# RBC Debt Capital Markets

## *Canadian Municipalities Primer – Version 2.0*

APRIL 2018

STRICTLY PRIVATE AND CONFIDENTIAL

RBC Capital Markets

TABLE OF CONTENTS

## 1. INTRODUCTION AND INVESTMENT HIGHLIGHTS

As we move into Q2 2018, we want to take this opportunity to recap Canadian municipal issuance trends and market developments in 2017. RBC Capital Markets continues to be at the forefront of this sector and in this report we present an overview of recent municipal transactions, investment highlights, issuance trends, ratings profiles, secondary trading statistics and relative pricing dynamics.

**Core Investment Highlights**

✓ Stable credit ratings across sector ranging from AA to AAA
✓ Attractive valuations relative to provincial credit
✓ Breadth of available tenors from 5 to 30 years
✓ Strong provincial legislative oversight
✓ Prudent fiscal management and balanced operating budgets
✓ Modest debt burden and strong liquidity positions

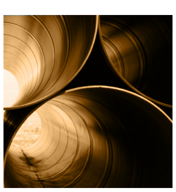
The municipal sector represents a modest yet growing portion of the overall Canadian bond market. Municipal debt issuance presently accounts for almost 5% of the public sector debt market in Canada (excl. Government of Canada bonds) and remains a growing sector. Canadian municipalities issued approximately C$5.2 billion in 2017, 6% above the 2016 levels and this includes approximately C$2 billion issued by Quebec-based municipalities via an auction format.

Canadian municipalities typically issue bullet bonds, otherwise called sinking fund debentures, across benchmark terms. Issuance is typically concentrated in the 10 and 30-year part of the curve although select issuers such as Municipal Finance Authority of British Columbia ("MFABC"), City of Montreal and Region of York have capitalized on demand in 5 and 20-year terms, as part of their borrowing strategy. Serial transactions remain a core part of the funding strategy for various municipalities such as Durham, Halton, London, Niagara and Waterloo.

Transaction sizes range from C$25 million on the small end to C$500 million benchmark issues, reflecting broad based market support. A number of municipalities issue instalment debentures or serials with sizes ranging from $20 million to $100 million, although larger issues are better tailored to the bullet format. While there isn't an explicit guarantee, most provinces have a principle statute that establishes the revenue-raising powers and expenditure responsibilities of the municipalities within their jurisdictions. There has not been a case of a Canadian municipality defaulting on capital markets debenture interest / principal payments in the recent past.

*Municipalities in Canada are prohibited from funding operating deficits with debt issuance.* Municipal debt issuance is primarily used to finance long-term capital investments in water, waste water systems, roads, bridges and other capital assets. Canadian municipalities have sufficient revenue and expenditure autonomy to manage their budgets. The main municipal revenue sources are property taxes, development charges, water and sewer fees, investment income, provincial and federal grants/transfers, licenses and permits.

Municipal debt offers investors the opportunity to gain exposure to local government debt at a spread pickup relative to provincial debt. Relative pricing dynamics indicate that municipalities trade back of the home province and have benefitted from spread compression last year.



"MUNICIPAL DEBT OFFERS INVESTORS THE OPPORTUNITY TO GAIN EXPOSURE TO LOCAL GOVERNMENT DEBT AT A SPREAD PICKUP RELATIVE TO PROVINCIAL DEBT."

## 2. CANADIAN PUBLIC SECTOR ISSUANCE

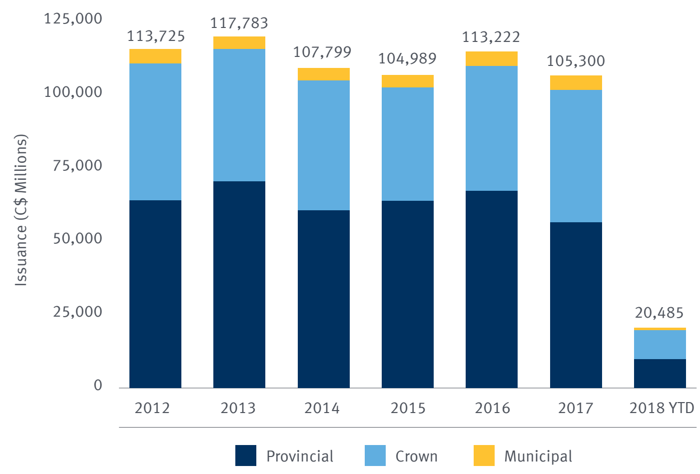
The domestic public sector new issue market across Provincials, Crowns and Municipals was down slightly in 2017 year-over-year but is expected to rise this year as provincial borrowing needs continue to remain elevated. Provincial issuers continue to fund a robust maturity profile, growing infrastructure spending needs, as well as budget deficits with expectations for larger borrowing programs this government fiscal year which commenced in April.

Overall public sector issuance in 2017 was C$105 billion which was 7% lower than 2016 levels, primarily attributed to elevated provincial offshore funding at ~C$29 billion. While the domestic market remains the primary source of funding, provincial offshore issuance grew rapidly in 2017 and many issuers capitalized on attractive pricing opportunities to raise a significant portion of their funding in other currencies, primarily comprising USD, EUR, GBP and AUD. Offshore issuance in 2017 accounted for 35% of provincial funding, marking the highest proportion of international borrowing since 2011 and notably higher than the offshore funding proportion in 2016 at 26%.

Strong bid for credit and steady investor demand during 2017 drove domestic credit spreads to multi-year tights. While the first half of the year was characterized by increased 10-year issuance, spread performance in the long-end and flattening of the GoC curve propelled 30-year issuance which represented ~44% of total provincial supply last year. Canada Housing Trust issued C$40 billion of Canada Mortgage Bonds (CMBs) which is the maximum authorized amount for new CMB guarantees by CMHC, and in line with 2016 issuance.

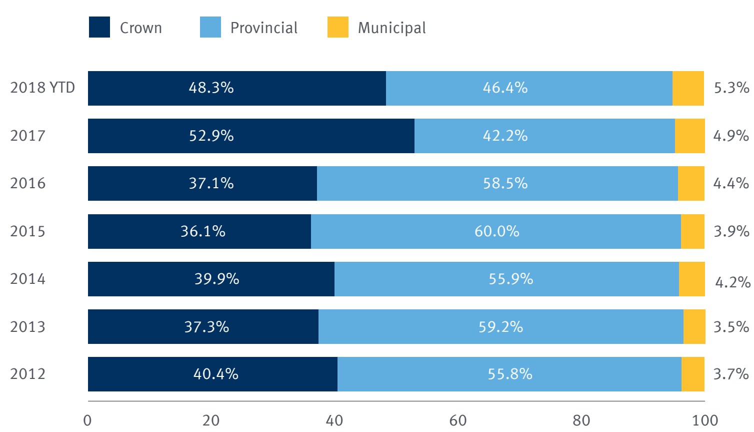
*Municipalities' share of public sector issuance has steadily grown from 3.7% in 2012 to almost 5% in 2017, representing an increasingly larger portion of the overall public sector supply.* This growth has been attributed to favourable pricing dynamics, low interest rates and growth in infrastructure / capital projects.

**FIGURE 1: C$ DEBT ISSUANCE COMPOSITION (EXC. SOVEREIGN DEBT)**




Source: RBC Capital Markets

**FIGURE 2: C$ DEBT ISSUANCE COMPOSITION BREAKDOWN**




Source: RBC Capital Markets

# 3. CANADIAN MUNICIPAL SUPPLY

Municipal issuance continued at a steady pace in 2017 with ~C$5.2 billion of supply, 6% higher than the C$4.9 billion issued in 2016. The majority of this supply was comprised of recurring issuance from the same slate of 15+ issuers. Over the past 10 years, total Canadian municipal issuance has grown from C$1.3 billion in 2007 to over C$5.0 billion last year, and has remained steady at C$4+ billion annually since 2013. The increase in municipal borrowing can be attributed to growing infrastructure needs and federal incentives to address some of those needs. In 2018, there has been C$1.1 billion of public debt issuance as of the end of March.

## 3.1 Municipal Bond Market Snapshot

*Issuance has risen as various municipalities capitalize on attractive borrowing costs and duration to finance ongoing infrastructure and capital needs.* Below are the core features of the Canadian municipal bond market.

## 3.2 Structure and Term Characteristics

Bullet maturity bonds continue to be the preferred format of issuance given size and liquidity requirements. Bullet maturities typically make up ~90% of issuance in any given year. In terms of size, bullet issues tend to be ~C$100-$500 million while serial transactions tend to be smaller ranging from ~C$20-100 million, C$50 million being the most common size. Bullet bonds are popular across the curve in terms such as 5, 10, 20 and 30 years. Ontario municipalities are required to make sinking fund payments for these sinking fund debentures.

Serial debentures make up the remaining share of issuance and are spread out across different structures based on the useful life of the capital projects being financed. The most common structure is a 1-10 year although 1-15 year and 1-20 year structures are prevalent. A serial structure is made of several lines and each individual maturity serves as a stand-alone bond with a semi-annual coupon. A serial issuer is required to repay interest and principal annually, eliminating the need to maintain a sinking fund to ensure repayment of the principal at maturity. The serial structure tends to be the most cost-effective format for smaller sized transactions.

Although the 10-year maturity has been the most popular issuance term across municipalities, there was increased activity in the 30-year part of the curve, driven by funding for longer term capital projects and investors looking for yield amidst a flattening credit curve.

**CORE FEATURES OF THE CANADIAN MUNICIPAL BOND MARKET**

| | Description |
|---|---|
| **Market Size** | C$5+ billion in issuance per year |
| **# Issuers** | ~15 core repeat issuers |
| **Guarantee** | No explicit Provincial or Federal guarantee |
| **Ratings** | Typically AA to AAA by Moody's or S&P; 1-2 ratings per issuer |
| **Structure** | ▪ Bullets – make up ~90% of supply; in Ontario all require sinking fund payments<br>▪ Serials – most common for less frequent issuers, no sinking fund required<br>▪ Amortizers – less common but available format |
| **Term:** | ▪ Bullets – benchmark terms typically 5yrs, 10yrs, 20yrs and 30yrs<br>▪ Serials – 1-10yrs, 1-15yrs or 1-20yrs |
| **Use of Proceeds** | Fund capital projects such as water, waste water management, roads, transit, housing |
| **Offering Format** | Mostly underwritten transactions, select issuers will use an agency book-build process |
| **Prospectus** | Municipalities are prospectus exempt issuers |
| **Offering Documentation** | Marketed and priced off a Term Sheet and Offering Circular |
| **Execution Timeline** | Typically launch and price on the same day following discrete book building process; no formal launch announcement for underwritten transactions |
| **Pricing** | Marketed at a relative spread to the home province such as Ontario and B.C. |
| **Secondary Trading** | ~C$7-8 billion in secondary trading flow per quarter |

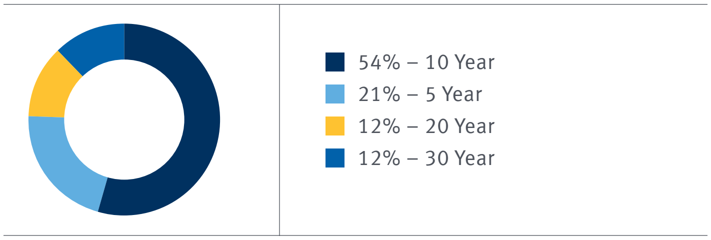
Serial bonds limit refinancing risk by smoothing principal and interest payments over time. However, the principal on municipal bullet bonds in Canada is typically offset by sinking fund revenues, limiting refinancing risk considerably. Bullet bonds also command a broader investor base than serials.

Although municipalities can borrow offshore, they have not raised money outside the Canadian market in recent history. The domestic market remains the primary source of funds for these issuers. The bulk of the supply tends to stem from a handful of issuers with larger borrowing needs. Municipal Finance Authority of BC (MFABC), City of Montreal, City of Toronto, Region of York and City of Ottawa were the largest municipal issuers in Canada in 2017 with outstanding debt for these five issuers ranging from C$2 billion to C$8 billion.

## 3.3 Municipal Bullet Transactions

There has been C$4.6 billion in bullet issuance in the Canadian municipal space since the start of 2017. Average deal size during this period has been ~C$230 million and the majority of this supply (53%) has been in the 10-year term. Although issuers are motivated to add liquidity to existing tranches, almost half the transactions during this period were new issues versus re-openings of existing issues.

**FIGURE 3: ISSUANCE BY TERM (2015-2017 AGGREGATE)**




Source: RBC Capital Markets

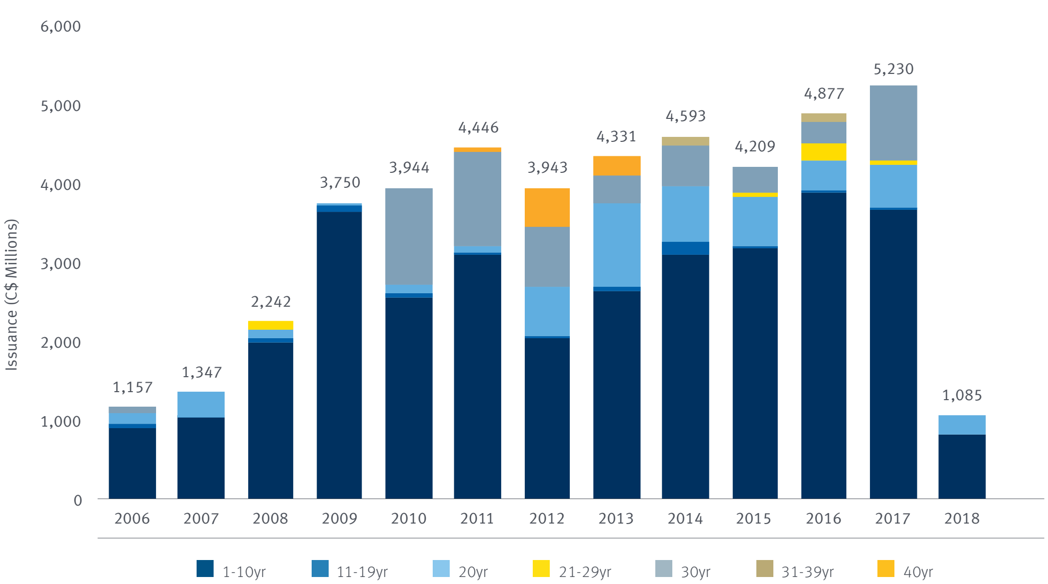
| Term Bucket* | % 2017 Supply** | % 2015-17 Supply** |
|---|---|---|
| 5-years | 19% | 21% |
| 10-years | 53% | 54% |
| 20-years | 12% | 12% |
| 30-years | 16% | 12% |

** Represents syndicated supply

## 3.4 Serial Transactions

Serial transactions provide an alternative structure to issuers who do not wish to maintain a sinking or retirement fund. There has been ~C$429[1] million in serial issuance since the start of 2017 with 1-10 year serials being the most marketed structure although the market supports 1-15 and 1-20 year serials. The average deal size for serials has been around C$40-50 million.

**FIGURE 4: CANADIAN MUNICIPAL DEBT SUPPLY**




Source: RBC Capital Markets

1 Excludes the unrated Quebec municipal serial issuance

## BULLET ISSUANCE

| Price Date | Issuer | Size (C$MM) | Term (yrs) | Maturity | Spread vs. Bench (bps) | Re-Offer Yield (%) | Coupon | New Issue | Green Bond |
|---|---|---|---|---|---|---|---|---|---|
| 20-Mar-18 | City of Toronto | 300 | 10 | 7-Jun-27 | +76.0 | 2.955% | 2.400% | - | - |
| 21-Feb-18 | City of Montreal | 250 | 20 | 1-Dec-36 | +96.5 | 3.423% | 3.150% | - | - |
| 24-Jan-18 | City of Montreal | 400 | 10 | 1-Sep-27 | +79.0 | 3.050% | 3.000% | - | - |
| 21-Nov-17 | Municipal Finance Authority of British Columbia | 500 | 5 | 1-Dec-22 | +50.5 | 2.161% | 2.150% | ✓ | - |
| 2-Nov-17 | City of Ottawa | 102 | 30 | 10-Nov-47 | +97.0 | 3.259% | 3.250% | ✓ | ✓ |
| 24-Oct-17 | City of Vancouver | 85 | 10 | 3-Nov-27 | +81.0 | 2.875% | 2.850% | ✓ | - |
| 19-Oct-17 | First Nations Finance Authority | 126 | 10 | 1-Jun-28 | +107.0 | 3.071% | 3.050% | ✓ | - |
| 27-Sep-17 | Municipal Finance Authority of British Columbia | 35 | 7 | 14-Oct-24 | +69.5 | 2.719% | 2.950% | - | - |
| 27-Sep-17 | Municipal Finance Authority of British Columbia | 160 | 10 | 1-Dec-27 | +80.5 | 2.995% | 4.950% | - | - |
| 21-Sep-17 | Regional Municipality of York | 150 | 10 | 9-Jun-27 | +86.5 | 2.969% | 2.350% | - | - |
| 12-Sep-17 | City of Montreal | 250 | 10 | 1-Sep-27 | +97.0 | 3.022% | 3.000% | - | - |
| 18-Aug-17 | City of Toronto | 200 | 20 | 2-Jun-36 | +105.5 | 3.270% | 3.500% | - | - |
| 17-Jul-17 | City of Ottawa | 330 | 30 | 27-Jul-48 | +108.5 | 3.344% | 3.100% | - | - |
| 1-Jun-17 | City of Montreal | 300 | 20 | 1-Dec-36 | +117.7 | 3.165% | 3.150% | ✓ | - |
| 30-May-17 | Regional Municipality of York | 150 | 10 | 9-Jun-27 | +93.5 | 2.350% | 2.350% | ✓ | - |
| 24-May-17 | City of Toronto | 400 | 10 | 7-Jun-27 | +92.5 | 2.430% | 2.400% | ✓ | - |
| 31-Mar-17 | Municipal Finance Authority of British Columbia | 200 | 10 | 1-Dec-27 | +93.5 | 2.686% | 4.950% | - | - |
| 28-Mar-17 | City of Toronto | 300 | 30 | 24-Jun-46 | +119.0 | 3.508% | 3.250% | - | - |
| 9-Feb-17 | City of Montreal | 250 | 10 | 1-Sep-27 | +116.1 | 2.950% | 3.000% | ✓ | - |
| 16-Jan-17 | Municipal Finance Authority of British Columbia* | 61 | 25 | 19-Jan-42 | - | - | 3.505% | ✓ | - |
| | **Total** | **4,550** | | | | | | | |

Source: RBC Capital Markets / *Amortizer; data as of Q1 – 2018

## SERIAL ISSUANCE

| Price Date | Issuer | Size (C$MM) | Term (yrs) | Spread vs. Bench (bps) | Re-Offer Yield |
|---|---|---|---|---|---|
| 9-Mar-18 | Regional Municipality of Peel | 53.3 | 1-10 | 30.5-83 | 2.804% |
| 5-Mar-18 | Regional Municipality of Halton | 26.3 | 1-15 | 26.5-99.5 | 2.876% |
| 21-Feb-18 | City of London | 55.0 | 1-10 | 27.5-81.5 | 2.869% |
| 7-Nov-17 | Regional Muncipality of Waterloo | 39.0 | 1-20 | 27.5-100 | 2.608% |
| 20-Sep-17 | Regional Municipality of Durham | 18.3 | 1-20 | 27.5-108 | 3.086% |
| 18-Sep-17 | Regional Municipality of Peel | 38.9 | 1-10 | 25.5-91 | 2.700% |
| 22-Jun-17 | Regional Municipality of Niagara | 79.9 | 1-25 | 35-126 | 2.701% |
| 5-Jun-17 | Regional Municipality of Waterloo | 45.0 | 1-20 | 50-112.5 | 2.219% |
| 16-Feb-17 | City of London | 41.0 | 1-10 | 55-109.5 | 2.375% |
| 24-Jan-17 | Regional Municipality of Halton | 32.7 | 1-10 | 53.5-116 | 2.414% |
| | **Total:** | **429.3** | | | |

Source: RBC Capital Markets; data as of Q1 – 2018

# 4. CANADIAN VS. US MUNICIPAL BONDS

There is a distinction between Canadian and US municipal bonds and the table below compares and contrasts the two markets.

| | Canadian Municipal Bonds | US Municipal Bonds |
|---|---|---|
| **Issuing Entities** | Local and regional governments such as cities and townships and financing authorities that borrow on behalf of other municipalities | Tax-exempt issuers such as state and local governments and eligible not-for-profit corporations like hospitals and colleges |
| **Guarantee Structure** | Considered "creatures of the province", no explicit guarantee | No explicit guarantee from the state with minimal exceptions |
| **Taxation Structure** | Canadian municipal bonds are not tax exempt for investors | US Municipal bonds can be either Taxable or Tax-Exempt; tax exempt imply that interest payments are exempt from Federal and State Income Taxes for in-state residents |
| **Issue Types** | General Obligation | General Obligation or Revenue Bonds; Revenue-backed bonds make up approx. two-thirds of the municipal index |
| **Use of Proceeds** | Only used to fund capital projects, cannot be used to fund deficits | Broad variety of uses including funding new capital projects, refinancing existing obligations, funding pension and other post-retirement liabilities, economic developments, etc. |
| **Pricing** | Trades at a yield premium to the home province with relative pricing dynamics between comparable entities | Prices based on comparably rated states, counties, cities, sector, ratings, etc. Taxable municipal bonds viewed as an alternative to comparable quality corporates |
| **Defaults / Bankruptcy** | No recent occurrence | Since 1970, there has never been an Aaa-rated municipal bond default; Detroit and Puerto Rico are most recent examples of distressed US municipals |
| **Market Size** | C$4-5 billion annual issuance; ~C$35 billion outstanding | US$400+ billion annual issuance; ~US$3.8 trillion outstanding |
| **# Core Issuers** | ~20 recurring issuers across the different provinces | 50,000+ issuers across the United States and Territories |
| **Borrowing Limit** | Ontario municipalities are required to have an Annual Repayment Limit (ARL) ‹ 25% of Operating Revenue* | Limits depend on issuer specifics and are outlined in bond issuance enabling documents – may include coverage requirements or additional bonds test |
| **Available Structures** | Sinking Fund Debentures (bullets), Serials, Amortizers | Generally amortizing and long term; 30-year level debt structure is very common |
| **Terms** | 5, 10, 20 and 30 years primarily | Bulk of issuance in 10yr+ terms |
| **Ratings** | Mostly rated AA to AAA | 90% of municipal issuers are rated single-A or higher |
| **Investor Base** | Pension Funds, Asset Managers, Insurance Companies | Primarily Retail Investors (~40%), Credit Unions (24%), Banks (15%), Insurance (15%) |
| **Offshore Issuance** | Only issues in CAD but allowed to issue in other currencies | Only USD |
| **Call Features** | Non-callable | Majority of longer-dated bonds carry a 10-year par call provision |
| **Recent Themes and Developments** | Municipalities have started to issue Green Bonds | Tax Reform expected to result in decreased tax-exempt volume in the near term and potentially higher taxable volume; passage of Infrastructure Bill could increase issuance |

* Other than the City of Toronto

## 5. CANADIAN MUNICIPAL ISSUERS

Here is a list of the municipalities that have issued bonds in the Canadian market in the past 5 years and have at least C$100 million in outstanding debentures. While the majority of the municipalities fund capital projects either through the Province or through a Provincially-funded Financing Authority, the issuers listed below fund in their own name.

Funding requirements can vary from approximately C$50 million a year for smaller municipalities to C$1.5 billion in an active year for the larger borrowers. Few larger issuers such as MFABC, Toronto and Montreal represent the bulk of domestic syndicated supply.

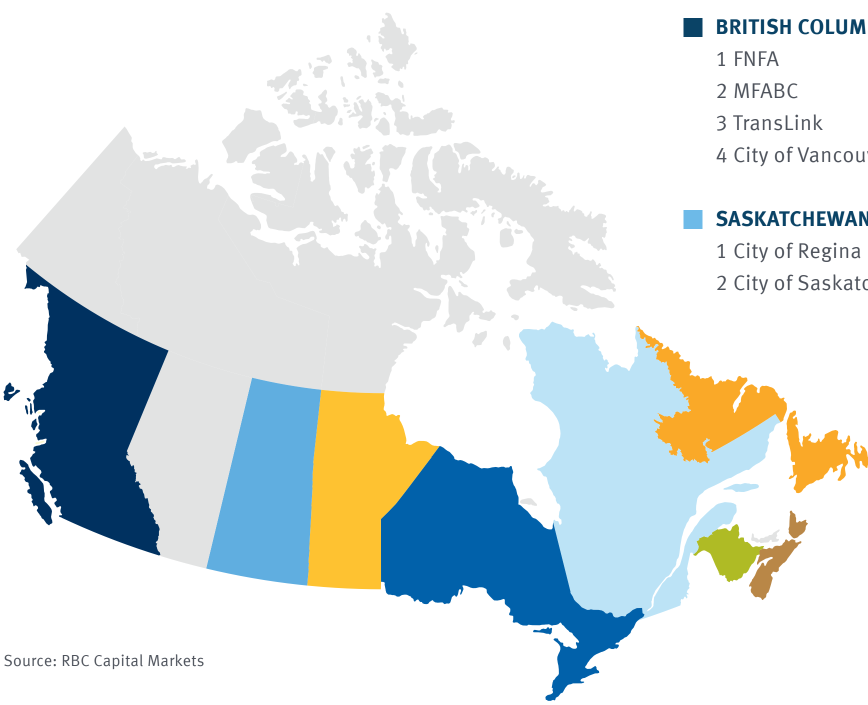
| BRITISH COLUMBIA | SASKATCHEWAN | MANITOBA | ONTARIO | QUEBEC*** | NFLD & LABRADOR | NEW BRUNSWICK/ NOVA SCOTIA |
|---|---|---|---|---|---|---|
| MFABC | City of Regina | City of Winnipeg | City of Toronto | City of Montreal | City of St. John’s | New Brunswick Municipal Financing Corp |
| City of Vancouver | City of Saskatoon | | Region of York | Quebec City | | Nova Scotia Municipal Finance Corp |
| TransLink* | | | Region of Peel | | | |
| FNFA** | | | City of Ottawa | | | |
| | | | Region of Halton | | | |
| | | | City of London | | | |
| | | | Region of Waterloo | | | |
| | | | Region of Niagara | | | |
| | | | Region of Durham | | | |
| | | | City of Guelph | | | |
| | | | County of Wellington | | | |

* TransLink, formerly known as South Coast British Columbia Transportation Authority, is Metro Vancouver’s transportation network. Although TransLink is not a municipality, investors compare TransLink bonds to other similar-rated municipalities

** FNFA, First Nations Finance Authority, is not a municipality but investors will compare FNFA to other similar-rated municipalities

*** This list of Quebec municipalities excludes unrated Quebec municipalities that generally issue serials via an auction process

### FIGURE 5 : MOST ACTIVE CANADIAN MUNICIPAL ISSUERS[3]



**BRITISH COLUMBIA**
1 FNFA
2 MFABC
3 TransLink
4 City of Vancouver

**SASKATCHEWAN**
1 City of Regina
2 City of Saskatoon

**MANITOBA**
1 City of Winnipeg

**ONTARIO**
1 City of Toronto
2 Region of York
3 Region of Peel
4 City of Ottawa
5 Region of Halton
6 City of London
7 Region of Waterloo
8 Region of Niagara
9 Region of Durham
10 City of Guelph
11 County of Wellington

**QUEBEC**
1 City of Montreal
2 Quebec City

**NEWFOUNDLAND & LABRADOR**
1 City of St. John’s

**NEW BRUNSWICK**
1 NBMFC

**NOVA SCOTIA**
1 Nova Scotia Municipal Finance Corp

Source: RBC Capital Markets


### 5.1 Municipal Funding Options

Municipalities have several funding options:

- **Direct debenture** issuance in the market as a stand-alone issuer
- Borrowing through a **non-guaranteed pooled entity** (i.e. MFABC) or Ontario regional municipalities
- **Provinces or provincial entities** issue debt directly and then on-lends the funds to these local entities (i.e. NBMFC, NSMFC or Ontario Infrastructure and Lands Corporation, often referred to as Infrastructure Ontario)

There are provincially sponsored borrowing authorities that fund for the municipalities. They are not directly active in the Capital Markets.

- *Alberta Capital Finance Authority (ACFA)* – Provincially guaranteed municipal borrowing authority; currently funded by the Province of Alberta and has not issued in its own name since 2011
- *Nova Scotia Municipal Finance Corporation (NSMFC)* – Provincially guaranteed municipal borrowing authority which has most recently been funded by the Province; last issuance in the public market was in 2006
- *New Brunswick Municipal Finance Corporation (NBMFC)* – Provincially guaranteed by the Province of New Brunswick. Last issuance in the public market was in 2014
- *IO* – Offers a loan program that provides affordable long-term financing to public sector clients to modernize and renew their infrastructure; Province of Ontario borrows on behalf of IO

### 5.2. Regional Municipalities

In Ontario, regional municipalities (also referred to as upper-tier municipalities) have been created in certain areas to oversee provision of municipal services across a broad geographic area. Regional municipalities provide a variety of services such as police, public transit, water distribution, waste water management and paramedic services. Local municipalities (also referred to as lower-tier municipalities) within the regions are responsible for a number of functions such as fire, parks, etc. while there are also a number of shared responsibilities:

- A regional municipality is the only entity allowed to issue debentures and its constituent municipalities must long-term finance through the regional municipality
- All debentures issued by a regional municipality for its own purposes and for the purposes of one or more of its constituent municipalities are direct obligations of the regional municipality and all of its constituent municipalities

### 5.3 Quebec Municipalities

Municipalities within the Province of Quebec are also active issuers of publicly traded debt. With the exception of the City of Montreal, most of the Quebec-based municipalities issue unrated serial bonds via an auction process. While these bond issues are fragmented and modest in size, the sector accounts for ~C$1-2 billion in aggregate annual issuance. The City of Montreal has a large enough borrowing program that supports a C$1-1.5 billion program spread out across 3-4 issues per year.

Here is a list of the Top 10 largest Quebec municipalities.

| # | Issuer | Ratings (D/M/S) | Amount Outstanding (C$MM) |
|---|---|---|---|
| 1 | Ville de Montreal | (A(H)/Aa2/AA-) | 7,838 |
| 2 | Ville de Quebec | (-/Aa2/-) | 1,679 |
| 3 | Ville de Laval | (-/-/AA) | 638 |
| 4 | Ville de Longueuil | (-/-/-) | 410 |
| 5 | Ville de Levis | (-/-/-) | 369 |
| 6 | Ville de Gatineau | (-/-/-) | 347 |
| 7 | Ville de Saguenay | (-/-/-) | 309 |
| 8 | Ville de Trois-Rivieres | (-/-/-) | 277 |
| 9 | Ville de Sherbrooke | (-/-/-) | 273 |
| 10 | Ville de Terrebonne | (-/-/-) | 273 |

## 5.4 Top 5 Largest Issuers of 2017

| | MFABC | Toronto | Montréal | York Region | Ottawa |
|---|---|---|---|---|---|
| **Ratings** | Aaa/AAA | AA/Aa1/AA | A(H)/Aa2/AA- | Aaa/AA+ | Aaa/AA |
| **Typical Annual Borrowing Req. (C$mm)** | 700-1,500 | 800-900 | 1,000-1,500 | 300-400 | 100 |
| **2017 Debenture Funding (C$mm)** | C$950 | C$900 | C$850 | C$300 | C$432 |
| **Expected 2018 Debt Funding** | Expected to borrow C$800mm to C$1bn | Authorized to borrow up to C$950 million | Expected to borrow around C$1.2 billion | C$0-100 million | C$0-50 million |
| **Typical # Annual Issues** | 2-3 | 2-3 | 2-3 | 1-2 | 1-2 |
| **Typical Maturities** | 5-year<br>10-year | 10-year<br>20-year<br>30-year | 10-year<br>20-year<br>30-year | 10-year<br>20-year<br>30-year | 30-year |
| **Credit Strengths** | • Strong liquidity with current debt reserve fund in excess of $100 million<br>• MFABC has the ability to levy a tax on all taxable land without provincial level government approval (property values of $1.6 trillion)<br>• Municipal long term debt of MFABC constitutes joint liabilities of the participating municipalities<br>• Only 25% of sustainable revenues eligible to service debt costs | • Strong liquidity position with large reserves that allow for flexibility in accessing capital markets<br>• Broad and diversified economy which serves as a major global financial centre<br>• Relatively conservative policy of limiting annual debt service charges to 15% of property tax levy and to 20% of own source revenue<br>• 6th largest government in Canada and 4th largest city in North America | • Exceptional internal liquidity support and strong access to external liquidity for refinancing needs despite high funding owing to capital spending on its infrastructure deficiency<br>• Strong budgetary performance with a proven track record of strong operating surpluses<br>• Modest debt load and a relatively stable interest burden support the existing maturity profile | • Exceptional liquidity that significantly exceeds debt servicing requirements which allows for exceptional debt service coverage<br>• Strong budgetary performance despite some fluctuations due to larger than expected capital requirements<br>• Lower than average tax rates suggest potential tax revenue-raising capacity<br>• Strong growth continues to be the primary driver of the Capital Program for the next 5-10 years with expectations to spend ~C$3.0 billion in 2017 | • Thriving local economy with strong population growth<br>• Strong liquidity facilitating ease of access to capital markets<br>• Debt servicing limits of 10% is well below the 25% provincial limit |
| **Major Revenue Sources** | Client Interest Payments (63%), Investment Income (32%), Financial Service Fees and Premium Amortizations (5%) | Prop. Tax (33%), User Fees (20%), Provincial Transfers (17%), Transit (10%) | Taxes (69%), Services (18%) | Taxes (38%), Transfer Payments (22%), Development Contributions (18%), Fees & Services (16%), Interest & Other Revenues (6%) | Taxes (46.7%), Fees & Services (24.5%), Government Grants (19.6%), Other (9.2%) |
| **Investments** | C$3.4 billion | C$6.6 billion | C$1.9 billion | C$2.3 billion | C$1.6 billion |
| **Est. Population** | n/a | 2.81 million | 1.7 million | 1.1 million | 1.1 million |
| **Other Credit Considerations** | Created by provincial legislation to borrow on behalf of 28 Regional Districts in British Columbia | In 2009, Ontario passed the City of Toronto Act, 2006 (COTA) expanding the City's ability to levy taxes and increase revenues | Largest metropolitan area in Quebec and second largest in the country | 6th largest municipality in Canada and strongly integrated within the broader Greater Toronto Area (GTA) | First Canadian municipality to issue Green Debentures – $102 million 30-years |

## 6. INVESTOR DYNAMICS AND RELATIVE PRICING

Municipal spreads trade off underlying Provincial spreads and typically move in line with the underlying benchmarks. Despite the significant spread volatility seen over the past few years, there has been a marked compression in municipal spreads driven by a number of factors.

Investor demand for municipal paper has been growing steadily as the buyer universe continues to expand and appetite for the product grows. Apart from traditional municipal buyers, there has been increased interest from new types of accounts such as corporate buyers who have expanded their mandates and see attractive relative value dynamics in the municipal sector.

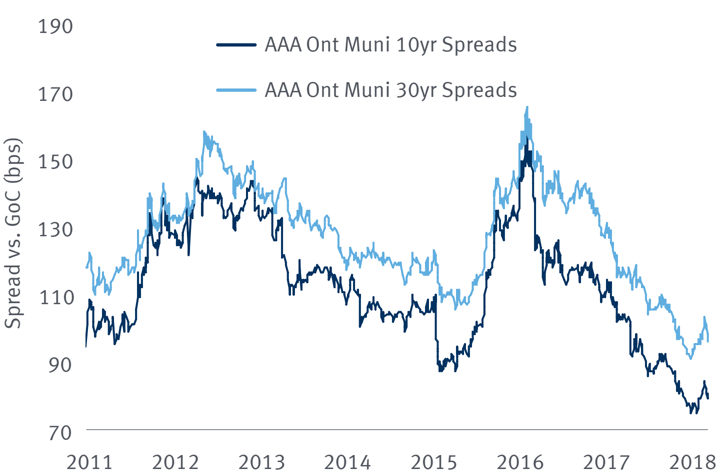
### 6.1 Municipal Buyer Summary

*There is a diverse range of municipal bond buyers in Canada that participate in municipal transactions because it offers term and sector diversification, ratings strength and attractive pricing dynamics.* While most buyers tend to be buy-and-hold investors, a fair portion of accounts trade the bonds to support new issues or to express relative value and curve dynamics.

The most common categories of accounts that participate in municipal transactions:

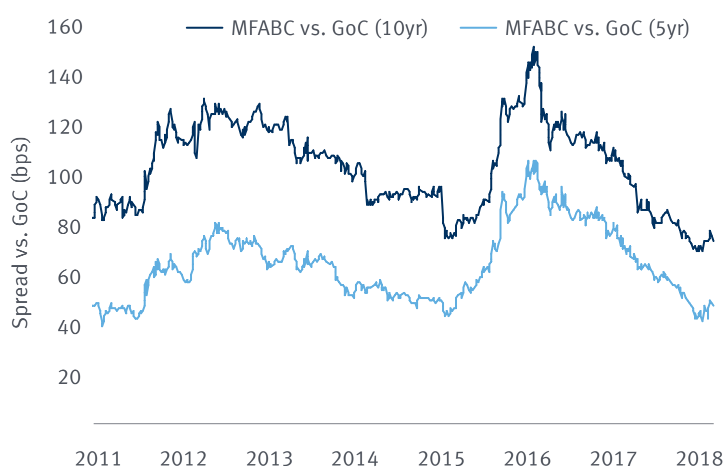
- **Insurance Companies:** Active participants in the municipal space and while some of them prefer the liquidity of bullet issues, others prefer to participate in serial transactions because of the suitability of non-benchmark lines for their actuarial requirements
- **Asset Managers:** Active participants of the sector that express sizable demand for benchmark transactions and tend to participate primarily in bullet issues; these accounts tend to look for relative value across similar products such as provincials, crowns, and even corporates
- **Municipal Sinking Funds:** Since municipalities maintain large sinking and reserve funds against outstanding maturities, they

**FIGURE 6: AAA ONTARIO MUNI SPREADS**




Source: RBC Capital Markets; spread levels as of the end of March 2018

**FIGURE 7: MFABC SPREADS**




Source: RBC Capital Markets; spread levels as of the end of March 2018 actively invest funds and support new issues in the sector by participating in municipal bullet and serial transactions

- **Money Market Funds:** Smaller asset managers that typically participate in the short-end of the curve and will buy serials and bullets
- **Central Banks:** Participate in large benchmark issues of higher rated entities when the issue has at least C$500 million outstanding

Figures 6 through 9 illustrate the absolute movement in spreads across broad-based AAA/AA Ontario municipals as well as other frequent issuers such as MFABC and City of Toronto. A common theme at the end of 2017 was the relative flattening of the credit curve with the 10s-30s spread differential tightening considerably. Also, the relative spread versus Ontario has contracted due to increased investor interest in the municipal sector coupled with lighter supply to start the year.

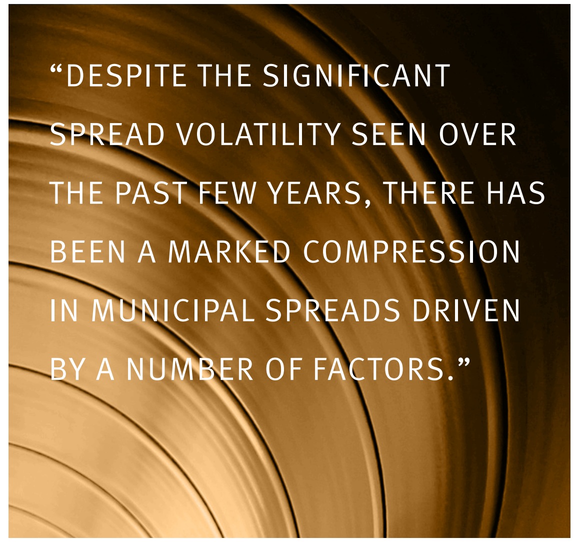
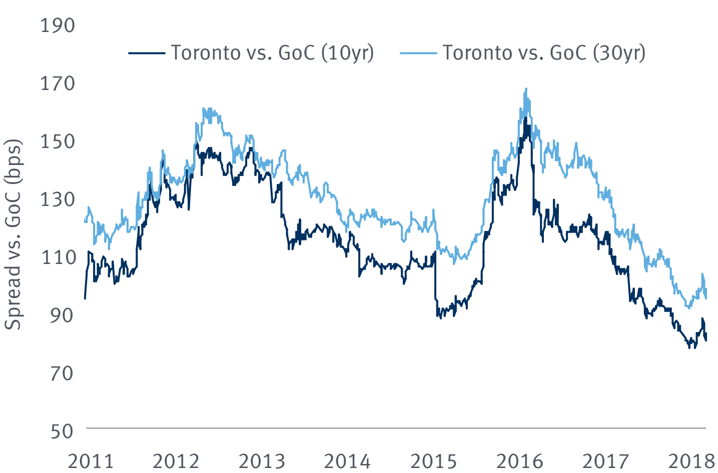
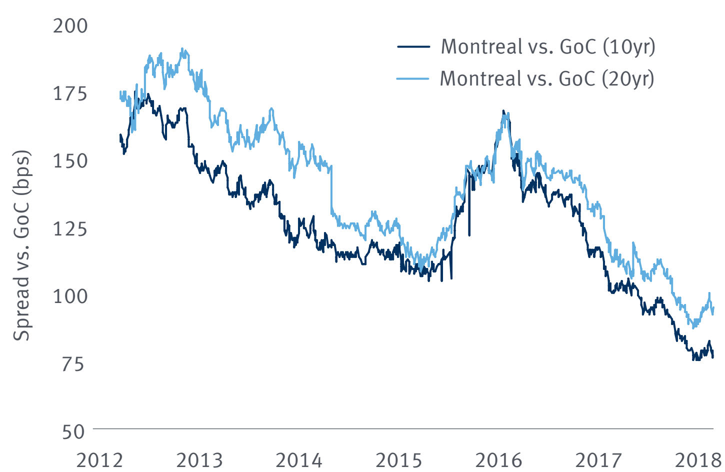



**FIGURE 8: CITY OF TORONTO SPREADS**




Source: RBC Capital Markets; spread levels as of the end of March 2018

**FIGURE 9: MONTREAL SPREADS**




Source: RBC Capital Markets; spread levels as of the end of March 2018

## 6.2 Spread Performance

Municipalities are typically marketed and priced at a spread versus the respective home province. Municipal pricing is a function of both the underlying provincial spreads and the municipal spread versus the province. Recent market moves have seen a rally in both provincial and municipal spreads with bulk of the spread compression taking place in 2017. Municipal spreads saw notable performance last year that drove AA and AAA pricing close to the historic tights that were last seen in late 2014.

Recent spread compression has been driven by a strong bid for credit and investor appetite for yield amidst a curve flattening environment. Municipal 10 and 30-year spreads finished 2017 at materially tighter levels across the curve. Municipal spreads are currently trading slightly wider from where they closed in 2017. Absolute municipal spreads have benefitted from the rally in underlying provincial spreads.

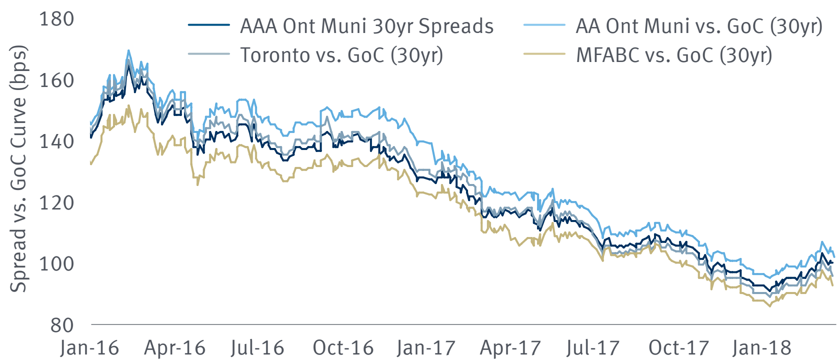
The municipal credit curve has flattened with the 10s-30s curve at ~15 bps. AAA and AA municipal spreads vs. Ontario are close to recent tights. There are a number of factors driving the recent spread tightening including diverse buyer interest, modest supply and sustained demand for higher-rated municipal product. AAA Ontario municipal spreads are currently 2-3 bps inside its AA counterparts in the 10 and 30-year part of the curve.

Although municipal relativities have tightened slightly since the start of this year, absolute spreads are off the tights given provincial spread widening.

**HISTORICAL MUNICIPAL SPREADS VS. GoC**

| | 2018 | 2017 | | | | 2016 | | |
|---|---|---|---|---|---|---|---|---|
| **Spreads vs. GoC** | **Current** | **End** | **High** | **Low** | **Average** | **High** | **Low** | **Average** |
| **10-year** | | | | | | | | |
| AAA Ont Muni | 81 | 78 | 114 | 77 | 94 | 157 | 108 | 124 |
| AA Ont Muni | 84 | 81 | 121 | 80 | 98 | 163 | 118 | 132 |
| MFABC | 74 | 71 | 110 | 70 | 87 | 150 | 104 | 120 |
| Toronto | 83 | 81 | 118 | 80 | 96 | 159 | 112 | 126 |
| **30-year** | | | | | | | | |
| AAA Ont Muni | 96 | 93 | 131 | 93 | 111 | 165 | 127 | 143 |
| AA Ont Muni | 99 | 93 | 140 | 93 | 114 | 170 | 139 | 151 |
| MFABC | 90 | 88 | 126 | 88 | 106 | 152 | 122 | 135 |
| Toronto | 98 | 93 | 133 | 93 | 112 | 167 | 130 | 145 |

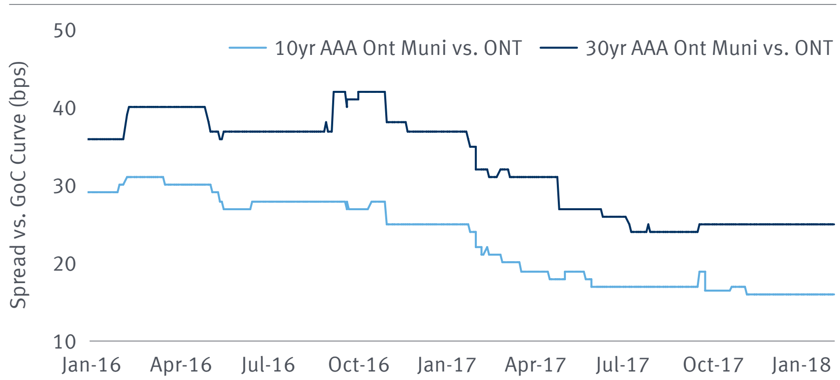
**FIGURE 10: MUNICIPAL SPREAD PERFORMANCE***




**HISTORICAL MUNICIPAL SPREADS VS. PROVINCIAL BENCHMARKS (ONT)**

| | 2018 | 2017 | | | | 2016 | | |
|---|---|---|---|---|---|---|---|---|
| **Relativities** | **Current** | **End** | **High** | **Low** | **Average** | **High** | **Low** | **Average** |
| **10-year** | | | | | | | | |
| AAA Ont Muni | 16 | 16 | 25 | 16 | 18 | 31 | 25 | 28 |
| AA Ont Muni | 19 | 19 | 35 | 19 | 22 | 37 | 35 | 37 |
| MFABC | 9 | 9 | 21 | 8 | 12 | 28 | 21 | 25 |
| Toronto | 17 | 19 | 29 | 19 | 20 | 33 | 28 | 30 |
| **30-year** | | | | | | | | |
| AAA Ont Muni | 21 | 25 | 37 | 24 | 28 | 42 | 36 | 38 |
| AA Ont Muni | 23 | 25 | 49 | 23 | 31 | 50 | 40 | 46 |
| MFABC | 20 | 20 | 32 | 19 | 23 | 34 | 27 | 31 |
| Toronto | 22 | 25 | 39 | 24 | 29 | 47 | 38 | 41 |

**FIGURE 11: MUNICIPAL SPREAD BASIS***




* Source: RBC Capital Markets

## 7. MUNICIPAL GREEN BONDS

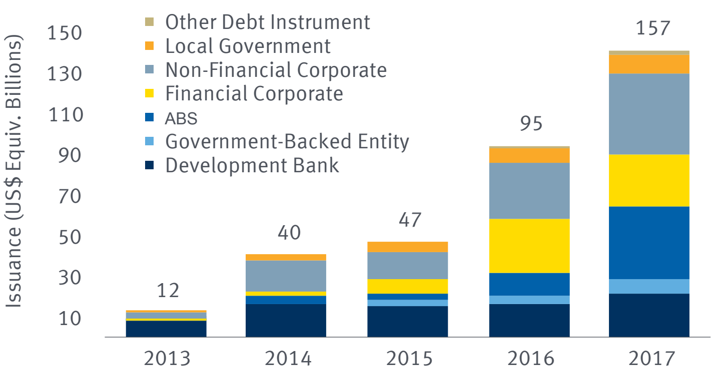
The Green Bond market has seen explosive growth globally over the last 5 years, printing close to US$157 billion in 2017 which was up almost ten-fold from 2013 levels. The provincial / municipal category has been the second highest growth category after corporate with almost US$15 billion issued globally in 2017.

In Canada, we've seen growing interest from issuers to print Green Bonds, fueled by increased appetite from investors who have larger Green mandates and growing funds dedicated towards Green investments. There has been C$6.9 billion of Green issuance in the Canadian market with C$2.2 billion in Q1 2018, surpassing issuance for the full-year 2017

Green Bonds are a natural fit for municipalities given the nature of the capital projects being financed by municipalities. Some of the other benefits for frequent municipal issuers are:

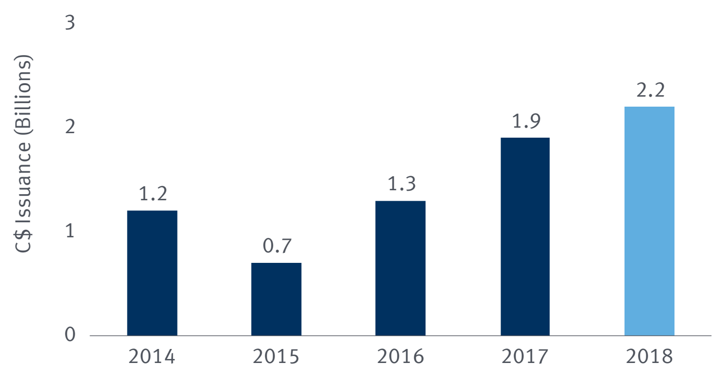
- Opportunity to **access capital** from socially responsible funds
- Accessing the market can improve an issuer's **green image** and provide positive social perception
- Ability to leverage existing offering programs; ensures **efficient and streamlined execution** marginal additional cost requirements

**FIGURE 12: GLOBAL GREEN BOND SUPPLY**




Source: Climate Bond Initiative

**FIGURE 13: CANADIAN GREEN BOND SUPPLY**




Source: RBC Capital Markets

**C$102,000,000**
3.25% Green Bond
due 2047
(-/Aaa/AA)
**Joint Lead**
November 2017

In the municipal space, City of Ottawa printed a C$102 million 30-year Green bond in November 2017, marking the first ever Green Bond to be issued by a Canadian municipality.

- Compressed six week timeline from initiating discussions with Sustainalytics about the Green Bond framework to launching the transaction
- Transaction was launched following a telephonic investor update earlier in the week
- This was the first longer dated Green issue in the Canadian market; funds were used to finance capital works that promote environmentally sustainable development across the City such as the construction of the Ottawa Light Rail Transit
- 25 investors participated in the transaction with strong participation from Asset Managers (59%), Insurance Funds (23%), Government Agencies (11%), and Pension Funds (6%)
- Investors with Green mandates and/or UN PRI signatories represented 96% of overall sales

## 8. MUNICIPAL SECONDARY TRADING VOLUMES

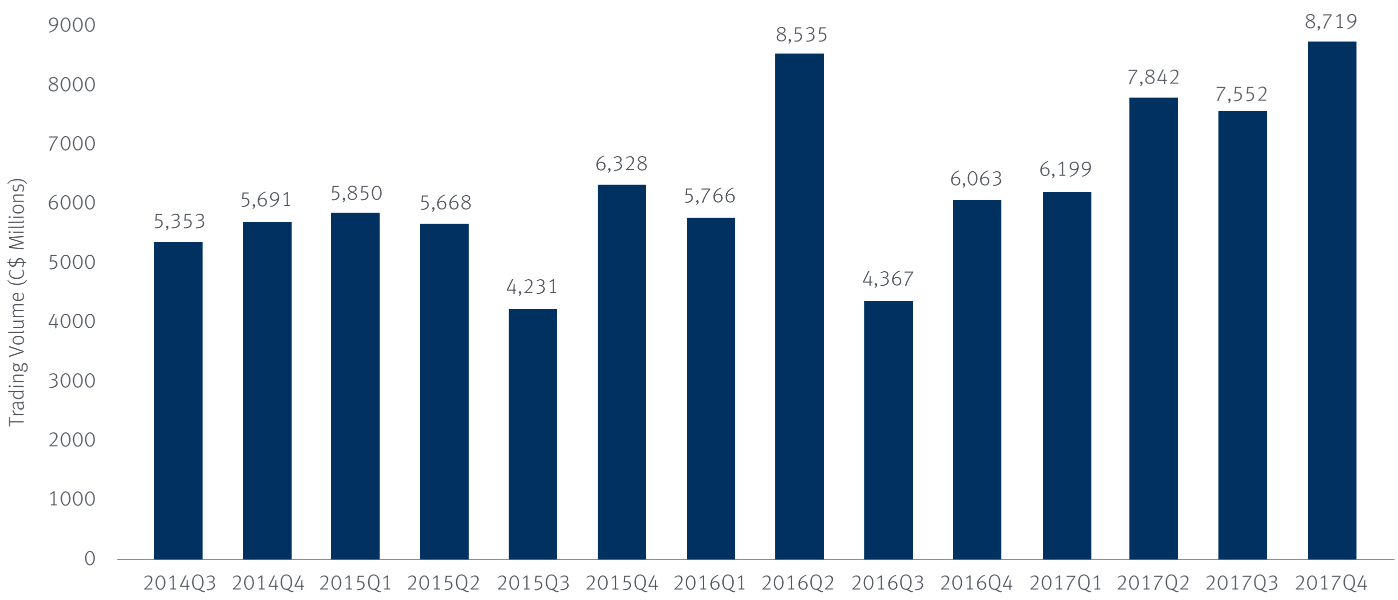
An uptick in municipal borrowing and increased focus from the investor base has spurred the recent growth in secondary trading in the sector. Trading has been consistently growing over the years with ~C$30 billion traded annually.

Since 2014, there has been steady two-way activity across this sector with an average ~C$6-7 billion in quarterly trade. More recently, increased two-way activity in the sector has driven volumes closer to C$8-9 billion a quarter. The majority of this trading (~75%) has been driven by client-related activity as investors add product across the curve while trading in and out of different lines. Trading is typically concentrated around the more liquid names particularly larger bullet maturities.

Given RBC Capital Markets' focus on the sector both domestically and internationally, we have started to see better interest from US and European accounts as investors find value in this sector and receive approval for investing in various credits. In terms of seasonality, trading activity typically picks up around the time of new issues with steady demand for secondary paper in times of reduced municipal issuance and reduced supply from other similar-rated corporate sectors.

The chart below highlights the quarterly trading volumes in the municipal sector based on established secondary trading data providers.

**FIGURE 14: MUNICIPAL SECONDARY TRADING STATS**




Source: Secondary Trading Market Data Provider

# 9. CANADIAN MUNICIPAL LEAGUE TABLES

RBC Capital Markets currently ranks #1 for Canadian municipal bond underwriting in Canada by independent third-party data providers and continues to maintain a leadership presence in the market.

## 9.1 Canadian Market Municipal Issues

**2017 ISSUANCE RANKING****

| | Dealer | Total C$ (mm) | Market Share (%) |
|---|---|---|---|
| **1** | **RBC Capital Markets** | **1,207.4** | **37.4%** |
| 2 | National Bank Financial | 901.0 | 27.9% |
| 3 | CIBC World Markets | 676.9 | 20.9% |
| 4 | TD Securities | 251.0 | 7.8% |
| 5 | Scotiabank | 195.0 | 6.0% |
| | **Grand Total:** | **3,231** | **100%** |

**Excludes Quebec Municipalities

## 9.2 Recent RBC Capital Markets-Led Transactions

MFABC Municipal Finance Authority of BC
**C$500,000,000**
2.15% due 2022
(Aaa/AAA)
**Lead**
November 2017

Region of Waterloo
**C$39,000,000**
Serial Offering
due Nov 2018-2037
(Aaa)
**Lead**
November 2017

Ottawa
**C$102,000,000**
3.25% Green Bond
due 2047
(Aaa/AA)
**Joint Lead**
November 2017

First Nations Finance Authority
**C$126,000,000**
3.05% due 2028
(A2/A-)
**Co-Manager**
October 2017

City of Vancouver
**C$85,000,000**
2.85% due 2027
(Aaa/AAA)
**Joint Lead**
October 2017

York Region
**C$150,000,000**
2.350% due 2027
(Aaa/AA+)
**Lead**
September 2017

Region of Peel
**C$38,853,000**
Serial Offering
Due Sep 2018-2027
(-/Aaa/AAA)
**Lead**
September 2017

Niagara Region
**C$79,852,000**
Serial Offering
due Jul 2018-2042
(AA)
**Lead**
June 2017

Toronto
**C$300,000,000**
3.250% due 2046
(AA/Aa1/AA)
**Lead**
March 2017

London Canada
**C$41,000,000**
Serial Offering
Mar 2018-2027
(Aaa)
**Lead**
February 2017

## 10. CONCLUSION

The municipal market forms a core part of the Canadian fixed income landscape and is one that offers investors diversification opportunities and compelling relative value. The market continues to build momentum as public and private sectors look to unlock capital flows into projects that constitute capital investments for municipalities.

RBC Capital Markets remains committed to support further issuance in the Canadian municipal sector to address the financing needs of existing and new municipal issuers. RBC has been at the forefront of the municipal market for many years and remains deeply involved in bringing new issues to market and providing liquidity in secondary markets. We have an experienced team of professionals in origination and trading dedicated to the municipal sector.

RBC achieved a 37% market share in municipal new issues (ex. Quebec municipalities) in 2017 and remains a trusted dealer for bringing municipal issues to the Canadian market. RBC is active in the secondary market and has remained a Top 3 counterparty for trading municipal credit.

Given the breadth of the RBC Capital Markets platform, our deep trading expertise, our senior position in most municipal syndicates and established relationships with fixed income investors, we are well-positioned to continue to be a market leader in the Canadian municipal space.

"RBC CAPITAL MARKETS REMAINS COMMITTED TO SUPPORT FURTHER ISSUANCE IN THE CANADIAN MUNICIPAL SECTOR TO ADDRESS THE FINANCING NEEDS OF EXISTING AND NEW MUNICIPAL ISSUERS."

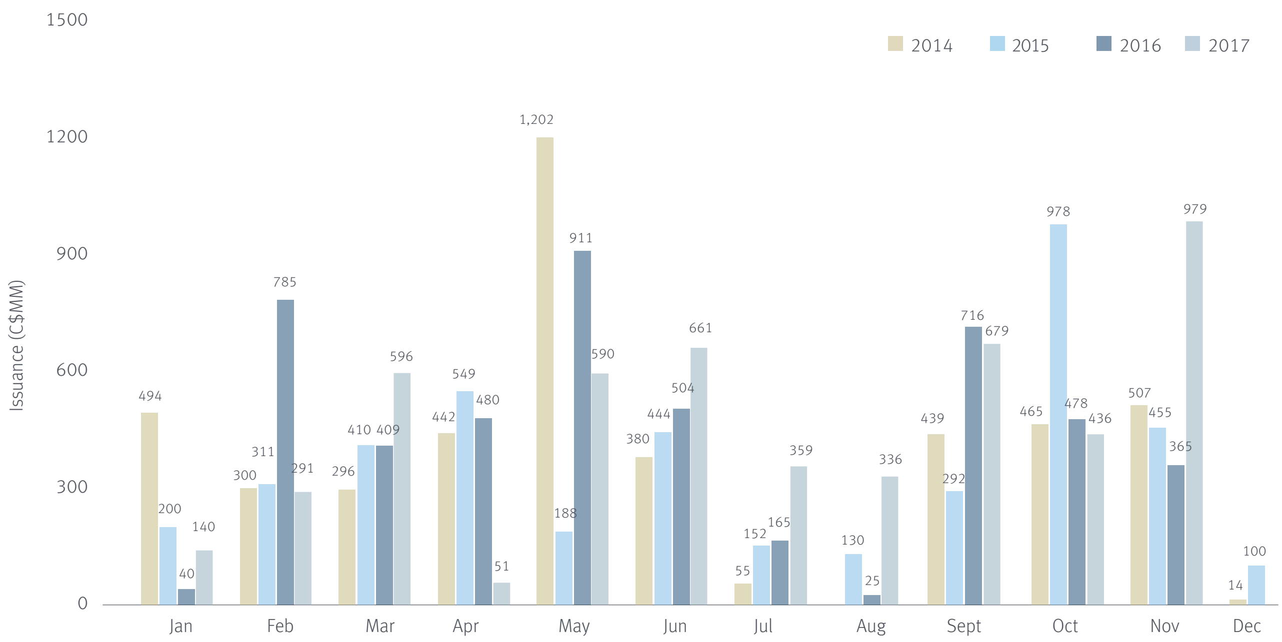
# 11. APPENDIX – ADDITIONAL MATERIAL

## 11.1 Seasonality and Issuance Trends

Municipal issuance tends to be seasonal in nature with issuance activity centred around the Spring and Fall timeframe. On average, over the last 3 years, Q2 has seen the most issuance with average supply of ~C$500 million over the quarter in the last few years.

May and June have consistently been active months with ~C$550 million in average issuance over the last four years. September and October have also been busy periods with C$1.1 billion in average issuance volumes over these two months since 2014.

**FIGURE 15: HISTORICAL MONTHLY ISSUANCE TRENDS**



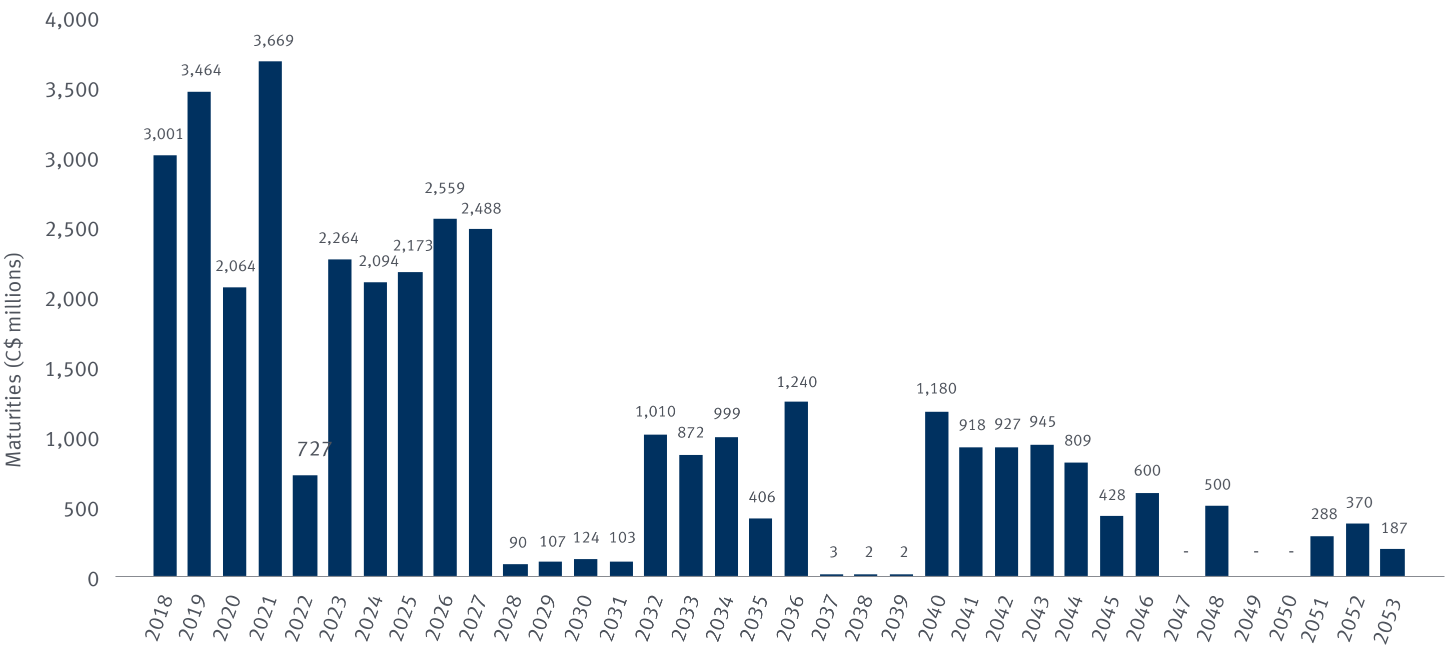

Source: RBC Capital Markets; excludes non-rated Quebec municipalities

## 11.2 Maturity Profile

The Canadian municipal sector currently accounts for ~C$37 billion in outstanding debentures. The bulk of the outstanding municipal debt (~C$26 billion or 70%) is expected to come due within the next 10 years. Maturities in this sector currently go as far as 2053 with ~C$4.1 billion expected to mature between 2032 and 2036 and C$5.6 billion coming due after 2040. The majority of outstanding debt tends to have a fixed interest rate. Serial issuance makes up less than 10% of this maturity profile with ~C$3.5 billion currently outstanding. Of the serial maturities, ~C$1.8 billion (53%) is expected to mature within the next 10 years.

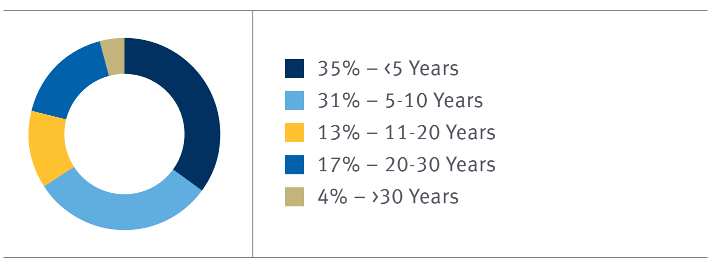
Municipal issuance is primarily driven by new capital needs rather than refinancing of existing debt. Most municipal debt is paid down

**FIGURE 16: MUNICIPAL DEBT OUTSTANDING MATURITY PROFILE**




Source: RBC Capital Markets, Bloomberg; excludes non-rated Quebec municipalities

**FIGURE 17: MUNICIPAL DEBT OUTSTANDING COMPOSITION BY TERM**




Source: RBC Capital Markets, Bloomberg; excludes non-rated Quebec municipalities at maturity through the use of sinking funds or through the use of amortizing structures such as serial debentures. The existence of longer-dated maturities is reflective of a preference for longer terms to fund infrastructure assets with long useful lives as well as continued investor demand for duration in the municipal sector.

### 11.3 Ratings Summary

Canadian municipalities are highly-rated government entities that have benefitted from superior credit quality, underpinned by a strong economic profile, diversification of revenue sources, relative wealth of their respective economies, high functioning and productive labour forces and balanced socioeconomic and demographic profiles. Given the healthy credit profiles, most issuing entities as seen below have received the equivalent of A to AAA ratings from the respective rating agencies. The rating agencies have adopted strict methodologies to evaluate the municipalities and have measured them on both quantitative and qualitative factors. Some of the more notable ratings categories

**MUNICIPALITIES RATINGS SUMMARY**

| # | Issuer | Province | Debt O/S (C$MM) | DBRS | Outlook | Moody's | Outlook | S&P | Outlook | Fitch |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | ACFA | AB | 1,030 | AA | Negative | Aa1 | Negative | A+ | - | - |
| 2. | City of Guelph | ON | 200 | - | - | - | - | AA+ | Stable | - |
| 3. | City of London | ON | 272 | - | - | Aaa | Stable | - | - | - |
| 4. | City of Montreal | PQ | 7,838 | AH | Stable | Aa2 | Stable | AA- | Stable | - |
| 5. | City of Ottawa | ON | 2,003 | - | - | Aaa | Stable | AA | Stable | - |
| 6. | City of Regina | SK | 117 | - | - | - | - | AA+ | Stable | - |
| 7. | City of Saskatoon | SK | 97 | - | - | - | - | AAA | - | - |
| 8. | City of St. John's | NF | 341 | - | - | Aa3 | Negative | A+ | Stable | - |
| 9. | City of Toronto | ON | 6,386 | AA | Stable | Aa1 | Stable | AA | Stable | - |
| 10. | City of Vancouver | BC | 990 | - | - | Aaa | Stable | AAA | Stable | - |
| 11. | City of Winnipeg | MB | 837 | - | - | Aa2 | Stable | AA | Stable | - |
| 12. | County of Wellington | ON | 54 | - | - | - | - | AA+ | Stable | - |
| 13. | First Nations Finance Authority | BC | 377 | - | - | A2 | Stable | A- | Stable | - |
| 14. | Municipal Finance Authority of BC | BC | 8,155 | - | - | Aaa | Stable | AAA | Stable | AAA |
| 15. | NBMFC | NB | 446 | AH | Negative | Aa2 | Stable | A+ | - | - |
| 16. | NSMFC | NS | 65 | AH | Stable | - | - | - | - | - |
| 17. | Region of Durham | ON | 240 | - | - | Aaa | Stable | AAA | Stable | - |
| 18. | Region of Halton | ON | 569 | - | - | Aaa | Stable | AAA | Stable | - |
| 19. | Region of Niagara | ON | 399 | - | - | - | - | AA | Stable | - |
| 20. | Region of Peel | ON | 1,653 | - | - | Aaa | Stable | AAA | Stable | - |
| 21. | Region of Waterloo | ON | 753 | - | - | Aaa | Stable | - | - | - |
| 22. | Region of York | ON | 3,416 | - | - | Aaa | Stable | AA+ | Stable | - |
| 23. | Translink | BC | 1,530 | AA | Stable | Aa2 | Stable | - | - | - |
| 24. | Quebec City | PQ | 1,679 | - | - | Aa2 | Stable | - | - | - |

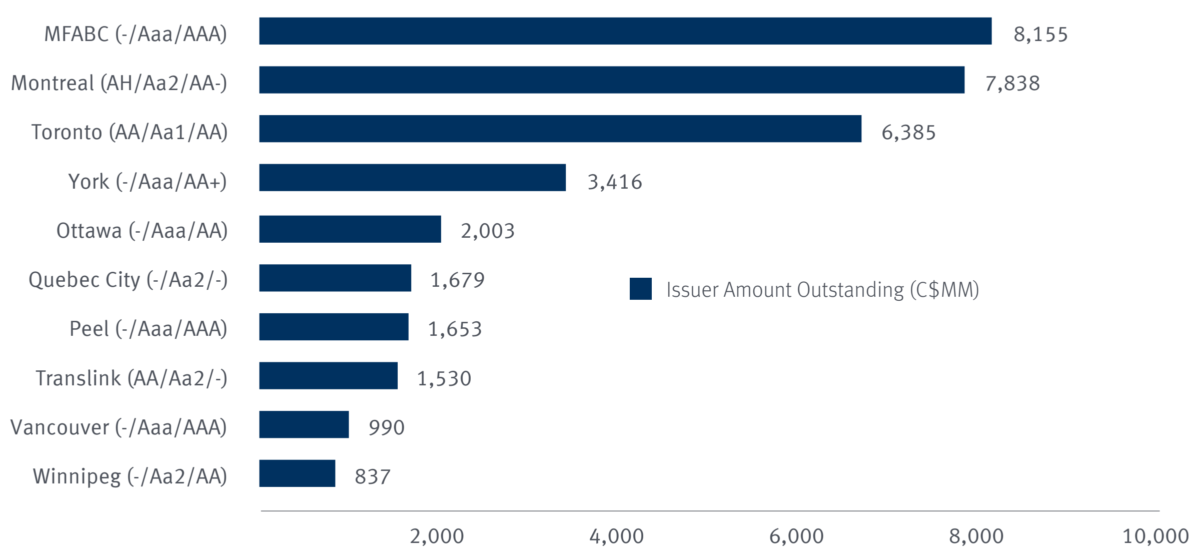
Source: RBC Capital Markets, Bloomberg; as of the end of March 2018 include economic structure, financial management, debt and liquidity, risk metrics and budgetary performance.

### 11.4 Debt Outstanding

From a financial management perspective, key factors include long-term fiscal sustainability, risk controls, tax competitiveness and revenue and expenditure management. Municipalities are also evaluated based on their reporting transparency and financial disclosure. With regards to debt management, focus remains on the municipality's debt burden and capital needs, liquidity management, internal cash flow generation, pension liabilities and access to capital markets.

Rating agencies evaluate the municipal sector based on a number of risk metrics. These metrics evaluate the issuer's revenue and expense management, capex plans, free cash flow generation, operating margin and debt loads. See chart below that lists the larger issuers by outstanding levels of public debt.

**FIGURE 18: LARGEST MUNICIPAL PUBLIC DEBT OUTSTANDING**



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