November 29, 2022

Handicapping future GoC bond supply

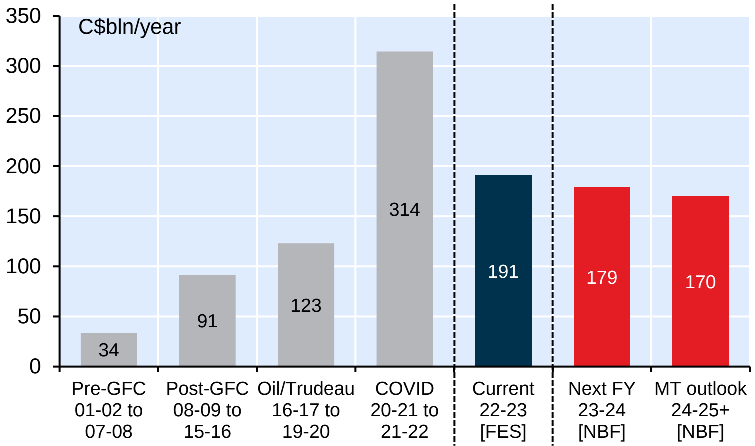
By Warren Lovely & Taylor Schleich

GoC bonds are the bedrock of Canada's fixed income market, accounting for the largest share of primary issuance, secondary market trading and outstandings. With a federal fiscal update in hand and look-ahead discussions in full flight, we've updated and extended our detailed GoC bond supply simulation analysis. We model/estimate a likely range of outcomes for GoC bond supply over the coming decade, pursuant to a variety of underlying assumptions. Gross GoC bond issuance is a function of the underlying budgetary position of the federal government, which in turn is directly influenced by the health of the national economy. As such, we simulate bond issuance under a variety of economic scenarios, cognizant of the risk that nominal GDP may not live up to the government's November 2022 baseline planning assumptions. As but one example: Whereas the current FES baseline might imply C$170-180 billion in gross GoC bond supply over the coming half decade, a more adverse economic scenario could easily leave trend issuance running north of $200 billion/year, while an outright recession might mean C$250 billion in gross supply in the nearer term, all else being equal. Not all else is equal though, so we control for a range of outcomes for non-budgetary requirements. Critically, we also test a variety of borrowing models. On bonds, that covers everything from the 'peak term out' employed in 2021 to the shorter/more front-end loaded model that prevailed pre-pandemic. Over time, the chosen funding strategy (including the T-bill/bond split) can have significant impacts on gross borrowing requirements/refi risk, above and beyond what a deteriorating economic backdrop could mean. And while there's no limit to the scenarios that can be concocted, only the most economically disastrous and/or fiscally irresponsible ones would threaten the relative fiscal edge that Canada has built versus key international peers. Read on…

NBF simulation analysis of future GoC bond supply

Chart 1: First of many perspectives on GoC bond supply

Gross GoC bond issuance: Period averages, current & using FES baseline

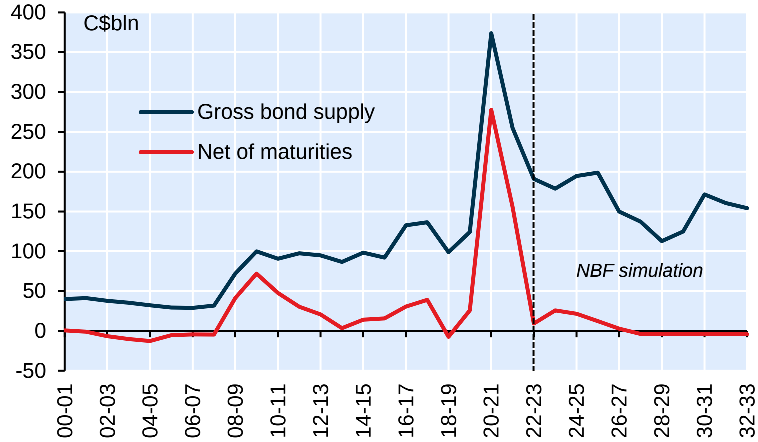


Source: NBF, GoC/BoC | Note: MT outlook is to 2027-28; full sims to 2032-33 conducted

Under the baseline outlook from the Nov-22 FES & status quo funding strategy, we estimate C$179bln of gross GoC bond supply in 2023-24, averaging ~C$170bln over the medium term.

Chart 2: Drawing a distinction between gross & net supply

Gross & net GoC bond issuance (using FES baseline)

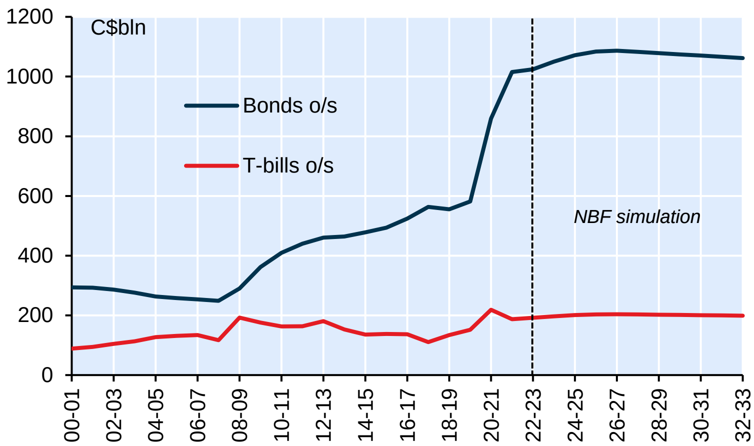


Source: NBF, GoC/BoC

For a given T-bill stock, refinancings (incl. a notable COVID echo) could add noise to gross GoC bond supply. But the FES baseline implies only modest net supply (~C$20bln/year near term).

Chart 3: Canada's trillion+ dollar GoC bond market

GoC bonds/T-bills outstanding (using FES baseline): Level

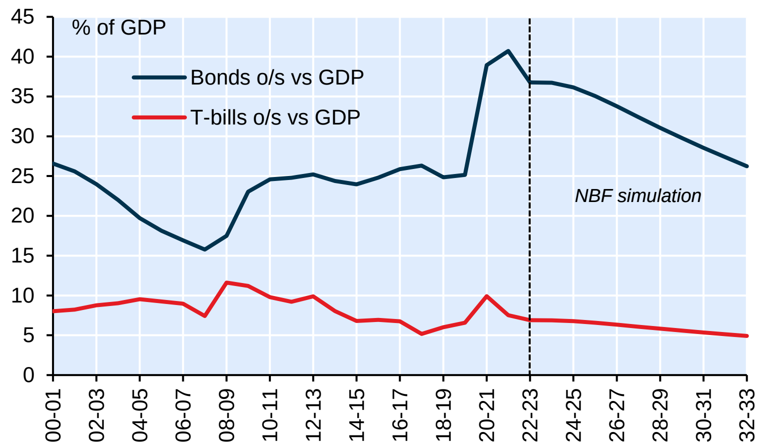


Source: NBF, GoC/BoC

Assuming a steady T-bill share of debt, outstanding GoC bonds would approach C$1.1tln by mid-decade. We could get there faster under a downside scenario, as we'll explore later on.

Chart 4: Relative debt burden expected to ease over time

GoC bonds/T-bills outstanding (using FES baseline): Ratio to GDP

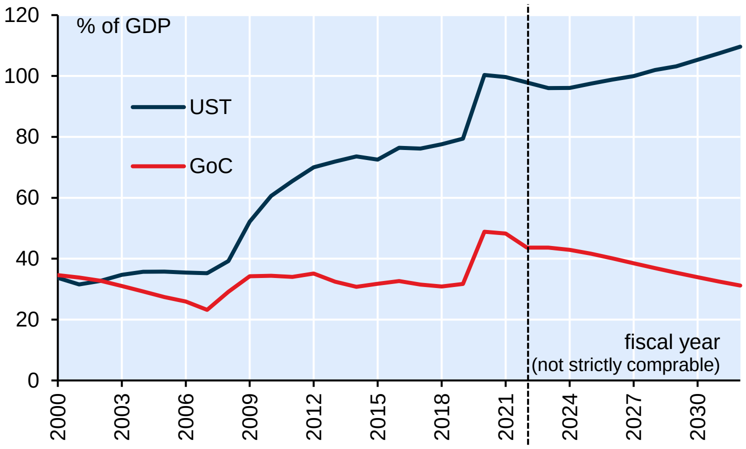


Source: NBF, GoC/BoC, StatCan

Federal debt-to-GDP has moved down from a COVID peak. Baseline assumptions would see net issuance trail growth in the economy, implying less relative leverage over time.

Chart 5: Net GoC issuance a fraction of UST in relative terms

Marketable debt stock: GoC vs UST

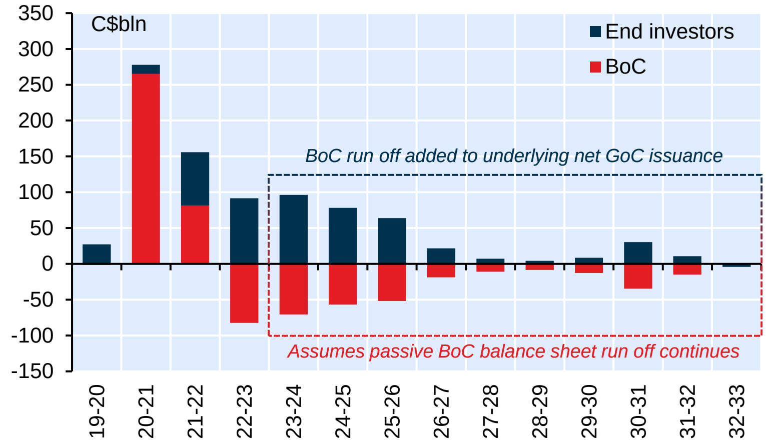


Source: NBF, GoC/BoC, CBO | Note: GoC based on FES baseline; UST is CBO baseline

Net GoC bond supply is likely to remain comparatively modest vs USTs. That's generally consistent with Canada's long-standing & well-documented fiscal edge vs its G7 peers.

Chart 6: Caution! BoC QT = larger 'net' ask of end investors

Absorption of net GoC bond issuance (using FES baseline): BoC vs investors

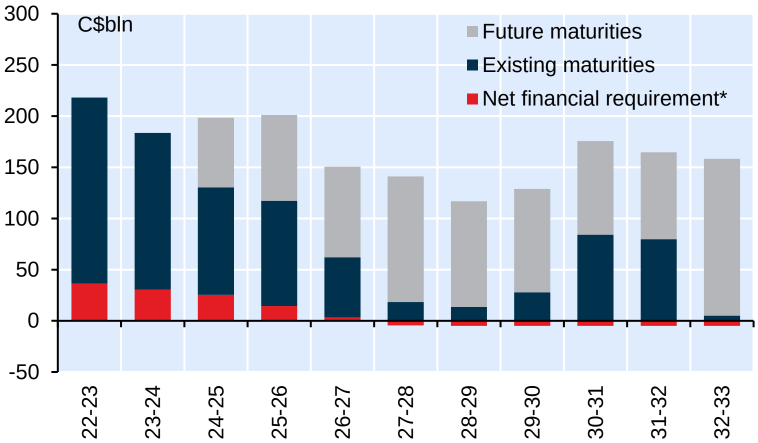


Source: NBF, GoC/BoC

Caution: Net supply doesn't tell the whole story. BoC QT means end investors will need to take down an incremental C$70bln in 2023-24—not far from the C$82bln that ran off in 2022-23.

Chart 7: Understanding origins of future GoC bond supply

Contributions to gross GoC bond issuance (using FES baseline)

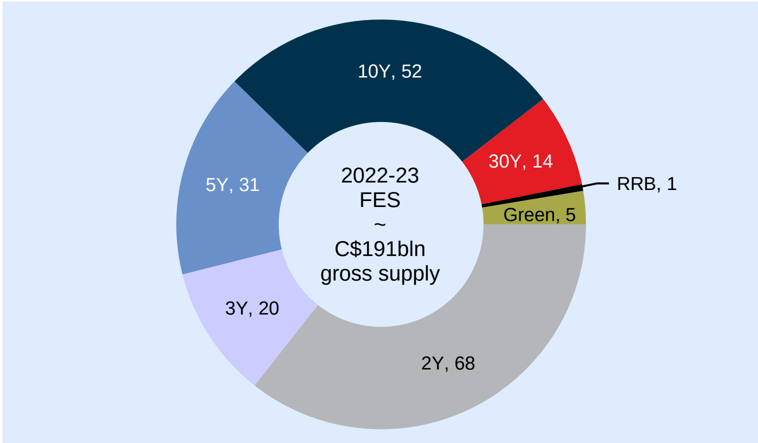


*Source: NBF, GoC/BoC | Note: *Net fin'l requirements assumed to equal deficit (surplus)*

Using the FES baseline scenario, future gross issuance is largely a refi story. So Ottawa's funding strategy will exert plenty of influence, as short bonds would need to be rolled quicker.

Chart 8: Bond issuance mix a vital input for simulations

Share of gross GoC bond issuance by tenor/type: 2022-23 update

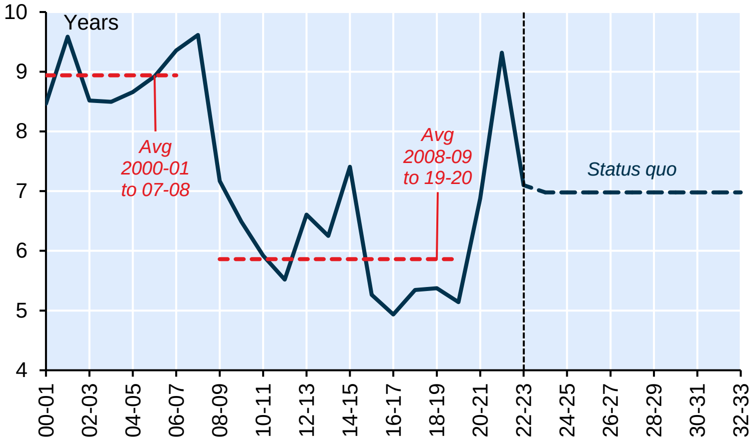


Source: NBF, GoC/BoC | Note: Figures are rounded to nearest C$bln

As per an updated debt management strategy, nearly two-thirds of non-green GoC bond supply is currently coming in 2s, 3s & 5s. In an unfortunate development, RRBs were abruptly canceled.

Chart 9: Under baseline, we assume ~7Y average term...

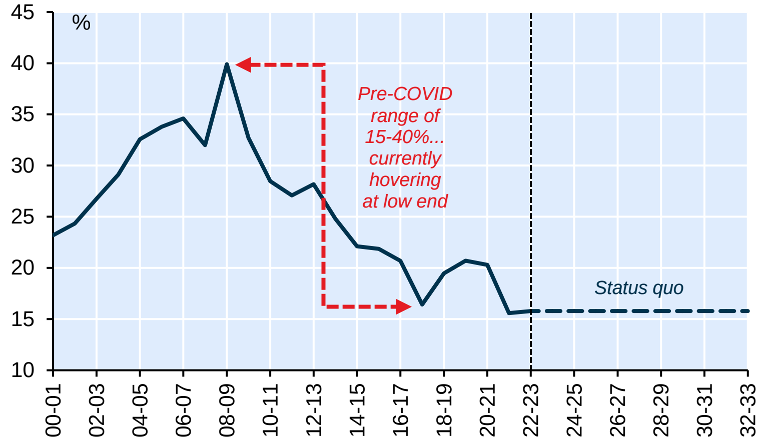
Weighted average term of gross GoC bond issuance (using status quo)



Source: NBF, GoC/BoC

Chart 10: ... and continuation of current T-bill share of debt

T-bill share of GoC domestic marketable debt o/s (using status quo)

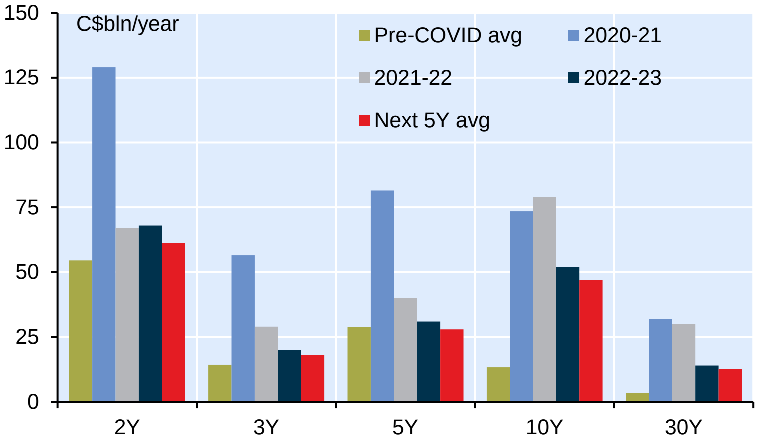


Source: NBF, GoC/BoC

We're well past the 'peak term out' that briefly characterized 2021-22. The average term of gross bond supply has since retreated to ~7 years. As we'll show, the funding mix is a vital simulation input. The T-bill/bond mix also has a bearing on future supply. The bill stock has been worked down in absolute & relative terms. Under the status quo, bonds would cover the bulk of net funding needs.

Chart 11: Supply could ease a touch all across the curve

Gross GoC bond issuance by major tenor: Past, current & forecasted pace

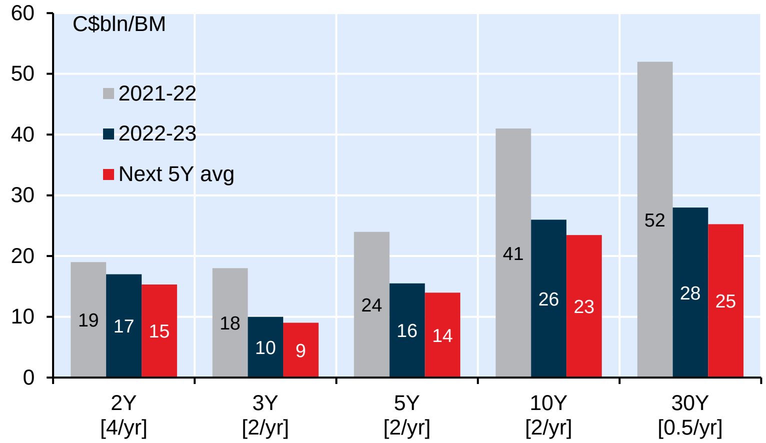


Source: NBF, GoC/BoC | Note: 2022-23 as per Nov-22 update; next 5Y uses FES baseline

Simulations using the FES baseline scenario & status quo bond mix suggest supply could recede a touch (vs current levels) in all tenors. It may be appropriate to think about the future of 3s.

Chart 12: Assessing benchmark bond sizes under new baseline

GoC benchmark bond target sizes: Past, current & simulated

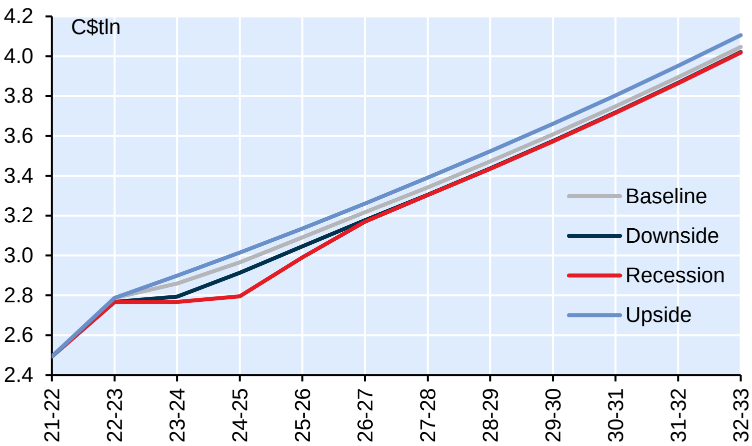


Source: NBF, GoC/BoC | Note: 2022-23 implied; next 5Y uses FES baseline

Under the status quo benchmark dating, the average 2Y & 5Y would be around C$15bln, the average 10Y & long bond relatively deeper at ~C$25bln. Again, 3s are at risk of being orphaned.

Chart 13: Downside economic risks harder to ignore…

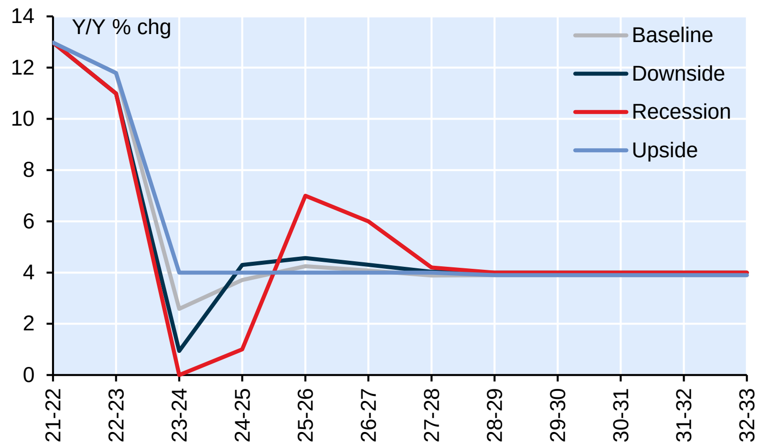
Canada nominal GDP level: Select GoC & NBF scenarios



Source: NBF, StatCan, GoC

Chart 14: … which could translate into slower GDP growth…

Canada nominal GDP growth: Select GoC & NBF scenarios

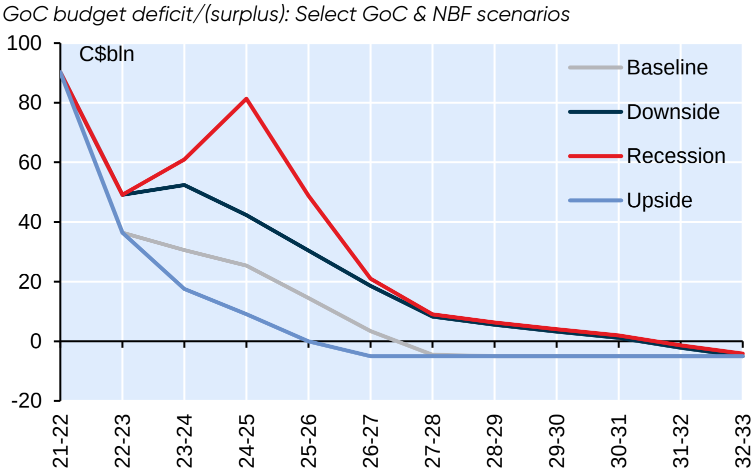


Source: NBF, StatCan, GoC

As for underlying economic scenarios, there's no shortage of potential paths we could walk. Ottawa's FES added a 'downside' scenario to the baseline outlook. For the purposes of simulating future bond supply, we also ran a more adverse (i.e., 'recession') scenario. There's notionally a rosier 'upside' scenario one could generate, although we wouldn't put a lot of stock in it currently.

Chart 15: … larger deficits, a slower return to balance…

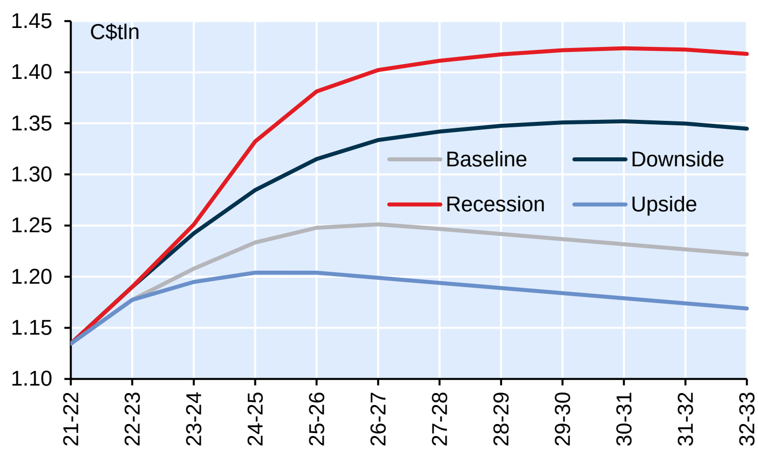
GoC budget deficit/(surplus): Select GoC & NBF scenarios



Source: NBF, GoC/BoC, StatCan

Chart 16: … and more debt to issue/roll versus 'baseline'

GoC debt level: Select GoC & NBF scenarios

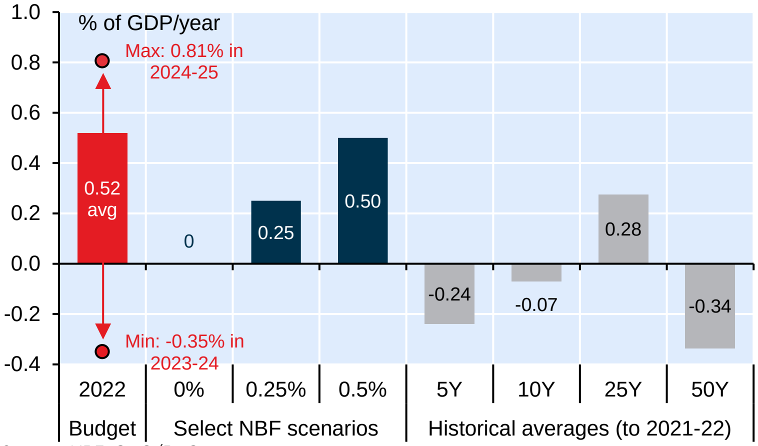


Source: NBF, GoC/BoC, StatCan

A downside or recession scenario would obviously entail more budgetary red ink. The cumulative impact is easiest to discern when looking at debt loads. Any number of additional economic/fiscal scenarios can be conjured. Still, to make our bond supply results more digestible, we are presenting results from only select scenarios here. Please follow up if you would like to test alternate theories.

Chart 17: Limited visibility on often choppy non-bud req'ts

GoC non-budgetary requirement/(source): Budget '22 & select NBF scenarios

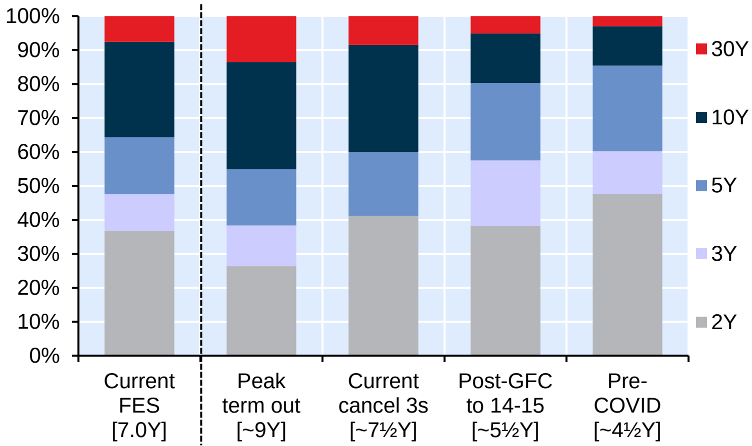


Source: NBF, GoC/BoC

Non-budgetary requirements can be a bit of a 'black box' & the FES provided no update. Budget 2022 did include a medium term outlook & we've also been guided by the empirical record.

Chart 18: Any number of funding strategies can be conjured

Share of gross GoC bond issuance by tenor: Current & select NBF scenarios

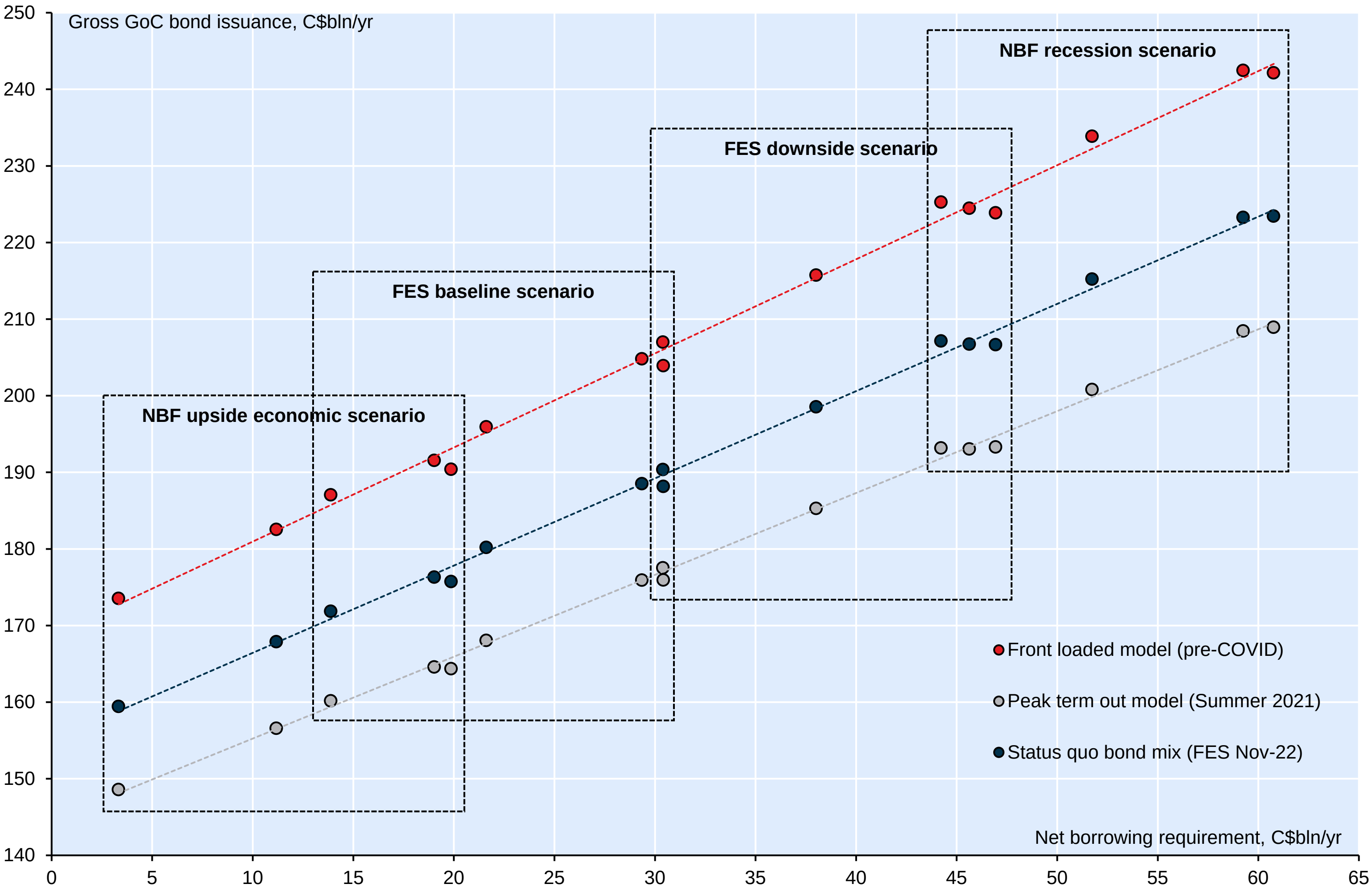


Source: NBF, GoC/BoC | Note: Figures in [:] are weighted avg; excl Greens, RRBs & UL

As previously noted (Chart 7), the bond mix is a pretty vital input. We've tested/simulated a variety of bond strategies, from 'peak term out' to the relatively short pre-COVID model.

Chart 19: Alternate realities... visualizing gross GoC bond supply under various economic scenarios & funding strategies

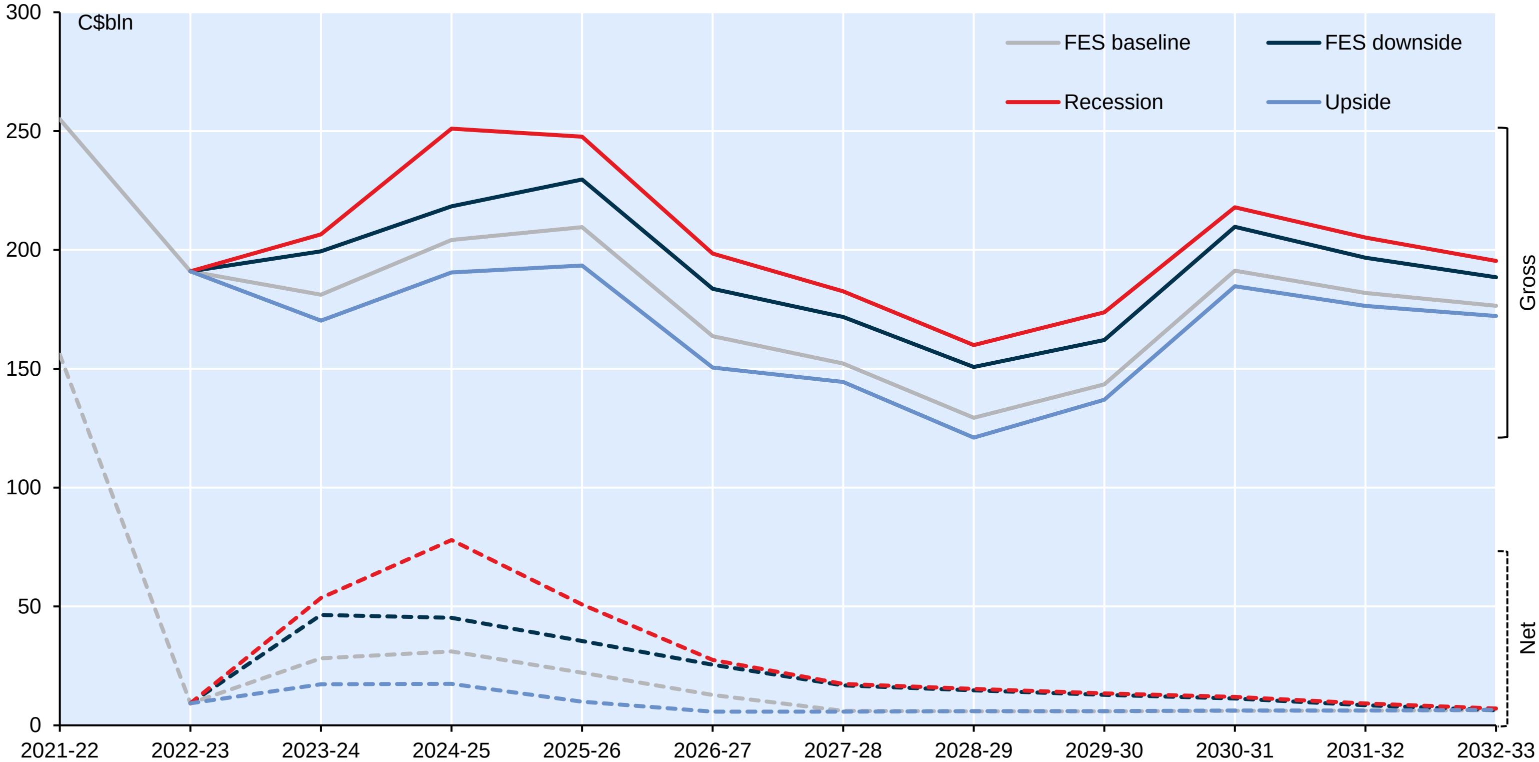
Simulated net GoC borrowing requirement & gross GoC bond issuance for next 5FYs (2023-24 to 2027-28) under select scenarios



Source: NBF, GoC/BoC | Note: For ease of reference, chart is limited to 48 individual simulations, although available/tested simulations run into the hundreds

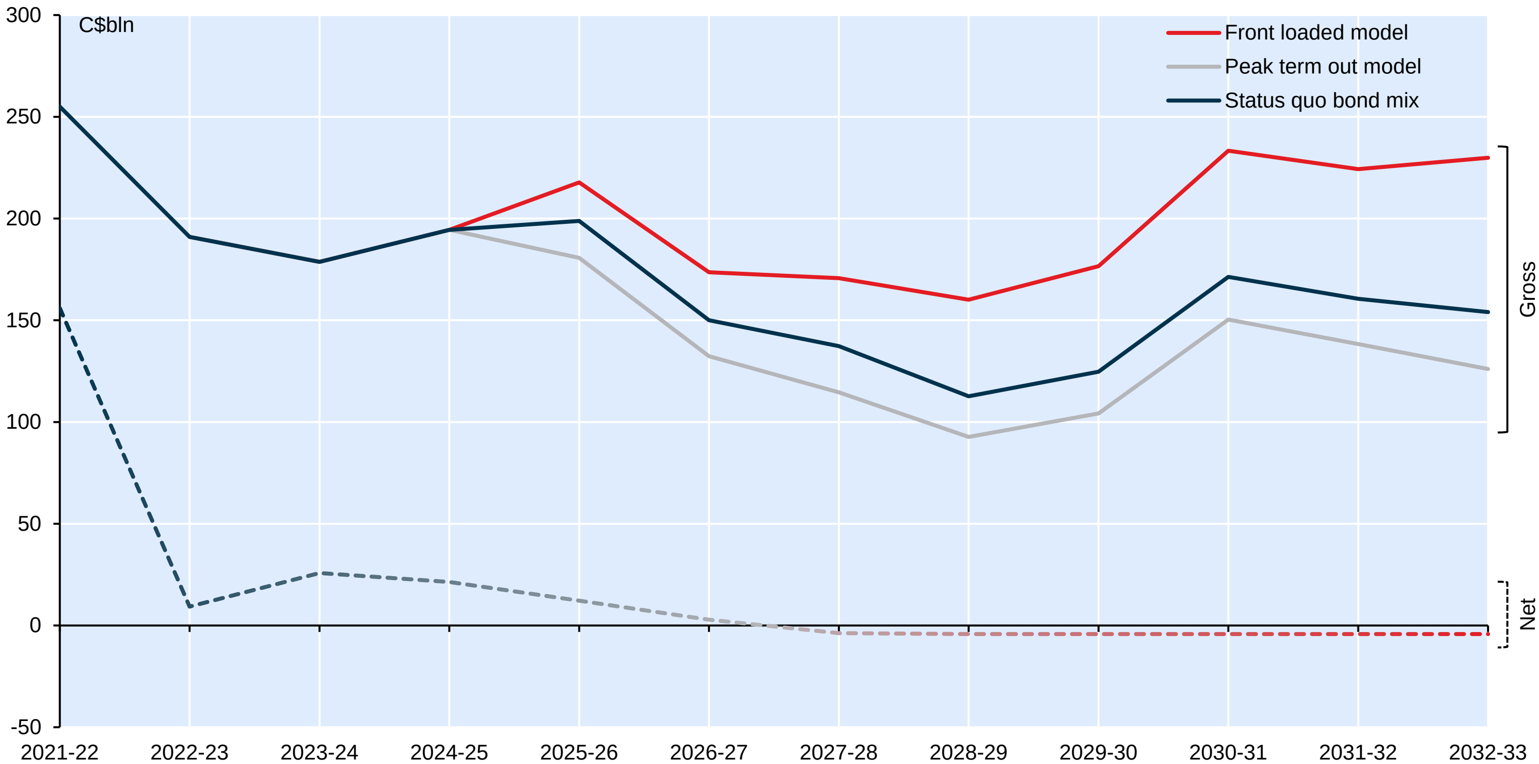
Chart 19 aims to give a sense of what our simulation analysis can spit out, in terms of gross GoC bond supply for a given net borrowing requirement (which is itself driven by the economic outlook and various assumptions on non-budgetary needs) & a given bond funding strategy (spanning a longer-term to shorter-term focus, with the status quo falling somewhere in the middle).

Chart 20: Evolution of supply under different economic paths
Simulated gross & net GoC bond issuance under various economic scenarios (based on status quo funding strategy)



Source: NBF, GoC/BoC | Note: Results apply status quo funding mix to select economic/fiscal scenarios; averages out a range of scenarios for non-budgetary requirements

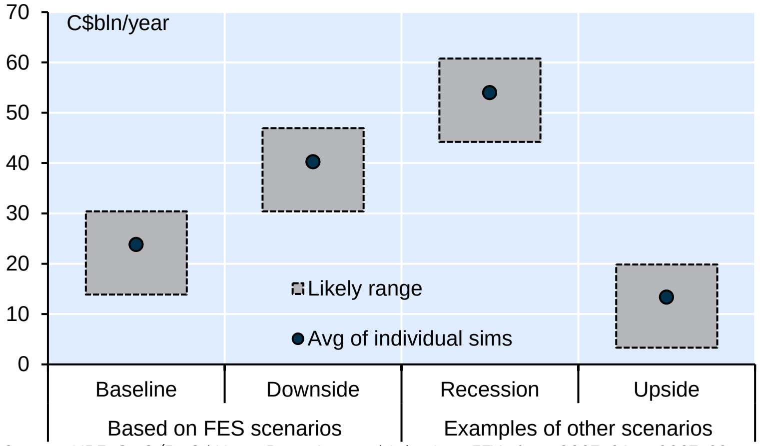
Chart 21: For a given economic/budgetary scenario, funding strategy could notably influence gross supply over time
Simulated gross & net GoC bond issuance under various funding scenarios (based on FES baseline economic scenario)



Source: NBF, GoC/BoC | Note: Results apply baseline economic scenario to select funding/bond mix models; averages out a range of scenarios for non-budgetary requirements

Whereas Chart 19 presented a scatter plot of average bond supply for a given period of time, Charts 20-21 show the potential evolution of gross & net GoC bond issuance for select economic scenarios & funding strategies. Note that bond mix has no impact on net issuance or the total amount of bonds outstanding, but would impact the average term and resulting refi requirements.

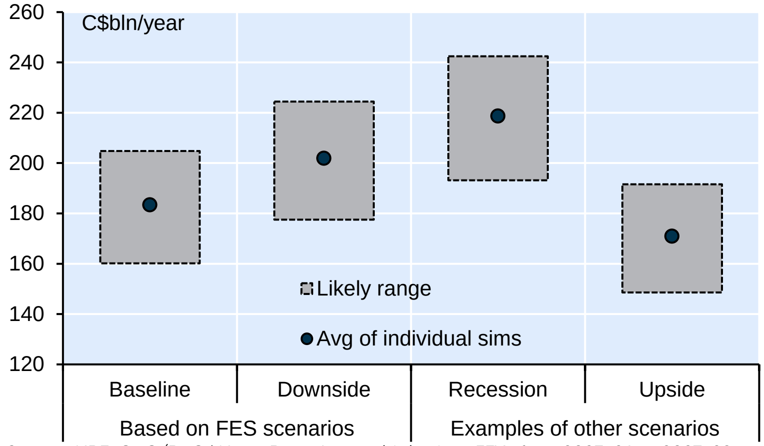
Chart 22: Range of net funding needs could vary materially…
Likely range of net GoC borrowing requirements (select scenarios): Next 5FYs



Source: NBF, GoC/BoC | Note: Based on multiple sims; 5FYs from 2023-24 to 2027-28

In the medium term (i.e., next 5 FYs), the FES baseline economic scenario might involve C$15-30bln/year in net borrowing requirements, depending on how non-bud needs & cash evolves…

Chart 23: … with strategy choice further influencing issuance
Likely range of gross GoC bond issuance (select scenarios): Next 5FYs



Source: NBF, GoC/BoC | Note: Based on multiple sims; 5FYs from 2023-24 to 2027-28

… That could mean C$160-205bln in annual gross GoC bond supply in the coming 5 FYs depending on the bond mix. The shorter the average term, the larger the gross bond program.

Select conclusions

- This *In Focus* report presents simulation and/or scenario analysis, with future year bond issuance tallies not necessarily meant as NBF forecasts. The federal government's gross/net borrowing needs, and the resulting funding strategy that is adopted/pursued, can and will change in response to economic/fiscal realities, market conditions and investor preferences.
- Using the government's current baseline economic/fiscal scenario and status quo debt strategy, simulations suggest gross GoC bond supply will average roughly C$170bln/year over the coming half-decade. Over 90% of that gross supply would constitute refi activity. In terms of maturities, we're currently seeing/feeling the 2- to 3-year echo effect of COVID, with the 5- and 10-year anniversary of the pandemic expected to push refi activity up in/around 2025 and 2030 respectively. Adding in T-bills, a fairly steady 30% of marketable GoC debt would need to be refinanced within 1 years' time. Ottawa's relatively shorter debt stock has meant a quicker pass through of higher borrowing rates, certainly relative to the provincial level of government where more debt has been locked in for longer.
- On the surface, net GoC bond supply appears to be relatively limited under baseline economic/fiscal assumptions. Note, however, that the Bank of Canada's Quantitative Tightening (QT) program effectively involves turning more and more bonds back to the Street. In fiscal 2023-24, for instance, some C$70 billion of Canadas are due to passively run off the Bank's balance sheet. On balance then, the coming fiscal year will require end investors to increase their holdings of GoC bonds by a larger and non-trivial amount of C$96bln (or 3.4% of GDP). So even if rate hikes are nearly over, QT will continue to drain liquidity from the system for the foreseeable future.
- As it stands, Canada's sovereign bond stock could peak at just under C$1.1tln in 2026-27, essentially double the stock of bonds that existed pre-virus. Given heretofore-hearty nominal GDP growth, federal leverage (i.e., debt-to-GDP) has already receded from its peak. It's conceivable that the relative size of the GoC bond stock could be back to pre-pandemic levels in roughly ten years. It's important to note that under baseline scenarios, net GoC bond supply would remain considerably lighter than in the US. In other words, the relative stock of outstanding Treasuries will continue to grow at a much faster clip. All else equal, that's a technical tailwind for GoC bond outperformance, although yields continue to take their cue from policy rate expectations in today's still-unsettling inflation environment. Canada is fully expected to retain its considerable net debt advantage relative to G7 peers.
- Consistent with an improving budgetary position, gross GoC bond issuance has receded in all tenors/sectors. While gross issuance has remained sufficient to ensure adequate liquidity in 'core' benchmarks, lighter cash requirements have called for sacrifices/consolidation. Ultra-Long issuance was earlier axed. We lament the decision to ditch RRBs, which have ongoing utility in a high-inflation environment. If anything, the 3-year sector remains a bit of an orphan. It's here where future rationing (if required) might be best directed. The 'peak term out' briefly in vogue in 2021-22 has been walked back more recently, which leans towards a flatter curve *ceteris paribus*. Detailed simulations clearly highlight how vital the funding mix is in terms of a model input.
- The economic outlook remains far-from-certain. Relative to the baseline assumptions presented in November's Fall Economic Statement (FES), economic and fiscal risks appear skewed to the downside (i.e., slower growth, more red ink). As such, we have tested and simulated more adverse scenarios, including the government's own 'downside' scenario and something that could be termed a 'recession' scenario. The potential impact on net funding needs and gross bond issuance is quite material. Under a 'recession' scenario, gross GoC bond issuance could pop up to ~C$250bln by 2024-25 (assuming no major change in T-bills), placing the debt stock on a much higher plane.
- In all, we have tested/simulated hundreds of individual scenarios, variously tweaking economic/budget assumptions, non-budgetary requirements, T-bill/bond shares and multiple bond issuance mixes (from the relatively short to the relatively long). Interested readers are encouraged to follow up if they'd like further detail and/or wish to explore more bespoke scenarios.

Economics and Strategy

Montreal Office
514-879-2529

Stéfane Marion
Chief Economist and Strategist
stefane.marion@nbc.ca

Matthieu Arseneau
Deputy Chief Economist
matthieu.arseneau@nbc.ca

Kyle Dahms
Economist
kyle.dahms@nbc.ca

Daren King, CFA
Economist
daren.king@nbc.ca

Jocelyn Paquet
Economist
jocelyn.paquet@nbc.ca

Alexandra Ducharme
Economist
alexandra.ducharme@nbc.ca

Angelo Katsoras
Geopolitical Analyst
angelo.katsoras@nbc.ca

Toronto Office
416-869-8598

Warren Lovely
Chief Rates and Public Sector Strategist
warren.lovely@nbc.ca

Taylor Schleich
Rates Strategist
taylor.Schleich@nbc.ca

UK Residents

This Report is a marketing document. This Report has not been prepared in accordance with EU legal requirements designed to promote the independence of investment research and it is not subject to any prohibition on dealing ahead of the dissemination of investment research. In respect of the distribution of this Report to UK residents, NBF has approved the contents (including, where necessary, for the purposes of Section 21(1) of the Financial Services and Markets Act 2000). This Report is for information purposes only and does not constitute a personal recommendation, or investment, legal or tax advice. NBF and/or its parent and/or any companies within or affiliates of the National Bank of Canada group and/or any of their directors, officers and employees may have or may have had interests or long or short positions in, and may at any time make purchases and/or sales as principal or agent, or may act or may have acted as market maker in the relevant investments or related investments discussed in this Report, or may act or have acted as investment and/or commercial banker with respect hereto. The value of investments, and the income derived from them, can go down as well as up and you may not get back the amount invested. Past performance is not a guide to future performance. If an investment is denominated in a foreign currency, rates of exchange may have an adverse effect on the value of the investment. Investments which are illiquid may be difficult to sell or realise; it may also be difficult to obtain reliable information about their value or the extent of the risks to which they are exposed. Certain transactions, including those involving futures, swaps, and other derivatives, give rise to substantial risk and are not suitable for all investors. The investments contained in this Report are not available to retail customers and this Report is not for distribution to retail clients (within the meaning of the rules of the Financial Conduct Authority). Persons who are retail clients should not act or rely upon the information in this Report. This Report does not constitute or form part of any offer for sale or subscription of or solicitation of any offer to buy or subscribe for the securities described herein nor shall it or any part of it form the basis of or be relied on in connection with any contract or commitment whatsoever.

This information is only for distribution to Eligible Counterparties and Professional Clients in the United Kingdom within the meaning of the rules of the Financial Conduct Authority. NBF is authorised and regulated by the Financial Conduct Authority and has its registered office at 70 St. Mary Axe, London, EC3A 8BE.

NBF is not authorised by the Prudential Regulation Authority and the Financial Conduct Authority to accept deposits in the United Kingdom.

US Residents

With respect to the distribution of this report in the United States of America, National Bank of Canada Financial Inc. ("NBCFI") which is regulated by the Financial Industry Regulatory Authority (FINRA) and a member of the Securities Investor Protection Corporation (SIPC), an affiliate of NBF, accepts responsibility for its contents, subject to any terms set out above. To make further inquiry related to this report, or to effect any transaction, United States residents should contact their NBCFI registered representative.

This report is not a research report and is intended for Major US Institutional Investors only.

This report is not subject to US independence and disclosure standards applicable to research reports.

HK Residents

With respect to the distribution of this report in Hong Kong by NBC Financial Markets Asia Limited ("NBCFMA")which is licensed by the Securities and Futures Commission ("SFC") to conduct Type 1 (dealing in securities) and Type 3 (leveraged foreign exchange trading) regulated activities, the contents of this report are solely for informational purposes. It has not been approved by, reviewed by, verified by or filed with any regulator in Hong Kong. Nothing herein is a recommendation, advice, offer or solicitation to buy or sell a product or service, nor an official confirmation of any transaction. None of the products issuers, NBCFMA or its affiliates or other persons or entities named herein are obliged to notify you of changes to any information and none of the foregoing assume any loss suffered by you in reliance of such information.

The content of this report may contain information about investment products which are not authorized by SFC for offering to the public in Hong Kong and such information will only be available to, those persons who are Professional Investors (as defined in the Securities and Futures Ordinance of Hong Kong ("SFO")). If you are in any doubt as to your status you should consult a financial adviser or contact us. This material is not meant to be marketing materials and is not intended for public distribution. Please note that neither this material nor the product referred to is authorized for sale by SFC. Please refer to product prospectus for full details.

There may be conflicts of interest relating to NBCFMA or its affiliates' businesses. These activities and interests include potential multiple advisory, transactional and financial and other interests in securities and instruments that may be purchased or sold by NBCFMA or its affiliates, or in other investment vehicles which are managed by NBCFMA or its affiliates that may purchase or sell such securities and instruments.

No other entity within the National Bank of Canada group, including National Bank of Canada and National Bank Financial Inc, is licensed or registered with the SFC. Accordingly, such entities and their employees are not permitted and do not intend to: (i) carry on a business in any regulated activity in Hong Kong; (ii) hold themselves out as carrying on a business in any regulated activity in Hong Kong; or (iii) actively market their services to the Hong Kong public.