



Capital
Markets

2023 Public Sector Roundtable

DECEMBER 2023

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PUBLIC SECTOR KEY THEMES

1

Economic Growth Expected to Slow: The combination of high rates and household leverage is having the expected effect of depressing economic activity. The question is about the degree of weakness, not the direction of travel; a spontaneous growth rebound is highly unlikely until there is a catalyst (i.e. easing financial conditions or a positive fiscal impulse). RBC growth forecasts assume a shallow recession and below trend growth persisting through 2024. Risks are skewed to a hard landing which could involve either: (i) an unforeseen shock related to crisis/liquidity or (ii) a classic deep growth recession from underestimating the impact of tighter policy on rate sensitive sectors.

2

Inflation: Inflation should moderate gradually alongside slack in the product and labour markets, but there are question marks on how quickly this will occur. If the Bank of Canada is correct and the economy is entering excess supply, coupled with further loosening in labour market conditions, downward forces on inflation should become more acute and push towards the Bank's target zone. RBC Economics expects headline inflation to reach 1.5% by end of 2024 and core inflation to subside toward the BoC 2% target. The risk scenario is slanted to prices remaining elevated. Current wage trends are inconsistent with inflation reaching target. Similarly, corporate pricing behavior and inflation expectations continue to be higher than normal. These combine to give a higher risk that elevated inflation becomes embedded.

3

Bank of Canada starts cutting rates in 2024: The RBC Rates Strategy team's base case for monetary policy in Canada projects 100bp of interest rate cuts in 2024 starting in late Q2, followed by another 100bp in 2025. The memory effect of a policy error (tightening too late) combined with sticky inflation/wages should see the BoC hold off longer than in past cycles. With core inflation measures still stubbornly high, the BoC should remain on hold for a while.

4

Housing Market Challenges: The housing market is caught between opposing cyclical and structural forces. The cyclical impact from higher rates is decidedly negative: (i) housing affordability is problematic, (ii) debt servicing ratios will rise from lofty levels, and (iii) ongoing mortgage resets. However, the structural forces – immigration, land supply, housing shortage, insufficient multi-dwelling units – prevent a larger downturn. The outlook for housing would worsen if job losses became more widespread than the base case scenario. A prolonged period of stagnation in housing activity/prices is most likely.

5

Steady ESG Issuance with Increased Investor Focus: Canadian public sector ESG issuance volumes retraced to ~C\$16.0 billion in 2023 after reaching a record high of C\$22.7 billion in 2022. The Government of Canada did not issue in the ESG space in 2023. Canada however did update its Framework to include nuclear as a use of proceeds and is committed to being a regular issuer in the domestic green bond market. Public Sector ESG issuances represent the majority of total ESG issuance in CAD, consisting of 65% of the total CAD ESG issues. Provinces who have not yet issued an ESG bond emphasized that they would like to eventually embed ESG into all their programs, aiming to champion ESG with a holistic approach and not just for specific issuances that they complete. Issuers are also focused on the liquidity of the ESG bonds, with consideration of offshore ESG issuances if their program is large enough to be able to show commitment in those specific markets.

6

Overall Issuance Levels Expected to Grow in 2024: Issuance from Canadian Public Sector issuers totaled ~C\$212.3 billion across all currencies in 2023, up 11.9% from the C\$189.7 billion completed in 2022. C\$150.0 billion (70.7%) of Public Sector Issuance was completed in the domestic market in 2023, a 10.0% increase from the C\$136.5 billion (72.0% of total funding) in 2022. Provincial issuers completed C\$93.0 billion in 2023 across all currencies, an increase of 14.1% from the C\$81.5 billion seen in 2022 with the majority (80%) completed in the domestic market, in line with historical trends. The outlook for debt issuance by the Canadian public sector in 2024 is expected to be at a modestly higher level to the volume seen in 2023 given: (i) provinces are expected to increase borrowing to address higher fiscal deficit and capital spending needs; (ii) the expansion of the Canada Mortgage Bond (CMB) program to C\$60.0 billion in 2024; and (iii) expectations of continued growth in the borrowing programs for the pension asset manager/pension fund sector.

7

Heightened Risk of a Weakening of Credit Spreads in 2024: The prospect of increased issuance levels combined with a scenario where economic growth deteriorates and/or there is some type of risk-off event in financial markets tilts the balance of risks towards the potential for a weakening of credit spreads in 2024. Conversely, an economic soft-landing scenario combined with stable and positive tone in credit markets would be expected to be supportive for spread product in the year ahead.

8

International Markets Expected to Remain a Key Component of Financing: Offshore issuance was up 17% year-over-year in 2023 with the Canadian SSA sector (incl. GoC) completing C\$43.7 billion equiv. or 72% of its funding in offshore markets, while provincial issuers completed C\$18.6 billion equiv. (20%) outside of Canada, for aggregate offshore public sector supply of C\$62.3 billion equiv. Provincial issuers noted that they are still committed to issuing in core international markets (USD/EUR/GBP) to diversify their funding base and will continue to actively monitor relative financing levels for offshore issuance opportunities in 2024. Pension Fund/Pension Asset Manager issuers also remain committed to finding strong execution opportunities in offshore markets like USD, EUR and AUD in 2024.

ECONOMIC OUTLOOK & FORECAST

Alex Caridia (RBC): First of all, thank you everyone for making the trip here to join us in person. As always, the roundtable is an opportunity for everybody to express your views on the market. Let's start with Jason moderating the first segment, to run through some of the macro outlook, and start with RBC's official view, and then we can go around the table and ask you some questions. Then we'll get into some of the more issuer specific questions which I will help to moderate. Over to you, Jason.

“Having contractions as far as GDP in Canada and the US printing on the stronger side, it's only happened a couple times in history, before this one was in 2015 when oil prices fell a lot.”

Jason Daw, RBC Rates Strategy

Jason Daw (RBC Rates Strategy): Thanks everybody for joining. A lot of familiar faces and some new ones, so it's great to see everybody again. First on the growth side, obviously there's been lots of surprises this year. I think we went from a situation where people thought Canada and the US could be very resilient. Now we've seen a divergence between what's happening in Canada, and what's happening in the US. This is generally not how the cycle plays out. Having contractions as far as GDP in Canada and the US printing on the stronger side, it's only happened a couple times in history, before this one was in 2015 when oil prices fell a lot. The second one was in the early 1990s leading up to the recession, where Canada growth was weaker than the US and then both went into a deep recession. So, we don't think there's going to be a delinking in the cycles. We think it's just a matter of the transmission from monetary policy into the economy, which is obviously quicker in Canada given household leverage and mortgage rates; the US is going to catch up next year. Ultimately, growth in both economies will be very sluggish in 2024 with little prospect of a rebound until monetary policy is materially eased. The difficulty that we're facing as far as forecasting interest rates in Canada, is that in a normal cycle when the unemployment rate has already gone up as much as it has and when growth has been this weak, we would've already been seeing rate cuts at this point. Markets are currently accelerating the timeline of when policy easing will happen. But we think central banks are going to be more patient, and they're going to want to make sure they squeeze out everything they can from inflation and are on the side of getting to a situation where they undershoot the inflation target rather than overshooting it. So, it does complicate some of the cyclical dynamics, but overall with a weak growth profile in 2024, inflationary pressures easing and the next move (with uncertain timing) before rate cuts, does favour bond yields falling. With that, for the provinces, how do each of you view the economic or fiscal outlook? Obviously, there's differences across provinces, commodity vs non-

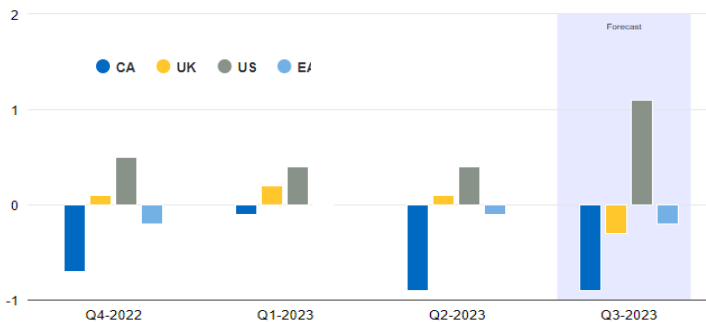
commodity oriented, large vs small housing risks, etc., but for the fiscal outlook - what are you thinking for growth next year? We'll start with Alberta, which is an interesting case, oil prices were very strong, they've come down a lot now. Is anything changing?

Stephen Thompson (Alberta): As Alberta contributes disproportionately to the federation, we're going to contribute disproportionately to the round table. I'm going to ask Catherine Rothrock, our chief economist to take that one if she doesn't mind.

Catherine Rothrock (Alberta): I'll be perfectly frank, we think that the private sectors are underestimating growth next year for Alberta, so we've got around 2.6% - a little bit weaker than where we're at for the budget, and that does reflect some of the impact of weaker consumer spending and some of that narrative that's out there. But I would say where other folks might not be paying a lot of attention is that we do expect a lot of investment coming into the province. We've got a lot on the go right now on the investment side. We've got a big announcement from Dow last week, an \$8 to

GDP GROWTH TRENDS DIVERGING BETWEEN ECONOMIC REGIONS

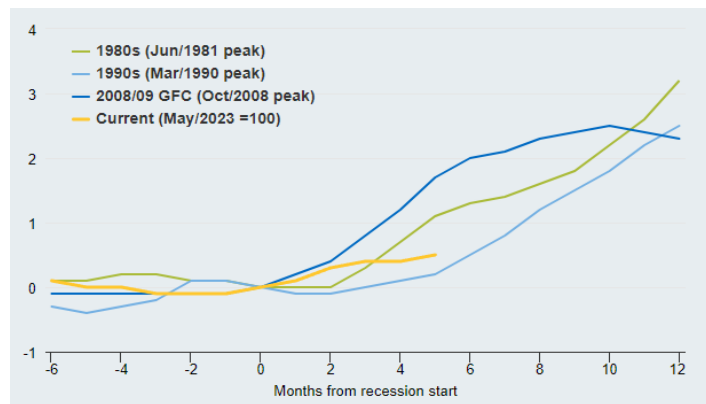
%, quarterly growth in per-capita GDP



Source: Haver, RBC Economics | *Estimates for UK and the EA are based on working age pop.

CANADA UNEMPLOYMENT RATE RECESSION COMPARISON

PPT increase, 3-month rolling average



Source: Statistics Canada, RBC Economics

9 billion investment Net-Zero Ethylene Cracker. We've got a lot of activity outside of oil and gas that's contributing to growth next year. I think we've taken a balanced approach in terms of our outlook for oil prices, we're looking at between \$70 to \$75/bbl over the medium term. Our expectation is that prices are going to soften of course with a lot of volatility. Even our projections this year have moved around quite a bit. So, we are at \$79/bbl, we pulled it back and moved it up again, which I don't like to do, but that's just a reality right now. Our employment, our labour market has done really well so far this year. We do expect some softness of course, but certainly we expect to outpace other provinces by a fair margin next year. That's the trend with some acknowledgement that consumer spending is going to be weak. Our housing market has performed well. We have some catching up to do on the supply side, so we're finally starting to see activity there. Overall, we're optimistic for next year given some of the risks out there.

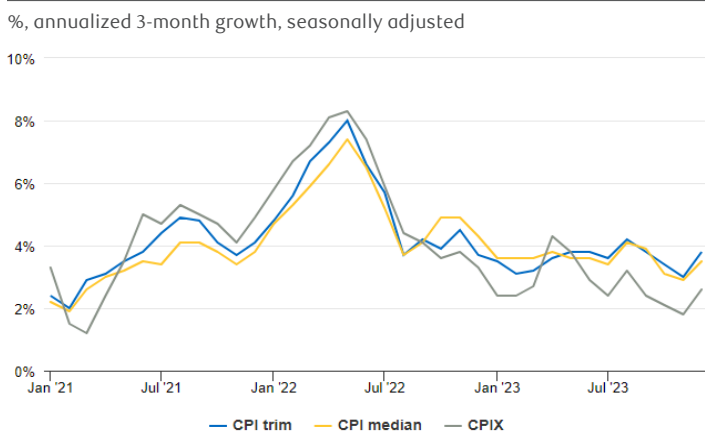
“Our expectation is that prices are going to soften of course with a lot of volatility.”

Catherine Rothrock, Alberta

Jason Daw (RBC Rates Strategy): I guess maybe contrasting that with a non-commodity-oriented Province such as Ontario, Carlos, anything on your side?

Carlos Yep (Ontario): We're ending 2023 with real GDP at 3.7% and we're estimating 1.1% for this coming year, then slowing down to 0.5%. We're looking at real GDP to gradually coming back up. In 2022, we saw growth in employment, but of course it has slowed down in 2023. The slower growth in the economy and the tight monetary policy has been contributing to some of the inflation and it's uncertain the path of inflation going forward.

GROWTH IN THE BOC'S PREFERRED CORE MEASURES BOUNCED HIGHER



Source: Statistics Canada, RBC Economics

“The slower growth in the economy and the tight monetary policy has been contributing to some of the inflation and it's uncertain the path of inflation going forward.”

Carlos Yep, Ontario

Jason Daw (RBC Rates Strategy): Linking in the economic outlook, differences in revenues and expenses, how does it affect anybody's funding plans? Maybe we can start with Sam from BC.

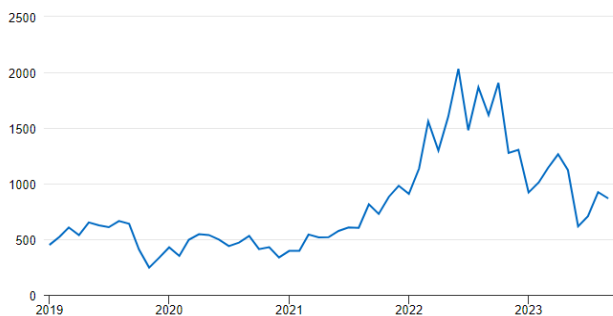
Sam Myers (British Columbia): One of the things that we observed just recently between the first quarterly update and the second quarterly update is natural gas prices and the effect on revenues. There's been a significant change. Going back to the February 2023 budget, we had forecast C\$2 billion for natural gas revenues. However, we've had to revise this down by probably about a half to two thirds. It is one of the important line items, but it only will comprise between 5-10% of total government revenue. Spending wise, you've heard of some of the challenges that we've had with wildfires that has moved the needle in a considerable way. Some of the spending was part of the February 2023 budget. But unlike natural disasters such as flooding, there is no dollar-for-dollar reimbursement payments from the federal government. There's only a portion of the wildfire spending that will come from Ottawa. We announced in the second quarterly update between C\$300-360 million that was coming from Ottawa in relation to that. The debt forecast is projected to be C\$6 billion lower compared to budget 2023. As far as the funding plan is concerned, we've had to borrow due to a projected deficit. The deficit is moderately smaller by about C\$1 billion as we reported in the second quarterly update a deficit forecast of C\$5.5 billion. We've had a busy year on our funding plan and will be happy to chat more about that once we turn our attention to that topic.

Jason Daw (RBC Rates Strategy): I guess on the revenue and expense side, sticking with the commodity theme – Saskatchewan, any impacts there from the commodity price angle and what are you expecting?

Tammi Keith (Saskatchewan): Saskatchewan has a diversified economy. It's resource-based with mining, including potash and uranium, and oil and gas comprising 26% of our real GDP. Agriculture is 8% of our real GDP. Swings in commodity prices affect our revenue experience. However, each commodity has its own cycle, and the cycles are not highly correlated. This year, potash prices fell, and as reported in our Q2 results, the C\$700 million decline in non-renewable resource revenue was largely due to lower potash prices and volumes. This decline was partially offset by an increase in oil revenues due to higher prices and an improved differential. Drought in Saskatchewan, primarily in the southwest part of the province,

SASKATCHEWAN POTASH PRODUCTION TRENDS DOWN TOWARD PRE-PANDEMIC LEVELS

Potash production, millions of tonnes



Source: Saskatchewan Ministry of Energy and Resources, RBC Economics

created an increased expense of C\$800 million in crop insurance payouts. These resource-based items directly impact our fiscal situation, contributing to the shift in a projected surplus of nearly C\$1 billion to a deficit of C\$250 million. Saskatchewan needs to borrow about C\$700 million more this year than projected.

“Each commodity has its own cycle, and the cycles are not highly correlated.”

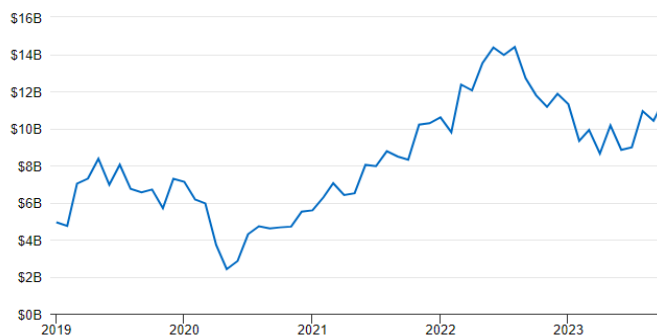
Tammi Keith, Saskatchewan

Jason Daw (RBC Rates Strategy): On the oil price side, RBC as a firm has been bullish on oil. I think it’s hard to catch these turning points. But in my opinion, there’s probably more downside risk to global economic activity than what markets are expecting at this point. I think oil could probably go down quite significantly even from the levels that we’re at now. To me, it’s more about timing of when growth starts to slow versus if it will slow, but that’s again my opinion. What happens if oil went to \$40/bbl? I guess Alberta, what does that mean? Do you have to issue more at some point if oil is at \$40/bbl?

Stephen Thompson (Alberta): If oil prices hover at \$40 it’s quite manageable for us and quite manageable for the industry. Our royalty take per barrel is non-linear and it’s meant to cushion industry in times when we do have a downturn. So, if you think back to 2014, as oil fell below about \$30 or \$25/bbl, the province took virtually nothing in terms of royalty revenues. If you look at the budget this year, non-renewable resource revenue is about 25% of the budget. It’s about \$20 billion on a \$75 billion budget, which is virtually wiped out in a downturn like that. The thing with Alberta is we’ve put in a fiscal framework in the latest budget that requires balanced budget but allows for deficits in such a situation. What we would be relying on in a circumstance like that is our unfettered access to capital markets. I mean our debt to GDP right now is 9% headed for 7% in our budget forecast. So, we have capacity

VALUE OF ALBERTA OIL AND GAS EXPORTS RECOVERING

Alberta exports: oil and gas extraction, billions of Canadian dollars



Source: Innovation, Science, and Economic Development Canada, RBC Economics

there to correct if something like that happens or to wait it out, not necessarily to correct, but we point at a significant downturn protracted period without really impacting our balance sheet over the long term.

Jason Daw (RBC Rates Strategy): Thanks Stephen. On the investor side, either Abid or Matt or Ryan, how does the exposure to resource sectors across provinces affect your decisions on what you’re possibly buying or not?

Matthew Cassell (HOOPP): There has been a significant compression of relative spreads in the CAD HQLA market over the last 10-years. The volatility in inter-provincial basis has seen a marked decrease through this. The resource linked provinces provide a nice way/low beta mechanism to generate incremental value add as you still get some movement in the basis to Ontario in these credits that is driven by fundamentals/resource economics. This compares to some of the non-resource credits that tend to be much more of a liquidity story in how their basis moves. This is harder to play. Near term issuance needs and flows from other accounts have an outsized influence on non-resource credits, but if you’re talking about something like Newfoundland or Alberta, you have some sort of leverage to oil or something that you can make an informed investment decision based on.

“The resource linked provinces provide a nice way/low beta mechanism to generate incremental value add as you still get some movement in the basis to Ontario in these credits that is driven by fundamentals/resource economics.”

Matthew Cassell, HOOPP

INTEREST RATES & HOUSING MARKET

Jason Daw (RBC Rates Strategy): Well said Matt. Moving on to the topic of interest rates. Our baseline forecast is the Bank of Canada will start cutting in Q2 2024. If you had to narrow it down to a month, it's probably more likely June than earlier in the quarter. The market has swung quite dramatically from expecting rate hikes six weeks ago to now expecting rate cuts as early as March. We think that's a little bit too early unless you get to more of a downside growth scenario versus what we're thinking at this point. I think the challenging thing right now is that there's a lot priced in, the curve's been inverted, so how much farther can the long end come down if you're getting a policy rate that's only possibly getting down to 3%, assuming nothing bad happens in the world, there's no liquidity crisis event that requires central banks to go out of neutral territory. I do think the Bank of Canada and the Fed are going to be cautious about going into neutral territory, or even below neutral territory given the problems that we've had with inflation over the past couple of years. I think if we only get down to a 3% policy rate, a 10-year bond yield below 3% becomes a little bit challenging. Maybe the long end of the curve has factored in a lot right now. Currently, the front end of the curve – 2s and 5s - still has quite a bit of room to move down, in that context, is the cost of funding and servicing debt, impacting fiscal flexibility in any way? In general, government debt levels are low, but how does it affect your decisions, flexibility, and the way that you approach your funding?

“So how much farther can the long end come down if you're getting a policy rate that's only possibly getting down to 3%.”

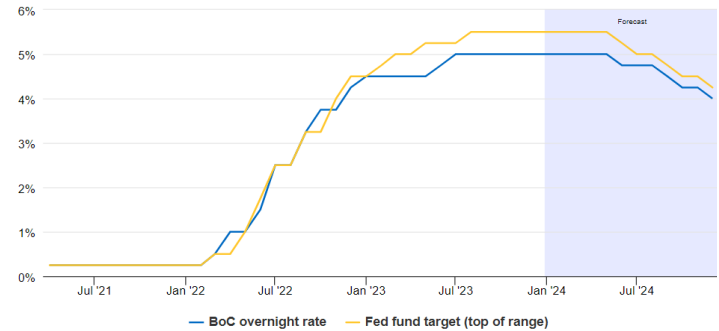
Jason Daw, RBC Rates Strategy

Nicolas Moreau (Department of Finance, Canada): Public debt charges have risen this year, reflecting higher interest rates. We anticipate that public debt charges will reach C\$46.5 billion or 1.6 per to GDP in 2023-24, up from C\$35 billion or 1.2% to GDP in 2022/23. Despite the recent uptick in debt charges, the ratio of debt charges to GDP still lies well below the historical average of the past 40 years.

The relatively modest ratio of debt charges to GDP indicates that, despite the recent surge in interest rates, debt charges remain at a reasonable level and Canada's capacity to service the debt remains robust.

Canada's net debt as a share of the economy is still lower today than in any other G7 country prior to the pandemic—an advantage that Canada is forecasted to maintain. Canada's economic plan has also delivered the fastest fiscal consolidation in the G7 since the depths

CENTRAL BANKS TO EASE OFF THE BRAKES IN 2024



Source: Haver, RBC Economics

FINANCIAL MARKET FORECASTS

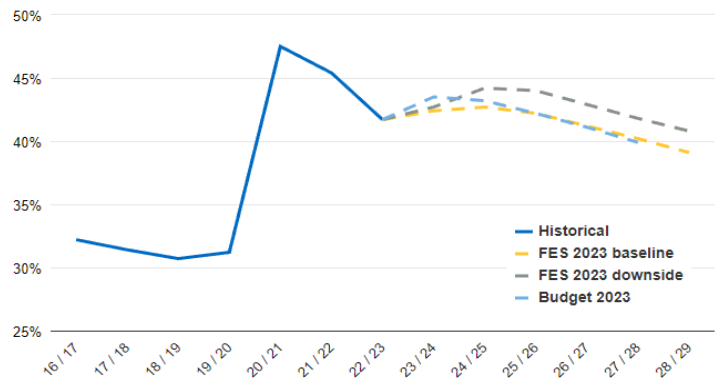
Interest rates (% , end of quarter) – December 2023

	Forecast										Forecast					
	23Q1	23Q2	23Q3	23Q4	24Q1	24Q2	24Q3	24Q4	25Q1	25Q2	25Q3	25Q4	2022	2023F	2024F	2025F
Canada																
Overnight	4.50	4.75	5.00	5.00	5.00	4.75	4.50	4.00	3.50	3.00	3.00	3.00	4.25	5.00	4.00	3.00
Three-month	4.34	4.90	5.07	5.00	4.95	4.85	4.35	3.85	3.35	3.00	3.00	3.00	4.23	5.00	3.85	3.00
Two-year	3.74	4.58	4.87	4.30	4.20	3.85	3.60	3.40	3.30	3.20	3.10	3.10	4.06	4.30	3.40	3.10
Five-year	3.02	3.68	4.25	3.65	3.60	3.40	3.35	3.30	3.30	3.25	3.20	3.20	3.41	3.65	3.30	3.20
10-year	2.90	3.26	4.03	3.55	3.65	3.50	3.40	3.35	3.35	3.30	3.30	3.30	3.30	3.55	3.35	3.30
30-year	3.02	3.09	3.81	3.40	3.65	3.60	3.60	3.55	3.50	3.45	3.40	3.40	3.28	3.40	3.55	3.40
Yield curve (10s-2s)	-84	-132	-84	-75	-55	-35	-20	-5	5	10	20	20	-76	-75	-5	20.00
United States																
Fed funds*	4.88	5.13	5.38	5.38	5.38	5.13	4.63	4.13	3.88	3.63	3.38	3.38	4.38	5.38	4.13	3.38
Three-month	4.85	5.43	5.55	5.30	5.28	4.98	4.48	3.98	3.75	3.55	3.30	3.30	4.42	5.30	3.98	3.30
Two-year	4.06	4.87	5.03	4.80	4.55	4.05	3.70	3.40	3.20	3.10	3.12	3.16	4.41	4.80	3.40	3.16
Five-year	3.60	4.13	4.60	4.35	4.20	3.85	3.65	3.50	3.40	3.35	3.36	3.39	3.99	4.35	3.50	3.39
10-year	3.48	3.81	4.59	4.30	4.40	4.20	4.05	3.95	3.90	3.85	3.80	3.85	3.88	4.30	3.95	3.85
30-year	3.67	3.85	4.73	4.40	4.50	4.35	4.30	4.25	4.20	4.15	4.10	4.15	3.97	4.40	4.25	4.15
Yield curve (10s-2s)	-58	-106	-44	-50	-15	15	35	55	70	75	68	69	-53	-50	55	69
Yield spreads																
Three-month T-bills	-0.51	-0.53	-0.48	-0.30	-0.33	-0.13	-0.13	-0.13	-0.40	-0.55	-0.30	-0.30	-0.19	-0.30	-0.13	-0.30
Two-year	-0.32	-0.29	-0.16	-0.50	-0.35	-0.20	-0.10	0.00	0.10	0.10	-0.02	-0.06	-0.35	-0.50	0.00	-0.06
Five-year	-0.58	-0.45	-0.35	-0.70	-0.60	-0.45	-0.30	-0.20	-0.10	-0.10	-0.16	-0.19	-0.58	-0.70	-0.20	-0.19
10-year	-0.58	-0.55	-0.56	-0.75	-0.75	-0.70	-0.65	-0.60	-0.55	-0.55	-0.50	-0.55	-0.58	-0.75	-0.60	-0.55
30-year	-0.65	-0.76	-0.92	-1.00	-0.85	-0.75	-0.70	-0.70	-0.70	-0.70	-0.70	-0.75	-0.69	-1.00	-0.70	-0.75

Note: Interest Rates are end of period rates. * Midpoint of 25 basis point range

NEAR-TERM FISCAL RESTRAINT BRINGS DOWN DEBT-TO-GDP PROJECTIONS

Federal debt-to-GDP, %



Source: Department of Finance, RBC Economics

of the pandemic, resulting in Canada having the smallest deficit in the G7 as a share of the economy over the current and next two years.

A long tradition of fiscal responsibility continues to be a pillar of Canada's excellent credit ratings from Moody's (Aaa), S&P (AAA), and Fitch (AA+), as well as DBRS Morningstar (AAA). With Germany, Canada is one of only two G7 economies to have a AAA rating from at least two of the three major global credit rating agencies.

Nicoleta Oprea (Manitoba): Debt servicing costs are higher year-over-year. The challenge is on forecasting, to factor in an appropriate amount of volatility, by the time the forecast was complete, it was already stale because of the move in interest rates. Some of the higher debt servicing costs have been offset by the long cash position that the province was holding throughout the year.

“The challenge is on forecasting, to factor in an appropriate amount of volatility, by the time the forecast was complete, it was already stale because of the move in interest rates.”

Nicoleta Oprea, Manitoba

Stephen Thompson (Alberta): I would say for Alberta, the next thing right now is we have an option because we're running surpluses, we're paying down debt. We have virtually no sensitivity to rates right now, we're just choosing instead to refinance with cash.

Jason Daw (RBC Rates Strategy): On the investor side there's been a lot of volatility in markets as the narrative on the economy and monetary policy remains in flux. How have you been positioned? What are your thoughts for rates and the yield curve going forward? Instead of Matt stealing the thunder with a fantastic answer again, either Ryan or Abid?

Ryan Goulding (Leith Wheeler): You need to respect volatility and that really comes down to one of the hardest things we do as investors, which is trade sizing and the increased volatility, means decreasing your trade sizing, looking at the longer-term structural trades you want to have, while being able to weather the storm. We're in a structural curve steepening environment, curves take a long time to roll over and then they tend to trend for a long time in one direction. I think that you want to have a structural steepener, we've traded duration around and the duration can be choppy. I don't think we're in an environment of a move materially lower in rates until that curve can move steeper, then we can get the shift lower in rates. There are some great positive structures you can put on and then also have some convexity in your portfolio, which I think is something quite often lost on the buy side. If you can build that into

your portfolio, then when we do get that shift to structurally lower rates, convexity will kick in.

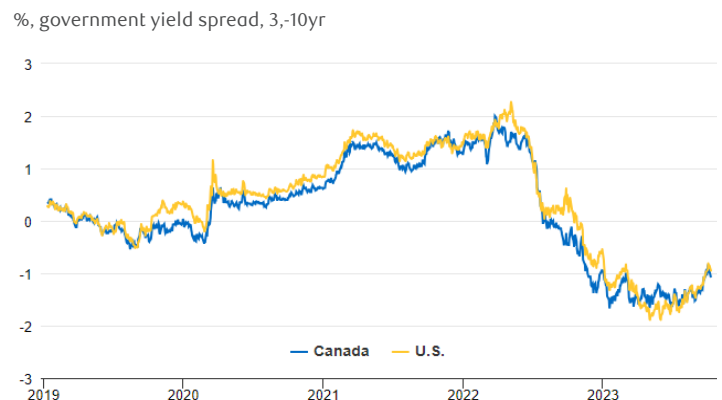
“I don't think we're in an environment of a move materially lower in rates until that curve can move steeper, then we can get the shift lower in rates.”

Ryan Goulding, Leith Wheeler

Abid Dobani (RBC Treasury): Speaking from a bank treasury perspective, if we think about what the collective industry learned through the Silicon Valley Bank situation, there has been a fundamental change in the way that treasuries look at any sort of asset. Historically longer duration assets were put into hold-to-collect designated portfolios. My group manages duration via an asset swap strategy generally, however some banks have historically picked up carry via naked duration. This move higher in interest rates has revised many industry participant's perspectives on what accounting classifications to use and potential changes around capitalizing losses. Liquidity portfolios exist to ensure clients can access their cash in times of stress, and we need to manage the liquidity commensurate to our demand deposit profile. Retail clients are incredibly savvy, and the market is very competitive for deposit pricing, thus our liquidity book has followed suit and structurally came further down the curve. As stimulus exits the system, we must iteratively augment our strategy to best serve our clients, and ensure our shareholders are receiving optimized value from the everchanging rate environment.

Jason Daw (RBC Rates Strategy): To conclude my section, EDC, what are the major themes driving your business and any notable trends in the export sector?

YIELD CURVES LESS INVERTED IN SEPTEMBER



Source: Haver, RBC Economics

“ We are focused on China. That economy is a significant factor in the overall growth of the world economy and if the real estate and bank leverage situation becomes more serious the contagion will be felt worldwide.”

Abid Dobani, RBC Treasury

Chad Buffel (EDC): The slowdown that we’ve seen with the rate hikes were felt across many sectors, certainly not only in North America but they’re starting to have an effect in Europe. We’re seeing a bit of a slowdown. Some of the major projects that were in the works are continuing, and certainly when you look at the green projects, they still seem to have traction into year end.

We are focused on China. That economy is a significant factor in the overall growth of the world economy and if the real estate and bank leverage situation becomes more serious the contagion will be felt worldwide. Then we could see more significant reliance on funding entities like EDC to get some projects completed. We may however see some larger problems globally which could have some projects stop investment altogether.

The Canadian government is focusing on the Indo-Pacific strategy, we’re working towards that as a growth area, but we’re in the infancy stage of what we’re trying to do. I think right now we’re seeing things steady, and a lot of that has to do with the risks that are out there and the risks that we end up assuming versus what the market will accept. I think the effect on EDC will be constant, but I think globally there’re a lot of concerns on how the slowdown will affect the larger investment projects and global supply chains. On the commodities side, as growth slows down, that will affect Canadian commodities generally and our insurance business.

In terms of broader economic issues, economically we’re not predicting any recessions yet on the North America side, but with growth of around 1%, it’s still weak. Because it’s a backward-looking statistic we won’t know it’s happening until it’s already in progress. The Canadian consumer debt ratio to income, may ultimately be a significant factor in pushing Canada closer to a recession or a more protracted recovery than in previous times. Considering this when we also have higher levels of business bankruptcies, we are predicting higher bankruptcies levels than we have seen since 2008. These are effects for 2024, so there’s risk of a significant slowdown and the key is how quickly the central banks react to what they see.

Jason Daw (RBC Rates Strategy): The housing market is obviously one of my more favorite topics when I go see clients around the world. It is the one thing I get asked about more than anything. There’s very positive structural factors, and very negative cyclical factors. Dave, what’s your view on the housing market and especially the shortfall in

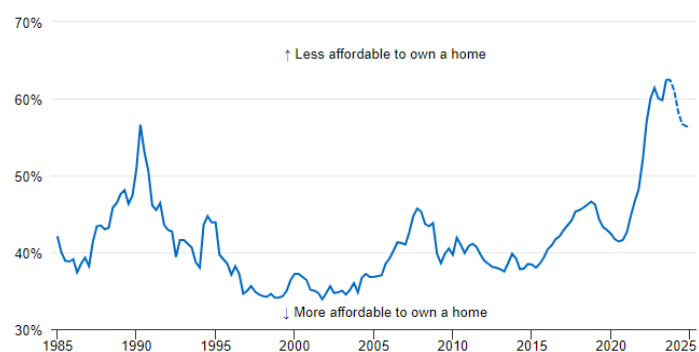
housing structurally that we have, and on the affordable housing side is enough being done at this point? There has been movement across different levels of government to address this, but is it sufficient to really solve the problem?

Dave Ayre (CMHC): Obviously everyone around this table, it doesn’t matter what province or what city you’re in, is experiencing housing issues right now. Housing has become unaffordable for many Canadians. As Jason noted, we do have a serious supply issue, as housing supply has certainly not kept up with demand in Canada. We have seen some downward pressure on home prices with high interest rates causing less sales activity and we see that lasting a little longer in the current economic conditions. However, as interest rates start to come down, which many are predicting to be sometime in 2024, home prices will likely start to move upwards again. This is because of the lack of housing supply or the housing supply gap, which CMHC expects at about 3.5 million units above what was already planned to be built between now and 2030, if we want to get to a reasonable level of affordability.

Ramping up new home construction is going to be a big challenge and the shortage of skilled labour is going to be a big part of that challenge. Low unemployment is good, but it also means there is a shortage of construction workers and that is certainly something that Canada needs to overcome. Addressing the productivity of the construction industry is a key priority of the Minister of Housing, Infrastructure and Communities. High interest rates will continue to make it more difficult for home builders for sure, but I think on the positive side, we saw some very good announcements in the federal government’s Fall Economic Statement. Because housing is such a huge issue for the country right now, a lot of people were calling it a housing economic statement. Along with the removal of the GST from purpose-built rental construction, there were several initiatives announced. For example, the expansion of the Canada Mortgage Bond program to make more lower cost construction financing for rental housing available to homebuilders. I believe this will create some real positive movement in the space.

AFFORDABILITY SET TO IMPROVE MODESTLY IN THE YEAR AHEAD

Ownership costs as % of household income, Canada, composite of all housing categories



Source: RPS, Statistics Canada, Bank of Canada, RBC Economics

From CMHC, as we are the only multi-family rental housing insurer in Canada, we've seen record volumes this year on multi-family underwriting, which is very good. We're seeing new units getting created in that multi-unit rental space, a move in the right direction. CMHC is also administering the Housing Accelerator Fund on behalf of the Federal Government, it has already yielded some very good results at the municipal level. We hear a lot about the pressures of building housing, especially affordable housing, at the municipal level and I know you guys talked about it in Edmonton, but it's happening in cities everywhere. There are way too many rules around zoning, way too many fees and taxes for homebuilders, which makes it incredibly hard to get new supply online.

The idea behind the Housing Accelerator Fund is the federal government makes C\$4 billion in funding directly available to municipalities, incentivizing them to build more homes, faster. They ask the municipalities to bring forward ideas which will cut the red tape and cut down on the time and cost to build, and it's working. For example, cities can use it to modernize their permitting systems, or change their zoning rules to make it easier to build multi-family

housing across their jurisdictions, with a strong focus on creating more density, especially around public transit. As of the end of 2023, agreements had already been signed with 15 cities, including Toronto, Vancouver, Calgary and Winnipeg, and a separate deal signed with the Quebec government to cover all municipalities within their jurisdiction. It is still early days, but already we see it as a very good program and very popular with municipal governments. Obviously, there will be continued pressures on new home construction as we move forward, but there are certainly bold measures being taken to try to address it.

“They ask the municipalities to bring forward ideas which will cut the red tape and cut down on the time and cost to build, and it's working.”

Dave Ayre, CMHC

ESG PROGRAM

Alex Caridia (RBC): Thanks Dave. I'll start with green bonds – I just got back from Asia last week and I was surprised by the level of discussion and engagement from investors around green bonds, not because they haven't historically been very focused on the topic, but it just felt like this year there's been, from where I'm sitting and maybe a little bit less discussion on the topic, we have been a little bit less focused, certainly less issuance in Canada. If you look in the US, there's been a lot of discussions around the risk of greenwashing, and we are having those discussions internally as well. So, with that in mind, I'll start with you Nic, because it's topical with the Fall Economic Statement, you talked about your new framework and hopefully we might see another green bond this year.

Nicolas Moreau (Department of Finance, Canada): To align Canada's Green Bond Framework with Canada's 2030 Emissions Reduction Plan, updated taxonomies, international best practices, and evolving investor preferences, the 2023 Fall Economic Statement (FES) announced the release of an updated Green Bond Framework that included some activities related to nuclear energy. Specifically: investments in new reactors; refurbishment of existing facilities; research and development; and some investments in Canada's nuclear supply chain.

The government of Canada plans to issue a green bond under the updated Framework before the end of fiscal year 2023/24, subject to market conditions.

Alex Caridia (RBC): What has the feedback been from the market and from investors in terms of including nuclear because it is a bit of a divisive topic?

Nicolas Moreau (Department of Finance, Canada): Market reactions have been very positive. The Green Bond Framework is being updated to reflect international trends and updated market expectations with respect to including nuclear energy as an eligible use of green bond proceeds.

In addition, this change is being made to recognize that nuclear energy will remain an important part of Canada's energy mix in a low carbon future and to facilitate investments that will help meet Canada's climate commitments.

“This change is being made to recognize that nuclear energy will remain an important part of Canada's energy mix in a low carbon future and to facilitate investments that will help meet Canada's climate commitments.”

Nicolas Moreau, Department of Finance, Canada

Alex Caridia (RBC): Great, thanks. Pivoting over to some of the pensions. Perhaps starting with CPP. What is the state of your green program as I believe you updated it as well recently.

Natalie Steshenko (CPPIB): We updated our framework in June 2022, and it received the highest second party opinion from CICERO, in part due to our governance but also based on the asset base that

we chose; just over 90% of our assets are pure play renewable wind and solar. Our issuance profiles the last three years has seen us issue one green benchmark per year in AUD or CAD. Given our asset pipeline I suspect our forward guidance will be similar, again limited to CAD or AUD issuance where we believe we're onboarding the largest number of ESG-only investors into the program.

“Just over 90% of our assets are pure play renewable wind and solar.”

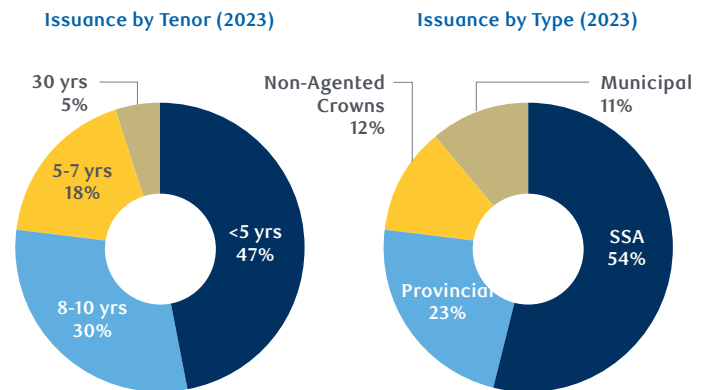
Natalie Steshenko, CPPIB

Andrew Bastien (PSP): PSP issued its first green bond early in 2022 and then the second one this year. We did a benchmark C\$1 billion 7-year green bond at the end of August, and we have not yet updated our framework since its establishment in 2022. What we've done is committed to having 10% of our debt outstanding be in sustainable bonds by 2026. That guarantees at least one benchmark issuance per year in green bonds from us going forward, and I think that will grow over time. When I look at what we're doing on the asset side and the extent to which we're integrating climate investing within the asset classes and in the portfolio construction, I believe that our green and transition assets are really going to grow over the years, and that's going to support the growth of the sustainable bond program.

Amaro Cosme (CDPQ): We have had a green bond framework for few years, and we have issued in both CAD and USD. Our objective is to continue to consider the green bond market for issuance opportunities. In conversations with investors this year we noticed that given the volatility in the underlying market, liquidity was a major theme; even before the label was attached. There's still strong underlying investor demand, and CDPQ's commitment to ESG remains strong. There is also a transition aspect that was added to our climate strategy in 2021. For now, we'll keep our framework green. We like the transparency aspect of the framework and the use of proceeds approach. That is not to say that in time we could consider evolving our approach to ESG issuance, but that would likely happen through another framework.

Carlos Yep (Ontario): We started issuing Green Bonds in 2014 using the Global Bond format to attract international green bond investors. In 2020 for our 6th Green Bond, we switched to using the Domestic and Medium Term Note (DMTN) format which allowed for intraday trade execution. We still attract a small number of international ESG investors. Investor participation changes over time depending on where assets swap and fair value levels are. Bank treasuries and asset managers continue to make up most of the investors. On December 4th, Ontario issued the 14th Green Bond using the DMTN program. We opened books and closed books within an hour and a half, and it allowed for us to issue a C\$1.5 billion green bond with a book of C\$2.3 billion. Although we are still getting pockets of demand for longer term bonds, our longest

GREEN BOND ISSUANCE



Source: RBC Capital Markets, Bloomberg

bond issued was 9-year. Our strategy so far has been to issue in non-benchmark terms 4-years or between 6 and 9-year and to keep reopening the bond to build liquid issues. For example, our last Green Bond was an 8-year bond, a reopening of originally a 9-year bond issued in March 2023. We will look to issue another Green Bond this fiscal year and will probably reopen our most recent issue as there's only C\$3 billion outstanding even after we update to a new framework.

The current Green Bond framework is almost 10 years old, and we'll be coming out with a new sustainable framework over the near term that will allow us to issue for green, social or sustainable projects. Ontario has a large pipeline of infrastructure projects. Our next ESG issue will probably be green. ESG issuance requires a large amount of work, as we have to get staff under different provincial ministries to be able to identify suitable projects with a 6 month look-back and 12 month look-forward timeline that will need to be tracked, measured and reported on.

“We were the first jurisdiction in North America to put a price on carbon and we moved ourselves off coal fired electricity 10 years ahead of schedule.”

Stephen Thompson, Alberta

Stephen Thompson (Alberta): Carlos makes a great point. It's a lot of work, and with a shrinking program, we're focused on liquidity. We don't really need the diversion in terms of a use of proceeds program to add to our borrowing program in Alberta. I continue to believe that our goals are best achieved through the expenditure side of the picture- how we spend our money, not how we raise it. I'm just not going to water down the program to fund things that

we're already doing. You can't talk about emissions reduction in Canada without talking to Alberta. Frankly, any goals met in Canada have been achieved through Alberta and Saskatchewan's efforts. It's a movement born from a responsibly managed energy sector. We put emissions reductions goals in place long before the federal government weighed in on the topic. We were the first jurisdiction in North America to put a price on carbon and we moved ourselves off coal fired electricity 10 years ahead of schedule. So, all the emissions gains in Canada have come on our backs, conveniently without a green bond program, which as Carlos says is an awful lot of work.

Alex Caridia (RBC): Any thoughts on transition?

Stephen Thompson (Alberta): Transition is something that's happening on its own. We've signed on to the SMR (Small Modular Reactor) Action Plan agreement with three other provinces. That will be something topical in Alberta, but that's going to take at least 10 years to get to. We don't have any convenient hydro, it's hard for us to do wind in scale. We are working at it. We spent C\$4 billion on transition projects and renewables. We have a pause in place right now so that we can control how that market develops more than anything. We're not getting out of this space, we're getting into it in an orderly fashion rather than just taking the brakes off and having issues down the road on reclamation and remediation.

Alex Caridia (RBC): Moving on to a few of the provinces that haven't issued in green yet. Would any of you like to add anything?

Sam Myers (British Columbia): We often find that when we're engaging with the street, the question comes up - are we considering green bonds? But we continue to emphasize the overall holistic view from ESG and that it was a testament to the inaugural ESG report that we came out in the summer of 2022. There's been very constructive feedback that we've received from investors on the ESG report, and even when engaging with international investors, there doesn't seem to be any pressure or persuasion to push us towards looking at greens for any reason, with the burden and the effort that goes into establishing a program. We'll continue to report on ESG parameters on a go-forward basis although reporting won't be as comprehensive in a subsequent report, but we'll look to no doubt have an update sometime in 2024. Our hydroelectric utility BC Hydro was also an entity that has published a recent ESG report, and their power generation is certainly as clean as you can get with clean energy and renewables comprising 98% of the power. That's a good indication that they're aligned with the government's views on ESG, British Columbia will continue to focus on ESG principles by communicating through the ESG Center of Excellence that was launched as part of last year's budget. So, the answer is no, green bonds aren't really something that's going to be factoring into our medium-term plans at the very least.

“BC Hydro’s power generation is certainly as clean as you can get with clean energy and renewables comprising 98% of the power.”

Sam Myers, British Columbia

Carlos Yep (Ontario): A question for the others that have done international green bond issuance, what are your thoughts there? We have investors looking for Ontario Green Bonds in USD and EUR but have not issued in foreign markets primarily due to the pay-up vs issuing in the domestic market. As well, in the medium term issuing foreign market green bonds may impact on greeniums in the domestic market.

Chad Buffel (EDC): We examined that ourselves and we made a commitment to the Canadian market, its investors, and a commitment to US investors and we stop there. There have been demands for a EUR, SEK, AUD, and any number of currencies that we could issue a green bond in, and each would likely have reasonable success. But to your point, it's at the public issuing levels so we're not going to get any kind of additional benefit in a broader diversification of our investor base.

In terms of being able to show dedication to any of those markets, and more specifically the investors, our program is not large enough to be able to serve everybody. We must focus and because USD is our main currency, that's been our focus. We also issue in CAD as a way of helping to augment the marketplace because there still is a tremendous amount of demand. Working with Finance to manage the ESG sector is important for Canada. You can't do it all, just pick those areas that make sense and can deliver an impact.

In the ESG sector we have all been revamping our framework to respond to change, encourage transparency and align with experts. There are investors that will accept criteria at every spectrum of Green so long as there's transparency about what you're doing. I think you'll find enough of an investor base to fulfill the kinds of product that we're going to put out.

“There are investors that will accept criteria at every spectrum of Green so long as there's transparency about what you're doing.”

Chad Buffel, EDC

Alex Caridia (RBC): I think historically Canada has been a little bit higher in terms of greenium than say the US market for sure. But it also depends a bit on how you measure the greenium, if you measure what you could have achieved, swapping it back to your domestic curve versus where you could issue in EUR say a green bond versus a non-green bond. And you could look at that as the greenium as well. So, it depends how you measure it.

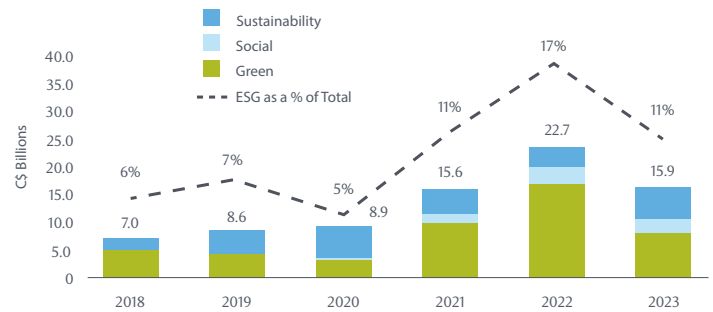
perfectly legitimate, but that's a different strategy altogether. In terms of extracting value and helping develop a market, it seems like you're getting the best bang for your buck in Canada even before you talk about relative costs. So, I think Carlos, before you even get into some of the disclosure issues, I think there's still a bit of a convergence to be had between North America and for example the EU sort of approach on taxonomy. It sounds like right now what you're doing is probably the best way to go.

“In terms of extracting value and helping develop a market, it seems like you're getting the best bang for your buck in Canada even before you talk about relative costs.”

Jigme Shingsar, RBC

Jigme Shingsar (RBC): I think you ultimately need to balance out where you extract some value at the margin, maybe help the market develop, which is really important as far as the domestic market goes, and where you can reasonably sustain a presence. One-offs in different markets I think then is purely opportunistic, which is

C\$ PUBLIC SECTOR ESG-LABELLED BONDS HISTORICAL ISSUANCE VOLUME



Source: RBC Capital Markets, Bloomberg

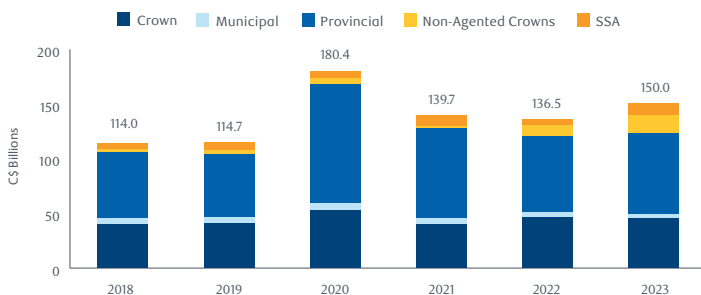
DOMESTIC ISSUANCE

Alex Caridia (RBC): I guess that's a good segway into domestic markets and I think generally we've seen more supply in CAD this year versus last year. A lot of that has been driven by the pension sector but also obviously as we've gone through the sort of reporting cycle and economic statements, deficits have generally been higher. Most of those need to be funded obviously. With the need for increased funding in mind, I wanted to check with some of the issuers here whether that's impacted the way you approach markets this year and maybe also looking forward. Tammi, do you have any comments on that?

“We issue within any given interest rate environment, so we're agnostic to the interest rate and yield curve movements this year.”

Tammi Keith, Saskatchewan

PUBLIC SECTOR NEW ISSUE SUPPLY (DOMESTIC ISSUANCE)



Source: RBC Capital Markets, Bloomberg

Tammi Keith (Saskatchewan): We issue within any given interest rate environment, so we're agnostic to the interest rate and yield curve movements this year. We created a borrowing plan and execute within the existing parameters of the market including term relative value and investor demand. Saskatchewan's issuance allocation is 94% in CAD and 6% in international borrowing. With our lower borrowing requirement this year, our focus is the CAD market, building liquid benchmarks. Looking forward, we plan to increase our allocation to international borrowing towards 25%.

Nicoletta Opera (Manitoba): Yeah, the focus for us too is the domestic market. We focused on 10s and 30s, just building those liquid benchmarks, but we also look for opportunities to issue internationally to minimize our borrowing costs. This year we had the opportunity to

go to the US. We issued a US\$1 billion global, so it was very nice to be able to do that right ahead of an election, test outside of the domestic market for a bit, realize some savings there. We're going to continue to look for opportunities to issue in international markets, and the goal with the US especially is to be in that market once a year. But that is arbitrage based, so we don't have hard targets on international issuance, and that's something that we're looking at implementing right now just because we are opportunistic when we look at those markets.

Alex Caridia (RBC): And Natalie, your funding in CAD has increased significantly. Perhaps you can talk us through the strategy and the drivers behind that?

Natalie Steshenko (CPPIB): At last year's roundtable we had stated that we had issued C\$4.4 billion in the CAD market last calendar year and our goal was to grow the CAD footprint in the years to come. We were vocal that the total CAD borrowing would be up to 50% of the annual borrowing program and we achieved that goal this year by issuing C\$8.4 billion in the CAD market, which accounted 50% of our total. The growth of our CAD footprint occurred faster than expected in large part due to acceptance of the program strategy from the investor community – and we're very encouraged by this. We also met our goal of creating liquid benchmark lines of C\$3-4 billion in size, using the Canadian retention format for both new lines and taps. The CAD program is now in steady state, with our issuance profile being regular and predictable. In 2024, the outlook for CAD borrowing remains the same – being up to 50% of the program.

“The growth of our CAD footprint occurred faster than expected in large part due to acceptance of the program strategy from the investor community – and we're very encouraged by this.”

Natalie Steshenko, CPPIB

Alex Caridia (RBC): You talked about underwritten (retention format) transactions, and I guess that puts you into somewhat of a unique space in the pension sector. A question to Andrew and Amaro, do you have any plans in changing your current domestic book building style to something alike what the provinces do?

Andrew Bastien (PSP): We don't have plans to make any changes at the moment. Our issuance budgets this year is C\$5 billion. Next year it will probably be around C\$6 billion. I understand what CPP is doing, and I think it's working well for them, but I think it's very much a function of the size of their program and what they need to achieve domestically. Since we have C\$5 billion to issue and that's not necessarily all domestic, we have a lot of flexibility to issue wherever it makes sense from a pricing and demand perspective. would see that as something maybe we would have to look at in the future, but

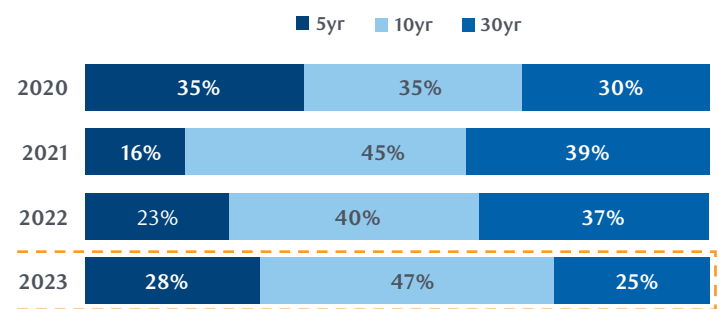
I think the way we do things right now works very well for us and I don't see any reason to change our issuance process now.

Amaro Cosme (CDPQ): The same for CDPQ. We started revisiting the domestic market in late 2021, we're building our presence in 5s, 7s, potentially up to 10s. This year we've reached C\$10 billion equivalent across different currencies, and close to C\$3 billion domestically. The CAD portion could potentially increase next year. We're targeting roughly C\$8 billion equivalent of total issuance, CAD may take a slightly larger share. We'd like a consistent approach across markets and provide a two-day execution window for investors. Based on the feedback we got from the investor community, we're not at the stage where we feel it's necessary to do things differently. There are a number of issuances ahead of us before we can evaluate if there is sufficient size and recurrence to change our process, and that will be communicated well in advance to the market so everyone is aware.

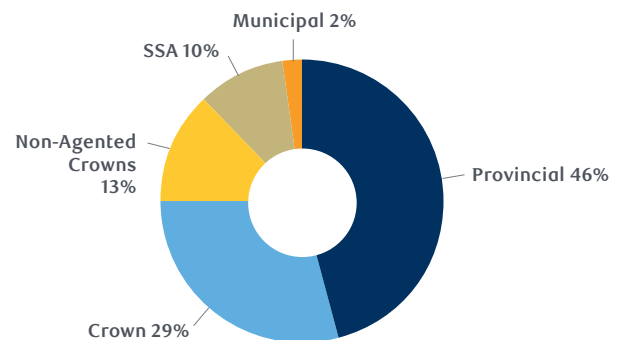
Kevin Martin (RBC): A question for the investors, in terms of provincial issuance, we've seen a change in the composition of issuance away from longs and towards more 10s and further down the curve, 5s and 7s. When it comes to the decision to invest on the curve, what's driving those decisions?

Ryan Goulding (Leith Wheeler): We build our book very much from a portfolio construction perspective and when you're building a universe portfolio such as ours, usually the spot for provincials is kind of in that 10s and out section. So it has been tougher to access primary supply in the long end, and I think that's just driven us to

DOMESTIC TERM STRUCTURE AND SECTOR SUPPLY (2023)



*ex. CMB



taking more of a look at some of the off the runs and getting involved in more of the secondary flow in order to top up the provincials we need, because we simply don't have the space in 5s and 7s. That area of the curve is generally allocated to corporates for us. It has had us participate less in the primary market, not because we don't want to, but it's just the supply hasn't necessarily been there when we need it.

“When you're building a universe portfolio such as ours, usually the spot for provincials is kind of in that 10s and out section.”

Ryan Goulding, Leith Wheeler

Matthew Cassell (HOOPP): CAD swap spreads had been high on a fundamental and relative basis for many years. The normalization of CAD swap spreads in 2023 has created many opportunities for accounts. I think that was a key contributor to the demand for shorter dated product by asset swap accounts, and that shift shorter down the curve. By my estimate, the asset swap community in Canada accounts for at least half of the demand for sub-10-year HQLA assets in Canada in a typical market. The decrease in swap spreads only added fuel to the fire from this chunky investor base. I think it's an important reminder that the CAD asset swap community is such a significant investor base.

“I think the normalization of CAD swap spreads in 2023 was a key contributor to the demand for shorter dated product by asset swap accounts, and that shift shorter down the curve.”

Matthew Cassell, HOOPP

Abid Dobani (RBC Treasury): Wearing two different hats, perhaps some perspective from both our liquid asset portfolios and our employee defined benefit pension. This push-up in rates alongside equity market expansion and private asset appreciation was a boon for the pension world. Our global portfolio in the last public disclosure was funded over 122%. Given the structure of the defined benefit plan, any prudent risk manager would look to de-risk and match assets to liabilities. Long provincial issuance has helped plans like ours de-risk, and the lack of widening in spreads speak to the natural need. From the liquid asset portfolio aspect, the struggle for us has been provincial issuance has been further out the curve (where we don't have a natural offset), however it's been nice to see pension issuance in our part of the curve, the repo market developing, and the capital treatment for pensions changing. These are all positives. Treasuries have historically had limited options in HQLA in Canada outside of

government (federal and provincial) bonds, CMBs, and NHA MBS. Bringing in this well-funded and liquid asset class provides some much-needed diversification to our Canadian portfolio.

Alex Caridia (RBC): In terms of a view on spreads given increased supply. Anyone want to venture some thoughts there?

Abid Dobani (RBC Treasury): The efficiency in the retail markets on optimizing deposits has been impressive. Clients have locked in demand deposits via high yielding GICs, which changes the nature of the HQLA books we need to run as deposits now have a term associated to them. As such, the organic need for our liquid asset portfolios is going to wane. When I read the public disclosures of my peers, a similar story seems to exist elsewhere as well. I can see spreads pushing a little bit wider, but not to levels that should be concerning to anybody.

“Clients have locked in demand deposits via high yielding GICs, which changes the nature of the HQLA books we need to run as deposits now have a term associated to them.”

Abid Dobani, RBC Treasury

Matthew Cassell (HOOPP): I think domestic spreads could be challenged over the next couple years as we roll thru the COVID maturity wave. If we continue in an environment where foreign currency markets are perhaps more challenging, like the USD or EUR market are now, there's a high probability that we could have a continued bias towards domestic issuance continued by Canadian provinces. This has the potential to create a supply imbalance that I think could lean on spreads and push them wider over time. The corridor to a softer widening in spreads comes through a soft economic landing given the large pace of maturities makes any fiscal miss from a hard economic landing generating a wall of supply.

I think if you go through any of the provincial budgets, they've enjoyed strong budgetary performance owing to strong nominal GDP growth over the past few years that has helped on the revenue side. The expenditure component of budgets typically tends to lag, and we are now seeing a buildup of expenditures as wage settlements and infrastructure spending comes to fruition. But this growth in expenditures isn't really being modeled in forecasts.

Ryan Goulding (Leith Wheeler): I'm the same way as that. We've been underweight spreads for quite some time, not necessarily because we think they're going to go a lot wider as Abid said. But when I look at where they are now, the balance of probabilities, I think that they're more likely to widen than to tighten. I can construct a portfolio while I would still have positive carry in other ways, and I can have exposure to that potential widening.

Jason Daw (RBC Rates Strategy): Just to add something from a macro perspective, obviously spread products are linked to what's happening in the credit markets, and if we look out to 2024, if there is a soft landing it should be good for spread markets. But again, like Ryan mentioned, where's the probability of risk, right? Is it that the economy's better? Probably not. Is it that the economy's worse? That's a more likely risk, and if it's worse, do we get to some type of risk-off type of event in financial markets? From a risk probability standpoint, there is a greater chance spreads are wider rather than tighter in 2024.

Alex Caridia (RBC): Dave, perhaps talk us through the changes to your program as you see them. Most around the table here will be aware at a high level, but is there anything you want to highlight there?

Dave Ayre (CMHC): It's been an interesting year and obviously a challenging one for our investors. There has been uncertainty, but I think as we sit here post Fall Economic Statement, we ended up with a great outcome. I look back on everything that transpired with the announcement of the consultations in March 2023, and I will say, we saw our investor community, our dealer community, and mortgage originators really step up to be part of that consultation process. When we all sat together at the table with the federal government and the Bank of Canada, we heard their opinions, and the value of the program came through loud and clear.

We talked about the angst with Canadians and the hyper focus on affordability problems, which had really started to surface in 2023. With the rise in interest rates, mortgages, rents, everything became more and more expensive. With the federal government at the table, the position that we were hearing was how this has been a pretty good tool for the last 22 years to create housing supply, initially more on the homeowner side, but more recently as we've adjusted policy, used as a tool to create a lot of multi-family rental housing in Canada. So, throughout the consultations, a theme developed that we could use this program as a tool to build more rental housing.

It's certainly not a singular solution to the affordability issues, but it is valuable in creating more rental housing that people can afford. As a result, back in September, Finance Minister Chrystia Freeland announced a C\$20 billion increase to the program, with the caveat that it would only be used for multi-family rental, which was a great decision by the federal government. The decision was informed by the consultation process. With the timing and the focus on housing affordability, it ended up being a blessing in disguise, because it really did highlight the value of this program in creating housing supply. If we fast forward to where we are today, we've been through a lot of uncertainty this year, but I believe we came to a great compromise. In the end we have a bigger program, with the lion's share of everything added going towards funding multi-family rental for Canadians, which is great news.

“In the end we have a bigger program, with the lion's share of everything added going towards funding multi-family rental for Canadians.”

Dave Ayre, CMHC

The unit targets are significant, with a goal of the expansion to create up to 30,000 more new rental apartments per year. This is going to create real housing for Canadians and the great thing is there's no cost to the Canadian taxpayer. We are adding C\$20 billion in financing, and we get a lot of new housing supply. We have a hybrid solution, where we will continue to have a significant market issuance program with a component that's funded by the government. It's a win-win for everybody.

Alex Caridia (RBC): In terms of liquidity, you hearing anything since that's been announced? Is that going to take away liquidity? Particularly with the mortgage originators in the back of your mind. How do you think that'll play out?

Dave Ayre (CMHC): There are some considerations to go along with the unique nuances within the program. These will need to be addressed when rolling out an operational plan. But the federal government and CMHC are both strongly committed to the smooth functioning of the financial markets and obviously don't want to disrupt anything. Moving forward, everything will be taken into consideration as we develop the plan of engagement.

Alex Caridia (RBC): Nic, most central banks are shrinking their balance sheet. Some investors would call this QE. What would you say to that?

Nicolas Moreau (Department of Finance, Canada): As a result of their bond-buying programs implemented in response to the pandemic, the Bank of Canada's holdings of GoC bonds peaked at almost C\$440 billion in December 2021. Since then, the BoC holdings of GoC bonds has declined steadily reaching less than C\$270 billion in September 2023. To reduce its balance sheet, the Bank of Canada has engaged in passive quantitative tightening whereby it lets maturities roll off and does not reinvest the proceeds to buy more GoC bonds. This passive way of reducing the balance sheet is predictable and relatively smooth. The other approach to reduce the central bank balance sheet can be labelled active QT and consists of outright selling of bonds to reduce the size of the balance sheet faster. This approach is not common among advanced economy central banks and would likely have more material impacts on yields. While there is inherent uncertainty related to when passive QT by the Bank of Canada will end, Bank of Canada officials have said publicly that quantitative tightening is likely to end in late 2024 or the first half of 2025.

“Bank of Canada officials have said publicly that quantitative tightening is likely to end in late 2024 or the first half of 2025.”

Nicolas Moreau, Department of Finance, Canada

Alex Caridia (RBC): Over to some of the provinces then to talk a little bit about domestic issuance before we wrap up. Perhaps Sam, do you want to start just in terms of your issuance plans domestically and anything worth highlighting?

Sam Myers (British Columbia): We continue to watch the domestic market. It's a very important market for us. One of the themes for this past year was timing of our domestic issuances. There's been times where there's been careful navigation in and around blackout periods. This year, we've really gotten ahead of the funding requirements for the fiscal year probably to a greater extent than we've done in recent memory, and I think that's been serving us well given that we have an election in 2024. Our choice for term in CAD remains 10s and 30s, although there's been much more borrowing on the 10-year side. So, as you calculate the weighted average term to maturity, it's gradually coming down a little bit from previous years. We've supplemented it with some very attractive offshore issuance on two fronts, with a 5-year USD global issue and a 10-year USD global issue that were tremendous outings, one for US\$2 billion, one for US\$2.25 billion, and certainly the amount of corresponding work that would have had to have been done in CAD would have been quite formidable given the traffic that is existing in the domestic market. We're open to other terms as well in Canada, and we've again looked at those shorter terms when considering USD opportunities. It's been a good year so far.

Nicoleta Oprea (Manitoba): The Province will continue to focus on the domestic market, 10s and 30s benchmarks and will follow demand. We have the conversation, and where there is demand, that's where we end up printing. With the issuance of the 10-year US global debenture this year, we have room in the 5-year maturity bucket, which traditionally we left that for the USD market. Historically the arbitrage

worked better in that shorter part of the curve. There is now an opportunity for us to possibly look at 5-year in the domestic market. The Province is open to other terms, same as Sam was just saying; it depends on the needs and depends on the demand.

Carlos Yep (Ontario): This fiscal year Ontario's long-term borrowing requirement is C\$34.7 billion, and it increases to C\$37.4 billion next year followed by C\$37 billion. Over the last 15 years. We've issued a low of C\$27 billion once and a high of almost C\$60 billion. We're still targeting 10-25% international. This year has been a little bit tougher for Ontario to issue in foreign markets with too few windows and a little bit too much supply from other competing Canadian issuers. Ontario is still targeting USD or EUR. Ontario is willing to pay up for core strategic currencies.

Kevin Martin (RBC): Carlos, one of the interesting developments in the program this year is the reintroduction of the FRN program. I think it's the first time in roughly five years we've seen Ontario do a FRN CORRA based. Can you walk us through the transaction and what your plans are going forward in terms of FRN issuance?

Carlos Yep (Ontario): We've been issuing FRNs since 2010. We issued every single year for about nine years raising just over C\$16 billion. On average during that period, we would issue roughly C\$1.5-2.5 billion in FRNs annually. It was part of our platter of raising money. We stopped in 2018 with CDOR cessation coming. We did watch CMB take the lead on CORRA FRN issuance. With the CMB program announcements in the federal budget this year, Ontario delayed issuing a CORRA FRN. We did wait for the Federal Fall Economic Statement to make sure that investors knew what was happening to CMBs before issuing Ontario's first CORRA FRN. Most of the times Ontario would assess the FRN market right after a CMB FRN issue. Sometimes we would see a lot of demand and we would issue C\$2-2.5 billion. The last Ontario CDOR FRN was in 2018 and just matured in August 2023.

Tammi Keith (Saskatchewan): We focus on issuing 10s and 30s like the rest of our counterparts and we listen to investor demand and are receptive to it. We will evaluate an FRN issuance as well. The FRN issuance went well for CMHC and Ontario, and it's an instrument that would diversify our funding program.

OFFSHORE MARKETS

Alex Caridia (RBC): Moving on to offshore markets, and I'll start with you Natalie, congratulations on your recent nomination for Kangaroo deal of the year on one of your Kangaroo issues. How does that fit into your overall plans offshore? How has your Kangaroo strategy come together and how does that fit in next to some of the other currencies?

Natalie Steshenko (CPPIB): We were thrilled to win the award and receive recognition from market participants. Overall, we had a very strong year in the Kangaroo market as we achieved A\$3.75 billion in funding across 3s and 5s and received strong participation across domestic and international buyers.

As noted, our programmatic approach to CAD of up to 50% issuance provided superior execution opportunities in our other core currencies. Specifically, we leaned into AUD and GBP markets vs USD and EUR this past year which was different for us as we found attractive opportunities in those markets, while USD still had a bit of Canada incorporated saturation from the prior year.

The challenge in offshore markets this year was finding strong issuance windows given volatility, data releases, competing supply and changing investor sentiment. This was amidst a market backdrop of credit and swap spread volatility which were difficult to manage in global markets and will be a challenge heading into Q1 2024. The EUR market remained expensive to issue in on a SOFR basis and became very volatile in the second half of the year.

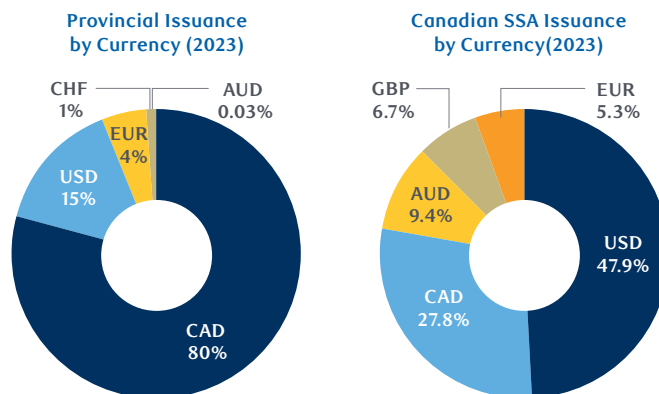
“The challenge in offshore markets this year was finding strong issuance windows given volatility, data releases, competing supply and changing investor sentiment.”

Natalie Steshenko, CPPIB

Alex Caridia (RBC): Thank you. Natalie mentioned EUR being less cost effective this year versus USD, which is relatively a new dynamic this year. Anything you want to mention there Jigme?

Jigme Shingsar (RBC): First of all, USD remains the primary alternative to CAD, and supply there was up almost a third. That's despite Carlos being very inactive and willing to pay the price. I think it's fair to say despite that uptick, if you look at it over the last few years, Canadian supply generally has not really kept pace for the growth of the market. But I think Canadians do have a special franchise, particularly in the USD market. I would note that despite relatively light supply, Canadian issuers in particular provinces are able to extract more duration than the average SSA, which reflects the strong historical investor base there.

PROVINCIAL AND CANADIAN ISSUANCE



“I would note that despite relatively light supply, Canadian issuers in particular provinces are able to extract more duration than the average SSA, which reflects the strong historical investor base there.”

Jigme Shingsar, RBC

Very optimistic in terms of that capacity still staying. Alex alluded to the EUR market. The EUR market obviously has had a little bit more challenge post ECB reversing some of the easy money, and we're anticipating that that will probably add to some of the reversal of the trend we've seen over the last five years of EUR issuers printing more EUR. So, if we start seeing at the margin a little bit more supply in USD, you could argue that things could get a little more competitive for issuers. I don't think that's necessarily a problem, but I think it just means that there's going to be more differentiation among the issuers in terms of people would look at issuers more closely. This is where the IR efforts that you guys make really do pay off because instead of just getting a generic sort of Tier 1, Tier 2 type pricing, I think you'll see people look more closely in that scenario. I think Canada still looks very good.

Chad Buffel (EDC): We have a bit of an advantage in terms of the currencies we need. So, barring some of the issues you raised there, I think the challenges, especially when you talk about it on the EUR side, still won't prevent us from doing EUR. We have natural needs on that front, so there's a nice offset. In terms of other challenges, like market curves shifting, we see that as a lesser challenge than finding the right issuing windows.

Having the right program and the right execution for those deals is going to be the bigger challenge next year. It probably will lead to diversifying more broadly across some of the markets and terms. If it's one GBP deal done, there might be two or three by the time the year is out. We must examine all the currencies. Even the antipodean ones may have other possibilities for us. Flexibility for different terms as well, just to make sure that we're not issuing on top of everybody, is going to be the challenge. Program wise, we're still looking to repeat what we did this year, but if it is getting tighter and tougher, it's just a matter of how we all work together to collectively achieve our goals.

“It probably will lead to diversifying more broadly across some of the markets and terms.”

Chad Buffel, EDC

Andrew Bastien (PSP): In terms of offshore markets, we compare everything to domestic funding levels. We tend to go into the fiscal year saying we will do a USD benchmark, a EUR benchmark, we'll do some domestic funding, but we have the flexibility to change the plan based on pricing and demand. EUR and USD have not looked good from a pricing perspective for a long time, we really focused more on the domestic market this year, which was good for us. We had a lot of demand due to some of the rumblings around the uncertainty of the CMB program. I think we benefited a bit from that during the year, which was great. We're also in the process of setting up a Kangaroo program. AUD is really important for us, it's the biggest overweight that we have in our asset portfolio. We have this natural need to create liabilities in AUD, as people say it's kind of a “natural hedge” in terms of wanting to issue debt in AUD. We should have that Kangaroo program set up in the weeks to follow and we're hoping in Q1 2024 to do our first AUD benchmark transaction.

“We have this natural need to create liabilities in AUD, as people say it's kind of a “natural hedge” in terms of wanting to issue debt in AUD.”

Andrew Bastien, PSP

Alex Caridia (RBC): Great, on the investor side, it's a good segway where when you talk about overweight in Australia, do you run multicurrency portfolios and if so, which currencies are you overweight or underweight?

Ryan Goulding (Leith Wheeler): We do, but our exposure is largely through futures. It is very rare that we would take cash exposures

unless they're extremely attractive, but we do have exposures to basically every developed global market with an active futures market.

Abid Dobani (RBC Treasury): We have organic balance sheets in CAD, USD, GBP, and EUR that we actively manage. Issuance in Canada has historically been in the form of bullet instruments, with your collective treasuries managing the ALM mismatch. That has protected buyers in this rate environment, and kudos to you all for prudent management. On the flipside, the impact of what's happened in the US MBS market has really changed the mindset of what a liquid asset is to many bank type buyers. Internally we consider the liquidity value of global assets not just by their HQLA rating, but also a mix of the ability to sell outright, pledge in repo or to a central bank, and issuance buybacks. As such, our thesis around HQLA has had to augment post COVID. One last note is as overnight rates move aggressively, opportunities avail themselves in shorter dated FX arbitrage, and we have a good governance framework around how we can best optimize shareholder return by taking advantage of dislocations. Canadian issuers tend to be very cognizant of cross currency basis funding levels, so the opportunities tend to be more of a secondary market story than a primary market opportunity.

“As overnight rates move aggressively, opportunities avail themselves in shorter dated FX arbitrage.”

Abid Dobani, RBC Treasury

Matthew Cassell (HOOPP): The lesson from the last couple years is that the Canadian HQLA market works extremely well for issuers, investors, and dealers. Investors have been able to access consistent secondary market liquidity and what's otherwise been a tumultuous time globally. Much better liquidity than anything they would have gotten in the EUR market. Issuers have had continued access to markets with stable spreads in Canada – a bastion of tranquility.

To Abid's point earlier, the CAD market balances good liquidity in both primary and secondary markets, decent investor returns and attractive assets. QT has been painful as it reprices assets cheaper, but ultimately has been getting valuations back to reality as a whole.

“We'll keep focusing on our core markets that we're developing before we develop something that could be systematically meaningful elsewhere.”

Amaro Cosme, CDPQ

Amaro Cosme (CDPQ): We'll remain focused and disciplined on maintaining our USD presence. That is not to say that we won't consider alternatives in AUD and GBP, but it will depend on market conditions and investor appetite. We'll keep focusing on our core markets that we're developing before we develop something that could be systematically meaningful elsewhere. At the same time, CDPQ has a 75% exposure outside of Canada. We have exposure in Australia, UK, Europe, etc. There are opportunities to consider those. When the market expects us to build something, it won't be with the regularity that you've seen in USD and CAD, at least

initially. What we noticed is the sizes of the benchmark issues needed to be adapted this year. We're agile and in a good position to capitalize on those windows of opportunities and when the investor demand is there, and the conditions allow us to access the market. It's important to us to maintain a presence in each market and demonstrate that CDPQ will continue to be a regular issuer.

Alex Caridia (RBC): Great, thanks everyone for joining our annual roundtable once again.

SELECT CANADIAN PUBLIC SECTOR BORROWING PROGRAMS – 2023

The need and appetite for borrowing varies greatly between each Province and organization. To help understand the various key Canadian public sector borrowing programs and their characteristics, below is a comparison breakdown.

	 ONTARIO	 QUEBEC	 ALBERTA	 MANITOBA	 SASKATCHEWAN	 BRITISH COLUMBIA	 NFLD & LABRADOR
PREMIER/CEO	Hon. Doug Ford	Hon. François Legault	Hon. Danielle Smith	Hon. Wab Kinew	Hon. Scott Moe	Hon. David Eby	Hon. Andrew Furey
FINANCE MINISTER/CFO	Hon. Peter Bethlenfalvy	Hon. Éric Girard	Hon. Nate Horner	Hon. Adrien Sala	Hon. Donna Harpauer	Hon. Katrine Conroy	Hon. Siobhan Coady
CAPITAL/HEADQUARTERS	Toronto	Quebec City	Edmonton	Winnipeg	Regina	Victoria	St. John's
POPULATION ('000S)⁽¹⁾	15,802	8,949	4,756	1,465	1,219	5,581	540
SHARE OF CANADA GDP (%)⁽²⁾	38.7%	19.7%	15.3%	3.2%	3.5%	13.8%	1.4%
BORROWING YEAR	Apr-Mar	Apr-Mar	Apr-Mar	Apr-Mar	Apr-Mar	Apr-Mar	Apr-Mar
RATINGS (DBRS/MOODY'S/S&P)	AA(L) / Aa3 / A+	AA(L) / Aa2 / AA-	AA / Aa2 / AA-	A(H) / Aa2 / A+	AA(L) / Aa1 / AA	AA(H) / Aaa / AA	A(L) / A1 / A
% CAD ISSUANCE⁽³⁾	88%	64%	93%	65%	100%	45%	100%
RECENT INTERNATIONAL ISSUANCE⁽³⁾	USD, AUD, EUR, GBP	USD, CHF, EUR, GBP	USD	USD	USD	EUR, USD	n/a
2022/23 BORROWING (C\$BN)⁽³⁾	32.2	24.4	2.4	4.0	2.0	8.9	1.7
2023/24 BORROWING REQUIREMENT (C\$BN)⁽³⁾	34.7	21.9	5.5	5.2	2.0	17.5	2.2
YOY INCREASE (C\$BN)	2.5 (+8%)	-2.5 (-10%)	3.1 (+129%)	1.2 (+30%)	0 (-)	8.6 (+97%)	0.5 (+29%)
ESTIMATED 2024/25 BORROWING (C\$BN)⁽⁴⁾	37.4	29.0	6.1	5.3	n/a	20.5	n/a
DOMESTIC TARGET TERMS	5 / 7 / 10 / 30	5 / 7 / 10 / 30	5 / 10 / 30	5 / 10 / 30	5 / 10 / 30	5 / 7 / 10 / 30	7 / 10 / 30
PUBLIC DEBT O/S (C\$BN)⁽⁵⁾	402.3	243.8	91.6	53.8	28.7	83.8	19.0
ACTIVE ULTRA-LONG ISSUERS⁽⁶⁾	C\$50MM	n/a	n/a	C\$250M	\$360M	n/a	n/a
MIN. CARVE-OUT SIZE⁽⁷⁾	\$600M (5yr) / \$500M (10yr) / \$400M (30yr)	n/a	\$200M	\$150M	\$100M	n/a	\$100M
ACTIVE ESG ISSUANCE PROGRAM	Green Bond Issuer	Green Bond Issuer	n/a	n/a	n/a	n/a	n/a

(1) Statistics Canada. Table 17-10-0009-01 Population estimates, quarterly as of Q3 2023 (2) Statistics Canada. Table 36-10-0402-02 Gross domestic product (GDP) at basic prices, by industry, provinces and territories, growth rates (x 1,000,000) (3) RBC Capital Markets. Provincials & PSP based on Government Fiscal Year (April 1-March 31); CPP, Canada, CMHC and EDC based on Calendar year (4) Provinces, RBC Capital Markets, figures based on most recent borrowing program (5) Bloomberg (6) RBC Capital Markets; Based on historical issuances 2010 onwards (7) Large order protocol, order placed to one investor * RBC Economics † Based on Jan - Dec Calendar Year

Select Canadian Public Sector Borrowing Programs – 2023 Continued



	NOVA SCOTIA	NEW BRUNSWICK	PEI	CANADA	CMHC	PSP	CPP	EDC
PREMIER/CEO	Hon. Tim Houston	Hon. Blaine Higgs	Hon. Dennis King	Hon. Justin Trudeau	Michel Tremblay	Deborah K. Orida	John Graham	Mairead Lavery
FINANCE MINISTER/CFO	Hon. Allan MacMaster	Hon. Ernie Steeves	Hon. Jill Burridge	Hon. Chrystia Freeland	Nadine Leblanc	J-F. Bureau	Kristina Fanjoy	Scott Moore
CAPITAL/HEADQUARTERS	Halifax	Fredricton	Charlottetown	Ottawa	Ottawa	Montreal	Toronto	Ottawa
POPULATION ('000S)⁽¹⁾	1,066	843	176	40,528	n/a	n/a	n/a	n/a
SHARE OF CANADA GDP (%)⁽²⁾	2.0%	1.6%	0.3%	n/a	n/a	n/a	n/a	n/a
BORROWING YEAR	Apr-Mar	Apr-Mar	Apr-Mar	Apr-Mar	Jan-Dec	Apr-Mar	Jan-Dec	Jan-Dec
RATINGS (DBRS/MOODY'S/S&P)	A(H) / Aa2 / AA-	A(H) / Aa2 / A+	A / Aa2 / A	AAA / Aaa / AAA	AAA / Aaa / AAA	AAA / Aaa / AAA	AAA / Aaa / AAA	AAA / Aaa / AAA
% CAD ISSUANCE⁽³⁾	100%	100%	100%	100%	100%	100%	50%	0%
RECENT INTERNATIONAL ISSUANCE⁽³⁾	n/a	n/a	n/a	USD	n/a	USD, AUD	USD, AUD, GBP, EUR	USD, AUD, EUR, GBP, HKD, CNY etc.
2022/23 BORROWING (C\$BN)⁽³⁾	1.5	1.9	0.2	185.0*	40.0†	4.6	15.2†	13.3†
2023/24 BORROWING REQUIREMENT (C\$BN)⁽³⁾	2.0	1.7	0.3	204.0*	45.0†	5.0	15.0†	14.0†
YOY INCREASE (C\$BN)	0.5 (+33%)	-0.2 (-11%)	0.05 (+25%)	19 (+10%)	5 (+13%)	0.4 (+9%)	-0.2 (-1%)	0.7 (+5%)
ESTIMATED 2024/25 BORROWING (C\$BN)⁽⁴⁾	2.3	n/a	n/a	n/a	60.0†	6	15-16	14.0†
DOMESTIC TARGET TERMS	5 / 10 / 30	5 / 10 / 30	10 / 30	-	5 / 10	3 / 5 / 7 / 10	3 / 5 / 7 / 10 / 15 / 30	2 / 3 / 5
PUBLIC DEBT O/S (C\$BN)⁽⁵⁾	16.1	21.3	2.7	989.1	254.0	19.3	68.0	47.0
ACTIVE ULTRA-LONG ISSUERS⁽⁶⁾	n/a	n/a	n/a	n/a	n/a	n/a	~C\$1.53B	n/a
MIN. CARVE-OUT SIZE⁽⁷⁾	n/a	\$100M	n/a	n/a	n/a	n/a	n/a	n/a
ACTIVE ESG ISSUANCE PROGRAM	n/a	n/a	n/a	Green Bond Issuer	n/a	Green Bond Issuer	Green Bond Issuer	Green Bond Issuer

(1) Statistics Canada. Table 17-10-0009-01 Population estimates, quarterly as of Q3 2023 (2) Statistics Canada. Table 36-10-0402-02 Gross domestic product (GDP) at basic prices, by industry, provinces and territories, growth rates (x 1,000,000) (3) RBC Capital Markets. Provincials & PSP based on Government Fiscal Year (April 1-March 31); CPP, Canada, CMHC and EDC based on Calendar year (4) Provinces, RBC Capital Markets, figures based on most recent borrowing program (5) Bloomberg (6) RBC Capital Markets; Based on historical issuances 2010 onwards (7) Large order protocol, order placed to one investor * RBC Economics † Based on Jan - Dec Calendar Year

SELECT RBC-LED TRANSACTIONS IN 2023

Canadian Government Issuers & Pension Asset Managers/Funds

 US\$1,000,000,000 5.50% Senior Notes due 2033 AAA/Aa1/AA+ Joint Bookrunner November 2023	 C\$8,500,000,000 Dual-tranche CORRA FRN due 2029 & 4.25% Senior Note due 2034 AAA/Aaa/AAA Lead November 2023	 US\$2,000,000,000 4.80% Senior Notes due 2028 AA(H)/Aaa/AA Joint Bookrunner November 2023	 C\$1,250,000,000 4.90% Inaugural Debt Offering due 2033 AAA/Aaa/AAA Joint Bookrunner October 2023
 C\$400,000,000 4.50% Senior Notes due 2028 -/Aaa/AAA Joint Bookrunner August 2023	 A\$1,000,000,000 4.40% Senior Notes due 2027 AAA/Aaa/AAA Joint Bookrunner June 2023	 US\$4,000,000,000 3.75% Senior Notes due 2028 AAA/Aaa/AAA Joint Bookrunner April 2023	 US\$1,500,000,000 4.25% Senior Notes due 2028 AAA/Aa1/AA+ Joint Bookrunner April 2023
 US\$3,500,000,000 3.625% Senior Notes due 2028 EUR2,250,000,000 3.00% Senior Notes due 2033 AA(L)/Aa2/AA- Joint Bookrunner April & January 2023	 GBP750,000,000 4.375% Senior Notes due 2026 A\$1,300,000,000 4.40% Senior Notes due 2026 AAA/Aaa/AAA Joint Bookrunner February & January 2023	 C\$2,250,000,000 3.60% Senior Notes due 2028 AA(L)/Aa3/A+ Lead February 2023	 US\$2,000,000,000 4.50% Senior Notes due 2026 AAA/Aaa/AAA Joint Bookrunner February 2023

SELECT RBC-LED TRANSACTIONS IN 2023

Green Bonds and Sustainable Finance

 <p>C\$300,000,000 4.15% Green Bond due 2053</p> <p>AA/Aa2/- Joint Bookrunner December 2023</p>	 <p>C\$100,000,000 4.90% Sustainability Bond due 2033</p> <p>-/Aaa/AAA Lead October 2023</p>	 <p>C\$100,000,000 4.40% Green Bond due 2042</p> <p>AA/Aa1/AA Lead September 2023</p>	 <p>C\$1,000,000,000 4.40% Green Bond due 2030</p> <p>AAA/Aaa/AAA Joint Bookrunner August 2023</p>
 <p>C\$1,000,000,000 4.40% Health Bond due 2026 C\$500,000,000 3.30% Gender bond due 2028</p> <p>-/Aaa/AAA Joint Bookrunner June & May 2023</p>	 <p>C\$600,000,000 3.90% Green Bond due 2032</p> <p>AA(L)/Aa2/AA- Joint Bookrunner June 2023</p>	 <p>C\$1,500,000,000 4.05% Green Bond due 2032</p> <p>AA(L)/Aa3/A+ Joint Bookrunner February 2023</p>	 <p>C\$1,000,000,000 4.15% Green Bond due 2029</p> <p>AAA/Aa1/AA+ Joint Bookrunner February 2023</p>

Maple Offerings

 <p>C\$1,000,000,000 4.25% Senior Notes due 2030</p> <p>-/Aaa/AAA Joint Bookrunner September 2023</p>	 <p>C\$500,000,000 4.25% Green Bond due 2028</p> <p>-/Aaa/AAA Joint Bookrunner September 2023</p>	 <p>C\$1,000,000,000 4.50% Green Bond due 2026</p> <p>-/Aaa/AAA Joint Bookrunner August 2023</p>	 <p>C\$300,000,000 4.85% Inaugural CAD Benchmark due 2026</p> <p>-/Aaa/AAA Joint Bookrunner August 2023</p>
 <p>C\$300,000,000 4.57% Social Inclusion Bond due 2027</p> <p>-/Aaa/AAA Joint Bookrunner July 2023</p>	 <p>C\$700,000,000 3.90% Senior Notes due 2028</p> <p>AAA/Aaa/AAA Joint Bookrunner June 2023</p>	 <p>C\$750,000,000 3.40% Sustainable Development Bond due 2028</p> <p>-/Aaa/AAA Joint Bookrunner May 2023</p>	 <p>C\$300,000,000 3.625% Senior Notes due 2028</p> <p>-/Aaa/AAA Joint Bookrunner April 2023</p>

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