Financing Infrastructure in a New Era for Muni Bonds

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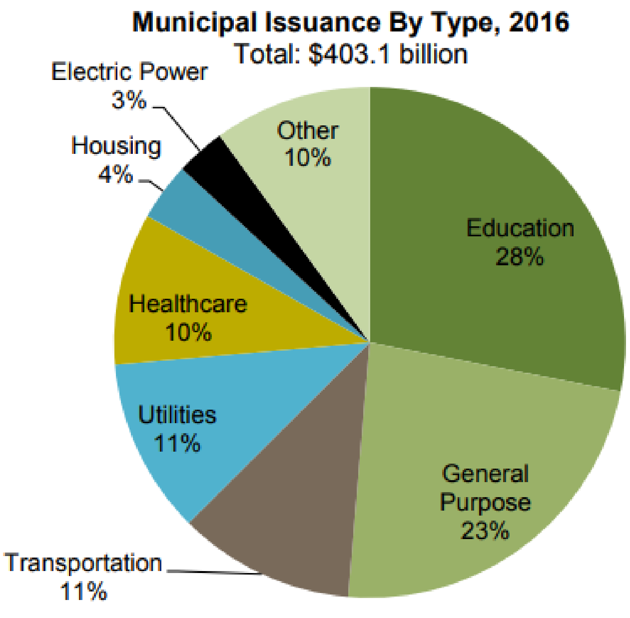
MUNICIPAL SECURITIES

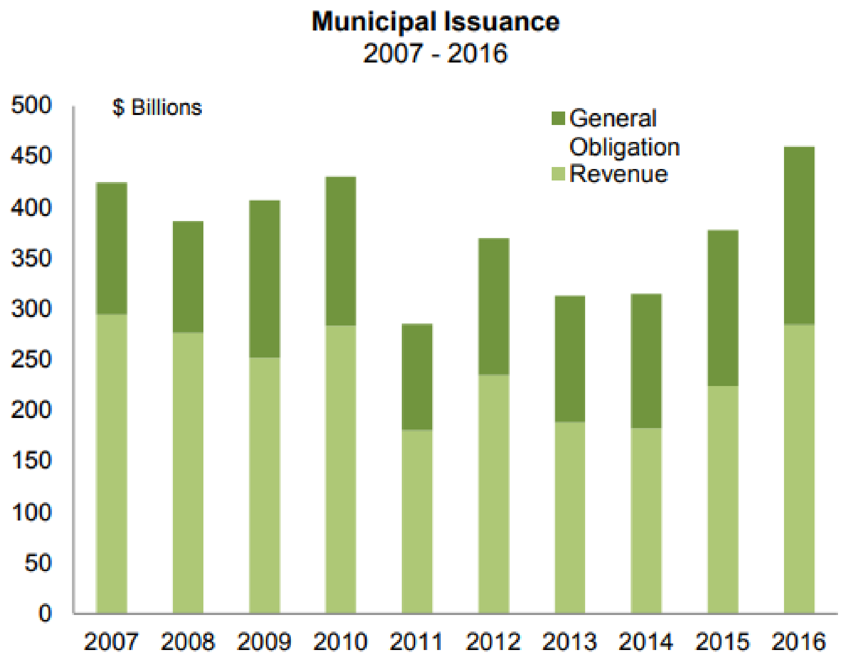
- State and local bonds are termed 'municipal securities' (or 'munis')
- Enables issuer to leverage annual revenues for large upfront sum of money
  - Debt is not 'revenue' but a lien on future revenue
  - Almost always used to finance capital assets, not for financing operating deficits

Capital Markets

- Capital market: longer than a year
  - *Tax-exempt bonds (*$3.85 trillion outstanding)
    - Governmental purpose municipal securities
  - Taxable:
    - Treasuries ($14.5 trillion) and Corporates ($8.8 trillion)
    - *Taxable Munis: Build America Bonds, 2009-2010; pension obligation bonds; private activity bonds
- Fundamental truths
  - Markets reward the rich, penalize the poor
  - Impact of poor borrowing decisions linger

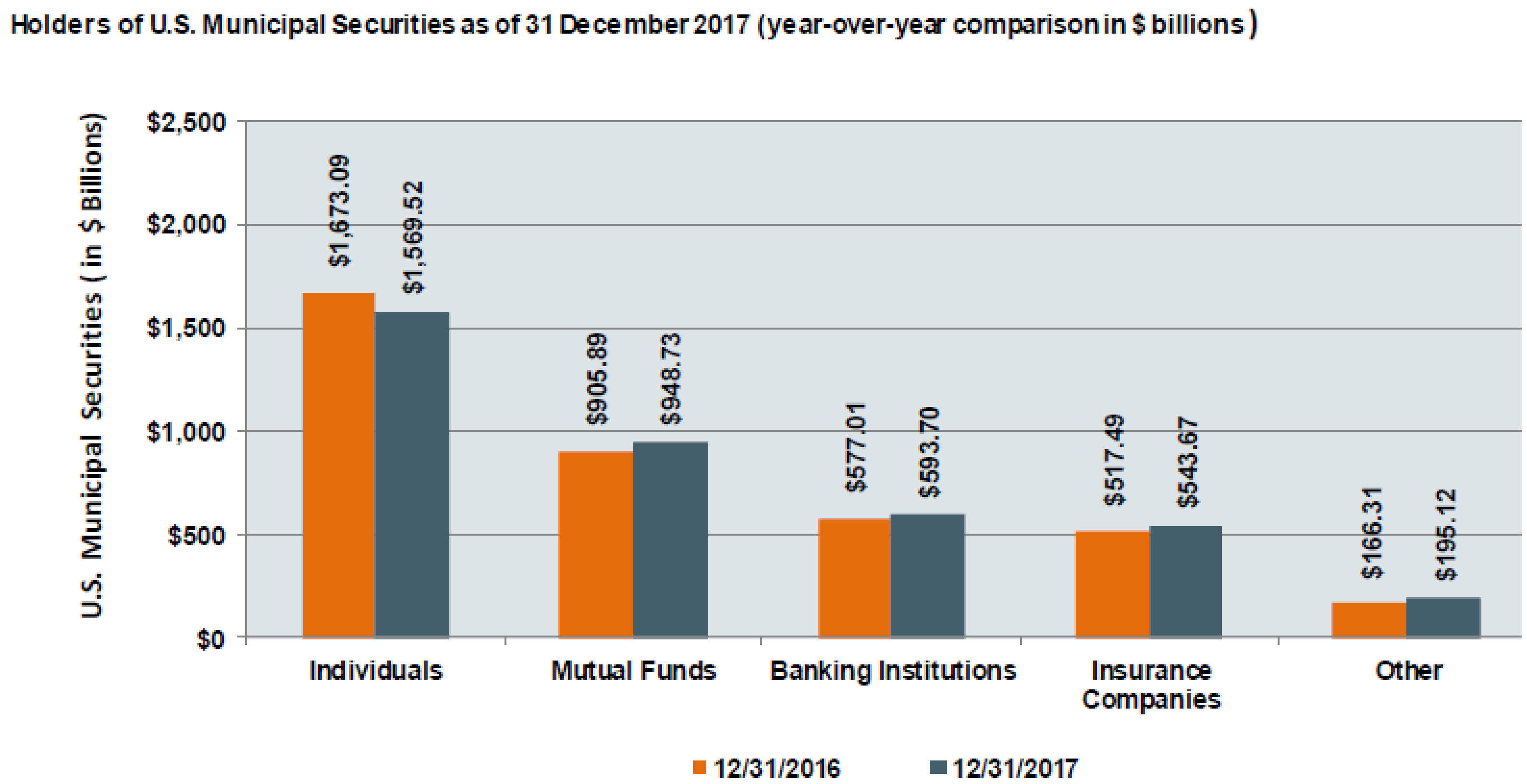


Source: Thomson Reuters



Source: Thomson Reuters

https://www.sifma.org/wp-content/uploads/2016/10/US-Capital-Markets-Deck-2017-09-11-SIFMA.pdf



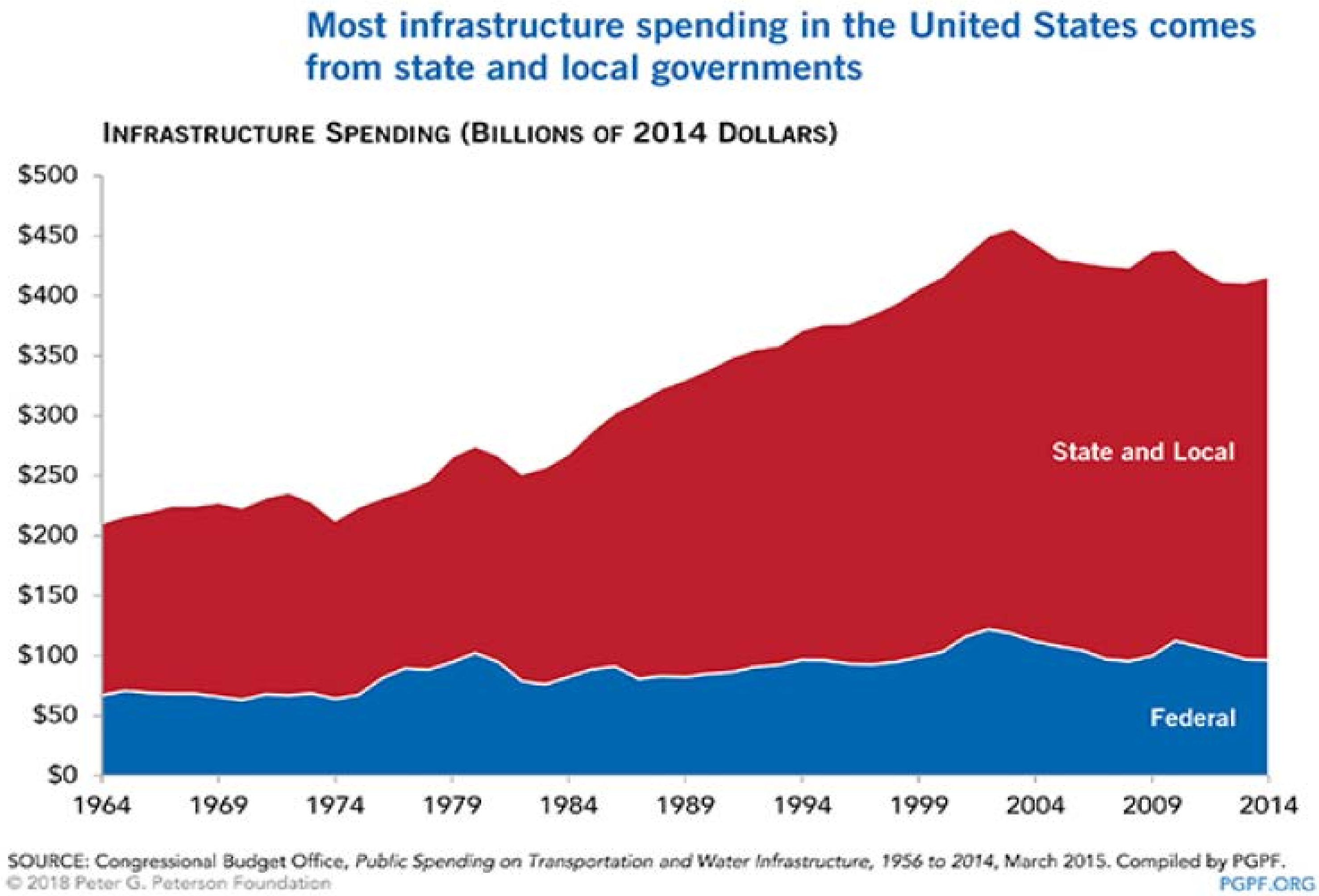
Individuals = 41% Mutual Funds = 25%

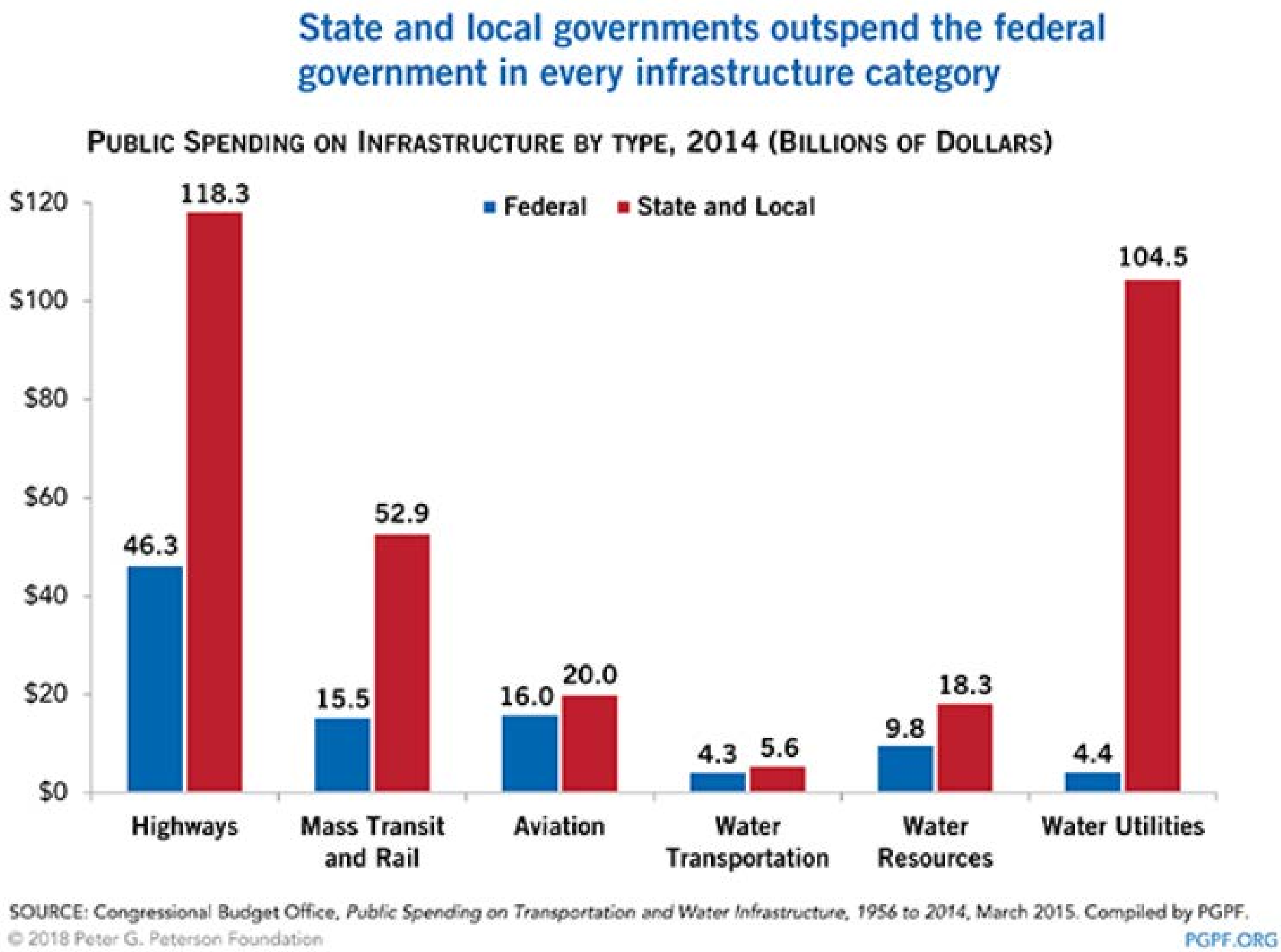
Source: Wilmington Trust Investment Advisors, Inc., "Municipal Fixed Income Weekly Market Update'" (April 27, 2018);

What Security?

- The ‘full faith and credit’ pledge supporting General Obligation bonds was ruled no different than an unpaid food vendor (thus, an “unsecured creditor”) in the Detroit bankruptcy.
- The Puerto Rico bankruptcy judge ruled revenue bonds backed by “pledged special revenues” were not sufficiently protected from P.R. takings.

INFRASTRUCTURE




State and local governments outspend the federal government in every infrastructure category
PUBLIC SPENDING ON INFRASTRUCTURE BY TYPE, 2014 (BILLIONS OF DOLLARS)
Federal
State and Local
$120
$100
$80
$60
$40
$20
$0
118.3
46.3
52.9
15.5
20.0
16.0
4.3
5.6
9.8
18.3
4.4
104.5
Highways
Mass Transit and Rail
Aviation
Water Transportation
Water Resources
Water Utilities
SOURCE: Congressional Budget Office, Public Spending on Transportation and Water Infrastructure, 1956 to 2014, March 2015. Compiled by PGPF.
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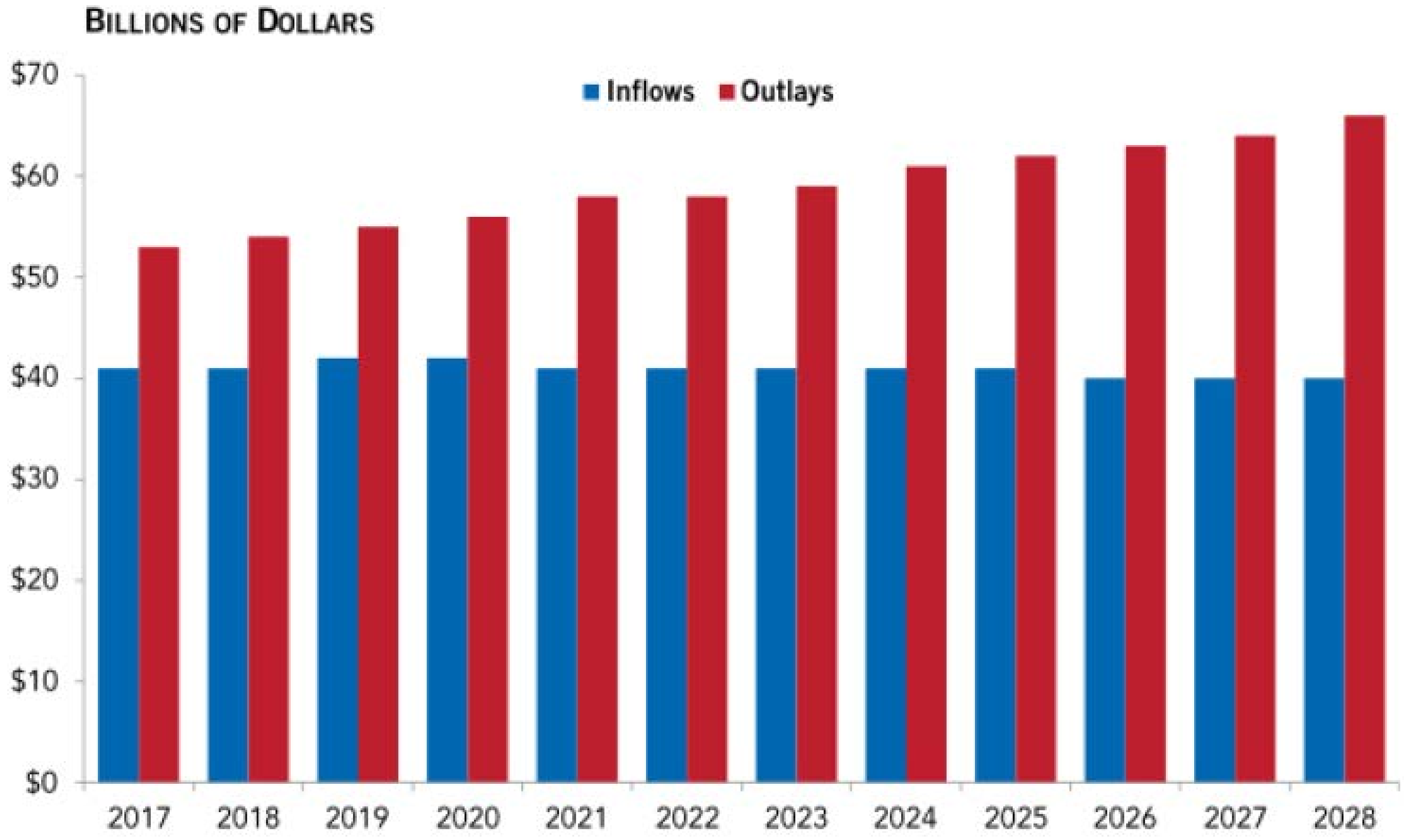
Federal outlays for highways and mass transit are projected to outstrip inflows to finance them over the next decade



SOURCE: Congressional Budget Office, *Projections of Highway Trust Fund Accounts*, June 2017. Compiled by PGPF.

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President's Infrastructure "Outline"

A $1.5 trillion plan, with $200 billion in federal funding over 10 years, as incentive for state and local governments, and private investors, to spend $1.3 trillion more:

- $100b competitive innovative incentive grants for up to 20% of project cost
- $50b rural infrastructure grants, to Governors
- $20b new or innovative programs
- $14b subsidy for existing federal credit programs
- $10b revolving fund to purchase federal property
- $6b private activity bonds as incentives

Tax Cuts and Jobs Act of 2017

- Eliminated tax-exempt advance refundings
- Capped SALT tax deductions at $10,000, and limited mortgage interest deduction to $750,000
  - Influence on property values
  - Reluctance to support debt financing (especially property tax backed bonds)

Tax Reform Impact on Munis

- Reduced Supply in short term
  - Initial Congressional proposals sought to stop Private Activity Bonds, so accelerated deals last year, reducing supply this year
  - Elimination of advance refunding bonds removed ~30% of annual issuance
- Stable Demand
  - With individual top rates >30%, still have value
  - Less incentive for banks and insurers (down to 21% rate)
  - Despite prospects for inflation and higher interest rates

Refinancing of Munis

- To obtain interest savings or to gain release from onerous bond covenant provisions
- Current Refunding - within 90 days of the earliest redemption date [typically at the 10-year ‘call’ date]
- Advance Refunding for <u>tax-exempt</u> bonds
  - From 1985-2017, tax laws permitted one Advance Refunding per debt issue if more than 90 days from earliest redemption date
  - Eliminated in 2017 tax law; no longer an option

Market Alternatives for Outstanding Bonds

- Current refunding (within 90 days of call date)
- Taxable advance refunding (especially if to eliminate covenants)
- Cinderella bonds (taxable issue converts to tax-exempt at event or date)
- Forward-purchase agreements (bonds sold but delay delivery several months to more than a year; sell premium bonds plus ~75 bps)
- Cash optimization (use cash to defease old debt, issue debt for new money projects)
- Refund Build America Bonds and other tax credit bonds

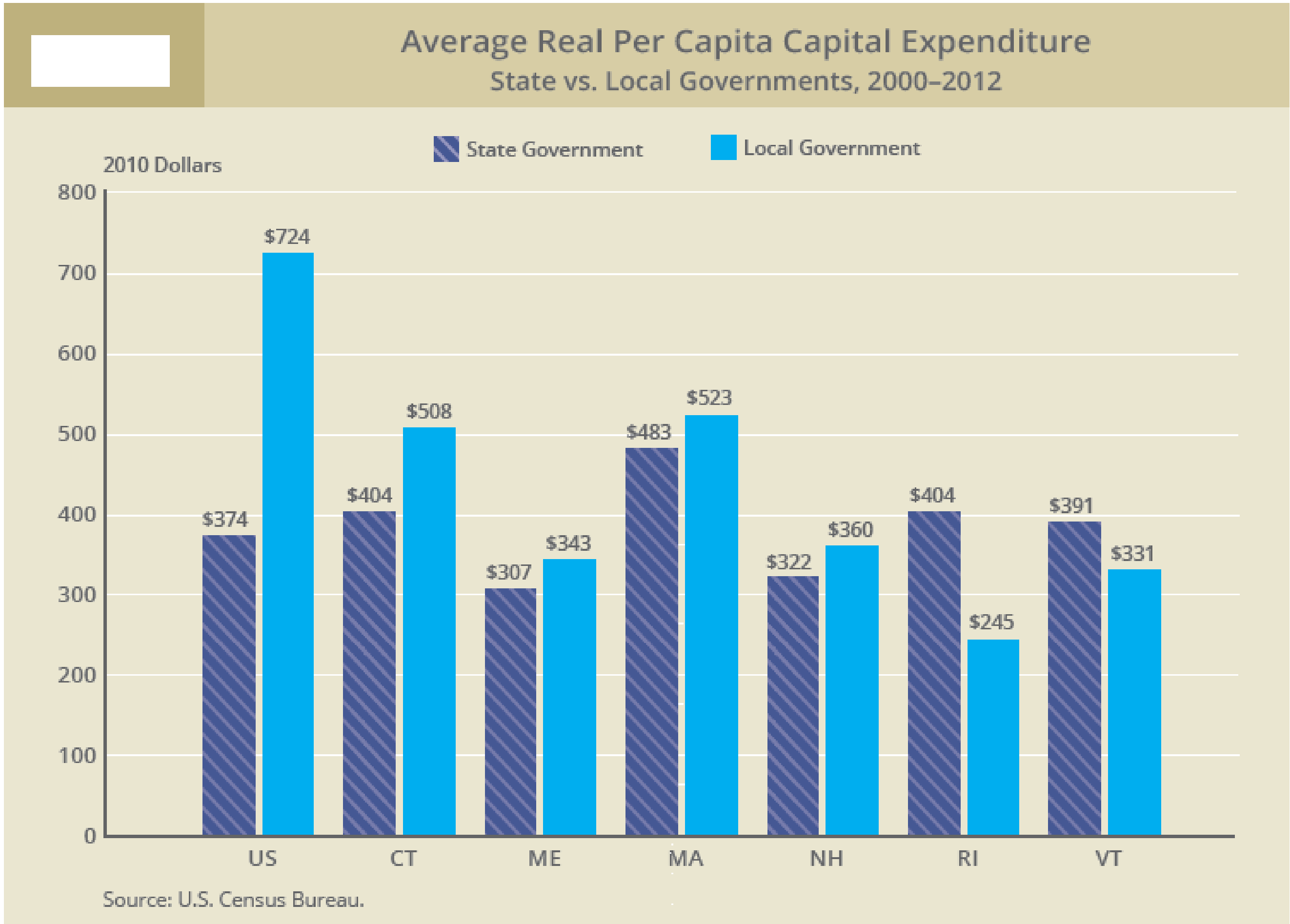
Sources: Government Finance Officers Association, and the National Association of Bond Lawyers

Market Alternatives for Future Bonds

- Shorter-term fixed rate debt
- Shorter call features
  - Bank-qualified bonds often have 5-yr calls, not 10-year
  - One estimate showed penalty from 10 to 8 yr call was 13bps
- Derivative products (complicated by Dodd-Frank Act regulations and past problems and image)
- Variable-rate financing, since callable at any time

Sources: Government Finance Officers Association, and the National Association of Bond Lawyers

NEW ENGLAND STATES



Source: Ronald Fisher and Riley Sullivan, "Why is State and Local Government Capital Spending Lower in the New England States Than in Other U.S. States," New England Public Policy Center, Federal Reserve Bank of Boston, July 2016

State General Obligation Ratings

(as of May 4, 2018)

	Moody's	Standard & Poor's	10-year Credit Spread in Basis Points to MMD Aaa Benchmark*
Connecticut	A1	A (April 13)	88
Maine	Aa2	AA	9
Massachusetts	Aa1	AA	14
New Hampshire	Aa1	AA	11
Rhode Island	Aa2	AA	20
Vermont	Aaa	AA+	2
Median (all states)			12

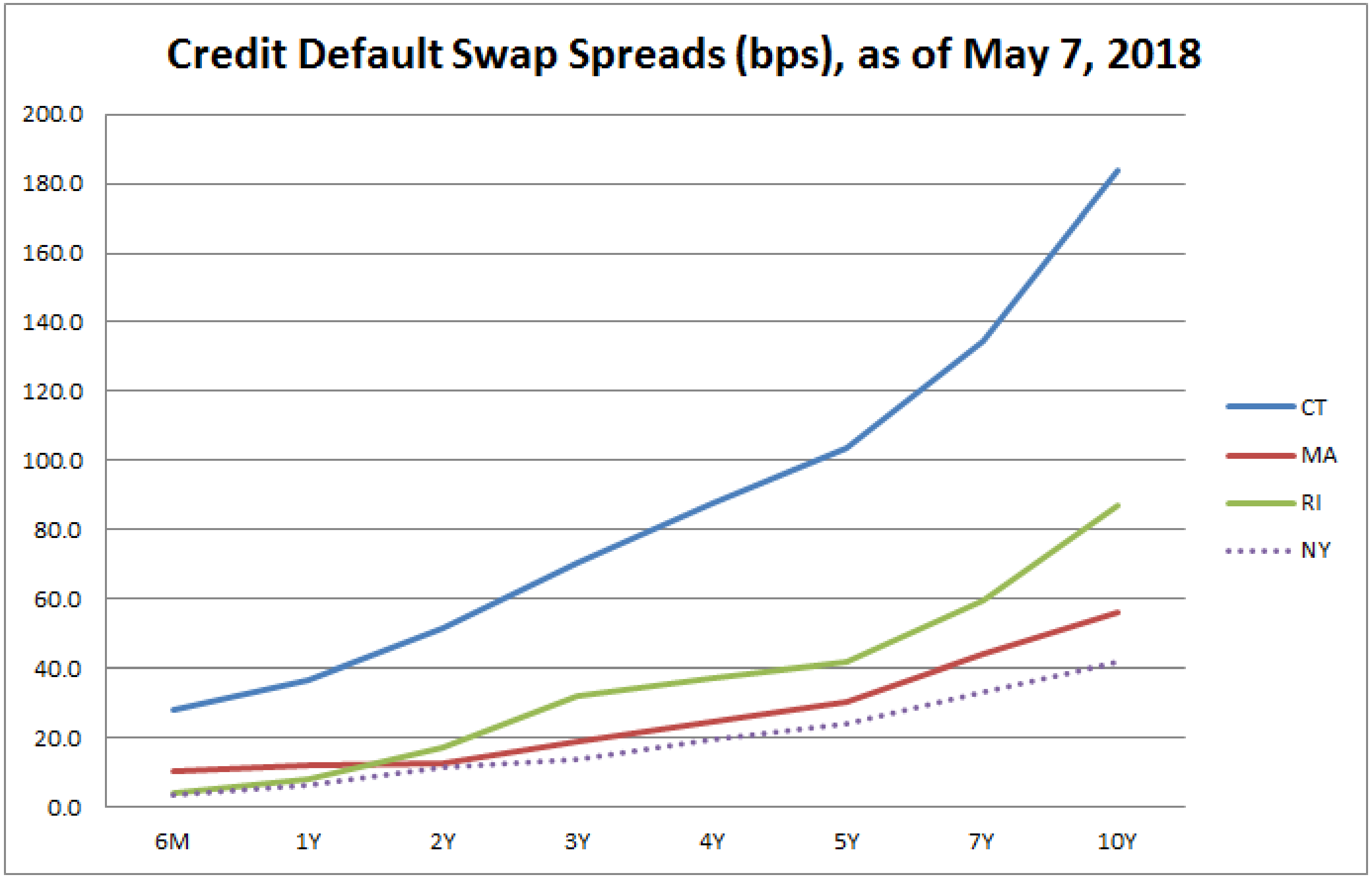
*Janney Montgomery Scott LLC, Municipal Comment, April 25, 2018

State Liabilities

State, list rank, and Moody's rating	Liabilities (Debt, Pension, OPEB) as % Personal Income	Fixed Costs as % of Revenue (Moody's)
CT	39.3%	29.6%
MA	27.1%	20.0%
ME	16.4%	12.8%
RI	15.6%	11.7%
[NY]	15.0%	10.6%

Such factors account for up to 25% of Moody's rating criteria

Not all states ranked.
Janney Montgomery Scott LLC, Muni Monthly, April 30, 2018



CDS used to swap the risk of default. “An agreement that transfers the credit risk of a third party from the protection buyer to a protection seller in exchange for a premium”

Data: Bloomberg terminal
Quoted definition: msrb.org

SUMMARY

- “Is America ready to pay to use its public assets?”
- Infrastructure burden rests largely on decisions by state and local governments.
- Capital markets will increasingly distinguish between well governed states (and local governments) and those that are not.