



# An eye to the coming June cash deluge

By Warren Lovely & Taylor Schleich

In precisely 18 weekdays, Canada's domestic bond market will be awash in cash. Starting on June 1<sup>st</sup>, continuing on June 2<sup>nd</sup> and picking back up mid-month, investors will be handed billions and billions of dollars in coupon payments and redemption proceeds. Yes, we've observed walls of cash before, but the sheer magnitude and concentration of June (and December) cashflows remain striking. The seasonal deluge of bond market cash tends to leave an imprint on rates and credit markets, influencing the behaviour of investors and issuers alike.

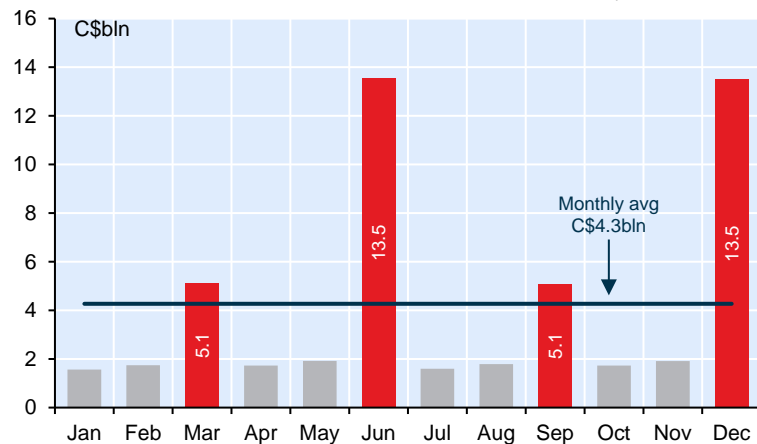
Here, we put June 2022's cash into context. We explore empirical performance in Canadian rates and public sector credit markets. We offer simulated impacts on bond indices. There are a number of additional angles, ample nuance and some special considerations for 2022. For example, June 1<sup>st</sup> brings not only massive GoC-related cash, but coincides with a Bank of Canada interest rate decision (+50 bps). The last time the BoC announced on June 1<sup>st</sup>? That was back in 2010, when a short-lived tightening cycle kicked off whilst the Fed remained sidelined.

As always, treat seasonal and empirical analysis with caution. Past is not necessarily prelude and current location clearly matters. Today's rates curve is much-less steep, which could limit the coupon- and roll-inspired flattener that we've often observed as index duration extends. After all, we're still contending with a re-pricing of longer-term nominal yields (and term premia) as actual and expected inflation steps up. Meantime, we have a nascent QT process running in the background... the first of its kind for Canada.

June 2<sup>nd</sup> is a key date for provincial bond markets. That's when some large bonds mature, pay out or roll. Note that we have more regular/frequent 10-year benchmarks in the provincial market, so traditional seasonal valuation patterns may not hold. Moreover, this June 2<sup>nd</sup> will be notable for another reason, as Ontarians head to the polls in a general election. Ontario's related funding blackout could leave cash-rich investors hunting for other product leading up to and following the vote. Just one more unique wrinkle for 2022. Read on...

### Chart 1: Canada's bond cash really rains down in June

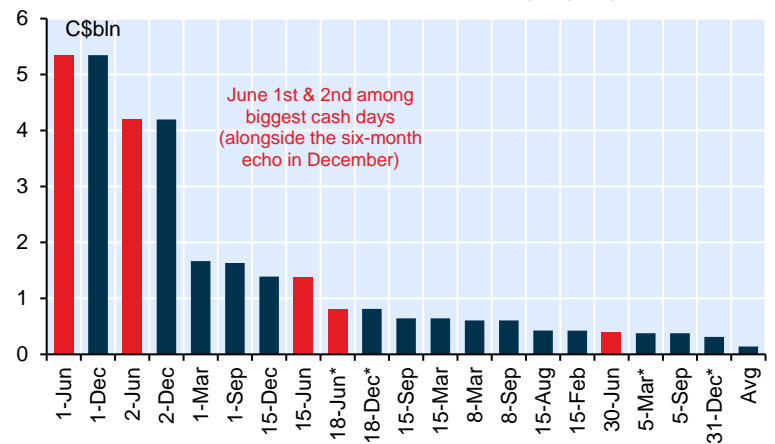
FTSE Canada Universe Bond Index cashflows: 2022 at start of year



Source: NBF, FTSE Russell | Note: Cashflows depicted in Charts 1-3 based on NBF analysis of FTSE Canada Universe Bond Index constituents/outstandings as at start of 2022

### Chart 2: June 1<sup>st</sup>/2<sup>nd</sup> huge cash days

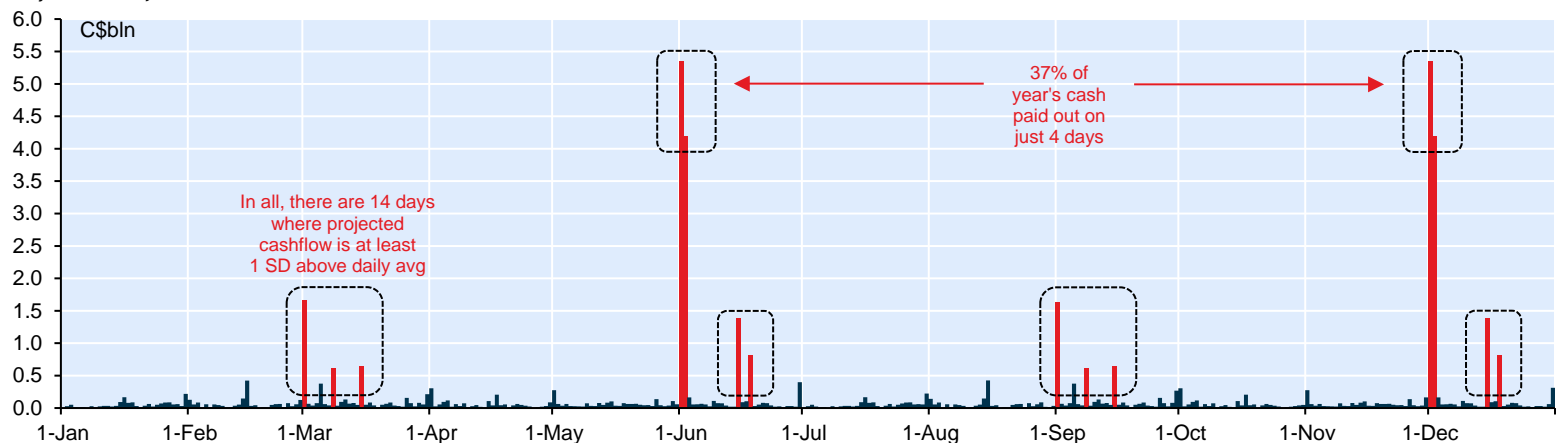
FTSE Canada Universe Bond Index cashflows: 2022 by key days



Source: NBF, FTSE Russell | Note: Asterisk (\*) denotes a day that falls on weekend in 2022

### Chart 3: Putting Canada's ultra-lumpy cash in context... June 1<sup>st</sup>/2<sup>nd</sup> simply impossible to ignore

Projected daily FTSE Canada Universe Bond Index cash flows: 2022

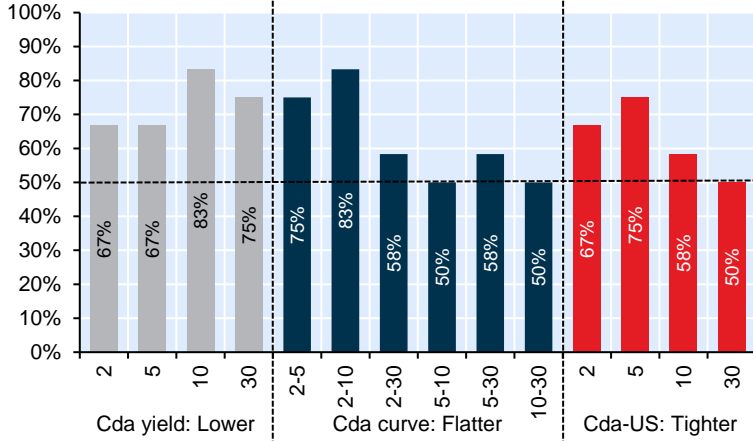


Source: NBF, FTSE Russell

When 2022 kicked off, over C\$50 billion of FTSE Canada Universe Bond Index cash was due to flow. A disproportionate amount arrives in June (and also in December). This June, the single biggest slugs come on 1<sup>st</sup> and 2<sup>nd</sup> of the month. June 15<sup>th</sup> cashflows are likewise material. Meanwhile, June 18<sup>th</sup> cash will be less chunky and technically delayed, as the 18<sup>th</sup> falls on a Saturday this year.

### Chart 4: Searching for consistently profitable trades

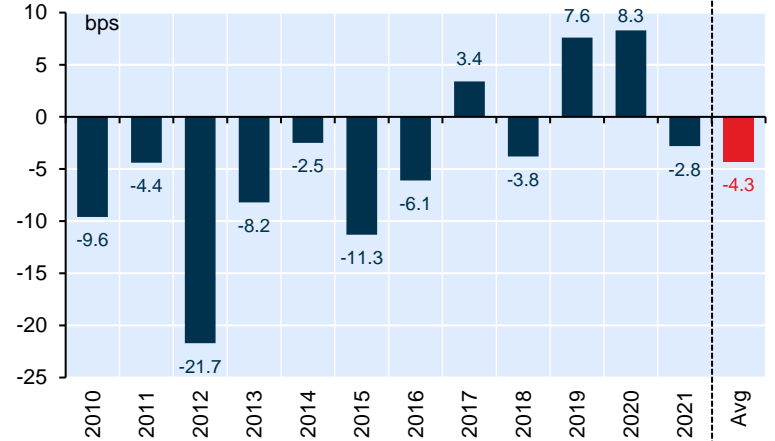
Past success rate vs. expected direction in Canadian rates 10D up to 1-Jun



Source: NBF, Bloomberg | Note: Success rates based on 12Y period from 2010-21

### Chart 5: Success rates/averages don't tell whole story

Net change in Canada-US 5s in 10D leading up to 1-Jun

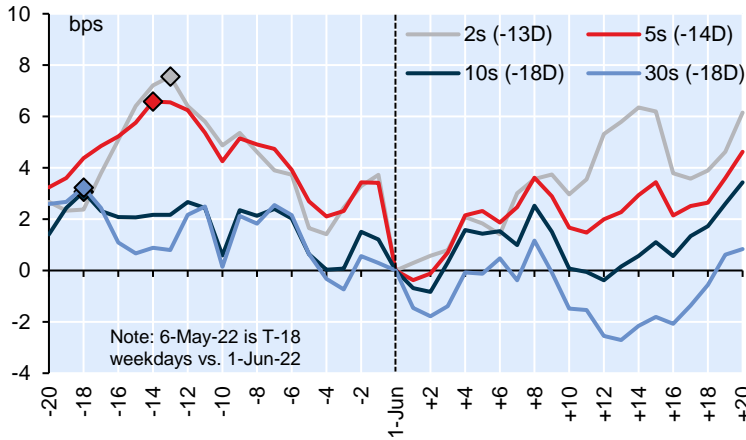


Source: NBF, Bloomberg

Looking back over the past dozen years, the empirical record (for what it's worth) tends to support a curve flattener and outperformance of Canadas vs. USTs in the lead up to June 1<sup>st</sup>. Canada-US 5s technically has demonstrated the most consistent success, tightening three-quarters of the time. This trade worked in 2021 but had been a hit-or-miss proposition from 2017-20. Caution advised.

### Chart 6: Optimal entry vs. UST 13-18 days prior (i.e., about now)

Cumulative change in Canada-US yield differentials relative to 1-Jun

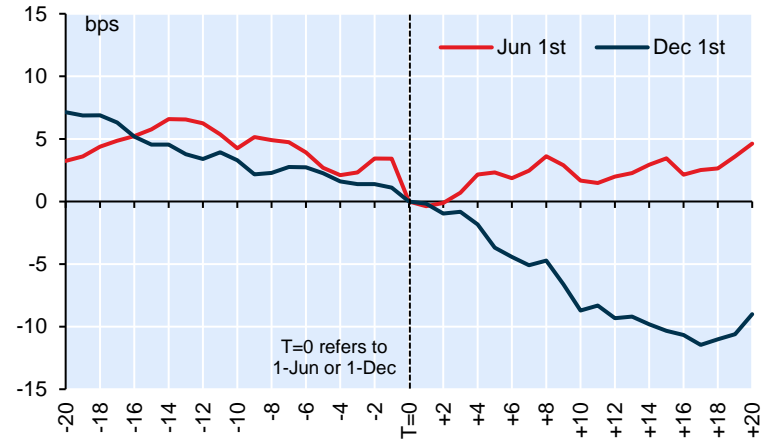


Source: NBF, Bloomberg | Note: Avg change based on 12Y period from 2010-21

Empirically speaking, optimal entry for a long Canada, short UST position is generally T-18 to T-13 weekdays prior to June 1<sup>st</sup>... which is more or less NOW! History argues for putting it on sooner for longer tenors, whereas 2s and 5s tend to outperform a touch later. The post-June 1<sup>st</sup> follow-through has been less than compelling, particularly vs. December 1<sup>st</sup> where gains tend to extend.

### Chart 7: X-market follow through less compelling vs. Dec 1<sup>st</sup>

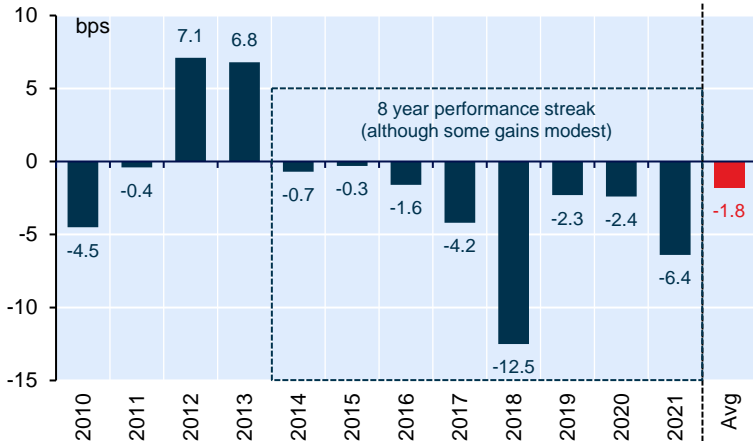
Cumulative change in Canada-US 5s relative to 1-Jun & 1-Dec



Source: NBF, Bloomberg | Note: Avg change based on 12Y period from 2010-21

### Chart 8: Historical perspective on Canada curve flattener

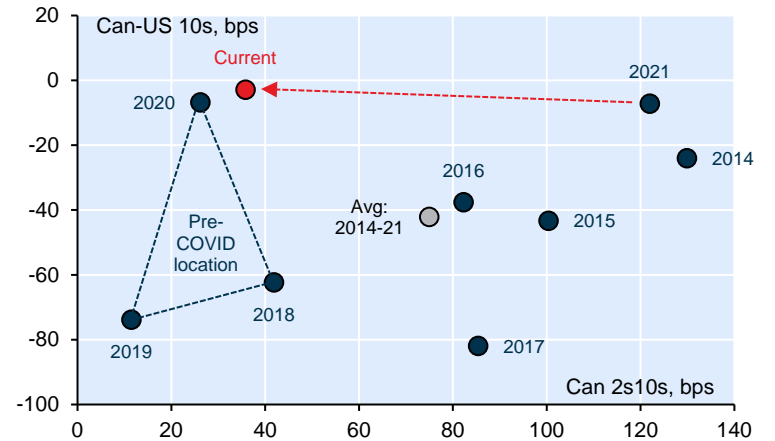
Net change in Canada 2s10s curve in 10D leading up to 1-Jun



Source: NBF, Bloomberg

### Chart 9: Location? Flatter than '21 but cheaper vs. USTs

Canada-US yield differential & Canada curve 20D prior to 1-Jun (incl. current)

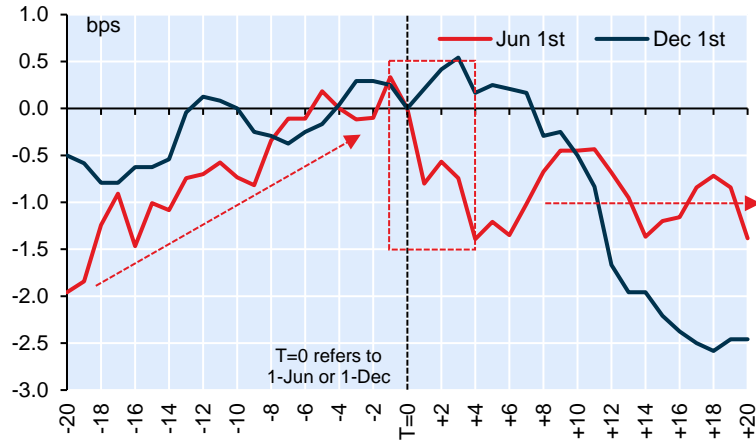


Source: NBF, Bloomberg | Note: Current refers to 5-May (which is T-19 vs. 1-Jun)

There's been success playing the curve flattener into June 1<sup>st</sup>, the historical success rate most impressive for 2s10s (followed by 2s5s). An eight-year performance streak for 2s10s is on the line as June 1<sup>st</sup> approaches. While today's curve is *much* flatter than this time last year, it's no flatter than 2019 or 2020. Meantime, Canada 10s appear relatively cheaper vs. USTs than in years gone by.

### Chart 10: Is there a performance window for provis?

Cumulative change in Ontario 10Y spread vs. GoC relative to 1-Jun & 1-Dec

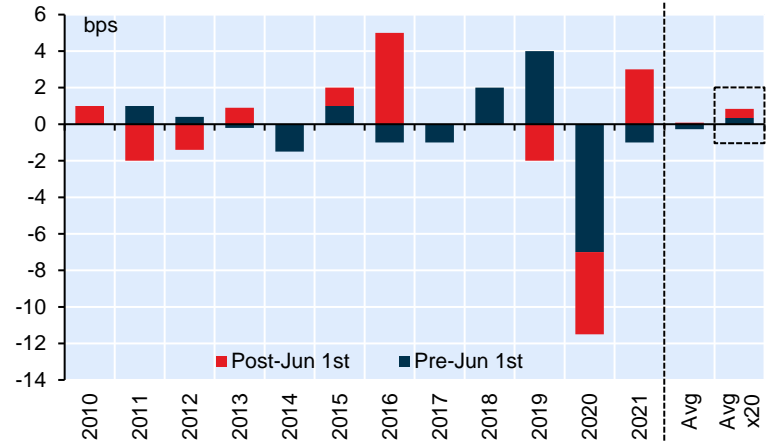


Source: NBF, Bloomberg | Note: Avg spread change based on 12Y period from 2010-21

Historical averages suggest a tendency for provincial cash spreads to cheapen up in May. Excess cash has allowed for some early June tightening in the past, but performance typically fades 5 or so days into the month. This contrasts with December tendencies. We caution that a 2020 spread rally clearly skews the average pre/post June move, given our relatively modest sample size (12 years).

### Chart 11: Provi performance record distorted by 2020 rally

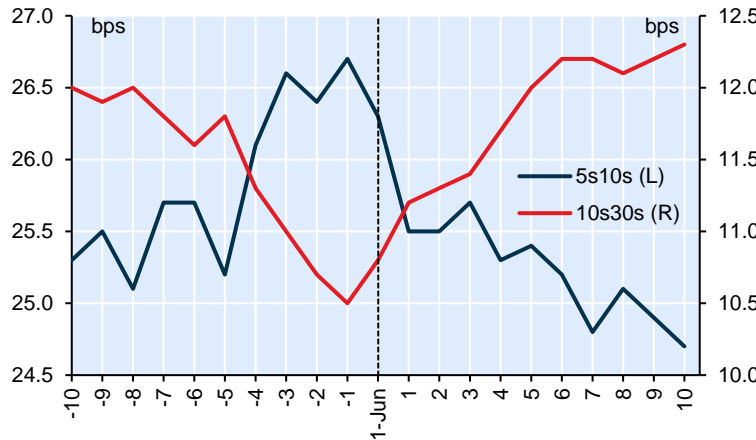
Change in Ontario 30Y spread vs. GoC in the 10D before/after 1-Jun



Source: NBF, Bloomberg | Note: Avg x20 excludes 2020 experience

### Chart 12: In past, 10Y underperformed on curve into cash

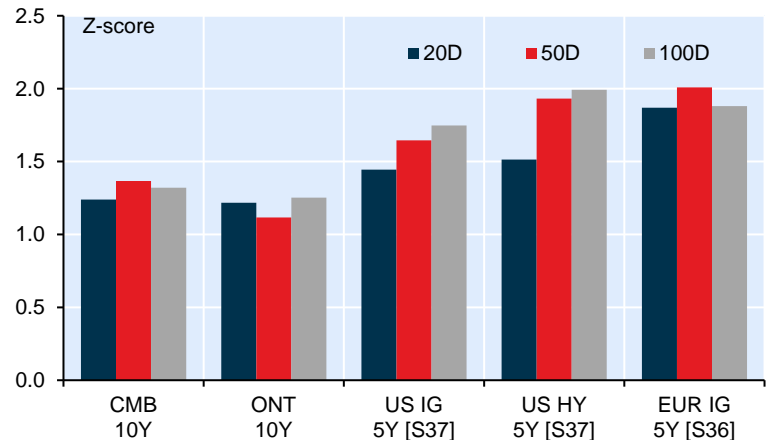
Average Ontario credit box in the 10D before/after 1-Jun



Source: NBF | Note: Based on constant maturity spreads over latest 5Y (excl. 2020)

### Chart 13: Lower beta provis have widened less (but market fluid)

20- to 100-day Z-scores for Cdn public sector spreads vs. corporate indices

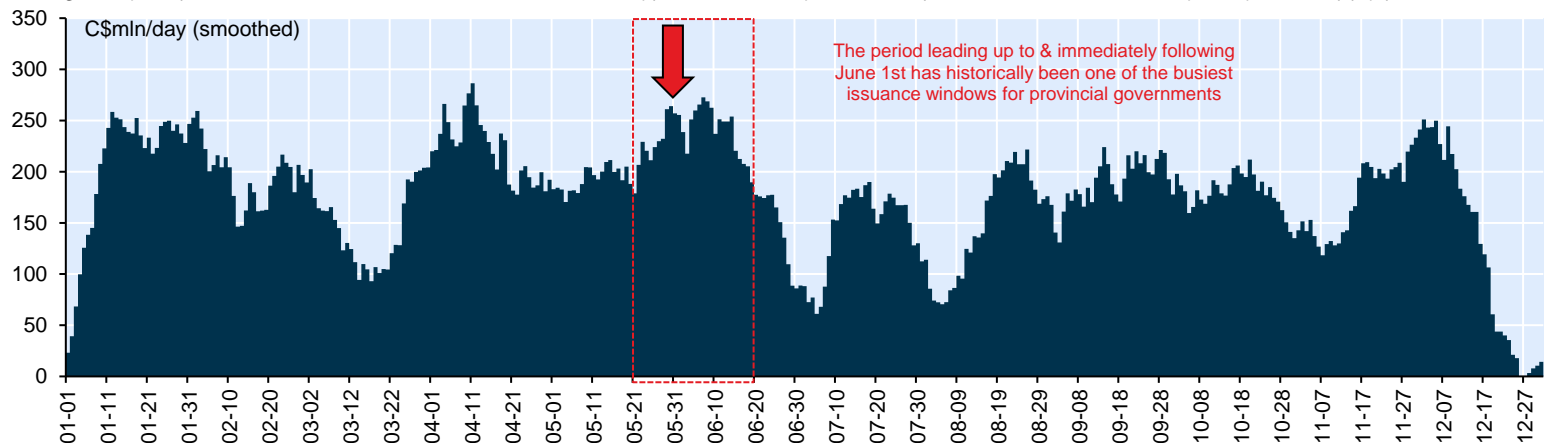


Source: NBF, Bloomberg | Note: Based on secondary levels as at 5-May @ 17:00

We're hesitant to trade the credit curve based on cashflows alone. Strictly speaking, the empirical record hints at 10Y underperformance vs. the wings up to June 1st, the 10s30s credit box often steepening as June progressed. Mind you, today's more frequent 10Y benchmarks could nullify past tendencies, with presumably less acute portfolio re-positioning. To us, provis have clearly bolstered their 'low-beta' bona fides in recent weeks. Having suffered less damage, RV screens might flag provis as 'rich' vs. comps (notably corps). We favour defensive sectors as financial conditions tighten.

### Chart 14: Not surprisingly, provincial issues often lean into seasonal cash, with late May/early June typically quite active

Average daily C\$ provincial bond issuance over the course of a 'typical' calendar year, with a particular focus on late May, early June supply patterns

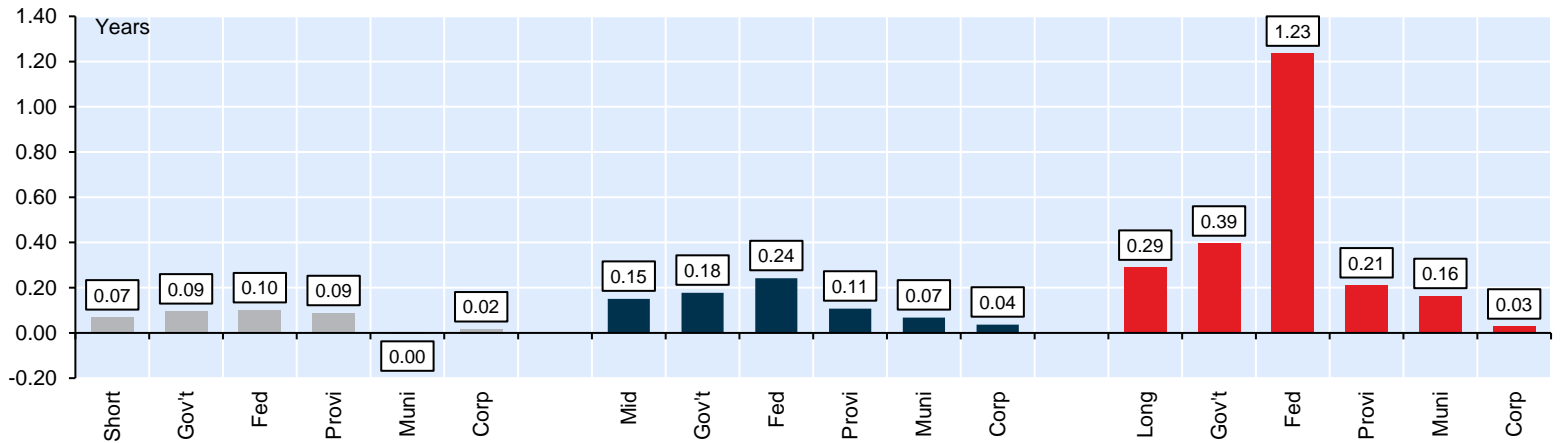


Source: NBF, Bloomberg | Note: Based on marketable provincial bond issuance over 12Y period (2010-21); levels smoothed +/- 5 days to more clearly identify underlying tendencies

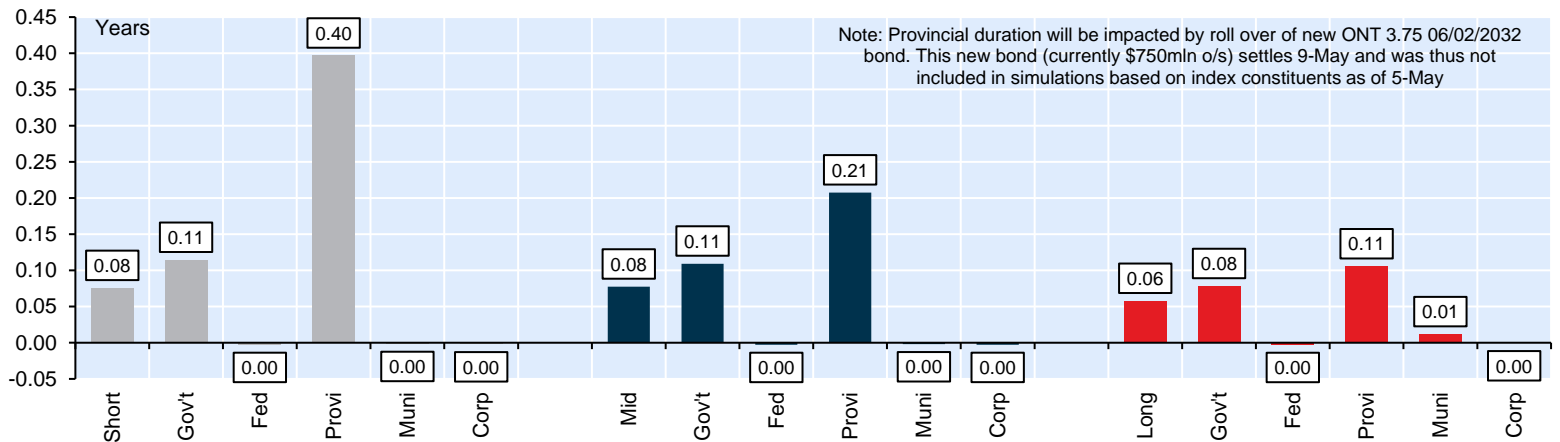
Provincial issuers are well attuned to seasonal dynamics, with supply often ramping up into June's deluge of cash. All told, [provinces have -C\\$110 billion to borrow in 2022-23](#), and we're collectively slow off the mark in April. So expect plenty of action in the coming weeks. A caveat: Ontario's June 2nd election and resulting funding blackout should temporarily create room for others this June.

### Charts 15–18: Nature of index extension differs notably across June's three key days

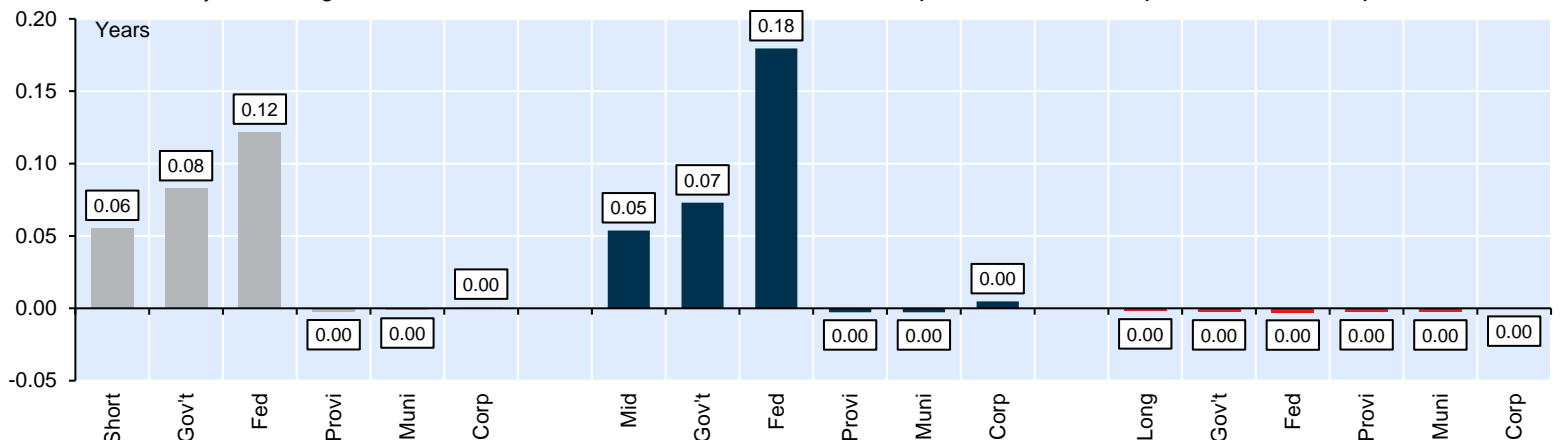
**June 1<sup>st</sup> effects:** Projected change in modified duration of FTSE Canada Universe Bond Index by term & sector: Tuesday 31-May to Wednesday 1-Jun



**June 2<sup>nd</sup> effects:** Projected change in modified duration of FTSE Canada Universe Bond Index by term & sector: Wednesday 1-Jun to Thursday 2-Jun



**June 15<sup>th</sup> effects:** Projected change in modified duration of FTSE Canada Universe Bond Index by term & sector: Tuesday 14-Jun to Wednesday 15-Jun



Source: NBF, FTSE Russell | Note: NBF simulations conducted 6-May, using 5-May closing values/constituents; assumes no change in yield curve

**June 1<sup>st</sup> effects (top chart)** > C\$5.63 billion in Universe cashflows. NBF estimates +0.060 year increase in modified duration of Universe, with two-thirds of duration increase attributable to roll effects. Duration increase of Long bucket particularly notable, as Long Federal sector extends estimated +1.2 years. Should support performance of longer dated Canadas.

**June 2<sup>nd</sup> effects (middle chart)** > C\$4.28 billion in Universe cashflows. NBF estimates +0.073 year increase in modified duration of Universe, with nearly 80% of duration increase attributable to roll effects. Notable duration increase expected for both Short and Mid buckets, most apparent in Provincial sector. The ultimate duration adjustment will be impacted by the new ONT 2032 bond, which had yet to settle when our sims were run. Overall, the clear majority of affected holdings relate to Ontario bonds, where an upcoming June 2<sup>nd</sup> general election is likely to impact this issuer's ability to tap early June cash.

**June 15<sup>th</sup> effects (bottom chart)** > C\$1.48 billion in Universe cashflows. NBF estimates +0.041 year increase in modified duration of Universe, with ~90% of duration increase attributable to roll effects. Duration increase largely a Canada Housing Trust story, as Short Federal and Mid Federal sectors extend most significantly. Negligible changes throughout Long bucket.

Note: Refer to Table 1 on page 5 for specific roll outs and roll overs. Actual duration adjustments subject to underlying market levels and index composition, which will change in lead up to June 1<sup>st</sup>.

**Table 1: The specific bonds driving significant roll effects... 28 securities with current holdings of \$100 billion on three key days**  
 Specific bond issues rolling out of FTSE Canada Universe Bond Index or rolling from one bucket to another: June 1<sup>st</sup>, June 2<sup>nd</sup> & June 15<sup>th</sup>

| Rolling out of FTSE Canada Universe Bond Index |          |                  |               |             |                          |          |                  |               |             |                          |          |                  |               |             |
|--|----------|------------------|---------------|-------------|--------------------------|----------|------------------|---------------|-------------|--------------------------|----------|------------------|---------------|-------------|
| On 1-Jun                                       |          |                  |               |             | On 2-Jun                 |          |                  |               |             | On 15-Jun                |          |                  |               |             |
| Issuer<br>Ticker                               | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% | Issuer<br>Ticker         | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% | Issuer<br>Ticker         | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% |
| CAN  | 1.50     | 01-Jun-23        | 9,761         | 0.54        | ONT                      | 2.85     | 02-Jun-23        | 12,100        | 0.68        | CANHOU                   | 2.35     | 15-Jun-23        | 10,500        | 0.58        |
| CAN  | 8.00     | 01-Jun-23        | 851           | 0.05        | MP                       | 2.55     | 02-Jun-23        | 3,050         | 0.17        |                          |          |                  |               |             |
| PPLCN  | 2.56     | 01-Jun-23        | 600           | 0.03        | NBRNS                    | 2.85     | 02-Jun-23        | 1,000         | 0.06        |                          |          |                  |               |             |
| <b>Total rolling out</b>                       |          |                  | <b>11,211</b> | <b>0.62</b> | <b>Total rolling out</b> |          |                  | <b>16,150</b> | <b>0.90</b> | <b>Total rolling out</b> |          |                  | <b>10,500</b> | <b>0.58</b> |

| Rolling over from MID to SHORT bucket of FTSE Canada Universe Bond Index |          |                  |               |             |                                   |          |                  |               |             |                                   |          |                  |               |             |
|--|----------|------------------|---------------|-------------|-----------------------------------|----------|------------------|---------------|-------------|-----------------------------------|----------|------------------|---------------|-------------|
| On 1-Jun   |          |                  |               |             | On 2-Jun                          |          |                  |               |             | On 15-Jun                         |          |                  |               |             |
| Issuer<br>Ticker   | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% | Issuer<br>Ticker                  | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% | Issuer<br>Ticker                  | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% |
| CAN  | 1.00     | 01-Jun-27        | 6,281         | 0.32        | ONT                               | 2.60     | 02-Jun-27        | 11,978        | 0.65        | CANHOU                            | 2.35     | 15-Jun-27        | 12,073        | 0.65        |
| ALTA   | 2.55     | 01-Jun-27        | 5,700         | 0.31        | MP                                | 2.60     | 02-Jun-27        | 1,500         | 0.08        | PPLCN                             | 4.24     | 15-Jun-27        | 500           | 0.03        |
| CPPIBC   | 2.85     | 01-Jun-27        | 1,500         | 0.08        | SCDA                              | 2.65     | 02-Jun-27        | 1,000         | 0.05        |                                   |          |                  |               |             |
| NS   | 2.10     | 01-Jun-27        | 954           | 0.05        | ONT                               | 7.60     | 02-Jun-27        | 706           | 0.05        |                                   |          |                  |               |             |
| CAN  | 8        | 01-Jun-27        | 917           | 0.06        | NF                                | 1.25     | 02-Jun-27        | 500           | 0.03        |                                   |          |                  |               |             |
| NWRWPT   | 2.80     | 01-Jun-27        | 750           | 0.04        |                                   |          |                  |               |             |                                   |          |                  |               |             |
| IPLCN  | 4.23     | 01-Jun-27        | 700           | 0.04        |                                   |          |                  |               |             |                                   |          |                  |               |             |
| AIREIN   | 3.37     | 01-Jun-27        | 325           | 0.02        |                                   |          |                  |               |             |                                   |          |                  |               |             |
| NAVCAN   | 7.40     | 01-Jun-27        | 199           | 0.01        |                                   |          |                  |               |             |                                   |          |                  |               |             |
| NS   | 6.60     | 01-Jun-27        | 159           | 0.01        |                                   |          |                  |               |             |                                   |          |                  |               |             |
| <b>Total rolling MID to SHORT</b>  |          |                  | <b>17,485</b> | <b>0.94</b> | <b>Total rolling MID to SHORT</b> |          |                  | <b>15,684</b> | <b>0.85</b> | <b>Total rolling MID to SHORT</b> |          |                  | <b>12,573</b> | <b>0.67</b> |

| Rolling over from LONG to MID bucket of FTSE Canada Universe Bond Index |          |                  |               |             |                                  |          |                  |               |             |                                  |          |                  |               |             |
|---|----------|------------------|---------------|-------------|----------------------------------|----------|------------------|---------------|-------------|----------------------------------|----------|------------------|---------------|-------------|
| On 1-Jun  |          |                  |               |             | On 2-Jun                         |          |                  |               |             | On 15-Jun                        |          |                  |               |             |
| Issuer<br>Ticker  | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% | Issuer<br>Ticker                 | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% | Issuer<br>Ticker                 | Cpn<br>% | Maturity<br>Date | O/S<br>C\$mIn | Weight<br>% |
| CAN   | 2.00     | 01-Jun-32        | 12,405        | 0.63        |                                  |          |                  |               |             |                                  |          |                  |               |             |
| Q   | 6.25     | 01-Jun-32        | 4,033         | 0.27        |                                  |          |                  |               |             |                                  |          |                  |               |             |
| HYDONE  | 6.93     | 01-Jun-32        | 448           | 0.03        |                                  |          |                  |               |             |                                  |          |                  |               |             |
| FNFACA  | 2.85     | 01-Jun-32        | 354           | 0.02        |                                  |          |                  |               |             |                                  |          |                  |               |             |
| <b>Total rolling LONG to MID</b>  |          |                  | <b>17,239</b> | <b>0.95</b> | <b>Total rolling LONG to MID</b> |          |                  | <b>N/A</b>    |             | <b>Total rolling LONG to MID</b> |          |                  | <b>N/A</b>    |             |

Source: NBF, FTSE Russell | Note: Relevant securities as of 5-May; O/S refers to "current holdings"; weight refers to Universe & is based on current holdings; a number of additional bonds will roll out or roll over on other days during June 2022, but we've concentrated on the three days where coupon & roll effects tend to be most pronounced; notables include two BRCOL bonds that roll over either Long to Mid or Mid to Short on 18-Jun, while a couple of large financial securities roll out on 9-Jun & 20-Jun; contact NBF for additional details

As of the close on May 5<sup>th</sup>, there were 28 unique securities comprising 5.5% of the FTSE Canada Universe Bond Index due to roll out or roll over on June 1<sup>st</sup>, June 2<sup>nd</sup> or June 15<sup>th</sup>. We're talking about over C\$100 billion in combined proceeds. Note that the above table and related figures do not include Ontario's fresh new 10-year bond (ONT 3.75% 06/02/2032, C\$750 million new issue, settling May 9<sup>th</sup>). Look for that bond to be re-opened once or twice over the course of May. The new Ontario 2032 bond won't stay in the Long bucket for long, rolling over to the Mid bucket on June 2<sup>nd</sup>. This roll will contribute to a duration extension for the Long Provincial sector not technically captured in our simulation analysis, which was based on index constituents prior the new bond's settlement.

**Table 2: Examining past performance in/around June 1<sup>st</sup>**

Average move (net) & success rates in Canada interest rates (yields, curves, butterflies, vs. US) & provincial credit in days before/after June 1<sup>st</sup> (based on 2010-21)

|                           |          | Canada Outright |        |         |         | Canada Curves       |        |        |        |        |         | Canada Flies      |           |            |            |
|---------------------------|----------|-----------------|--------|---------|---------|---------------------|--------|--------|--------|--------|---------|-------------------|-----------|------------|------------|
|                           |          | 2-year          | 5-year | 10-year | 30-year | 2s-5s               | 2s-10s | 2s-30s | 5s-10s | 5s-30s | 10s-30s | 2s-5s-10s         | 2s-5s-30s | 2s-10s-30s | 5s-10s-30s |
| Days before / after 1-Jun | -20      | -7.8            | -12.4  | -11.5   | -11.2   | -4.6                | -3.7   | -3.4   | 0.9    | 1.1    | 0.2     | -5.5              | -5.7      | -3.9       | 0.7        |
|                           | -10      | -8.4            | -10.6  | -10.2   | -9.4    | -2.2                | -1.8   | -1.0   | 0.4    | 1.2    | 0.8     | -2.6              | -3.4      | -2.6       | -0.4       |
|                           | -5       | -4.8            | -6.0   | -5.7    | -5.4    | -1.2                | -0.9   | -0.6   | 0.3    | 0.6    | 0.3     | -1.5              | -1.8      | -1.2       | 0.0        |
|                           | -3       | -5.3            | -5.8   | -4.5    | -3.5    | -0.5                | 0.8    | 1.8    | 1.2    | 2.2    | 1.0     | -1.7              | -2.7      | -0.2       | 0.3        |
|                           | -1       | -3.8            | -3.9   | -2.4    | -1.5    | -0.1                | 1.4    | 2.3    | 1.5    | 2.4    | 0.9     | -1.6              | -2.5      | 0.5        | 0.6        |
|                           | +0       | 0.0             | 0.0    | 0.0     | 0.0     | 0.0                 | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0               | 0.0       | 0.0        | 0.0        |
|                           | +1       | 1.8             | 2.7    | 3.0     | 2.3     | 0.9                 | 1.2    | 0.5    | 0.3    | -0.4   | -0.7    | 0.7               | 1.4       | 1.9        | 1.0        |
| Days before / after 1-Jun | +3       | 0.8             | 2.0    | 3.7     | 3.7     | 1.3                 | 3.0    | 2.9    | 1.7    | 1.6    | -0.1    | -0.4              | -0.4      | 3.0        | 1.7        |
|                           | +5       | 2.7             | 5.0    | 6.3     | 5.7     | 2.3                 | 3.6    | 2.9    | 1.3    | 0.6    | -0.7    | 1.0               | 1.7       | 4.3        | 2.0        |
|                           | +10      | 3.4             | 2.5    | 1.6     | 0.2     | -1.0                | -1.8   | -3.2   | -0.8   | -2.3   | -1.4    | -0.1              | 1.3       | -0.4       | 0.6        |
|                           | +20      | 5.7             | 5.8    | 3.7     | 0.1     | 0.1                 | -2.0   | -5.6   | -2.1   | -5.7   | -3.6    | 2.1               | 5.7       | 1.5        | 1.5        |
|                           | Criteria | Lower yield     |        |         |         | Flatter yield curve |        |        |        |        |         | Belly performance |           |            |            |
| Success rate (%)          | -20      | 58%             | 92%    | 92%     | 83%     | 92%                 | 75%    | 58%    | 67%    | 58%    | 42%     | 58%               | 75%       | 75%        | 67%        |
|                           | -10      | 67%             | 67%    | 83%     | 75%     | 75%                 | 83%    | 58%    | 50%    | 58%    | 50%     | 75%               | 67%       | 58%        | 58%        |
|                           | -5       | 58%             | 67%    | 67%     | 75%     | 67%                 | 50%    | 67%    | 50%    | 50%    | 50%     | 50%               | 58%       | 83%        | 67%        |
|                           | +5       | 25%             | 42%    | 25%     | 25%     | 25%                 | 25%    | 42%    | 42%    | 42%    | 67%     | 58%               | 42%       | 25%        | 25%        |
|                           | +10      | 33%             | 42%    | 42%     | 50%     | 58%                 | 58%    | 58%    | 58%    | 67%    | 75%     | 58%               | 50%       | 42%        | 33%        |
|                           | +20      | 42%             | 42%    | 50%     | 58%     | 58%                 | 75%    | 75%    | 58%    | 67%    | 58%     | 42%               | 42%       | 58%        | 50%        |

|                           |          | Canada-US Differential          |        |         |         | Canada-US Boxes                       |        |        |        |        |         | Ontario spread/credit curves                |         |        |         |
|---------------------------|----------|---------------------------------|--------|---------|---------|---------------------------------------|--------|--------|--------|--------|---------|---|---------|--------|---------|
|                           |          | 2-year                          | 5-year | 10-year | 30-year | 2s-5s                                 | 2s-10s | 2s-30s | 5s-10s | 5s-30s | 10s-30s | 10-year                                     | 30-year | 9s-10s | 10s-30s |
| Days before / after 1-Jun | -20      | -2.7                            | -3.2   | -1.4    | -2.6    | -0.6                                  | 1.3    | 0.1    | 1.8    | 0.6    | -1.2    | 2.0   | 0.9     | 0.0    | -1.1    |
|                           | -10      | -4.9                            | -4.3   | -0.6    | -0.1    | 0.6                                   | 4.3    | 4.7    | 3.7    | 4.1    | 0.4     | 0.7   | -0.3    | 0.0    | -1.0    |
|                           | -5       | -1.7                            | -2.7   | -0.6    | -0.6    | -1.0                                  | 1.0    | 1.0    | 2.1    | 2.1    | 0.0     | -0.2  | -0.5    | 0.0    | -0.3    |
|                           | -3       | -2.5                            | -2.3   | -0.1    | 0.7     | 0.1                                   | 2.4    | 3.2    | 2.2    | 3.0    | 0.8     | 0.1   | -0.2    | 0.1    | -0.3    |
|                           | -1       | -3.7                            | -3.4   | -1.2    | -0.3    | 0.3                                   | 2.5    | 3.4    | 2.2    | 3.1    | 0.9     | -0.3  | -0.3    | 0.0    | 0.0     |
|                           | +0       | 0.0                             | 0.0    | 0.0     | 0.0     | 0.0                                   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0     | 0.0   | 0.0     | 0.0    | 0.0     |
|                           | +1       | 0.3                             | -0.4   | -0.7    | -1.5    | -0.7                                  | -1.0   | -1.8   | -0.3   | -1.1   | -0.8    | -0.8  | -0.5    | 0.0    | 0.3     |
| Days before / after 1-Jun | +3       | 0.8                             | 0.7    | 0.3     | -1.4    | -0.1                                  | -0.5   | -2.2   | -0.4   | -2.1   | -1.7    | -0.7  | -0.5    | 0.1    | 0.2     |
|                           | +5       | 1.8                             | 2.3    | 1.4     | -0.1    | 0.5                                   | -0.4   | -2.0   | -0.9   | -2.4   | -1.6    | -1.2  | -0.8    | 0.1    | 0.4     |
|                           | +10      | 3.0                             | 1.7    | 0.1     | -1.5    | -1.3                                  | -2.9   | -4.5   | -1.6   | -3.2   | -1.6    | -0.5  | 0.1     | 0.1    | 0.5     |
|                           | +20      | 6.1                             | 4.6    | 3.4     | 0.8     | -1.5                                  | -2.7   | -5.3   | -1.2   | -3.8   | -2.6    | -1.4  | -0.5    | 0.3    | 0.9     |
|                           | Criteria | Relatively tighter yield vs. US |        |         |         | Relatively flatter yield curve vs. US |        |        |        |        |         | Tighter credit spread, flatter credit curve |         |        |         |
| Success rate (%)          | -20      | 33%                             | 42%    | 58%     | 67%     | 67%                                   | 67%    | 58%    | 67%    | 75%    | 75%     | 33%   | 42%     | 25%    | 92%     |
|                           | -10      | 67%                             | 75%    | 58%     | 50%     | 50%                                   | 42%    | 42%    | 42%    | 33%    | 33%     | 33%   | 50%     | 25%    | 92%     |
|                           | -5       | 67%                             | 50%    | 58%     | 58%     | 50%                                   | 50%    | 50%    | 50%    | 50%    | 42%     | 33%   | 33%     | 42%    | 58%     |
|                           | +5       | 50%                             | 33%    | 33%     | 58%     | 50%                                   | 67%    | 67%    | 50%    | 58%    | 67%     | 50%   | 50%     | 42%    | 42%     |
|                           | +10      | 33%                             | 50%    | 50%     | 58%     | 58%                                   | 75%    | 75%    | 67%    | 67%    | 58%     | 42%   | 33%     | 33%    | 25%     |
|                           | +20      | 25%                             | 58%    | 42%     | 58%     | 67%                                   | 67%    | 67%    | 42%    | 50%    | 67%     | 50%   | 50%     | 42%    | 25%     |

Source: NBF, Bloomberg | Note: Based on week days; success rates calculated over 12Y period, covering 2010-21; success rates reflect the percentage of time the expected direction of trade held in pre- & post-cash period; examples of the 'a priori' direction of trade include: Canada outright = lower yield; Canada curves = flatter; Canada-US yield differentials = tighter/narrower; refer to "Criteria" for nature of tests & expected direction



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