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MONTRÉAL EXCHANGE

Canada's Seasonal "Mortgage Trade"

Investors involved in government bonds, interest rate swaps, or interest rate futures should be aware of a strong seasonal trend observed almost every year, in 5 and 10-year swap spreads.

Origins

A strong seasonal trend in the fixed income derivatives market, has its source in the seasonality of the Canadian housing market. Although homeowners tend to buy and sell properties throughout the year, there exists a preference in Canada to view and purchase housing when the property is snow-free and in anticipation of moving during the summer months, between school years. That preference on the part of home buyers, drives a disproportionate amount of housing market activity to occur in spring and early summer.

Seasonality in the fixed income markets is caused by three factors: the seasonal trend in the housing market, a mortgage market that utilizes a "lock-in period" on the offered mortgage rate for marketing purposes, and a focus on mortgage terms clustered around 5 years. All three factors create hedging needs at banks, which drives the powerful seasonality in fixed income markets; particularly in swap spreads[1].

Simplified Market Flows

Housing and mortgage finance markets are complex and often involve 3rd party brokers, as well as various forms of risk management, including selling risk onwards to additional 3rd parties. However, at its heart, and for the purposes of demonstrating the mechanics driving swap spread seasonality, the mortgage market can be simplified to Figure 1.

In Figure 1, a home buyer first secures financing for his/her housing purchase. With a "locked-in" rate in hand, the home buyer can view and consider properties with assurances that financing is in place at a known rate. If a purchase is made, the home buyer is committed to paying the bank a fixed rate mortgage for the following five[2] years. If no purchase is made, no mortgage loan is originated.

From the bank's perspective, they have committed to a rate that may become a mortgage in future. Hedging the optionality inherent in the promised rate, is usually impractical in Canada. However, banks have good models that draw on their extensive experience as mortgage lenders, which can predict with reasonable accuracy how many of those home shoppers, will become home buyers. Since some portion of all "locked-in" rates will be converted to mortgages, it is prudent for the bank to hedge the accumulated rate risk that will likely be created in the fixed income market. The bank, (if the promised rate is converted to a mortgage when the buyer finds a property) will be receiving a fixed rate payment from the home buyer, and will hedge that anticipated future cash flow by paying fixed in 5y swaps[3]. This tendency to pay fixed into the swap market during the lead-up to the spring and summer housing activity, leads to a steady widening of swap spreads until mid-year when they begin a slow reversion to normal levels.

1 Swap spreads in this article are the difference between the yield to maturity of a bond and a swap of the identical maturity, typically referred to as a "yield/yield asset swap." By convention, spreads are quoted as the bond yield minus the swap yield which, in a normal market, results in a negative value. Hence a widening of swap spreads means spreads moved to a more negative value and a tightening of swap spreads means the difference between swap and bond yields became smaller, or moved to a less negative number.

2 Normally the rate is set for five years, but possibly as few as three or more rarely as many as ten years. Amortization periods are, of course, longer; typically 20-30 years.

3 In this vastly simplified version, the bank anticipates keeping the mortgages on its own books and doesn't have a portfolio of fixed income assets to sell.

FIGURE 1

Simplified Mortgage Market Flows

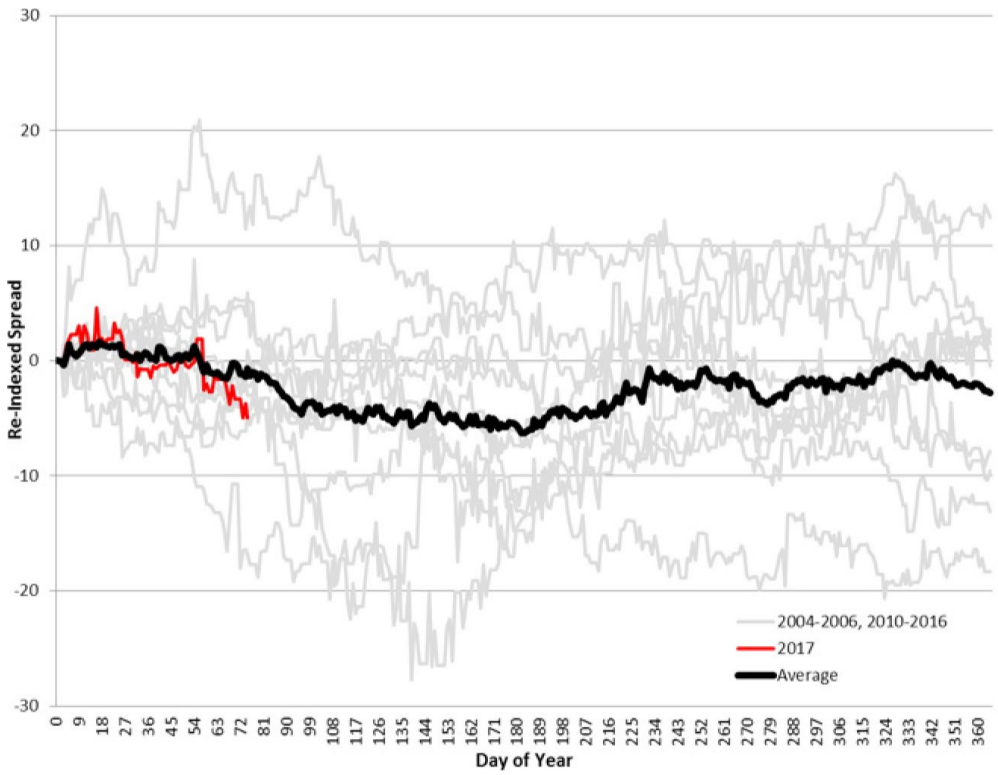
Evidence of Swap Spread Seasonality

One of the easiest ways to observe the strong seasonality in swap spreads, is to simply plot the 5-year spread on each day of the year. However, since the starting level of swap spreads varies significantly from year to year, a better approach is to re-index the spread to zero at the start of each year, and then plot the change in basis points from the beginning of the year. That plot is shown in Figure 2, where each year[4] is shown in light grey except for the current year which is shown in red. An average for 10 of the past 13 years is included, to show the seasonal pattern that usually develops in an average year.

As can be seen by the thick black line in Figure 2, in the average year 5-year swap spreads exhibit a seasonal trend to widen, (move to more negative values) by about 6-8 basis points between the 50th day of the year, and the 100th day of the year. After a 70-90 day period of consolidating around that level, spreads then tighten back to nearly their starting level over the following 60-90 days. This pattern of widening followed by tightening, is repeated in most years, although no single year is actually "average" and much more noise exists around the individual annual series, than exists in the hypothetical average year. Nonetheless, it is a repeating pattern and represents an opportunity for investors able to capitalize on it, or a trend to be aware of and avoid if one is participating in other markets where pricing may be affected by the same hedging activity.

FIGURE 2

Daily 5y Swap Spread (Jan1=0 for each year)



Source: BMO Capital Markets Fixed Income Sapphire database

4 2007, 2008, and 2009 have been excluded as the financial crisis in the USA caused wild fluctuations in rates and swap spreads. These fluctuations are unlikely to be repeated and exaggerate the seasonal observations for more normal years.

Seasonal Analysis

Rather than simply visually examining the re-indexed swap spreads in an average year as shown in Figure 2, one can take a more in-depth approach to calculating seasonality. First, swap spreads have a trend which can be removed via a simple de-trending calculation. Second, since markets change due to preferences and changed regulation, as well as react to new information continually, it is appropriate to weight recent observations more heavily than observations that are in the more distant past through a weighting function. This analysis is undertaken in Figure 3 below for 5-year Constant Maturity swap spreads, (CMsp5) for various time periods and is broken down by month for absolute changes in spreads.

Figure 3 includes various columns which exclude certain years, to eliminate the financial crisis era, as well as different weighting methods as a check on the findings. Focusing for simplicity on the column outlined in black[5], we can observe that, after accounting for the trend in spreads and weighting recent observations more heavily than observations in prior years, 5-year swap spreads have tended to widen by 7.5 basis points between February and June, and then tighten by 8 basis points between July and November.

FIGURE 3

CMsp5 DE-Trended Absolute Summary

	2004-2016 Wtd: Equally	2012-2016 Wtd: Equally	2004-2016 Wtd: 4Y ½ Life	2012-2016 Wtd: 4Y ½ Life	2004-2016 ex: 2008 & 2009
JANUARY	0.7	1.2	**1.2**	1.7	0.3
FEBRUARY	-3.6	-1.6	**-2.3**	-0.2	-0.8
MARCH	-0.9	-2.4	**-1.5**	-2.4	-1.6
APRIL	-1.5	-1.6	**-1.5**	-1.8	-1.1
MAY	-0.9	1.8	**-0.7**	0.5	-0.5
JUNE	-2.4	-1.8	**-1.4**	-1.1	-1.0
JULY	2.7	1.6	**2.5**	1.5	1.9
AUGUST	1.6	0.3	**1.1**	0.4	2.3
SEPTEMBER	-0.6	-0.3	**-0.6**	-0.6	0.0
OCTOBER	3.5	2.4	**2.9**	2.2	0.9
NOVEMBER	2.4	1.2	**2.1**	1.6	0.3
DECEMBER	-1.0	-1.0	**-1.6**	-1.8	-0.5

Source: BMO Capital Markets[6] Fixed Income Sapphire database

2017 in Focus

Thus far, 2017 has followed the seasonal trend reasonably closely as shown by the red line in Figure 2. In fact, an argument can be made that by March 15 this year, much of the expected seasonal widening had already occurred. Further widening can, and should, occur if additional mortgage origination occurs in a "strong" spring housing market, or if more mortgage commitments turn into actual loans than bank models initially anticipated. However, more patient investors may wish to position for the anticipated tightening of swap spreads after the middle of the year.

5 This column includes all years since 2004 but weights recent years more heavily using a decay function with a half-life of 4 years. For example, 2016 is weighted at 100% but 2012 is weighted at only 50% and 2008 at 25%, etc.

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Using Invoice Spreads to Profit

Investors who wish to profit from the seasonal mortgage trade can do so in two ways:

- Buy cash bonds and pay fixed to the same maturity in the swap market to profit from a widening of spreads[7], or the opposite positioning to profit from a tightening of spreads later in the year.
- Buy futures contracts and pay fixed on a forward starting swap to the maturity of the cheapest-to-deliver bond[8] for a spread widening trade, or the opposite for a spread tightening trade.

Note that investors who are reluctant to trade 5y futures or bonds for liquidity, volume, or financing concerns can participate nearly identically using the 10-year curve point, as that point exhibits nearly identical[9] seasonal opportunities.

7 A yield/yield asset swap. This option requires cash outlays or an active repo/reverse bond financing program.

8 An Invoice Spread. A full discussion of the structure of an Invoice Spread and its benefits over cash bond trading for certain investors is available in "CGF Invoice Spread" updated in January 2017 and available from your MX representative.

9 Roughly the same dates for the seasonal moves but 10.3 bps of widening in Feb-Jun and 10.4 bps of tightening in Jul-Nov. Contact your MX representative if you would like to see the same Figures produced for the 10-year swap spread.

For more information

irderivatives@tmx.com

m-x.ca