expected returns.

# Expected Returns

For coupon bonds, examining the yield to maturity on a security is usually insufficient to form an expectation of future returns. Returns on bonds are composed of the cash accruals, pull-to-par over time, and any capital gains or losses from changes in interest rates over an investment horizon.

In Figure 2 we use the par curve for maturities of interest to PMs who manage bond portfolios to calculate an expected return assuming no change in the shape and level of the yield curve. We calculate both accruals and expected rolldown[4], for two dates. The first date is June 2017, at the beginning of the most recent flattening of the 10-30 Canada curve and the second in mid-September 2018. All of the returns (expected returns calculations based on a 3 month horizon) are calculated in basis points of yield in order to effectively compare bonds of significantly different maturities.

**FIGURE 2**

| Year to Maturity | 1-Jun-17 | | | | 18-Sep-18 | | | | Change | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Yield | Accruals (bps) | RollDown (bps) | Total E[r] (bps) | Yield | Accruals (bps) | RollDown (bps) | Total E[r] (bps) | Δ Yield (bps) | Δ Total E[r] (bps) |
| **3.0** | 1.00% | 8.5 | 2.0 | **10.5** | 2.20% | 19.0 | 0.9 | 20.0 | 119.6 | **9.5** |
| **4.0** | 1.08% | 6.9 | 2.0 | **8.9** | 2.25% | 14.8 | 1.4 | 16.2 | 117.1 | **7.2** |
| **5.0** | 1.17% | 6.0 | 2.1 | **8.2** | 2.29% | 12.2 | 0.9 | 13.0 | 112.1 | **4.9** |
| **6.0** | 1.23% | 5.3 | 1.6 | **6.9** | 2.33% | 10.4 | 0.9 | 11.3 | 109.2 | **4.4** |
| **7.0** | 1.30% | 4.9 | 1.6 | **6.5** | 2.35% | 9.2 | 0.7 | 9.9 | 105.7 | **3.4** |
| **8.0** | 1.36% | 4.5 | 1.7 | **6.2** | 2.37% | 8.2 | 0.5 | 8.7 | 100.9 | **2.5** |
| **9.0** | 1.44% | 4.3 | 1.9 | **6.2** | 2.39% | 7.4 | 0.3 | 7.7 | 94.6 | **1.5** |
| **10.0** | 1.53% | 4.1 | 2.3 | **6.5** | 2.39% | 6.8 | 0.1 | 6.9 | 85.8 | 0.4 |
| **12.0** | 1.68% | 3.9 | 1.6 | **5.5** | 2.40% | 5.8 | 0.1 | 5.9 | 72.4 | 0.5 |
| **15.0** | 1.81% | 3.5 | 1.0 | **4.4** | 2.42% | 4.8 | 0.1 | 4.9 | 60.8 | 0.5 |
| **20.0** | 1.99% | 3.0 | 0.8 | **3.8** | 2.42% | 3.8 | 0.0 | 3.8 | 43.5 | 0.1 |
| **25.0** | 2.07% | 2.7 | 0.2 | **2.8** | 2.42% | 3.2 | 0.0 | 3.2 | 35.5 | 0.4 |
| **30.0** | 2.07% | 2.3 | -0.1 | **2.3** | 2.41% | 2.8 | -0.1 | 2.7 | 34.1 | 0.5 |

Source: BMO Capital Markets' Fixed Income Sapphire database

2. An argument can be made that instability in the trade regime between Canada and the US could account for this. However, trade restrictions should eventually result in a less restrictive BoC policy, something not implied in current curves.
3. Which it has hit very successfully over the long term.
4. Given the very flat state of the curve, we ignore pull-to-par in this analysis.

The information of most interest is the far-right column in Figure 2 where we show the change in total expected return between June 2017, prior to the four BoC policy tightening moves and 85 basis point selloff in Canada 10 year bonds, and September 2018. Although one would expect to see higher expected returns across the yield curve given the higher yields, in fact, bonds 10 years and longer to maturity offer almost the identical very low expected returns as before yields started rising. From the final column in Figure 2 we can draw the following conclusions.

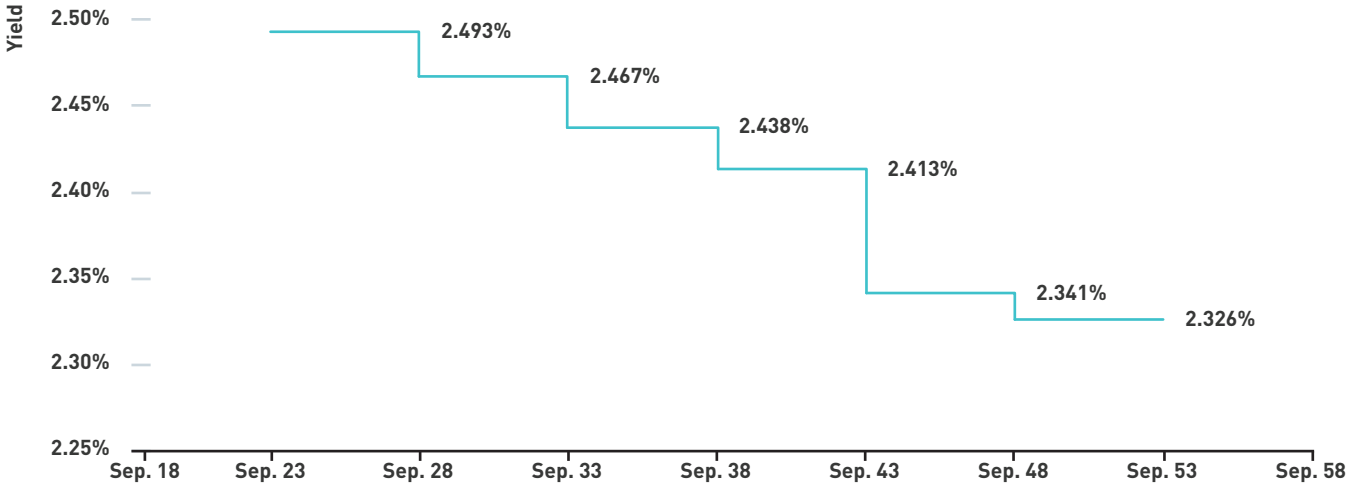
1. 10y and 30y bonds, and everything in between, are still not at all attractive from an expected return perspective. Buyers at these levels must value something besides the expected return such as the risk mitigating aspects of these bonds.
2. From a relative value perspective, one should be invested closer to the front end of the curve unless a specific call is being made on the direction of interest rates. PMs should consider CGB futures contracts (a 9-year bond) and CGF contracts (a 4.5-year bond) which offer superior expected returns to long bonds.
3. Long end rates, and even 10-year bonds, offer much less "buffer" against rising yields at present. Since the sum of the expected return in basis points and the current yield to maturity becomes the forward yield, an investor in 5-year bonds can withstand about 13 basis points of additional selloff over three months without incurring losses while an investor in 30-year bonds can withstand only three basis points of selloff.

# Implied Forwards

Another way to visualize the unattractive yields embedded in 30-year bonds is by constructing implied forward yields between points on the par curve, as shown in Figure 3. In that chart, we show the 5-year spot rates implied by current yields on par bonds at various dates in the future. Just as a buyer of a 10-year bond buys the current 5-year yield plus the 5-year forward, 5-year yield embedded in the 10-year bond, the buyer of a bond with 35 years to maturity currently buys all the implied 5-year maturity forwards in Figure 3 as well as the current 5-year yield. We can see that those forwards, due to the flat 10-30 curve, decline steadily to a very low 2.32% for the 30-year forward 5-year rate. Buyers of long duration bonds in Canada should be aware of the very low implied forward yields that are embedded in long term Canada bonds today and choose alternative maturities if they are appropriate for their portfolios.

**FIGURE 3**

## Implied Forward Bond Yields, 5y Maturities



Source: BMO Capital Markets[i] Fixed Income Sapphire database

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