November 29, 2021

Tightening tendencies (Part B)

By Warren Lovely & Taylor Schleich

Here it is… the second part of our detailed study of BoC monetary tightening cycles. Recall that our Tightening Tendencies (Part A) report, released last week, explored the prevailing economic backdrop that characterized past BoC tightening episodes. We drew parallels to the current situation, and just as importantly highlighted what's different this go-round. Hints: Inflation is on another planet relative to past cycles; an ongoing pandemic clouds the way forward.

With Part B, we extend our analysis to financial markets. Here we explore how a variety of key financial variables/relationships have evolved in the lead up to and early stages of interest rate hikes. Our areas of focus include rates (absolute, curve, cross-market) and credit, with some currency and equity commentary offered up for good measure. A caveat: We are not currency or equity strategists and will leave related calls to our more-qualified colleagues. By way of example, our upcoming issue of *Forex* will offer a view on how to trade CAD (and the other majors) as 2022 rate hikes come into focus. We nonetheless felt there was some marginal utility in knowing how our dollar and stocks held up the last number of times the BoC was tapping the monetary brakes… not that past performance is necessarily a prelude of what's to come.

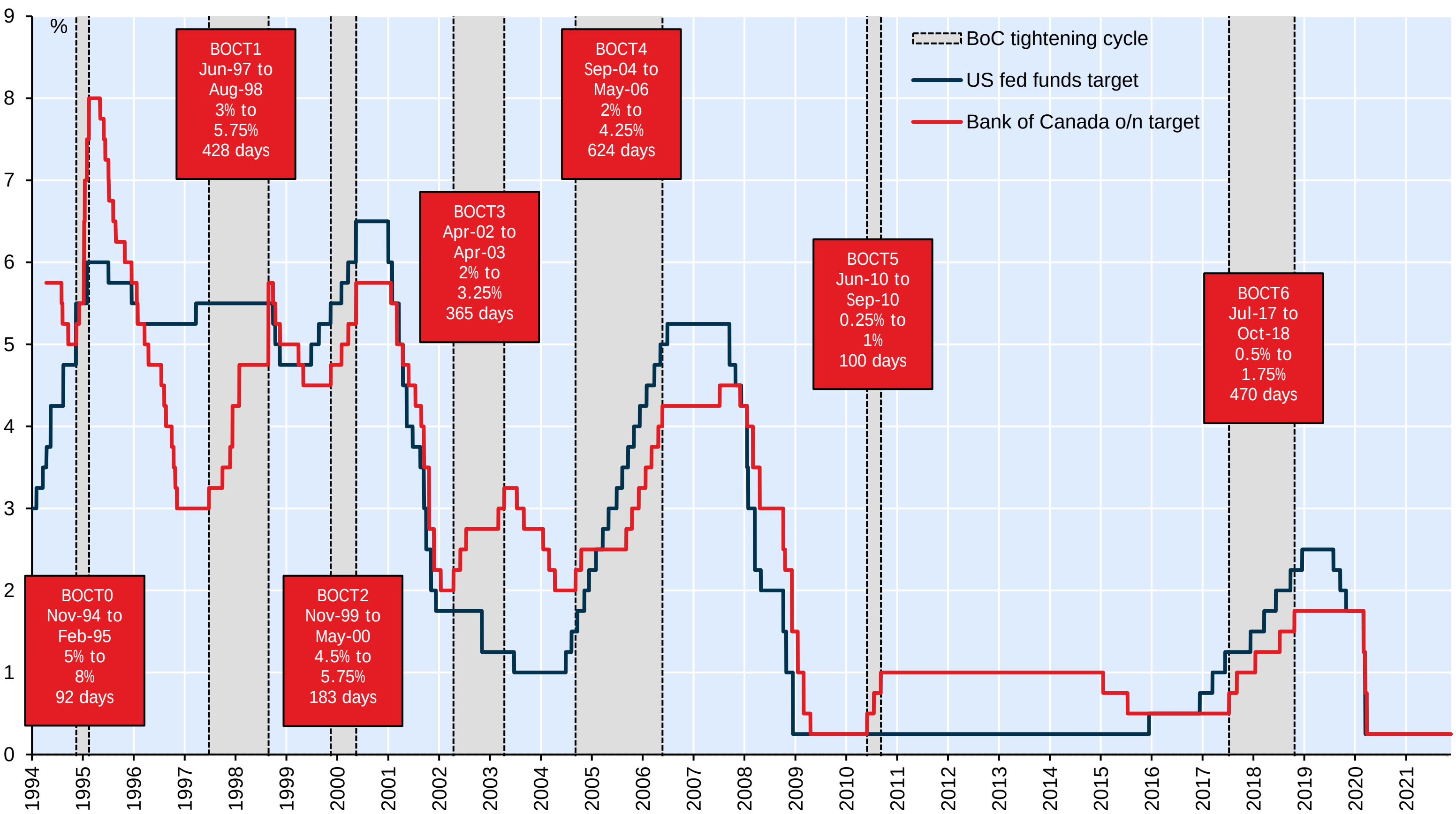
A word on structure. There are six distinct sections to this report: (i) background on past BoC tightening cycles, considered important context; (ii) GoC bond market outright yield analysis; (iii) GoC bond market yield curve dynamics; (iv) Canada-U.S. cross-market rates + currency considerations; (v) credit market tendencies, focused on provincial spreads/curves; (vi) absolute/relative equity market performance. These six sections give way to a host of summary conclusions on page 9. Of wild cards and cautions, there are a few. After all, as we clearly argued in Part A, no two rate hike cycles are the same… whether you're living in or trading from Canada, the U.S. or somewhere overseas.

The biggest caveat of all? It's the virus, which is evolving/mutating at speed and in very problematic fashion. Epidemiologists we are not, but it will seemingly pay to watch global case counts/transmission just as closely as GDP growth, job creation and consumer price inflation. We certainly will be. Not the most stable environment to be offering a trading strategy, but who are we to complain.

i) Context/background for looming BoC monetary policy tightening cycle

Chart 1: Canada's 25-year history of overnight adjustment includes a half-dozen tightening cycles

Bank of Canada overnight target rate & U.S. Federal Reserve fed funds target, identifying distinct BoC monetary tightening cycles



Source: NBF, BoC, Federal Reserve | Note: Refer to Tables/charts page 2 for additional details BoC tightening cycles

Chart 1 above (plus Table 1 and Chart 2 on the following page) are holdovers from our Part A report. We don't generally favour duplication, but this is vital context. After all, how can one infer what a prospective rate hiking cycle might bring without appreciating what earlier cycles looked like? Saying that, we're quick to caution that no two cycles are the same, including the Fed's corresponding policy posture. Moreover, as is obvious, the liftoff and termination level for overnight rates is structurally lower today than in pre-GFC days. Canada's neutral policy rate might just be lower than ever.

In Focus
Economics and Strategy

NATIONAL BANK OF CANADA FINANCIAL MARKETS

Table 1: No two BoC tightening cycles have been the same, with associated Fed policy stance having likewise varied

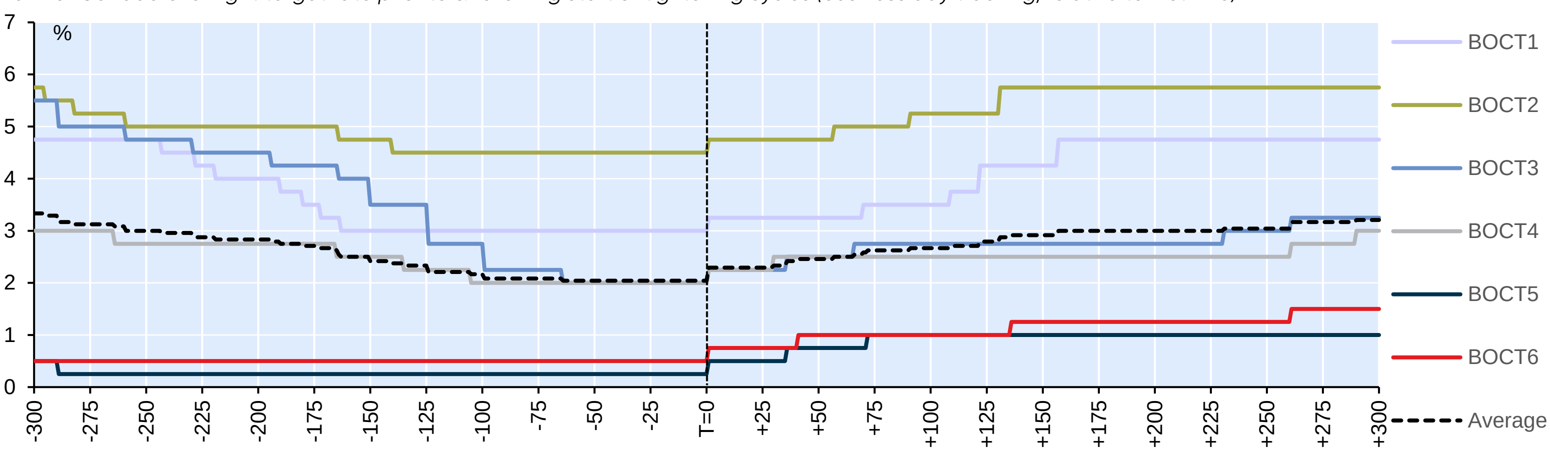
Detailed characteristics of Bank of Canada monetary tightening cycles, including relative U.S. Federal Reserve policy stance during cycle

BoC	BoC Tightening Cycles Since 1995																				Fed
BoC	BoC	Dating		Length		BoC O/N target		Change in BoC O/N target rate, initial sequencing & total hikes										Fed stance during cycle			Fed
Governor	Cycle	Start	End	Days	Months	Start	End	Change	Pace	Scale	1st hike	Delay	2nd hike	Delay	3rd hike	Hikes	Non-25	Tighten	Steady	Ease	Chairperson
Name	*Id*	*Day*	*Day*	*#*	*#*	*%*	*%*	*bps*	*bps/mnth*	*% of start*	*bps*	*Days*	*bps*	*Days*	*bps*	*#*	*#*	*% of business days*			*Name*
Thiessen	BOCT0	17-Nov-94	16-Feb-95	66	3.0	5.00	8.00	300	99	60%	25	15	25	23	50	7	5	83%	17%	0%	Greenspan
Thiessen	BOCT1	26-Jun-97	27-Aug-98	306	14.1	3.00	5.75	275	20	92%	25	69	25	39	25	6	3	0%	100%	0%	Greenspan
Thiessen	BOCT2	17-Nov-99	17-May-00	131	6.0	4.50	5.75	125	21	28%	25	56	25	34	25	4	1	99%	1%	0%	Greenspan
Dodge	BOCT3	16-Apr-02	15-Apr-03	261	12.0	2.00	3.25	125	10	63%	25	35	25	30	25	5	0	0%	0%	100%	Greenspan
Dodge	BOCT4	8-Sep-04	24-May-06	446	20.5	2.00	4.25	225	11	113%	25	29	25	231	25	9	0	100%	0%	0%	Greenspan*
Carney	BOCT5	1-Jun-10	8-Sep-10	72	3.3	0.25	1.00	75	23	300%	25	35	25	36	25	3	0	0%	100%	0%	Bernanke
Poloz	BOCT6	12-Jul-17	24-Oct-18	336	15.4	0.50	1.75	125	8	250%	25	40	25	95	25	5	0	100%	0%	0%	Yellen*
	AVG	**Avg of last 6 cycles**		**259**	**11.9**	**2.04**	**3.63**	**158**	**15**	**141%**	**25**	**44**	**25**	**78**	**25**	**5**	**1**	**50%**	**33%**	**17%**	
	MAX	**Max of last 6 cycles**		**446**	**20.5**	**4.50**	**5.75**	**275**	**23**	**300%**	**25**	**69**	**25**	**231**	**25**	**9**	**3**	**100%**	**100%**	**100%**	
	MIN	**Min of last 6 cycles**		**72**	**3.3**	**0.25**	**1.00**	**75**	**8**	**28%**	**25**	**29**	**25**	**30**	**25**	**3**	**0**	**0%**	**0%**	**0%**	

Source: NBF, BoC, Federal Reserve | Note: 'BOCT1' to 'BOCT6' labels are used extensively in this report to identify distinct BoC tightening cycles; Fed chairperson changed during BoCT4 (Greenspan to Bernanke in Feb-2006) & BOCT6 (Yellen to Powell in Feb-2018)

Chart 2: The lead up to & initial stages of BoC policy rate liftoff, from 1997 (BOCT1) to 2017 (BOCT6)

Bank of Canada overnight target rate prior to & following start of tightening cycles (business day tracking, relative to first hike)



Source: NBF, BoC | Note: Business days on horizonal axis, relative to first BoC hike; refer to Table 1 for precise dates of the six BoC tightening cycles

Again, Table 1/Chart 2 serve as reference for what follows. Notionally, one can construct an 'average' tightening cycle, but that's folly. Structural changes mean more recent tightening cycles have differed fundamentally from the late-1990s or first half of the 2000s. The Fed's stance during BoC tightening periods is noteworthy, being less-than-uniform and/or perfectly aligned. In three of the past six BoC cycles, the Fed was hiking, having kicked things off sooner. Twice the Fed was on the sidelines. Once the Fed was actively cutting. More colour below. In short, no two cycles are the same.

Table 2: Relative policy rate posture since 1995: BoC vs. Fed

Relative direction of overnight target rates BoC vs. Fed: Since 1995

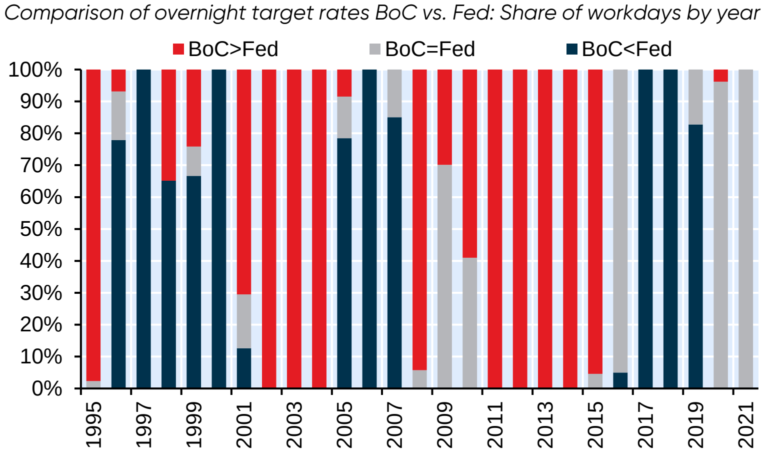
		Bank of Canada			
	% of time	Easing	Steady	Tightening	*Total*
FOMC	Easing	10%	5%	4%	*19%*
FOMC	Steady	11%	42%	6%	*59%*
FOMC	Tightening	0%	9%	13%	*22%*
	Total	*21%*	*56%*	*23%*	*100%*

		BoC
		Tightening
FOMC	Easing	16%
FOMC	Steady	25%
FOMC	Tightening	59%
	Total	*100%*

Source: NBF, BoC, FRB | Note: Based on 7,020 workdays from 1-Jan-95 to 26-Nov-21

Chart 3: Longest streak of policy rate equality set to end

Comparison of overnight target rates BoC vs. Fed: Share of workdays by year



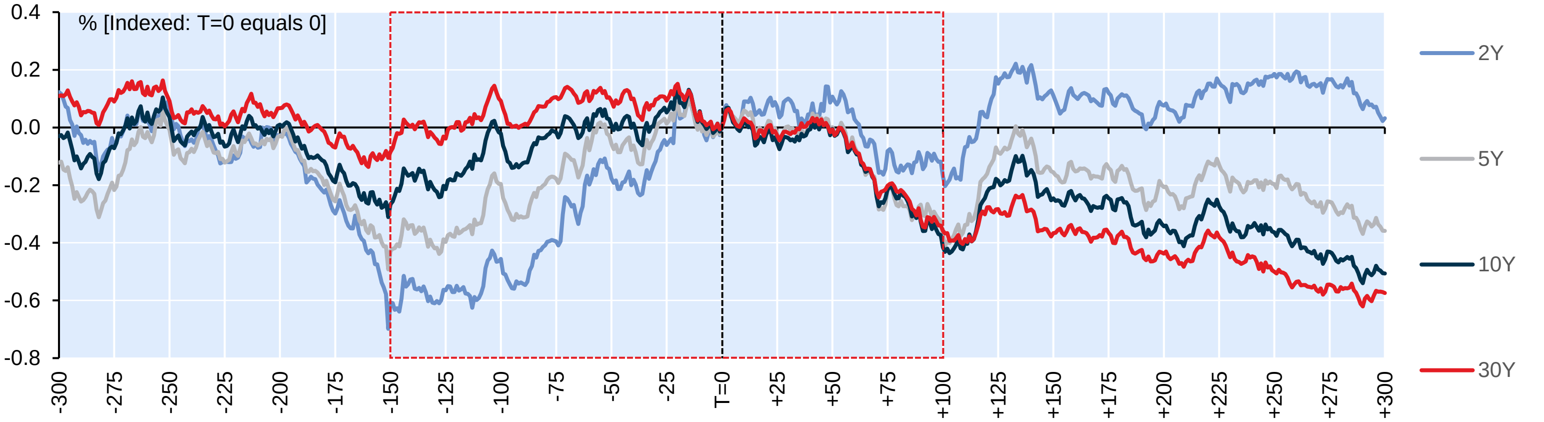
Source: NBF, BoC, FRB | Note: Fed reflects fed funds upper; 2021 is up to 26-Nov

Canada's overnight has sat at the effective lower bound since Mar-2020. By definition, a 'steady' trajectory for overnight is the 'steady state', duh. Fun fact: For the first time ever, Canada and the U.S. have had an equivalent overnight target rate every single day of calendar 2021 (based on fed funds 'upper'). As for hikes, the BoC has spent 23% of the past quarter century in a tightening stance. Isolating for these episodes, ~60% of the time the Fed was also hiking. The flip side is that it's not entirely unheard of for the BoC to be walking its own path when it comes to tightening, as it presumably will in the early days of a 2022 tightening cycle. But let's be real, there's a limited to how far ahead the BoC can get vis-à-vis the Fed. We see Powell & Co. catching up/overtaking the BoC come 2023.

ii) GoC bond market – Evolution of outright yields

Chart 4: Bond market volatility par for the course heading into & during initial stages of hiking cycles

Relative evolution of GoC benchmark bond yields in lead up to & initial stages of BoC tightening cycles: Average of BOCT1 to BOCT6

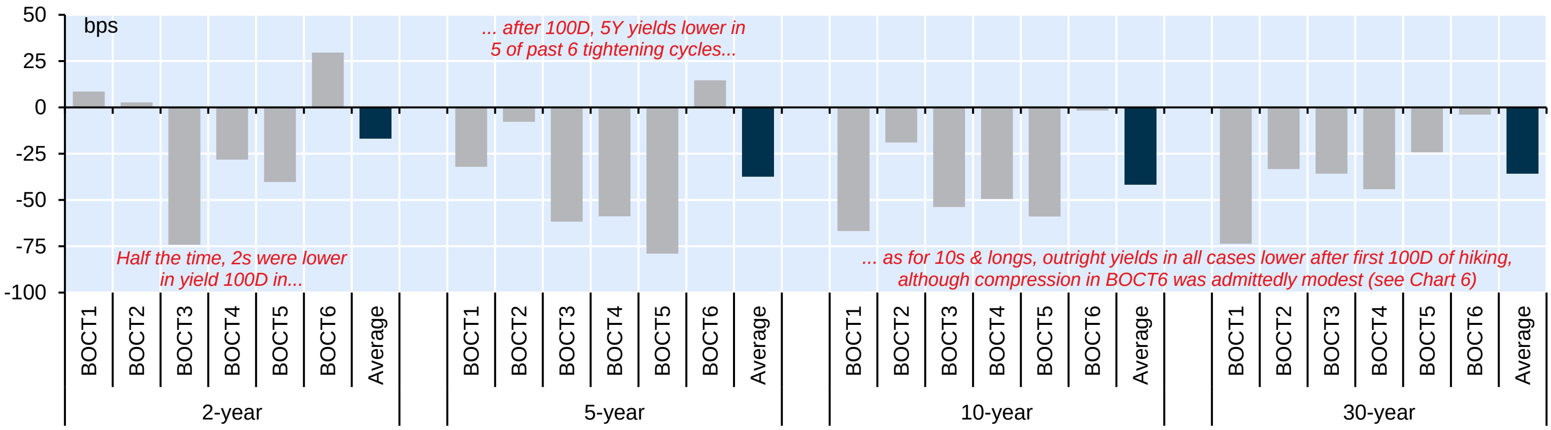


Source: NBF, BoC, Bloomberg | Note: Average yields expressed relative to start of BoC tightening cycles; horizontal axis refers to workdays

Unsurprisingly, we see yields rise in the lead-up to BoC hiking cycles as the economy picks up steam, inflation perks up and unemployment falls. However, we tend to see very little upward momentum in rates beyond the first hike. Historically, 2s have drifted *modestly* higher as the BoC continues hiking. For 5s, 10s and 30s, in/around the first hike tends to be the high watermark for rates, *on average*.

Chart 5: A good deal of sell-off captured *before* cycle, with GoC yields often net lower after 100D (particularly out the curve)

Cumulative change in GoC benchmark bond yields: First 100 days of past six BoC tightening cycles (i.e., change from T=0 to T+100)

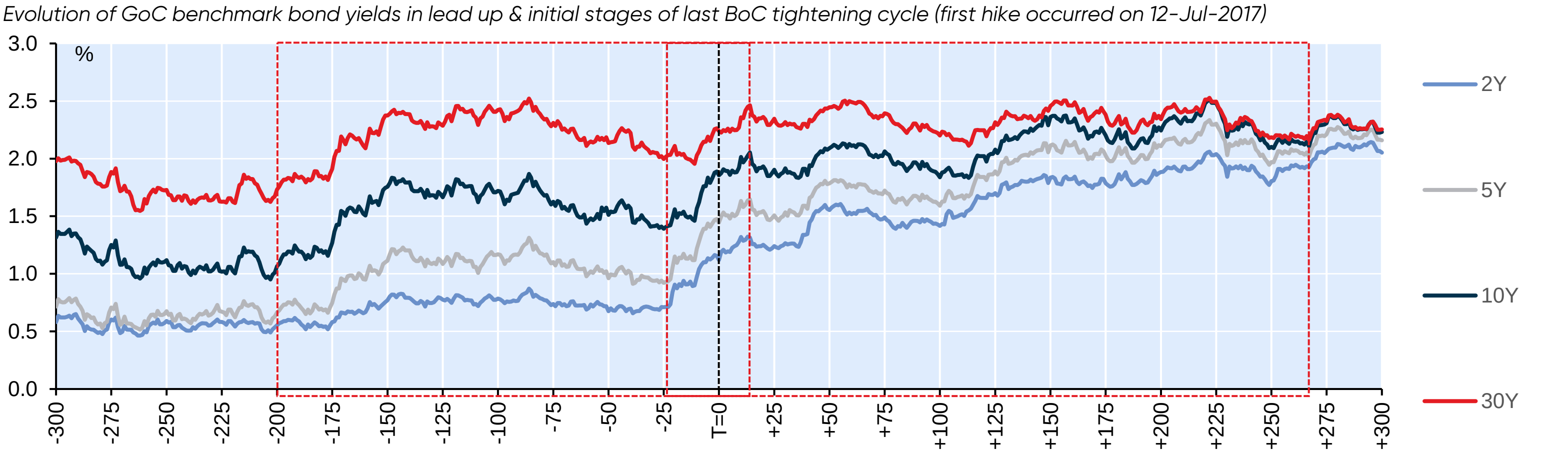


Source: NBF, BoC, Bloomberg

A snapshot of the Canada curve 100 days *after* the very first hike reveals yields are often *lower* than they were when tightening kicked off. This tendency isn't 100% consistent down the curve, but in 10s/longs you won't find a single instance where yields were higher 100 days after hike #1. It's an admittedly arbitrary timeframe but analysis on T+50 or T+200 days yields broadly similar results.

Chart 6: The 2017-18 experience (i.e., BOCT6)

Evolution of GoC benchmark bond yields in lead up & initial stages of last BoC tightening cycle (first hike occurred on 12-Jul-2017)



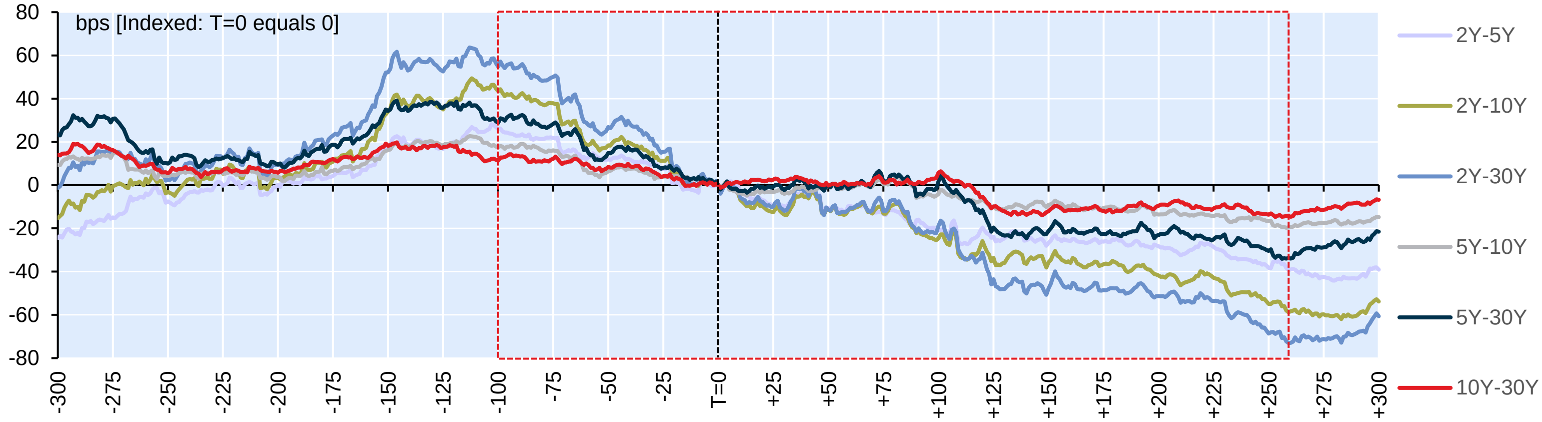
Source: NBF, BoC, Bloomberg | Note: Horizontal axis refers to workdays

Perhaps our most relevant historical comparison came in 2017-18, when the neutral rate was closer to current levels and the structural/global decline in interest rates had already occurred. Once tightening began in mid-2017, there was some upward pressure on rates down the curve. Indeed, 2s rose another ~120 bps, based on peak yield. But consistent with the theme of the above charts, the self-off out the curve was limited/contained. 10s preceded to put in new highs (in yield) as the cycle progressed, but 30s never really breached the pre-hike peak in serious or sustained fashion.

iii) GoC bond market – Yield curve dynamics

Chart 7: The hike-induced flattener impossible to ignore

Relative evolution of GoC yield curves in lead up to & initial stages of BoC tightening cycles: Average of BOCT1 to BOCT6

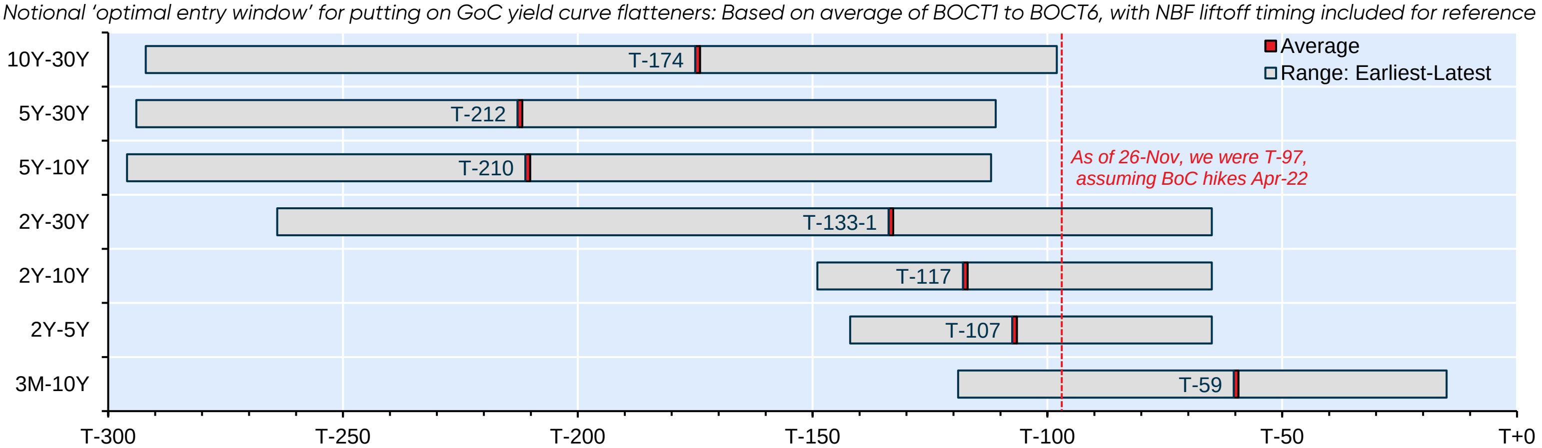


Source: NBF, BoC, Bloomberg | Note: Average curves expressed relative to start of BoC tightening cycles; horizontal axis refers to workdays

Surprise, surprise… Curves flatten when rate hikes come into focus. The flattening tends to kick off a half-year before tightening commences, with more barbelled curves obviously flattening the most. Beyond the first hike, curves tend to remain roughly steady for the next 50-100 days before flattening re-ignites. Interestingly, 5s10s and 10s30s don't typically flatten much post-hike (10-20 bps).

Chart 8: Too late to put on the flattener? Not necessarily, although there is some caution involved

Notional 'optimal entry window' for putting on GoC yield curve flatteners: Based on average of BOCT1 to BOCT6, with NBF liftoff timing included for reference



Source: NBF, BoC, Bloomberg

It's always a challenge to time the market but we'll offer some guideposts based on the empirical record. Grey bars indicate when 'peak steepness' was observed (in workdays). With just under 100 days to lift-off (based on NBF's rate call), there's still a viable entry window for some major curves above. Even where 'peak steep' may be behind us, there's likely still more flattening to be had.

Table 3: What kind of moves (in yields & curves) could we theoretically see before the first BoC hike arrives in spring?

Change in GoC benchmark yields & yield curves up to first hike based on past six tightening cycles + implied level come Apr-2022 (NBF's assumed first hike)

Days to hike: -97 *<< Based on NBF assumption that first hike arrives 13-Apr-2022*

	Tenor	BOCT1	BOCT2	BOCT3	BOCT4	BOCT5	BOCT6	Average	Median	*% sell off/ flatten*	Current: 26-Nov-21	*Implied: 12-Apr-22*
Yields	2Y	41.0	63.6	94.3	31.0	50.1	37.5	52.9	45.6	*100%*	0.93	*1.39 - 1.46*
	5Y	-7.0	57.8	47.4	32.7	4.6	35.9	28.6	34.3	*83%*	1.40	*1.69 - 1.74*
	10Y	-22.0	50.1	34.5	3.6	-20.8	25.2	11.8	14.4	*67%*	1.60	*1.72 - 1.75*
	30Y	-31.0	43.5	34.4	-8.8	-36.9	-8.6	-1.2	-8.7	*33%*	1.95	*1.87 - 1.94*
Yield curves	2Y-5Y	-48.0	-5.8	-46.9	1.7	-45.5	-1.6	-24.4	-25.7	*83%*	46.9	*21 - 23*
	2Y-10Y	-63.0	-13.5	-59.8	-27.4	-70.9	-12.3	-41.2	-43.6	*100%*	67.2	*24 - 26*
	2Y-30Y	-72.0	-20.1	-59.9	-39.8	-87.0	-46.1	-54.2	-53.0	*100%*	102.2	*48 - 49*
	5Y-10Y	-15.0	-7.7	-12.9	-29.1	-25.4	-10.7	-16.8	-14.0	*100%*	20.3	*4 - 6*
	5Y-30Y	-24.0	-14.3	-13.0	-41.5	-41.5	-44.5	-29.8	-32.7	*100%*	55.3	*23 - 26*
	10Y-30Y	-9.0	-6.6	-0.1	-12.4	-16.1	-33.8	-13.0	-10.7	*100%*	35.0	*22 - 24*

Source: NBF, BoC, Bloomberg | Note:

Here's another way to leverage the empirical record, such that it is. In our view of the world, the BoC is ~100 days removed from its first hike (penciled in for Apr-2022). Historically, the final 100 or so days prior to hikes produces significant flattening. We're mindful a potential unwind of aggressive market expectations (at least in futures), but still see a larger relative sell-off in 2s vs. 5s or 10s. More often than not, 30s rallied in the 90-100 days before the first hike (i.e., with yields outright lower on average), but runaway inflation could keep nominals under a bit of pressure out the curve. Today's GoC supply mix and balance sheet stance are additional technical considerations, more longer-dated supply/less BoC buying suggestive of less flattening than in cycles past, all else equal.

Table 4: Finer details on pre/post tightening GoC curve dynamics

Evolution of GoC benchmark bond yields in lead up & initial stages of last BoC tightening cycle (first hike occurred on 12-Jul-2017)

Government of Canada yield curves	Pre-hike: Max steep						Post-hike: Max flat						Optimal entry: Based on pre-hike steep timing				
	i) Curve level			ii) Timing			i) Curve level			ii) Timing			First BoC hike assumption:				
	Measure	bps	Cycle	Measure	vs. start	Cycle	Measure	bps	Cycle	Measure	vs. start	Cycle	Jan-2022	Mar-2022	Apr-2022	Jun-2022	Jul-2022
3M-10Y	High	389	BOCT1	Earliest	T-118	BOCT6	High	181	BOCT5	Earliest	T+95	BOCT5	13-Aug-21	17-Sep-21	29-Oct-21	17-Dec-21	28-Jan-22
	Avg	**281**	**-**	**Avg**	**T-59**	**-**	**Avg**	**80**	**-**	**Avg**	**T+259**	**-**	**4-Nov-21**	**9-Dec-21**	**20-Jan-22**	**10-Mar-22**	**21-Apr-22**
	Low	139	BOCT6	Latest	T-15	BOCT2	Low	-21	BOCT2	Latest	T+300 2X	BOCT6	5-Jan-22	9-Feb-22	23-Mar-22	11-May-22	22-Jun-22
2Y-5Y	High	166	BOCT1	Earliest	T-141	BOCT4	High	51	BOCT5	Earliest	T+101	BOCT5	13-Jul-21	17-Aug-21	28-Sep-21	16-Nov-21	28-Dec-21
	Avg	**109**	**-**	**Avg**	**T-107**	**-**	**Avg**	**20**	**-**	**Avg**	**T+239**	**-**	**31-Aug-21**	**5-Oct-21**	**16-Nov-21**	**4-Jan-22**	**15-Feb-22**
	Low	38	BOCT2	Latest	T-65	BOCT3	Low	-6	BOCT2	Latest	T+294	BOCT4	27-Oct-21	1-Dec-21	12-Jan-22	2-Mar-22	13-Apr-22
2Y-10Y	High	264	BOCT1	Earliest	T-148	BOCT6	High	134	BOCT2	Earliest	T+97	BOCT5	2-Jul-21	6-Aug-21	17-Sep-21	5-Nov-21	17-Dec-21
	Avg	**184**	**-**	**Avg**	**T-117**	**-**	**Avg**	**51**	**-**	**Avg**	**T+228**	**-**	**16-Aug-21**	**20-Sep-21**	**1-Nov-21**	**20-Dec-21**	**31-Jan-22**
	Low	62	BOCT2	Latest	T-65	BOCT3	Low	-17	BOCT5	Latest	T+300 1X	BOCT4	27-Oct-21	1-Dec-21	12-Jan-22	2-Mar-22	13-Apr-22
2Y-30Y	High	336	BOCT1	Earliest	T-263	BOCT5	High	183	BOCT5	Earliest	T-17	BOCT3	22-Jan-21	26-Feb-21	9-Apr-21	28-May-21	9-Jul-21
	Avg	**239**	**-**	**Avg**	**T-133**	**-**	**Avg**	**61**	**-**	**Avg**	**T+190**	**-**	**26-Jul-21**	**30-Aug-21**	**11-Oct-21**	**29-Nov-21**	**10-Jan-22**
	Low	87	BOCT2	Latest	T-65	BOCT3	Low	-60	BOCT2	Latest	T+300 1X	BOCT4	27-Oct-21	1-Dec-21	12-Jan-22	2-Mar-22	13-Apr-22
5Y-10Y	High	108	BOCT5	Earliest	T-295	BOCT5	High	51	BOCT5	Earliest	T-28	BOCT5	9-Dec-20	13-Jan-21	24-Feb-21	14-Apr-21	26-May-21
	Avg	**84**	**-**	**Avg**	**T-210**	**-**	**Avg**	**19**	**-**	**Avg**	**T+161**	**-**	**7-Apr-21**	**12-May-21**	**23-Jun-21**	**11-Aug-21**	**22-Sep-21**
	Low	32	BOCT2	Latest	T-112	BOCT3	Low	-17	BOCT2	Latest	T+300 1X	BOCT4	23-Aug-21	27-Sep-21	8-Nov-21	27-Dec-21	7-Feb-22
5Y-30Y	High	184	BOCT5	Earliest	T-293	BOCT4	High	86	BOCT5	Earliest	T-28	BOCT5	11-Dec-20	15-Jan-21	26-Feb-21	16-Apr-21	28-May-21
	Avg	**146**	**-**	**Avg**	**T-212**	**-**	**Avg**	**25**	**-**	**Avg**	**T+161**	**-**	**6-Apr-21**	**11-May-21**	**22-Jun-21**	**10-Aug-21**	**21-Sep-21**
	Low	77	BOCT2	Latest	T-111	BOCT6	Low	-66	BOCT2	Latest	T+300 1X	BOCT4	24-Aug-21	28-Sep-21	9-Nov-21	28-Dec-21	8-Feb-22
10Y-30Y	High	80	BOCT5	Earliest	T-291	BOCT2	High	35	BOCT5	Earliest	T-16	BOCT3	15-Dec-20	19-Jan-21	2-Mar-21	20-Apr-21	1-Jun-21
	Avg	**68**	**-**	**Avg**	**T-174**	**-**	**Avg**	**5**	**-**	**Avg**	**T+164**	**-**	**27-May-21**	**1-Jul-21**	**12-Aug-21**	**30-Sep-21**	**11-Nov-21**
	Low	51	BOCT2	Latest	T-98	BOCT6	Low	-50	BOCT2	Latest	T+300 1X	BOCT4	10-Sep-21	15-Oct-21	26-Nov-21	14-Jan-22	25-Feb-22

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NBF Base Case

Source: NBF, BoC, Bloomberg | Note: The above table reflects purely historical analysis of GoC yield curves in/around six prior BoC tightening cycles (BOCT1 to BOCT6)

Apologies for the litany of numbers and dates in the above table, but the idea is to arrive at optimal entry windows for a variety of curve flatteners. Here's a loose guide: After selecting a curve to focus on, Table 4 will tell you when and where pre-hike 'max steepness' was historically achieved. Similarly, we have identified when/where 'max flatness' was observed, which in many cases was well into the tightening cycle. Now choose when you think the BoC will be hiking. In our view of the world, that's likely to be Apr-2022. For a given BoC timing assumption (i.e., Jan-2022 to Jul-2022 for initial lift-off), we infer an ideal time to put a curve flattener on. Ok, there are more caveats here than we care to outline. Like most empirical and/or seasonal analysis, we caution on overall reliability/predictability, being particularly mindful of unique elements in today's economy and embedded market expectations. In other words, utilize with caution.

Chart 9: A caution (one of many) >> Recent curve movements seemingly imply nearer-term liftoff vs. NBF base case

Correlation between historical pre-tightening GoC yield curve performance vs. current, based on five prospective BoC policy rate liftoff dates (Jan-22 to Jul-22)

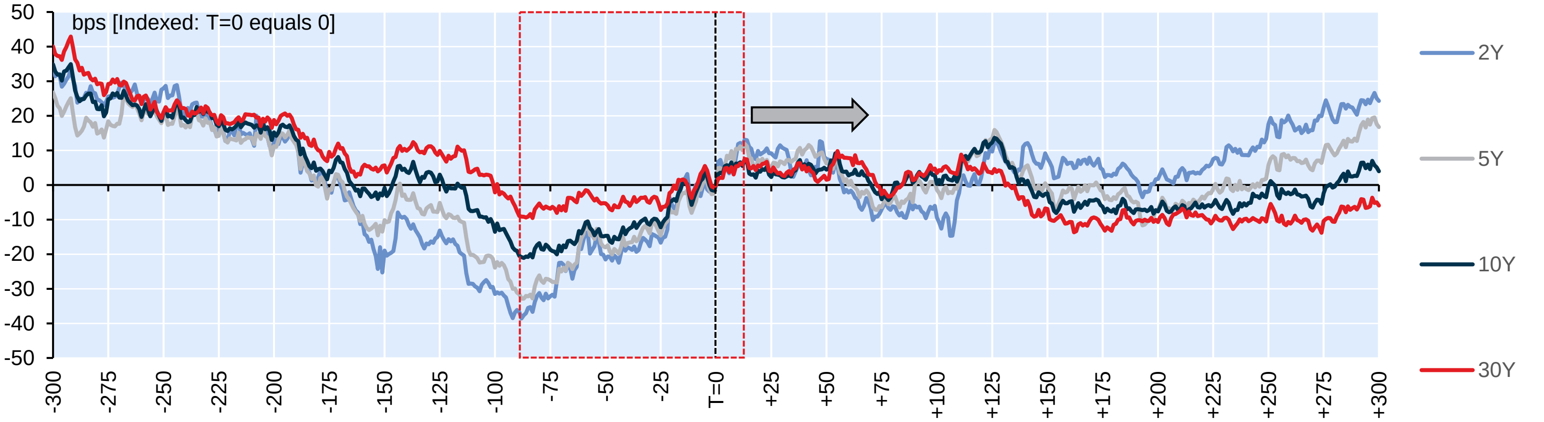
Source: NBF, BoC, Bloomberg | Note: Correlation coefficients generated by comparing latest 50D with historical pre-tightening average for each curve (based on BOCT1 to BOCT6); relative position of latest 50D dynamically aligned to control for five different days for first BoC rate hike (from Jan-22 to Jul-22, with NBF's Apr-22 call representing the mid-point)

To emphasize the 'proceed with caution' warning from above, consider that market expectations are hardly static. The market was quick to embrace ultra-aggressive BoC rate hike expectations in the wake of October's rate decision/MPR… pricing we immediately and repeatedly argued was too extreme. The market has since walked back its BoC call (to a degree), spurred more recently by fresh virus worries if not by the housing/household finance vulnerabilities nicely outlined by DepGov Beaudry a couple days back. Meantime, in comparing recent yield curve movements with so-called 'average' pre-hike tendencies, you might argue that some of the expected flattening has been booked prematurely. In other words, today's curves are not necessarily behaving 'normally', at least based on an Apr-2022 kick-off date. So while we fundamentally embrace a flattener for 2022, we wouldn't rule out some short-term, tactical bouts of re-steepening if BoC expectations get walked back some more. Moreover, the more gradual policy rate path that we foresee might slow the pace of flattening and/or avoid onset of curve inversion. Food for thought.

iv) Canada-U.S. cross-market rates & CAD

Chart 10: Tendency for Canada to cheapen up going into hikes, although it's critical to control for Fed policy stance

Relative evolution of GoC-UST yield differentials in lead up to & initial stages of BoC tightening cycles: Average of BOCT1 to BOCT6

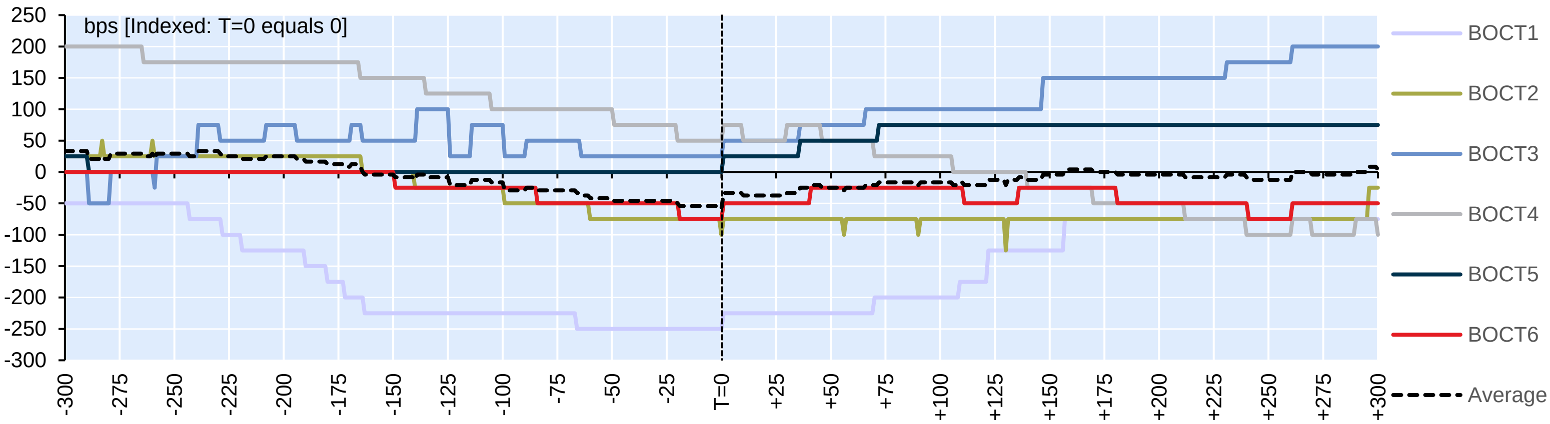


Source: NBF, BoC, Bloomberg | Note: Horizontal axis refers to workdays

Unsurprisingly, you tend to see GoC underperformance in the lead-up to rate normalization. On average, ~80-90 days pre-hike represents the most expensive point for Canada-US with 20-50 bps of relative cheapening in the lead-up/immediate aftermath. We would not bet on this repeating in 2022 though (at least at the same magnitude) given the relative cheapening that has already materialized.

Chart 11: Looking for a clean/consistent relationship between BoC & Fed policy rates? You won't necessarily find one

Relative evolution of BoC-Fed overnight target rate differential in lead up to & initial stages of BoC tightening cycles

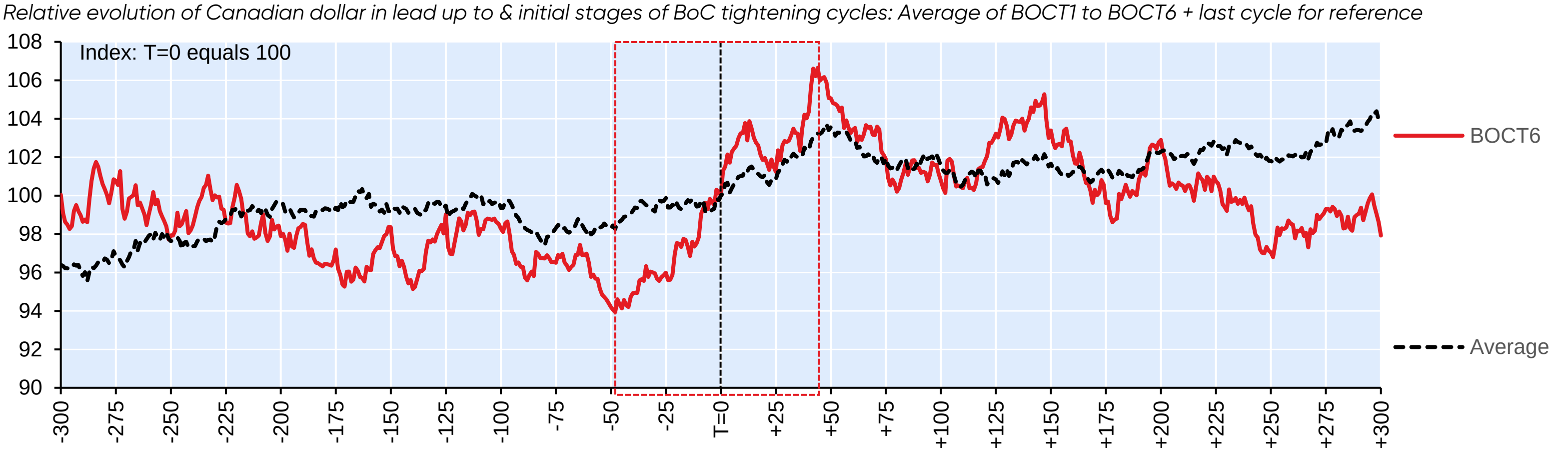


Source: NBF, BoC, FRB, Bloomberg | Note: Horizontal refers to workdays

Why do we put less stock in the empirical record of Chart 10? Simply because the relative policy rate trajectory has varied significantly. Indeed, we've had periods of the Fed hiking alongside the BoC, the Fed doing nothing and the Fed cutting during BoC hiking cycles. Assuming our forecasts materialize, this will be the first time the BoC and Fed will both be hiking but with the BoC first out the gate.

Chart 12: Don't let simple average fool you, Canadian dollar has been both a winner & loser in/around prior tightenings

Relative evolution of Canadian dollar in lead up to & initial stages of BoC tightening cycles: Average of BOCT1 to BOCT6 + last cycle for reference



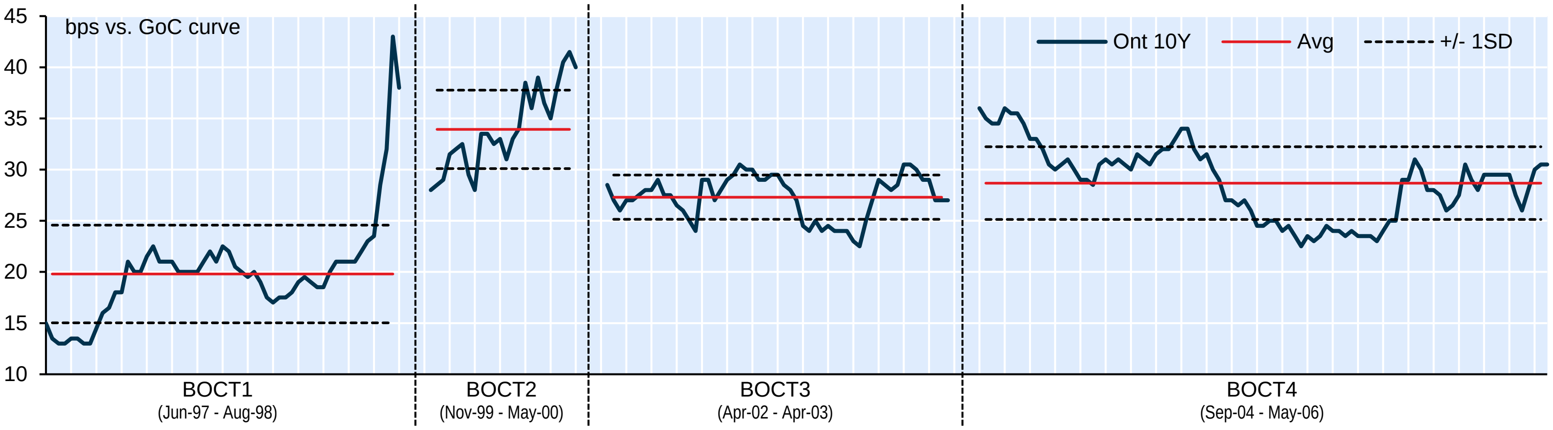
Source: NBF, BoC, Bloomberg | Note: Horizontal axis refers to workdays

CAD (vs. USD) tends to rally as hiking cycles approach and as they kick off. That was true in 2017 and it's true on average (but not always the case) in our 6-cycle sample. With recent weakness pushing us back towards 1.28, there's apparent room to rally ahead. That said, rate differentials are but one driver of the loonie. Oil prices are important too, alongside overall risk sentiment. As we've been reminded in the COVID-era, CAD is no safe haven. If renewed virus concerns keep risk better offered, the loonie's flight path could be altered even if the BoC pushes ahead with hikes.

v) Canadian public sector credit markets

Chart 13: The way, way back… mixed credit spread performance during 1990s & 2000s tightening episodes

Evolution of weekly constant maturity Ontario 10Y credit spread vs. GoC during four pre-GFC tightening cycles (i.e., BOCT1 to BOCT4)

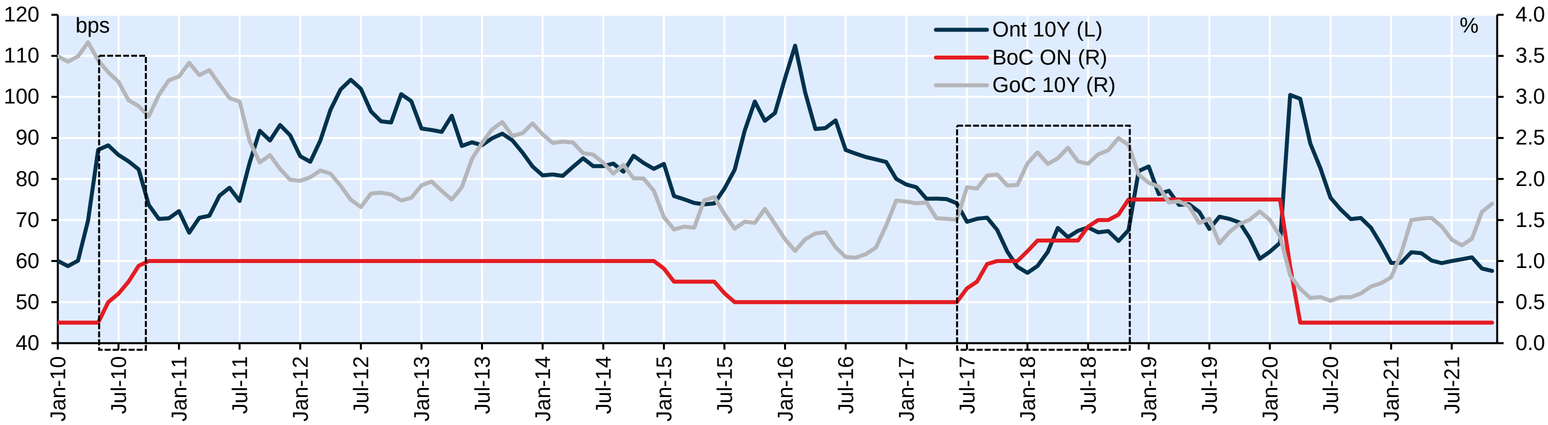


Source: NBF, BoC | Note: Based on NBF's weekly constant maturity spread indications; only monetary tightening periods are shown

What can we learn from looking at credit spread behaviour during pre-GFC tightening episodes? Maybe not a whole lot, given demographics, credit fundamentals, bond supply and risk premia looked nothing like what they do now. It's been a mixed bag performance wise, the biggest crack to provincial spreads coming at the tail end of the 1997-98 tightening window as a financial crisis weighed.

Chart 14: A more recent, post-GFC picture, with spreads having held up ok during first six months (or so) of BOCT6

Evolution of Ontario credit spread, GoC yields & BoC overnight target rate since 2010: Monthly average levels highlighting last two BoC tightening cycles

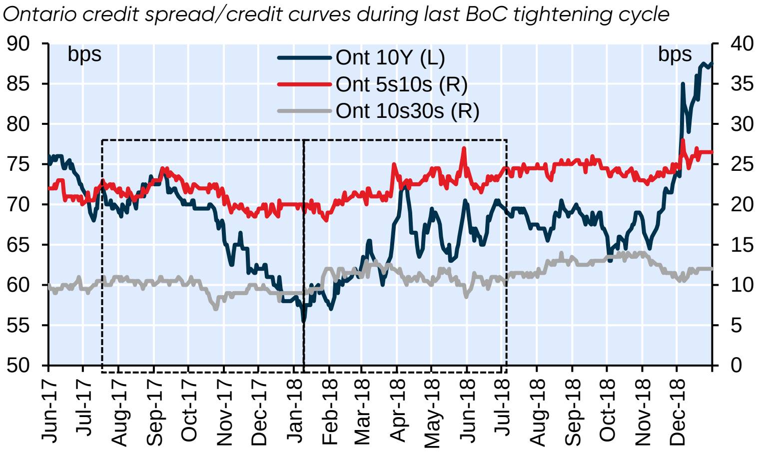


Source: NBF, BoC | Note: Based on monthly averages of daily levels for overnight & benchmark bond yields/spreads

The post-GFC experience is more informative, although not exactly clean and simple. One, the relationship between GoC yields/curves and credit spreads/curves is statistically noisy and not necessarily intuitive. Two, credit may go through phases during a tightening cycle, the first few months not such a problem but higher rates eventually weighing. This jives with our Part A findings on jobs/growth.

Chart 15: A closer look at BOCT6…

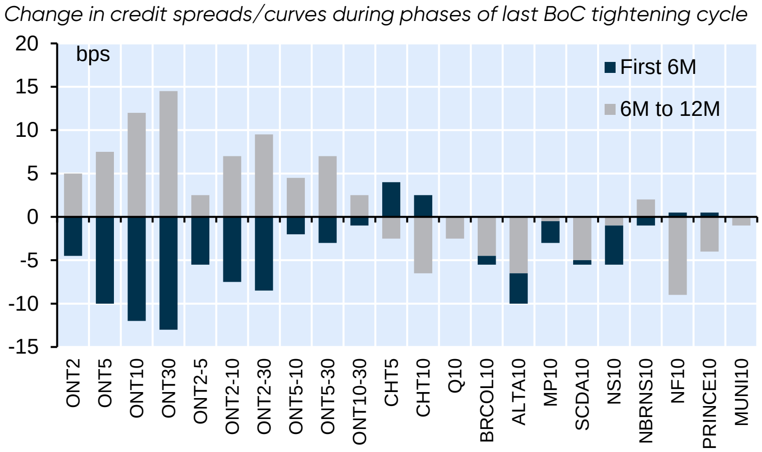
Ontario credit spread/credit curves during last BoC tightening cycle



Source: NBF, BoC | Note: Based on NBF's daily constant maturity indications

Chart 16: … with apparent phases for credit (0-6M; 6-12M)

Change in credit spreads/curves during phases of last BoC tightening cycle



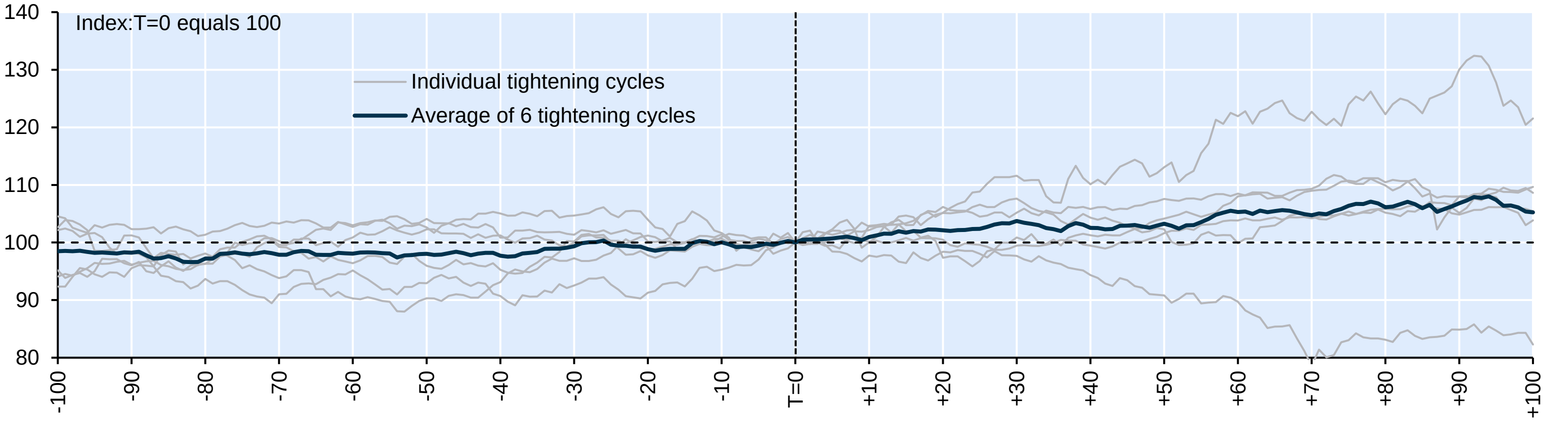
Source: NBF, BoC | Note: Based on NBF's daily constant maturity spread indications

Looking at 2017-18 (i.e., BOCT6), spreads enjoyed solid traction during the first 6 months of hikes, credit curves flattening as one might expect. But credit lost momentum early in 2018, about 6 months in, not just in Canada but globally. As the U.S. strained under Fed hikes/balance sheet run-off, spreads leaked. The BoC called time on the cycle in Oct-2018, after which time spreads ballooned.

vi) Canadian equities (outright & relative to U.S.)

Chart 17: Canadian equities have held up pretty well in the initial stages of BoC tightening

S&P TSX Composite index 100 days before and after the first hike of the last the six BoC tightening cycles

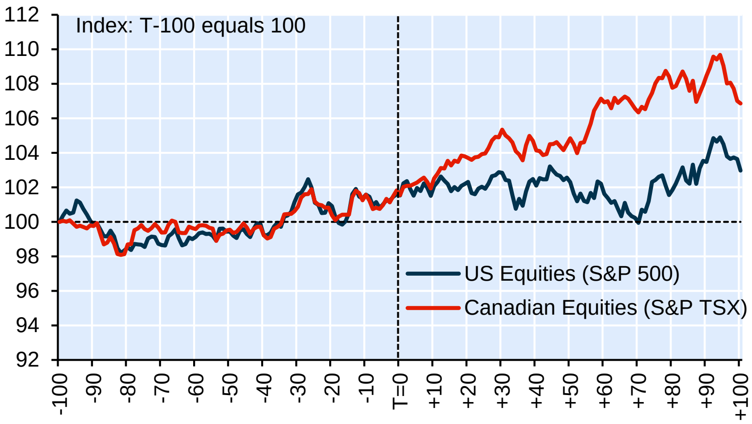


Source: NBF, Bloomberg | Note: S&P TSX is indexed to 100 on the first day of each BoC hiking cycle

Canadian equities tend to hold up pretty well once BoC tightening cycles get under way. In the first 100 days after the initial hike, Canadian equities have rallied in 5 of 6 cycles, by an impressive 5.2%, on average. The sole instance of a sell-off following the first BoC hike was back in mid-2002. We wouldn't attribute this to the BoC though, as it came in conjunction with a bear market globally.

Chart 18: TSX has even outperformed S&P 500, *on average*...

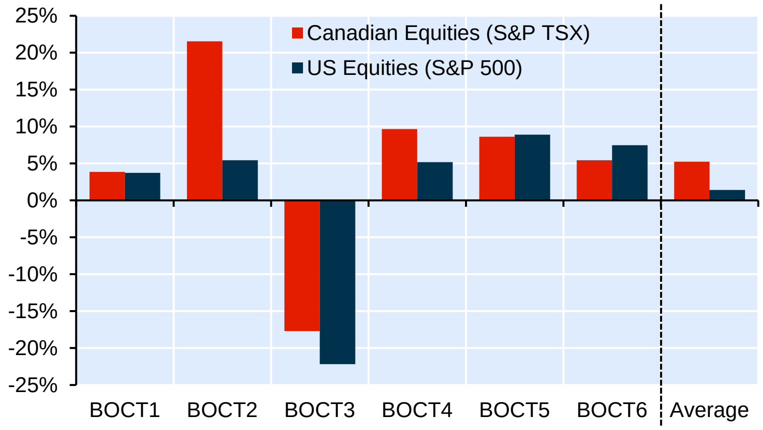
S&P TSX vs. S&P 500: 100D before/after first hike (avg of six BoC hiking cycles)



Source: NBF, Bloomberg | Note: Indices are indexed to 100 days prior to hike

Chart 19: ... but did lag at start of last hiking cycle (BOCT6)

S&P TSX vs. S&P 500: Performance during first 100D of BoC tightening cycles



Source: NBF, Bloomberg

Chart 17 isn't simply the result of Canadian stocks being pulled up by a U.S. equity market rally. The TSX has largely tracked the S&P 500 in the lead-up to BoC rate normalization, outperforming (on average) after lift-off. However, this was only true in the first four episodes. The last two cycles saw the TSX lag as rates headed up, part of a decade-long underperformance story for the TSX.

Table 5: What sectors have performed well post-tightening?

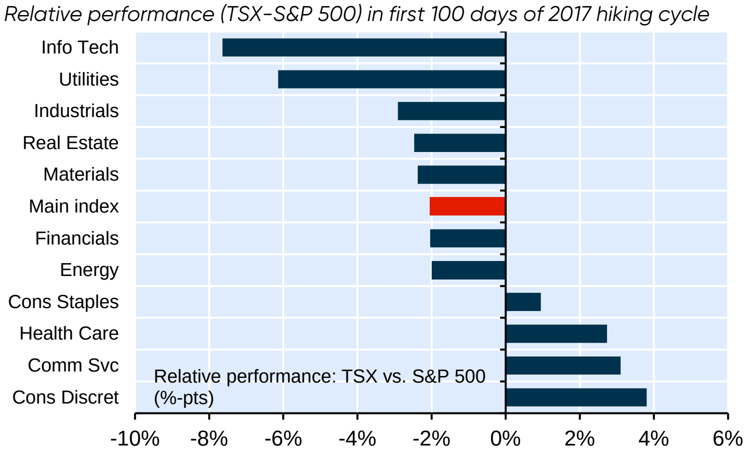
Equity performance 100 days after first hike by GICS level 1 sectors, hiking cycle

	BOCT1	BOCT2	BOCT3	BOCT4	BOCT5	BOCT6	Average
Sector	% chg.	% chg.	% chg.	% chg.	% chg.	% chg.	% chg.
Comm Svc	6.2%	66.8%	3.2%	14.8%	13.2%	7.2%	18.6%
Real Estate	18.6%	-1.5%	-6.1%	13.7%	18.5%	2.3%	7.6%
Cons Staples	15.7%	4.2%	-9.3%	15.2%	13.2%	3.1%	7.0%
Energy	8.6%	-0.4%	-1.8%	20.9%	7.4%	3.1%	6.3%
S&P TSX	**3.9%**	**21.5%**	**-17.7%**	**9.7%**	**8.6%**	**5.4%**	**5.2%**
Utilities	13.4%	-15.5%	-0.8%	15.9%	14.6%	2.1%	5.0%
Cons Discret	1.7%	17.5%	-26.2%	10.1%	8.1%	10.7%	3.7%
Industrials	5.4%	21.3%	-29.1%	9.1%	13.2%	1.5%	3.6%
Financials	15.8%	0.7%	-15.5%	6.7%	4.0%	7.8%	3.3%
Health Care	-5.7%	14.2%	-35.1%	-4.2%	34.8%	6.8%	1.8%
Info Tech	10.7%	54.2%	-52.7%	-2.4%	-16.1%	5.4%	-0.2%
Materials	-16.4%	-7.8%	-14.2%	6.8%	17.3%	5.0%	-1.5%

Source: NBF, Bloomberg

Chart 20: A closer look at *relative* performance in BOCT6

Relative performance (TSX-S&P 500) in first 100 days of 2017 hiking cycle



Source: NBF, Bloomberg | Note: Bar shows difference in index chg. from T=0 to T=100

The sectoral trends in equities are not perfectly consistent but there are notable patterns. Communication services tend to excel in the 100 days post-hike, while materials and tech stocks have suffered the most. Interestingly, real estate has held up well. Focusing on the 2017-18 cycle, most GICS sectors underperformed U.S. equities, save for consumer products, communications, and health care.

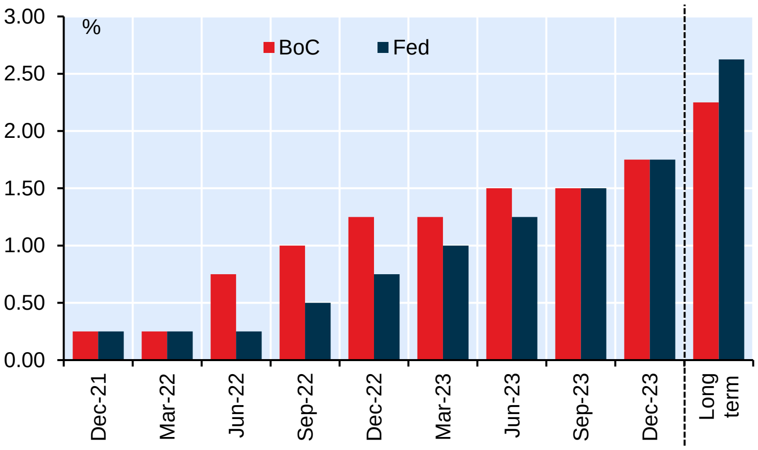
Summary conclusions (Part B)

- If you missed our Tightening Tendencies (Part A), we might suggest taking a look back if only to gain an appreciation for similarities and differences in the underlying economic/housing/household finance backdrop now vs. prior tightening cycles. Our Part A report is available here.
- This Part B is an exploration of financial market tendencies before and during BoC tightening cycles. There are a few historical episodes to draw upon as there having been a half-dozen distinct BoC hiking cycles since the overnight rate was adopted as the main monetary policy tool in the mid-1990s. Note, however, interest rate sensitivity is fundamentally different today vs. many of those earlier cycles, with perceived interest rate neutrality having stepped down appreciably. Moreover, the Fed's stance during BoC hiking days has varied, which is no small consideration for cross-market levels and CAD. More on that below.
- We'll state the obvious: Interest rates tend to rise in the lead-up to rate tightening cycles, particularly the further down the curve you go. After the initial tightening, however, there's less upside to yields than one might expect. Look a few months beyond the first hike and you'll find rates tend to be lower across the curve. Notably, our best historical comp, the 2017-18 cycle (or what we've labeled BOCT6 throughout), did see rates set new highs after the first BoC move, but it took roughly half a year to get there. And out the curve (i.e. in longs), the move higher was neither significant nor sustained.
- The Canada curve also has a clear and consistent flattening theme, both in the lead-up to and aftermath of the initial BoC rate hike. The track record for curve flattening roughly 100 days out from policy rate lift-off (about where we are now, based on our call for an April hike) is near perfect. Consistent with these empirical results, we see scope for further flattening ahead in the current context. Extend your focus just over a year into the hiking cycle and you'd find very little curve to speak of (i.e. curves are generally ultra-flat and/or inverted). We also offer a few tools for trading the curve as rate hikes approach and eventually crystalize, being mindful of evolving market expectations.
- Historical cross-market performance (i.e., GoC vs. UST yield differentials) tends to indicate non-trivial Canada underperformance, as one might expect. However, averages don't tell the full story. Relative Canada-U.S. policy rate stances have varied significantly in prior cycles, with periods of the Fed hiking alongside the BoC, the Fed doing nothing and the Fed actively cutting. Moreover, if our forecasts materialize, this will be the first time the BoC will be leading a joint Canada-U.S. tightening cycle, so there's no neat and tidy playbook to go by. And as for the current set-up, today's levels don't look all that attractive for betting on relative GoC weakness given the underperformance already captured this year.
- On average, the loonie has been better bid in the lead-up to and in the early stages of BoC hiking cycles. But as with our cross-market analysis, relying on averages may be a dangerous game. The overnight rate is just one C$ driver. One must also be mindful of the corresponding Fed policy stance, oil prices and, perhaps most importantly these days, the COVID backdrop (since it clearly impacts investor willingness to take on risk). That said, we view CAD as fundamentally undervalued and see scope for a rally over the coming months, assuming (and this is key) the new COVID strain does not wholly undercut investor confidence. As we've seen recently, the Canadian dollar is NOT a haven.
- We don't put a lot of stock in credit spread/curve reactions to pre-GFC tightening cycles. More recent tightening episodes (i.e., since 2010) are presumably more informative. Spreads cheapened up notably prior to a short-lived hiking cycle in 2010, where the Bank's three-hikes-you're-out effort (amidst Fed policy rate stability) didn't really ruffle feathers. Last time around (in 2017-18), credit maintained decent movement going into a tightening cycle, grinding tighter still during the first six months or so of BOCT6. But as hikes (in Canada and the U.S.) started to weigh, credit lost its groove, giving up ground in second half-year of the cycle. Credit was more soundly routed later in 2018 as a growth stall (alongside a flaring of China-U.S. trade tensions) saw investors shed risk. Déjà vu? Wait till next year to find out.
- As with any empirical analysis, there are caveats aplenty. We have addressed these throughout but a few cautions bear repeating:
  a) Today's inflation backdrop is nothing like what we've seen in the past. Notwithstanding the BoC's 'transitory' reassurances, the future inflation arc will be vital, particularly for a central bank that has (at least for now) inflation control as its central mandate;
  b) Market expectations and prevailing trade location must always be taken into account. Material differences in realized vs. expected lift-off, pacing and overall rate normalization could render certain recommendations obsolete. But when is this not the case? Now, as ever, we offer a strategy based on what we believe to be a reasonable economic and policy rate forecast;
  c) Prospective BoC balance sheet run-off is a major wild card, if not immediately then once rate hikes really start rolling. To some extent, we can draw from the Fed's earlier experience. But lest you need reminding, the GoC market is not the UST market, there being any number of idiosyncratic elements north of the border. As we discussed last week, cash yields have already proven susceptible to dislocation as a result of volatility in government bond issuance and the unprecedented accumulation of GoC bonds by the Bank of Canada. It's yet to be seen the effect that exiting the 'reinvestment phase' will have but we'll continue to deepen our thinking on balance sheet implications and will have more to say as the prong of policy normalization comes into focus. Meanwhile, the long end of the Canadian curve is perhaps more vulnerable to an unfolding U.S. QE taper this time around than during BOCT6;
  d) For those with a short-term horizon, bear in mind that December cash flows and year-of-end positioning has tended to leave a notable imprint on Canadian rates (curves and cross-market). There's likewise a seasonal angle to credit in most Decembers;
  e) Finally and perhaps most critically, the virus situation is ignored at one's peril. Mutations/variants have virus risks top of mind for many, just as the holiday season is kicking off and many head back indoors to seek shelter from intemperate weather. The next weeks (or is it months?) could be dicey. That's not a cop-out, but a clear and strong acknowledgement that pandemic-era forecasts and recommendations must be offered with humility.

A final note: The following visuals are provided for additional context, illustrating our policy rate call on the Bank of Canada and Federal Reserve, the portion of the BoC's balance sheet that's top-of-mind, as well as the latest virus picture (a noted risk factor to monitor).

Chart 21: A reminder of NBF's BoC policy rate call

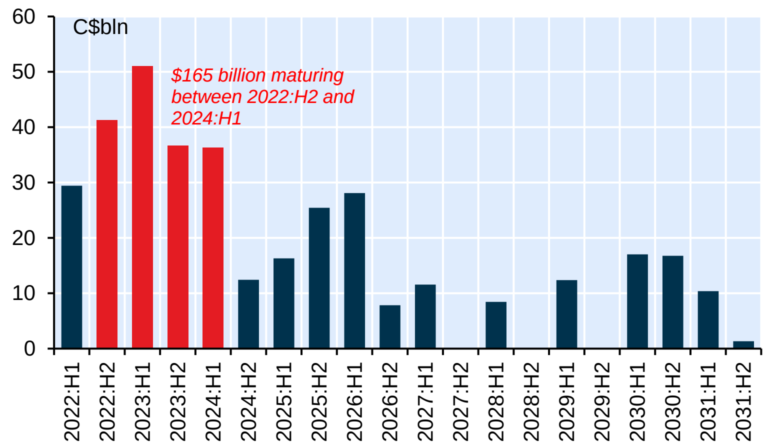
Current NBF forecasted path for BoC & Federal Reserve target policy rates



Source: NBF, BoC, Federal Reserve | Note: Long-term is implied neutral rate (mid-point)

Chart 22: Balance sheet run-off a noted wild card

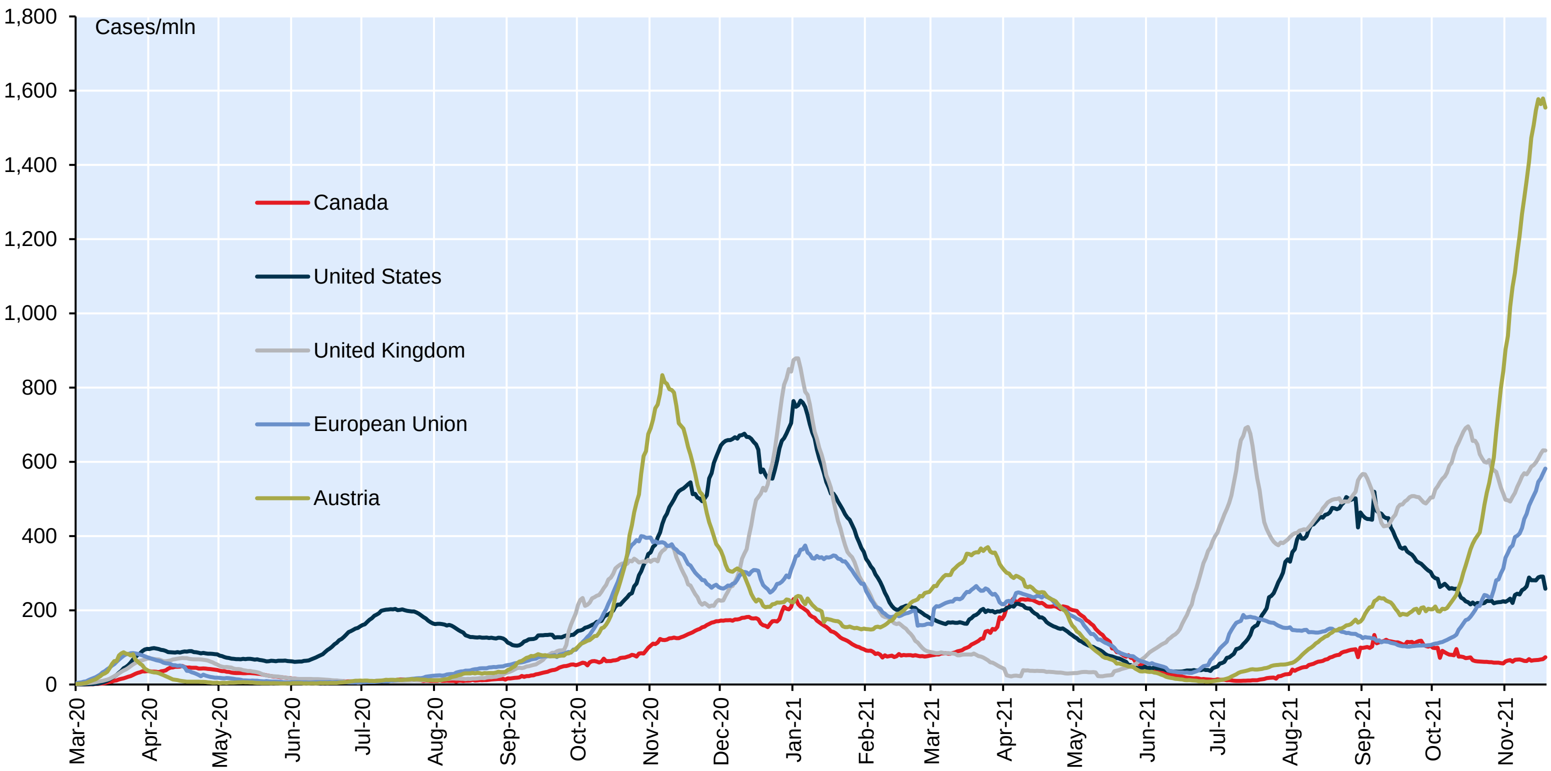
BoC holdings of GoC bonds by maturity date



Source: NBF, BoC | Note: Holdings are reported book value as of 26-Nov

Chart 23: The immense wildcard that is COVID-19 (and its many variants)

Daily new cases per million population by region, 7-day moving average



Source: Source: NBF, Johns Hopkins CSSE | Note: If you're not already, use our COVID-19 Daily Monitor to track virus developments from any number of angles/perspectives

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