



Closed-End Fund Leverage and Implications of Rising Rates

Moderator:

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Panelists:

- Brian Knudsen, Fitch Ratings
- Curtis Holloway, Calamos
- Andrew Hanson, Morgan Stanley
- Steve Nelli, Wells Fargo

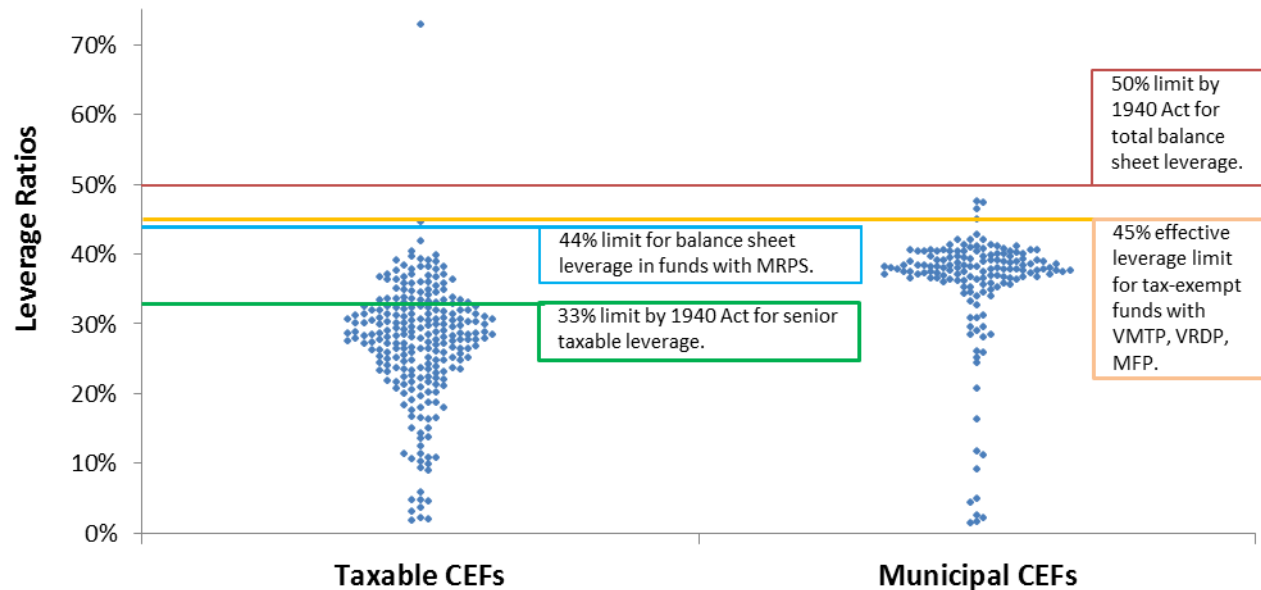
FitchRatings

 **17th Annual Capital Link
Closed-End Funds and
Global ETFs Forum**
Thursday, May 17, 2018
The Metropolitan Club, One East 60th St., New York City

Closed-End Fund Leverage Ratios



- Leverage ratios limited by regulation, ratings, and risk management
- Municipal funds in high 30s
- Taxable funds range by sector, cluster around 30%
- Ratios greater than regulatory limit use non-traditional funding



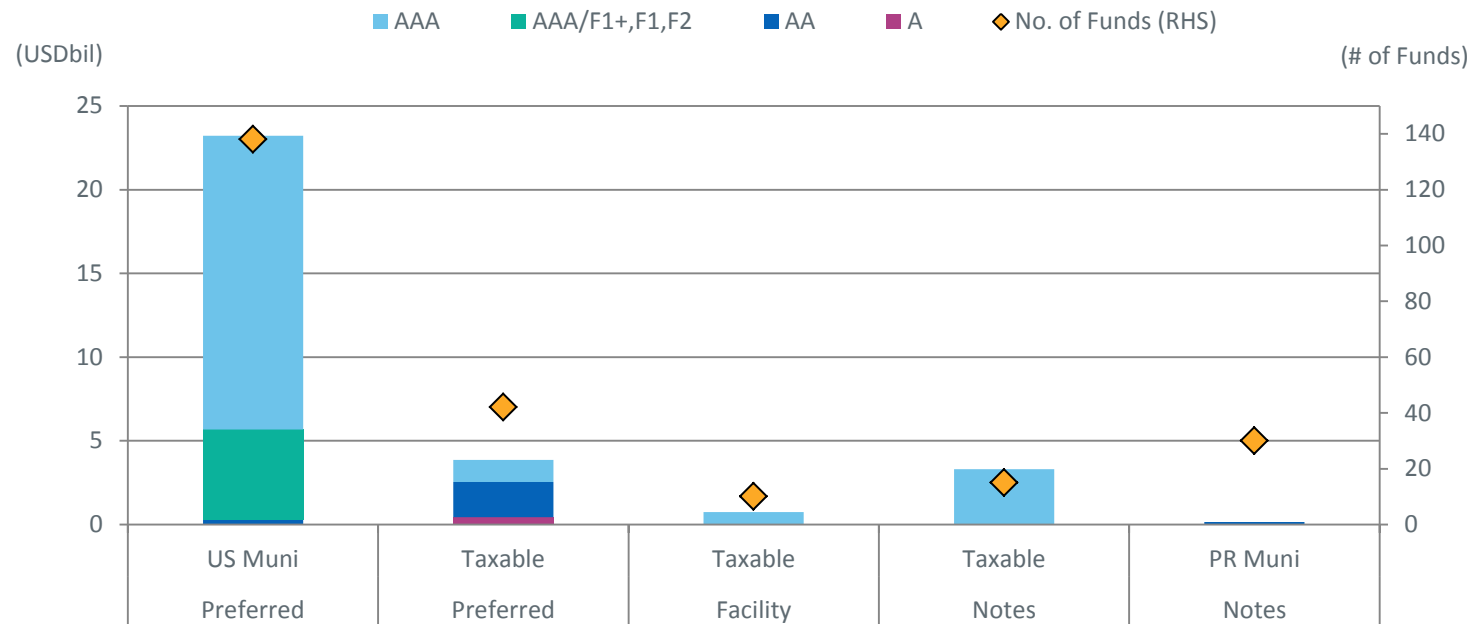
Source: Fitch, public financial statements. Data covers 399 U.S. leveraged CEFs with data as of 12/31/2017 or latest available. Graph illustrates regulatory and security leverage limits. Bank counterparties institute additional leverage limits, and funds with Fitch-rated securities incorporate limits in line with rating levels based on their asset/leverage profiles.

Fitch U.S. Closed-End Fund Ratings



- US Taxable: \$7.9 billion of debt/preferred across 52 funds
- US Municipal: \$23.2 billion of preferred across 138 funds
- PR Municipal: note facilities across 30 funds

Fitch-Rated Leverage by Rating Level

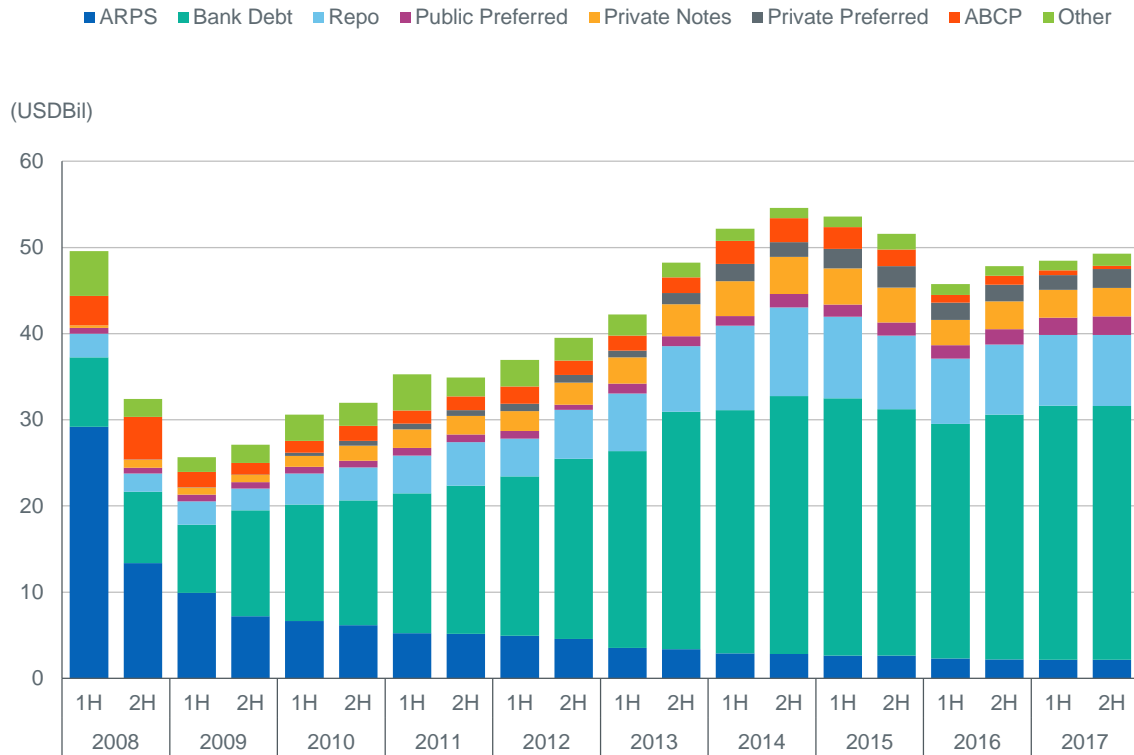


Source: Fitch. Data as of 4/30/2018

Taxable CEF Leverage Profile



Leverage Used in Taxable CEFs



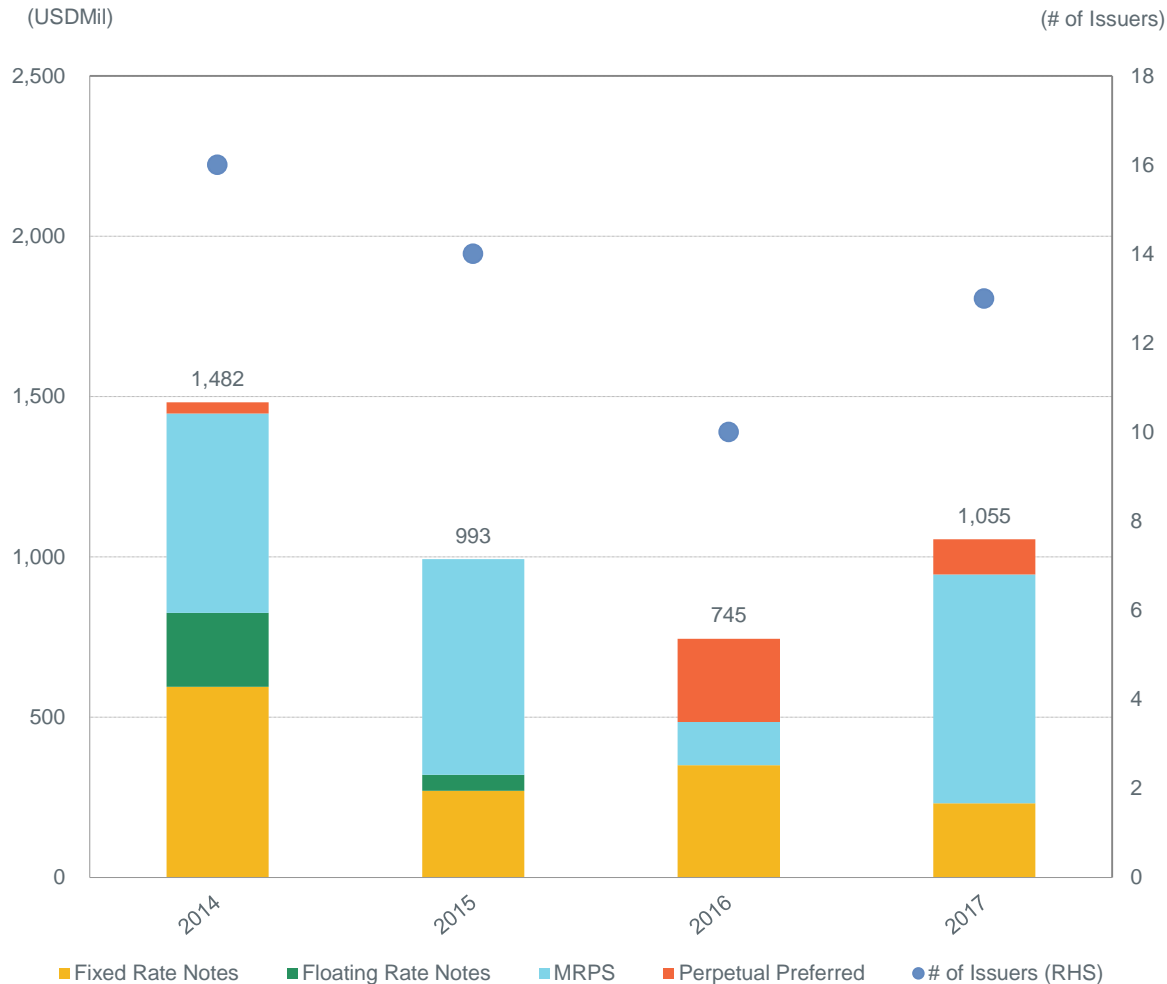
- Total leverage up \$1.4bil (3%) from 2H2016 led by loan and preferred funds
- Leverage increases driven by bank debt utilization (up \$1.1bil) and private preferred issuance (up \$605mil)
- ABCP and preferred shares placed with ABCP conduits continue to decline
- 2H2017 Totals: Bank Debt \$29.5bil, Repo \$8.2bil, Priv. Notes \$3.3bil, Priv. Pfd. \$2.2bil, Public Pfd. \$2.2bil, ARPS \$2.1bil, ABCP \$0.4bil, Other \$1.1bil

Source: Fitch, SEC Filings, press releases.
Data in billions, as of 12/31/2017 or latest available, covers \$49.3 billion in outstanding leverage across 261 U.S. closed-end funds.

Taxable CEFs – Notes and Preferred Issuance



Taxable CEF Issuance by Year: 2014 - 2017



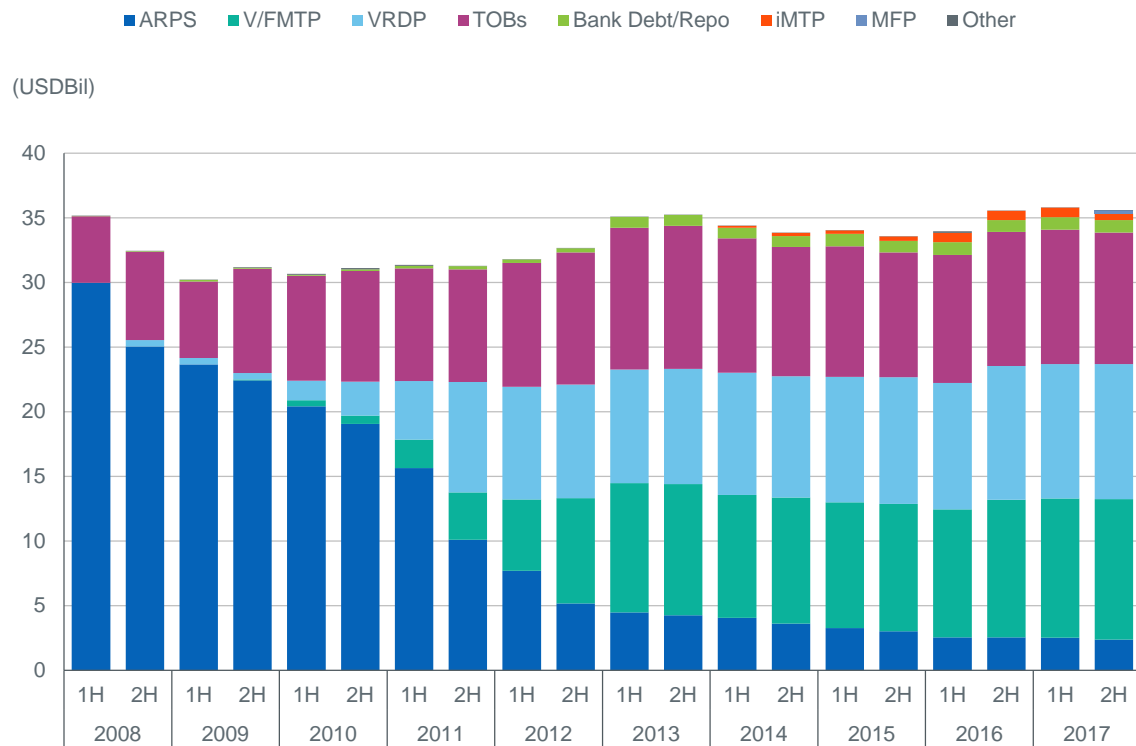
- Last year saw significant private MRPS activity from 8 issuers – accounting for 68% of 2017 volume
- Activity has been driven by the entrance of new funds as well as refinancings
- MRPS provide the following benefits to closed end fund issuers:
 - Increased cushion to '40 Act leverage limits
 - Diversify sources of leverage
 - Reduce renewal and interest rate risk relative to short-term funding options

Source: Morgan Stanley Database / Public Financial Statements

Municipal CEF Leverage Profile



Leverage Utilization in Municipal CEFs



- Leverage roughly flat since 2H2016

- Increases in MFP Shares (up \$248mil) and V/FMTP (up \$209mil) offset decreases in iMTPs (down \$229mil) and TOBs (down \$179mil)

- VRDP, VMTP, and TOBs continue to be primary sources of leverage, but MFPs gaining traction

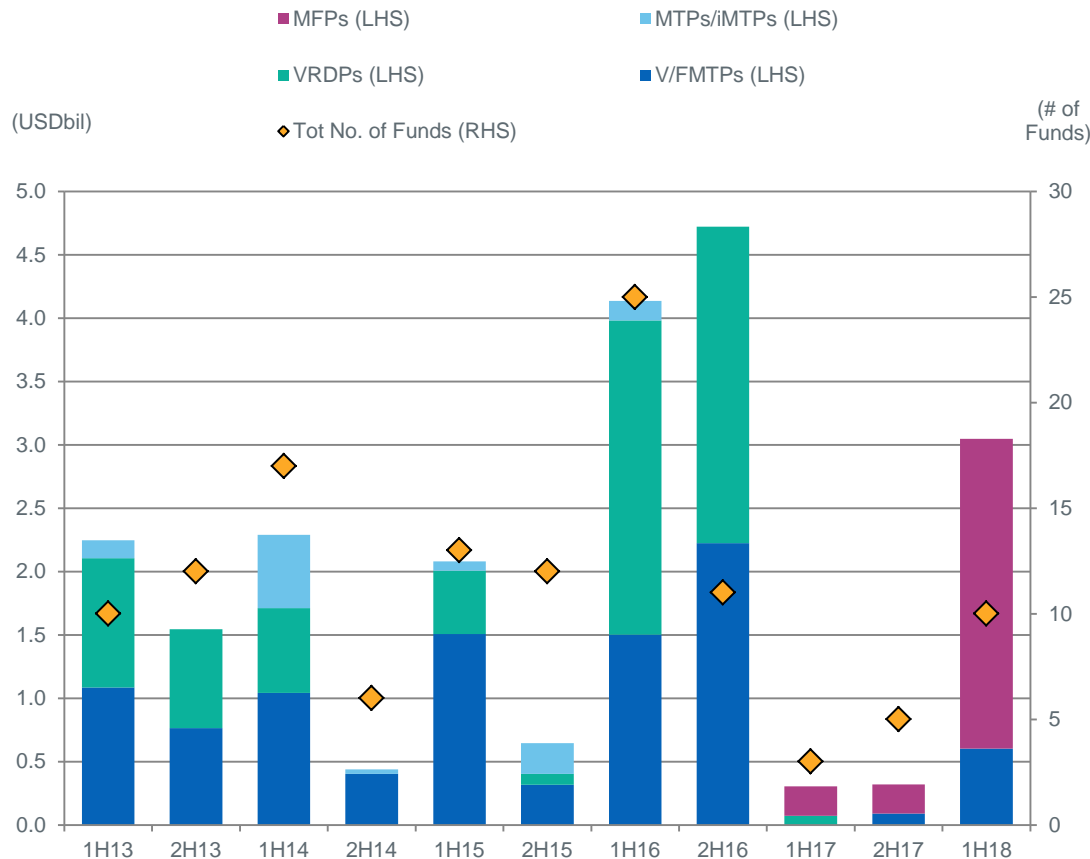
- 2H2017 Totals: V/FMTP \$10.9bil, VRDP \$10.4bil, TOBs \$10.2bil, ARPS \$2.4bil, Bank Debt/Repo \$1.0bil, iMTP \$0.5bil, MFP \$0.2bil

Source: Fitch, public financial statements, and press releases.
Data in billions as of 12/31/2017, covers \$35.6 billion in outstanding leverage across 159 U.S. closed-end funds.

Municipal CEF Leverage Issuance



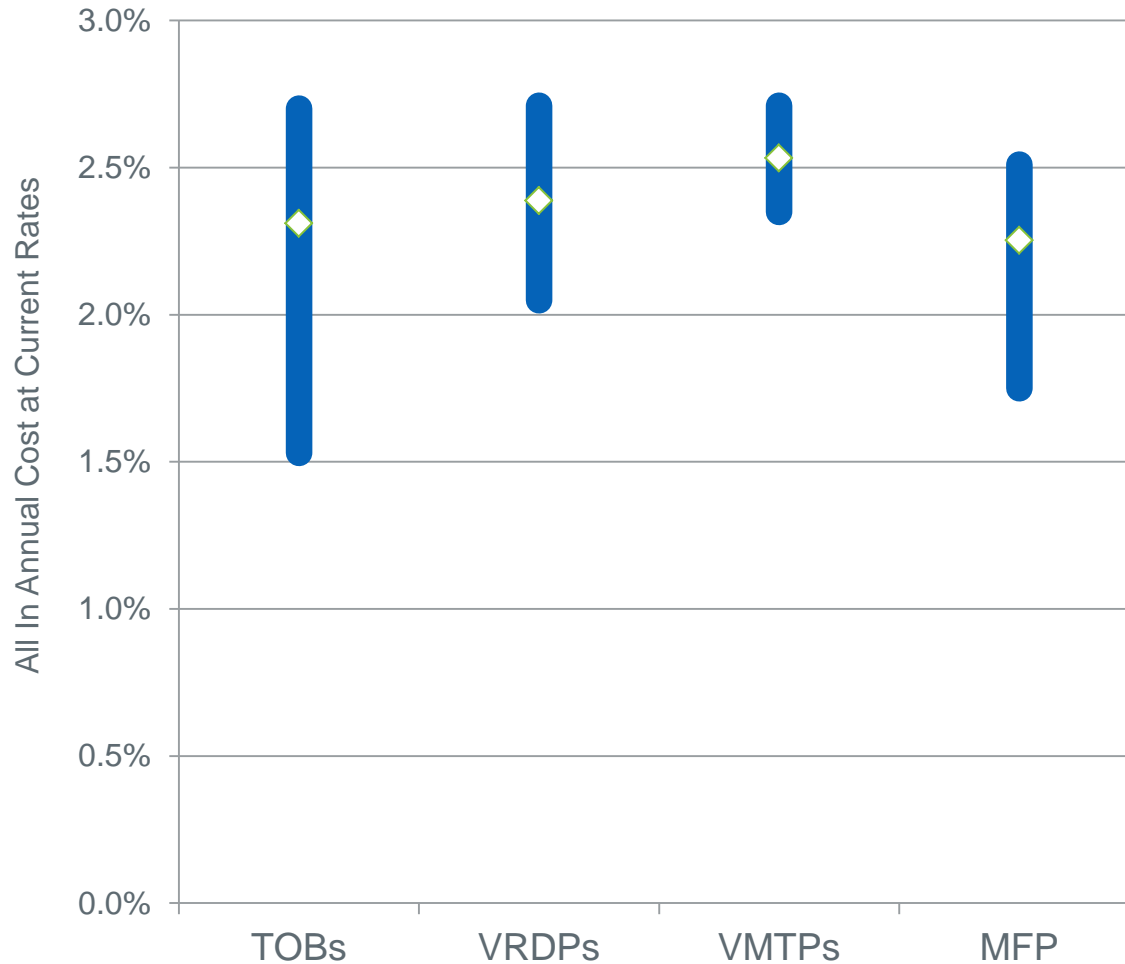
Municipal CEF Leverage Issuance



- Significant issuance volume YTD 2018 vs. subdued 2017
- Refinancing of existing preferred shares into V/FMTP and MFP Shares has accounted for the majority of issuance
- Direct placements with banks (VRM-MFPs, V/FMTPs, Term VRDPs) have increased as municipal MMF assets have declined following MMF reform

Source: Fitch, public financial statements. Data as of 4/30/2018. Reflects the issuance of new non-ARPS preferred shares. Data may overstate new issuance in cases of fund mergers where transfer of the acquired fund's preferred shares were done in-kind.

Municipal CEFs – Current Leverage Costs

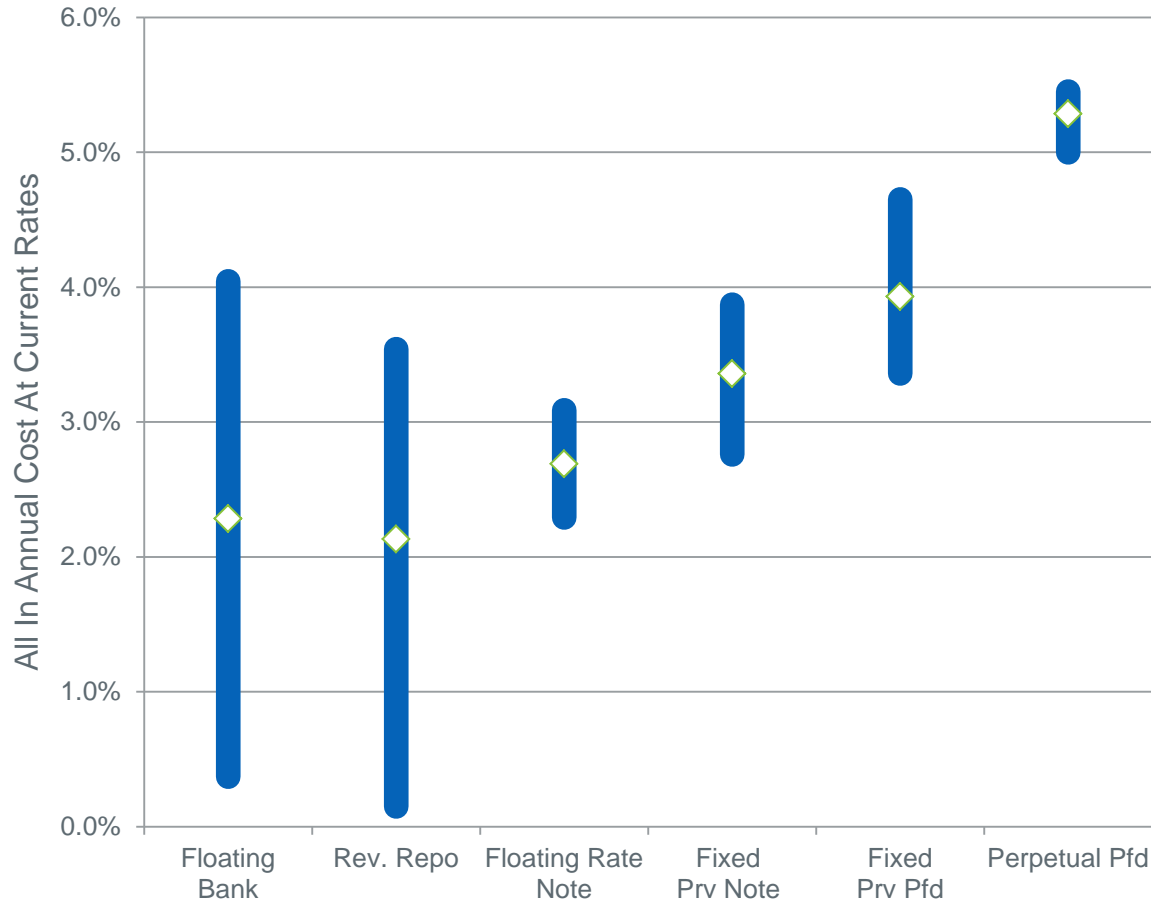


Costs vary by:

- Term of the issuance;
- Manager track record;
- Portfolio sector and quality;
- Prevalent interest rates;
- Market timing.

Source: Fitch, public financial statements. Figures represent typical issuances from Jan 2016 – Apr 2018. All costs above are floating rate and constitute the sum of the referenced index + spread. These are subject to fluctuate in line with movements in the index rate.

Taxable CEFs – Current Leverage Costs



Costs vary by:

- Term of the issuance;
- Manager track record;
- Portfolio sector and quality;
- Secured/unsecured status;
- Seniority in capital structure;
- Prevalent interest rates;
- Collateral type;
- Currency of borrowings;
- Market timing.

Source: Fitch, public financial statements. Figures represent typical issuances from Jan 2016 – Apr 2018. Floating rate instruments sum up the all-in cost of the referenced index + spread. These are subject to fluctuation in line with movements in the index rate, unlike fixed rate issuances.

“LIBOR’s Rise Accelerates, Squeezing Short-Term Borrowers”

-Wall Street Journal (March 27, 2018)



Companies Paying the Most in a Decade for Short-Term Borrowing

2007 - 2018

Yield (%)



Source: Morgan Stanley

- 3-month LIBOR rates have increased by 137 bps since Jan. 1, 2017 and 67 bps 2018 year-to-date
- Long-term rates have not risen as quickly as LIBOR (5 year UST rates up 84 bps since Jan. 1, 2017) resulting in a flattening yield curve

Key drivers

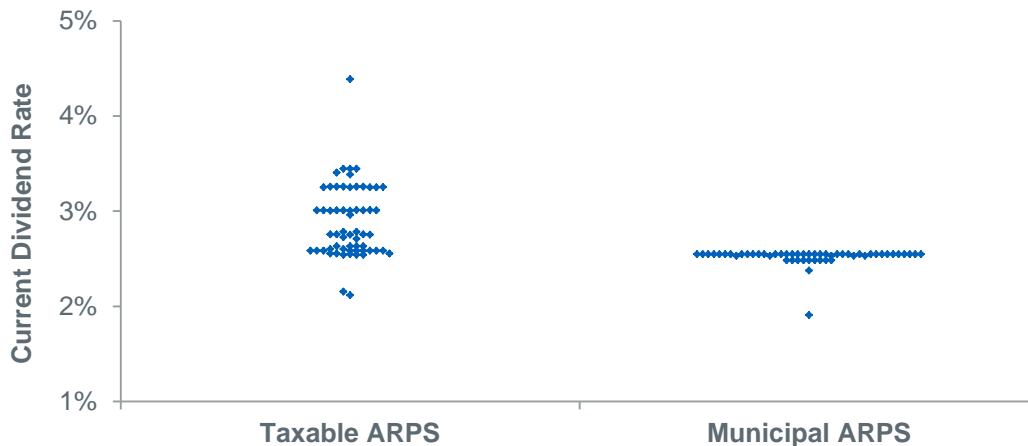
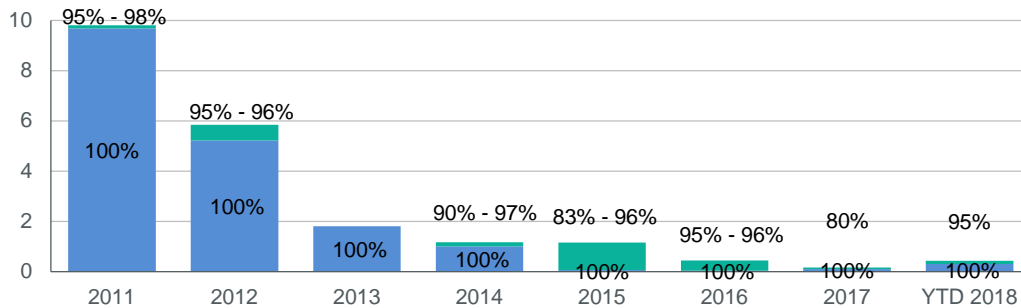
- Federal Reserve rate hikes increase the effective floor in rates
- Rising inflation & expectations
- Foreign bank funding in Q1 and significantly higher T-Bill issuance by the U.S. Government
- Combination of falling demand (U.S. tax law changes) and increasing supply of funds puts upward pressure



ARPS Tenders and Redemptions

■ Par ■ Discount

\$ Bil. Redeemed



Source: Fitch, Bloomberg, public financial statements. Data as of 5/11/2018.

- Roughly \$4.2 billion of ARPS remain outstanding across 11 managers as of April 2018
- ARPS redemptions often driven by activism in past years but recently driven by economics
- YTD2018 redemptions over double the amount redeemed in all of 2017
- ARPS maximum rates have become less competitive vs. alternatives as underlying reference rates have risen

CEF Bank Financing



Bank Counterparties	Direct Facility / Loan / Margin (USDMil)	Number of Funds	ABCP Conduit (USDMil)	Number of Funds	Reverse Repos (USDMil)	Number of Funds	Total (USDMil)	%	Change from April 2017
BNP Paribas	8,194	44	0	0	1,092	22	9,286	24%	-860
State Street	9,018	52	0	0	0	0	9,018	23%	2,187
Bank of Nova Scotia	6,013	49	0	0	0	0	6,013	15%	-60
Bank of New York	1,530	10	0	0	865	7	2,396	6%	-231
Societe Generale	1,023	6	0	0	898	16	1,922	5%	193
Royal Bank of Canada	0	0	0	0	1,401	20	1,401	4%	-293
Barclays	0	0	0	0	952	19	952	2%	114
All Other Counterparties	1,892	24	293	2	3,744	96	5,929	15%	-524
Not Disclosed	1,929	13	83	1	0	0	2,012	5%	523
Total	29,600	188	376	3	8,952	40	38,928	100%	1,050

Source: Fitch, public financial statements, bank data. Figures based on actual amounts funded (not commitment) for public U.S. 1940 Act CEFs, excluding continuously-offered. Counterparty figures may be overstated in cases of lending syndicates where financial statement notes only disclose the lead. Changes from prior periods may be over/understated where funds do not disclose the counterparty publicly but the counterparty discloses the lending relationship to Fitch as of a certain date.

Municipal CEF Performance



IG Muni CEFs



Since 1/1/17:

- Leverage up 0.6%
- NAVs down 1.1%
- Discounts widened 4.6%

HY Muni CEFs



Since 1/1/17:

- Leverage up 0.3%
- NAVs up 0.3%
- Discounts widened 2.3%

Source: Fitch, Bloomberg, public financial statements. Data represent sector average. Leverage ratios were calculated using the most recent figures available at Apr-2018.

Taxable CEF Performance



General Equity CEFs



Since 1/1/17:

- Leverage down 1.3%
- NAVs down 0.1%
- Discounts narrowed 3.1%

MLP CEFs



Since 1/1/17:

- Leverage up 3.6%
- NAVs down 19.3%
- Discounts narrowed 6.1%

Source: Fitch, Bloomberg, public financial statements. Data represent sector average. Leverage ratios were calculated using the most recent figures available at Apr-2018.

Taxable CEF Performance (continued)



HY Corp Bond CEFs



Since 1/1/17:

- Leverage up 0.2%
- NAVs down 4.4%
- Discounts widened 1.2%

Senior Loan CEF



Since 1/1/17:

- Leverage up 0.4%
- NAVs down 1.7%
- Discounts widened 1.3%

Source: Fitch, Bloomberg, public financial statements. Data represent sector average. Leverage ratios were calculated using the most recent figures available at Apr-2018.

Leverage Types Utilized by Municipal CEFs



Leverage Type	1940 Act Asset Coverage Requirement (%)	Traditional Purchasers/ Providers	Fixed/ Floating Rate	Interest Rate Mechanism	Typical Term (Years)	No. of Funds Utilizing 2H17	Amount Outstanding 2H17 (USDBil)	Other Ongoing Costs	Early Redemption/ Termination Features	Description
Variable-Rate Demand Preferred (VRDP)	200	Municipal Money Market Funds, Banks	Floating	Remarketed Usually Weekly, Generally Prices in Line with SIFMA	20.0-40.0	41	10.4	Liquidity Facility Backstop, Remarketing Fees	Optional Redemption Possible with Redemption Premium	VRDPs typically have a seven-day put option that allows the holder to put the shares back to the remarketing agent at par. These shares have a liquidity facility to act as a backstop if no natural buyers of the shares are available. Funds may place these directly with a bank for a specified term and interest rate, at which point, the shares are known as Term-VRDP shares.
Variable-Rate MuniFund Term Preferred (VMTP)	200	Banks	Floating	SIFMA + Spread	3.0-5.0	68	10.9	None	Optional Redemption Possible with Redemption Premium	VMTPs are placed directly on a bank's balance sheet, usually with one bank buying the entire issuance from a fund. These are traditionally purchased as buy and hold investments.
Variable Rate Remarketed Mode MuniFund Preferred (VRRM-MFP)	200	Short-Term Municipal Bond Funds	Floating	Remarketed, Generally Prices in Line with SIFMA	30.0, ability to switch modes prior to maturity	1	0.1	Remarketing Fees	Optional Redemption Possible with Redemption Premium	VRRM-MFP shares are similar to VRDP shares but do not feature a liquidity facility backstop in the case of a failed remarketing. Upon a failed remarketing the dividends will be payable at a step-up dividend rate. If the failed remarketing period continues for 365 days the fund is forced to redeem the shares. The fund has the option to designate a different mode for the MFP shares prior to maturity which would trigger a mandatory tender and remarketing under the new mode.
Variable Rate Mode MuniFund Preferred (VRM-MFP)	200	Institutional Investors, Banks	Floating	SIFMA + Spread	Mode often designated for 1.0 year, 30.0 year final maturity	2	0.2	None	Optional Redemption Possible with Redemption Premium	VRM-MFP shares are similar to VMTP shares and are when a fund places MFP shares with an institutional investor, often banks, for a set period of time at a set spread to a reference rate, generally SIFMA. Upon the conclusion of the mode the fund may look to extend the VRM or designate a new mode which would trigger a mandatory tender and remarketing under the new mode.
Institutional MuniFund Term Preferred Share (iMTP)	200	Tax-Exempt Bond Funds	Floating	SIFMA + Spread	3.0-5.0	18	0.5	None	Optional Redemption Possible with Redemption Premium	iMTPs are 144A registered and typically purchased by bond funds, hence, they may be traded on the secondary market by QIBs.
Tender Option Bonds (TOBs)	N.A.	Municipal Money Market Funds	Floating	Remarketed, Generally Prices in Line with SIFMA	Limited by term of the bond in the trust	128	10.2	Liquidity Facility Fees, Remarketing Fees, Administrative/ Trustee Expenses	Termination Possible by Collapsing the TOB Trust	TOBs are a type of leverage where a municipal bond is placed into a trust and two classes of securities are issued from the trust, floaters and inverse floaters. Tax-exempt money-market funds typically purchase the floater while the fund retains the inverse floater. The trust pays a floating rate on the floater and the fund receives the remainder of the interest from the underlying bond less expenses.

N.A. – Not available/applicable.

Source: Fitch, public financial statements. Amounts outstanding and number of funds are as of the funds' last reporting date.

Leverage Types Utilized by Taxable CEFs



Leverage Type	1940 Act Asset Coverage Requirement (%)	Traditional Purchasers/ Providers	Fixed/ Floating Rate	Interest Rate Mechanism	Typical Term (Years)	No. of Funds Utilizing 2H17	Amount Outstanding 2H17 (USDBil)	Other Ongoing Costs	Early Redemption/ Termination Features	Description
Credit Facility	300	Banks	Floating	Reference Rate (Usually LIBOR) + Spread	0.5-1.0	100	14.6	Undrawn Commitment Fees	Early Termination Negotiable	Credit facilities are floating-rate debt borrowings that typically run one year in term and are negotiated for extensions near their maturity. These facilities are flexible and can be drawn on or reduced on a daily basis.
Term Credit Facility	300	Banks	Fixed or Floating	Reference Rate (Usually LIBOR) + Spread	3.0-10.0	12	0.7	Undrawn Commitment Fees	Early Termination Negotiable	Fund may term out the credit facility for a longer period than a traditional credit facility, often three to 10 years, at a fixed or floating rate.
Margin Facility	300	Banks	Floating	Reference Rate (Usually LIBOR) + Spread	0.5-1.0	90	14.5	Undrawn Commitment Fees	Early Termination Negotiable	A cash borrowing from a bank's prime brokerage group that often runs evergreen with daily renewal (absent advance notice from either fund or bank). The borrower is required to pledge certain assets as collateral to the borrowing, which the lender may sell if the borrower breaches certain covenants and does not restore compliance.
Senior Notes	300	Insurance Companies	Fixed or Floating	Fixed, or Reference Rate (Usually LIBOR) + Spread	3.0-12.0	16	3.4	None	Optional Redemption Possible with Redemption Premium	Senior debt that is sold to insurance companies as buy and hold investments.
Mandatory Redeemable Preferred Shares (MRPS)	200	Insurance Companies	Fixed or Floating	Fixed, or Reference Rate (Usually LIBOR) + Spread	5.0-10.0	29	2.4	None	Optional Redemption possible with Redemption Premium	Preferred leverage that is sold to insurance companies as buy and hold investments. The "redeemable" in the name refers to the final mandatory redemption date as some other preferred leverage is perpetual.
Term Preferred Shares (TPS)	200	High Net-Worth, Retail	Fixed	Fixed, Step-Up	5	4	0.3	None	Optional Redemption Possible with Redemption Premium	TPS are a relatively new type of leverage issued by taxable closed-end funds (primarily senior loan funds). TPS have generally been publicly registered or privately placed through broker-dealer networks.
Perpetual Preferred Share	200	High Net-Worth, Retail	Fixed	Fixed	Perpetual	14	1.4	None	Callable after non-call period	Perpetual preferred shares are fixed-rate preferred shares with no stated maturity. The shares are redeemable at the option of the fund following the non-call period.

N.A. – Not available/applicable.

Source: Fitch, public financial statements. Amounts outstanding and number of funds are as of the funds' last reporting date.



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- Rating Criteria:

Rating Closed-End Fund Debt and Preferred Stock

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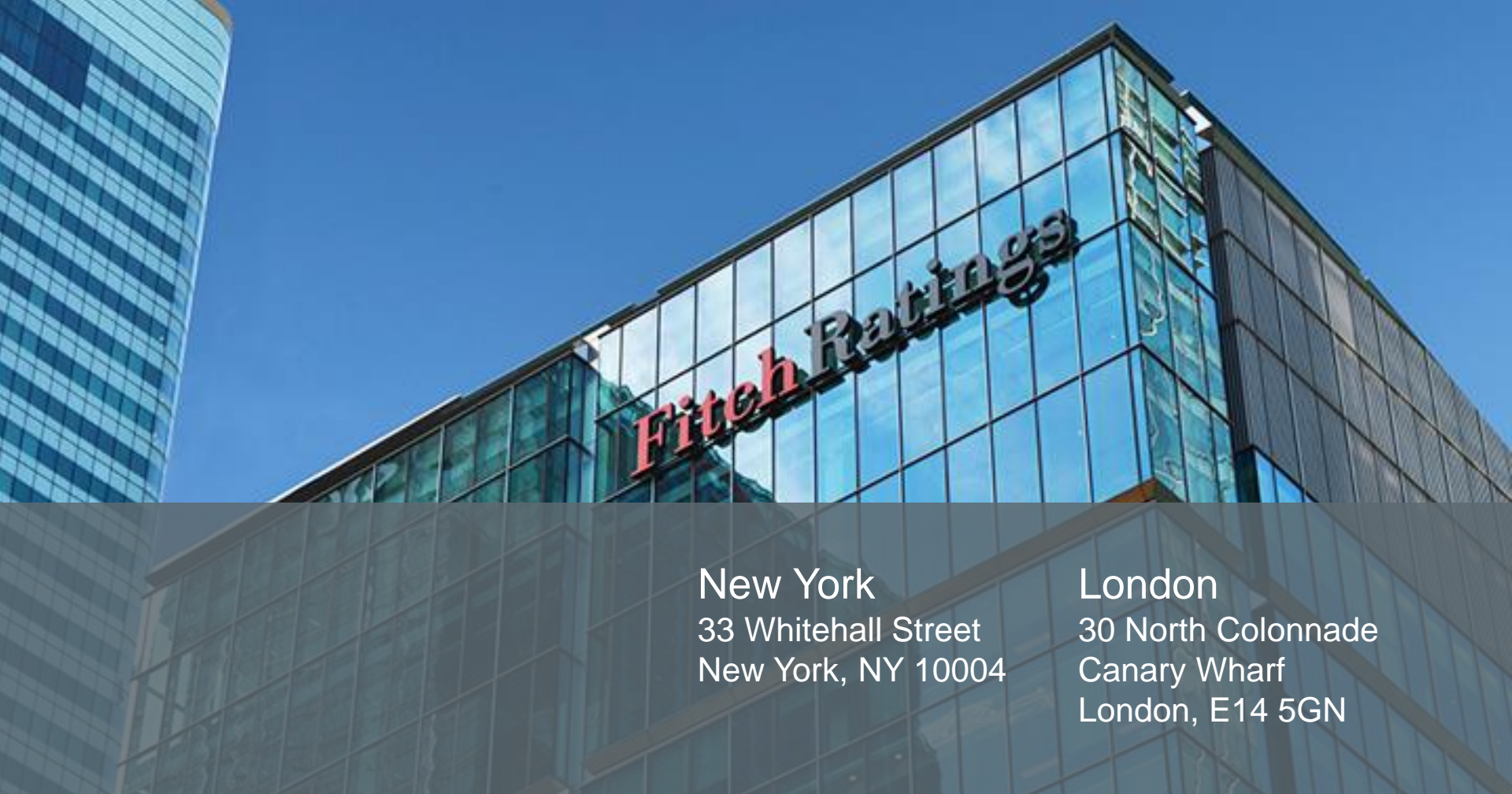
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