

Fidelity Capital Markets FCM Municipal Compendium 2018

The FCM Municipal Compendium is a compilation of statistics relevant to the municipal bond market. The data includes information on returns, relative value, credit, state tax revenues and debt, bond issuance, and demographics. The focus of the Compendium is on the fifty U.S. states, but also covers market-wide trends. Aggregate statistics are provided for municipal bond market volatility-adjusted returns and correlations versus other fixed income investments; yield comparisons to Treasury and corporate bonds; credit rating trends; fund balance trends; municipal securities holders; bond issuance trends; and state tax revenue trends. Individual state statistics are provided for state bond market returns; credit ratings; debt and pension obligations; fund balances; state tax revenues and tax burdens; tax base trends; and economic diversity. The individual state statistics are ranked and presented in tables by quintile.

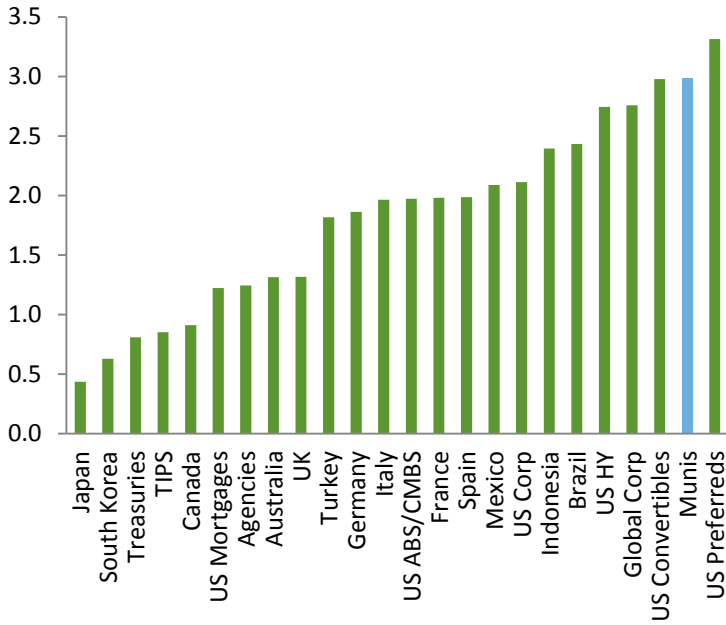
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Total Returns, Volatility, and Correlations

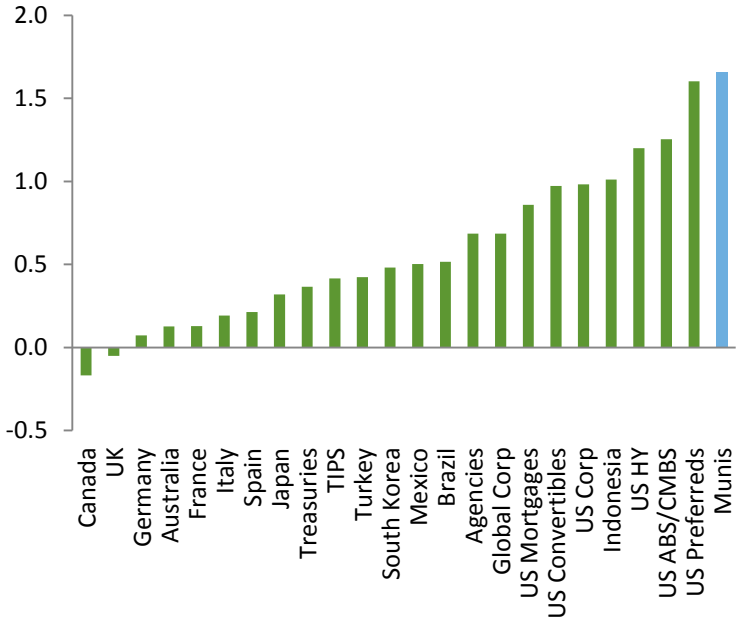
Fixed Income Return/Volatility Ratios

1 Year



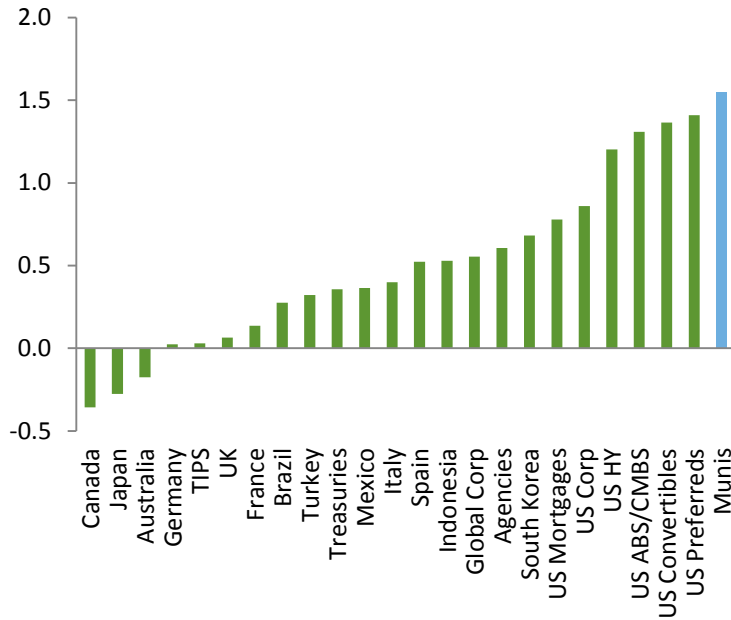
Fixed Income Return/Volatility Ratios

3 Years



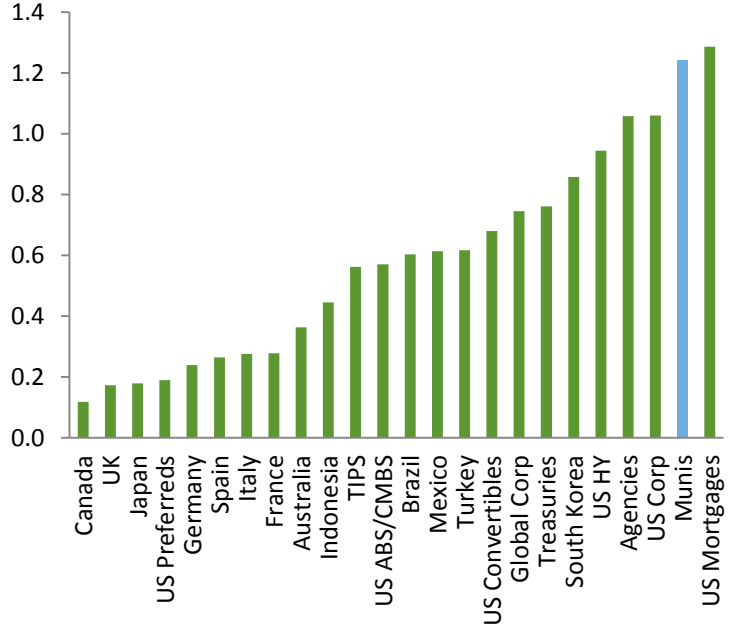
Fixed Income Return/Volatility Ratios

5 Years



Fixed Income Return/Volatility Ratios

10 Years



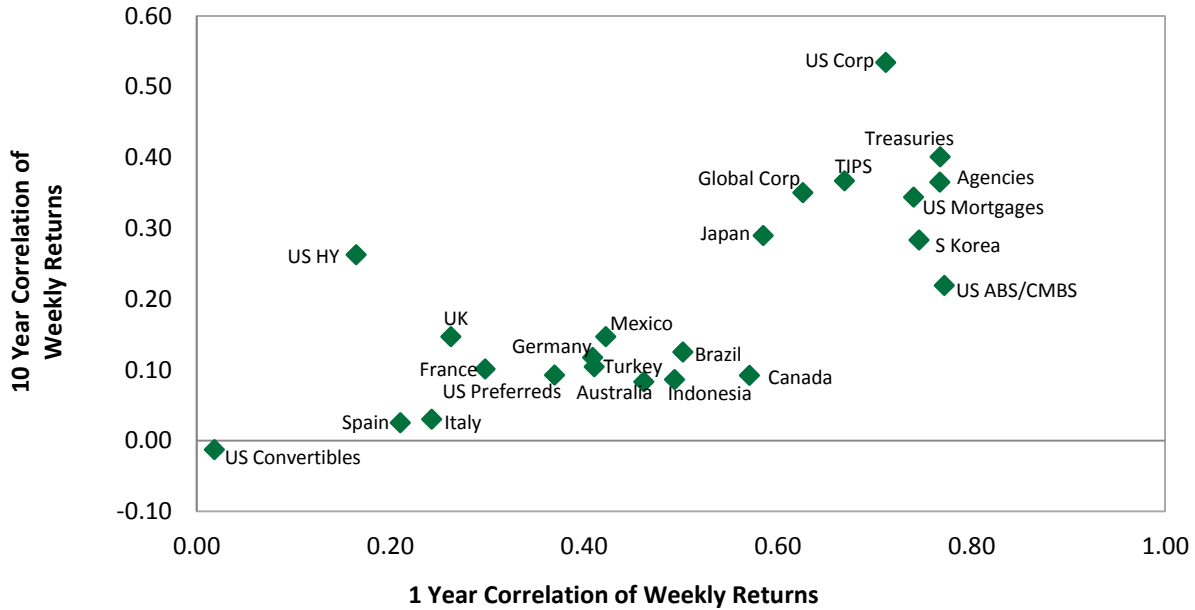
Source: BAML Global Bond Indices, Bloomberg, FCM; Dec 31, 2017

Return: annual total return in USD; Volatility: annualized standard deviation of weekly total returns

Total Returns, Volatility, and Correlations (cont.)

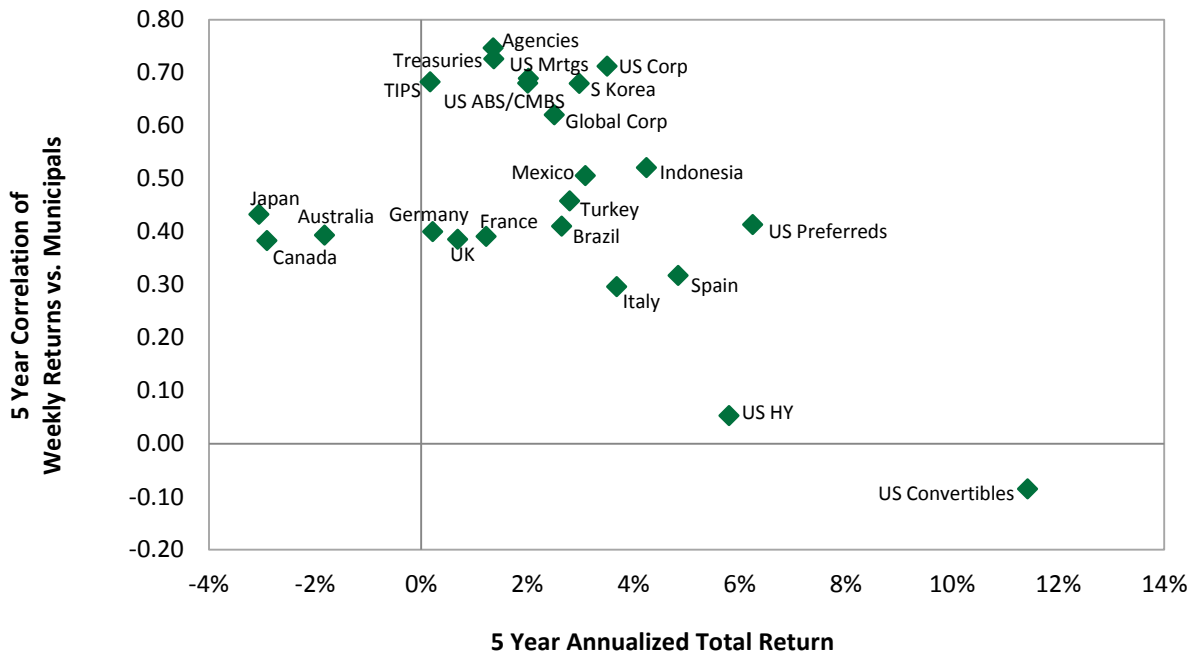
Municipals Correlation vs. Other Fixed Income

Long-term vs. Short-term Correlation of Total Returns in USD



Source: BAML Global Bond Indices, Bloomberg, FCM; Dec 31, 2017

5-Year Correlation vs. Total Return in USD



Source: BAML Global Bond Indices, Bloomberg, FCM; Dec 31, 2017

Total Returns, Volatility, and Correlations (cont.)

S&P Municipal Bond Indices - 1 Year Total Return 2017

State	Total Return	State	Total Return	State	Total Return	State	Total Return	State	Total Return
Illinois	8.2%	Alabama	5.5%	Idaho	5.1%	Tennessee	4.8%	Washington	4.4%
New Jersey	7.3%	Montana	5.5%	Nebraska	5.0%	Wyoming	4.8%	North Dakota	4.4%
Rhode Island	6.3%	Pennsylvania	5.5%	Mississippi	5.0%	Massachusetts	4.7%	Delaware	4.3%
Iowa	6.2%	Wisconsin	5.4%	Maine	5.0%	Utah	4.7%	New Hampshire	4.2%
Ohio	6.2%	Alaska	5.4%	Arkansas	5.0%	Oregon	4.7%	Georgia	4.1%
Colorado	6.1%	Kentucky	5.4%	Texas	4.9%	Virginia	4.7%	Nevada	4.1%
South Dakota	5.9%	Indiana	5.3%	Kansas	4.9%	Oklahoma	4.7%	Maryland	4.0%
Michigan	5.9%	West Virginia	5.2%	Louisiana	4.9%	Arizona	4.6%	North Carolina	3.9%
California	5.7%	Missouri	5.2%	New York	4.8%	Hawaii	4.5%	Connecticut	3.7%
Vermont	5.7%	Florida	5.1%	South Carolina	4.8%	Minnesota	4.4%	New Mexico	3.3%

S&P Municipal Bond Indices - 3 Year Annualized Total Return 2015 - 2017

State	Total Return	State	Total Return	State	Total Return	State	Total Return	State	Total Return
Ohio	4.0%	Rhode Island	3.4%	Kansas	3.1%	Texas	3.0%	Montana	2.7%
Iowa	4.0%	California	3.3%	Missouri	3.1%	Virginia	2.9%	Minnesota	2.7%
Illinois	3.9%	Alaska	3.3%	South Carolina	3.1%	Oklahoma	2.9%	Georgia	2.7%
New Jersey	3.9%	Pennsylvania	3.2%	Nebraska	3.1%	Tennessee	2.9%	Hawaii	2.6%
Alabama	3.8%	Utah	3.2%	Arkansas	3.0%	Maine	2.9%	Nevada	2.6%
South Dakota	3.7%	Indiana	3.2%	New Hampshire	3.0%	Oregon	2.8%	Maryland	2.5%
Colorado	3.6%	Mississippi	3.2%	Wisconsin	3.0%	Arizona	2.8%	Delaware	2.5%
Michigan	3.6%	Florida	3.2%	New York	3.0%	Louisiana	2.8%	North Carolina	2.5%
Wyoming	3.5%	West Virginia	3.2%	Kentucky	3.0%	Massachusetts	2.7%	New Mexico	2.3%
Idaho	3.5%	Vermont	3.2%	North Dakota	3.0%	Washington	2.7%	Connecticut	2.2%

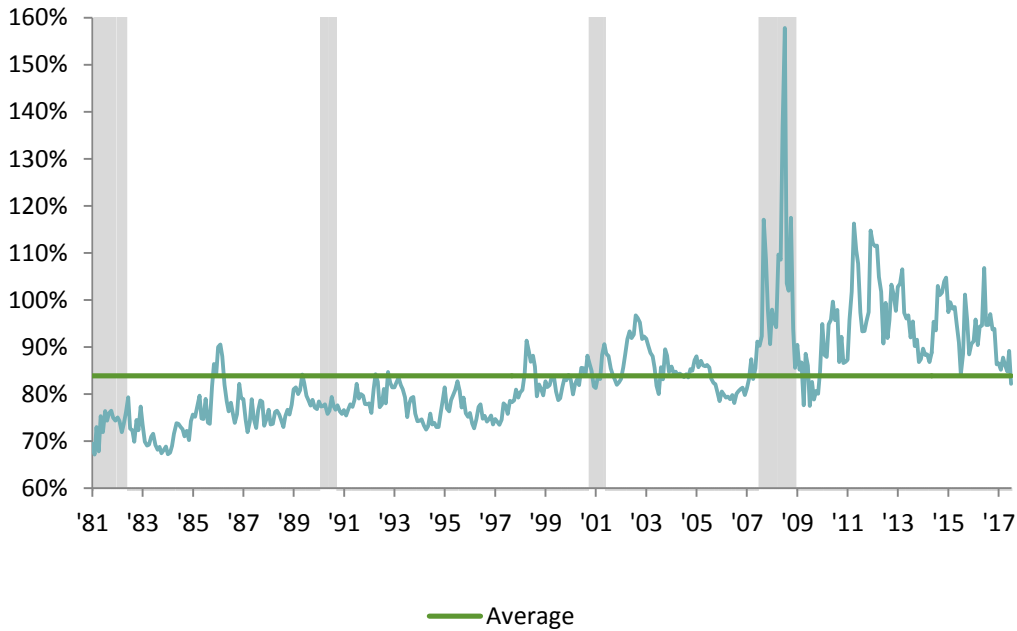
S&P Municipal Bond Indices - 5 Year Annualized Total Return 2013 - 2017

State	Total Return	State	Total Return	State	Total Return	State	Total Return	State	Total Return
Alabama	4.3%	New Jersey	3.5%	Missouri	3.2%	Wisconsin	3.1%	Washington	2.8%
South Dakota	4.0%	Indiana	3.5%	Kentucky	3.2%	Tennessee	3.1%	Minnesota	2.8%
Colorado	3.8%	Florida	3.5%	Montana	3.2%	Maine	3.1%	Massachusetts	2.8%
Iowa	3.8%	Pennsylvania	3.5%	Louisiana	3.2%	New York	3.1%	Georgia	2.7%
Illinois	3.8%	West Virginia	3.5%	Rhode Island	3.2%	Arizona	3.0%	Hawaii	2.7%
Ohio	3.8%	Mississippi	3.4%	Texas	3.2%	Utah	3.0%	Delaware	2.6%
Wyoming	3.7%	South Carolina	3.3%	Arkansas	3.2%	Alaska	3.0%	North Carolina	2.5%
California	3.7%	Vermont	3.3%	Nebraska	3.2%	Oregon	2.9%	Maryland	2.5%
Idaho	3.6%	Kansas	3.3%	New Hampshire	3.2%	Oklahoma	2.9%	New Mexico	2.3%
Michigan	3.5%	North Dakota	3.3%	Nevada	3.1%	Virginia	2.9%	Connecticut	2.0%

Source: Standard & Poor's, Bloomberg, FCM; Dec 31, 2017

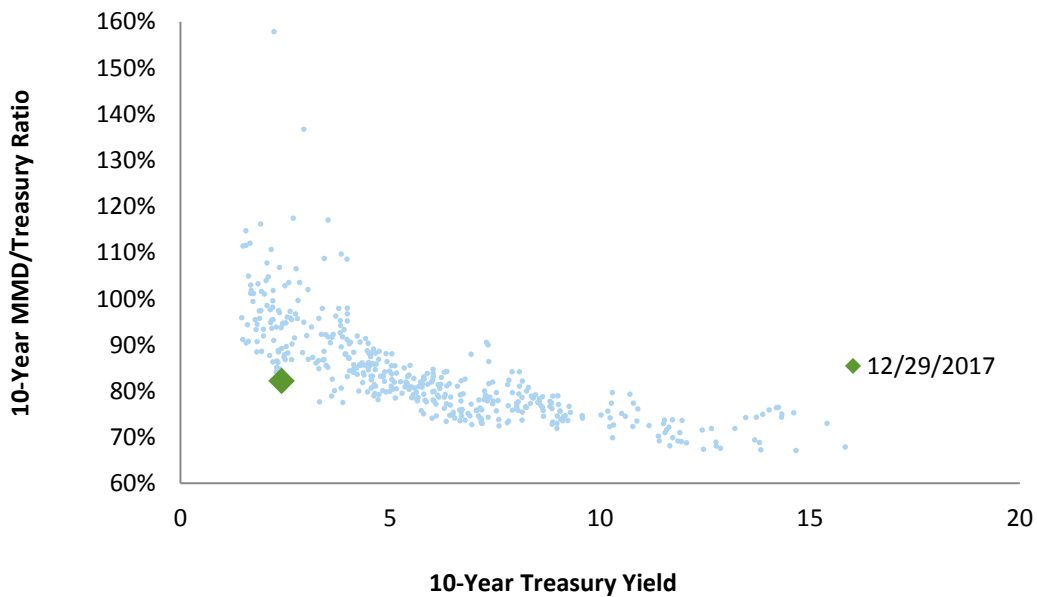
Relative Value vs. Treasuries

10-Year MMD / Treasury Yield Ratio



Source: TM3, FCM; Dec 31, 2017
Note: Gray bars denote US recessions.

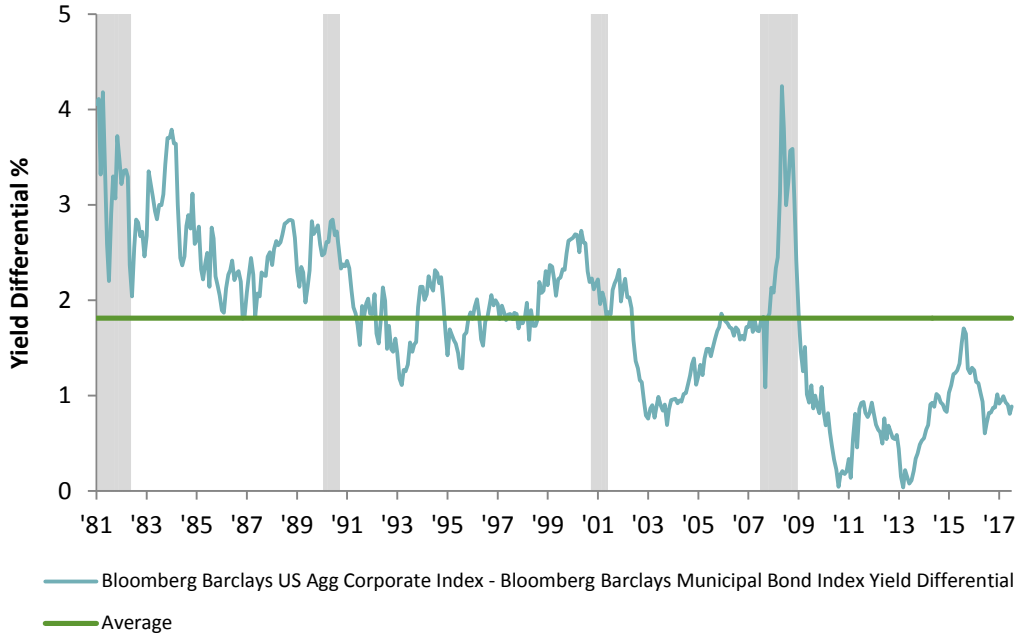
10-Year MMD / Treasury Yield Ratio Monthly 1981-2017



Source: TM3, FCM; Dec 31, 2017

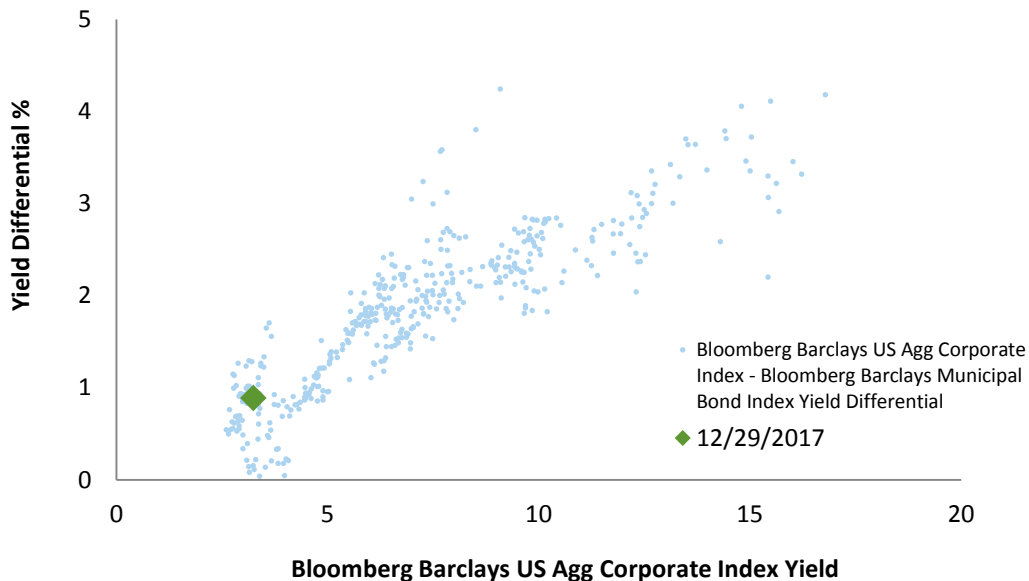
Relative Value vs. Corporates

Corporate - Municipal Yield Differential



Source: Federal Reserve, Moody's, FCM; Dec 31, 2017
Note: Gray bars denote US recessions.

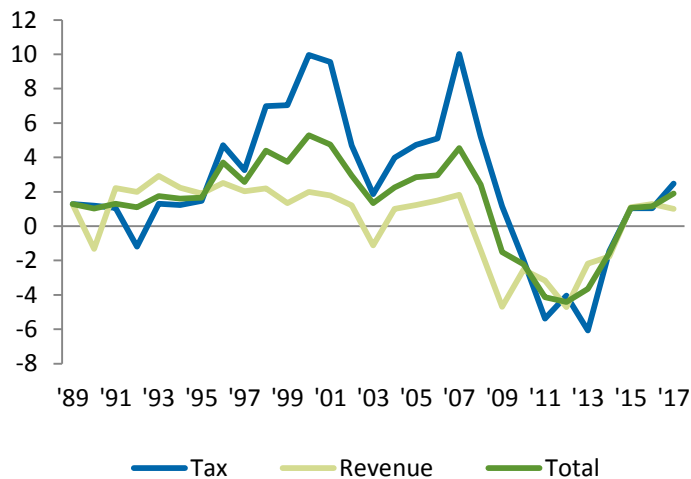
Corporate - Municipal Yield Differential Monthly 1981-2017



Source: Federal Reserve, Moody's, FCM; Dec 31, 2017

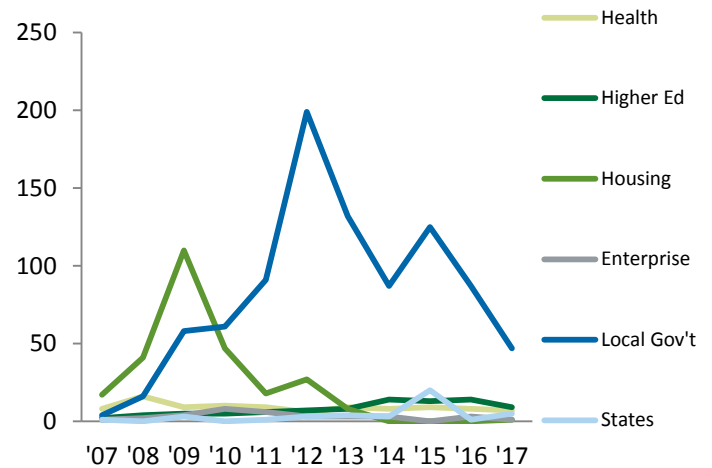
Public Finance Credit Ratings

Upgrades vs. Downgrades Ratio Number of Public Finance Ratings



Source: Moody's, FCM; as of Q3 2017
Note: A negative ratio indicates downgrades exceed upgrades.

Number of Multi-Notch Downgrades by Sector



Source: Moody's, FCM; as of Q3 2017
Note: A multi-notch downgrade is any downward revision greater than 1 notch.

Moody's Upgrades vs. Downgrades Ratio by State 2017

State	Upgrade v Downgrade	State	Upgrade v Downgrade	State	Upgrade v Downgrade	State	Upgrade v Downgrade	State	Upgrade v Downgrade
Oregon	70.00	Idaho	5.00	Indiana	2.75	Texas	1.87	Oklahoma	0.00
Washington	41.00	California	4.82	Nebraska	2.67	Kansas	1.67	Wyoming	0.00
South Dakota	11.00	North Carolina	4.50	Colorado	2.25	Iowa	1.57	Wisconsin	-1.22
New Mexico	9.00	New Jersey	4.43	Arkansas	2.00	Massachusetts	1.50	Illinois	-1.23
Florida	6.67	Hawaii	4.00	Delaware	2.00	Pennsylvania	1.16	Missouri	-1.50
Alaska	6.00	South Carolina	4.00	Louisiana	2.00	Maryland	1.00	Kentucky	-2.25
Nevada	6.00	Georgia	3.20	Michigan	2.00	Maine	1.00	Ohio	-2.31
Tennessee	6.00	Alabama	3.00	Montana	2.00	North Dakota	1.00	Minnesota	-2.50
Virginia	6.00	Arizona	3.00	New Hampshire	2.00	Rhode Island	1.00	Mississippi	-6.00
West Virginia	6.00	New York	3.00	Vermont	2.00	Utah	1.00	Connecticut	-17.00

Source: Moody's, FCM; as of Q3 2017
Note: A negative ratio indicates downgrades exceed upgrades.

State Debt and Pension Obligations

State Net Tax-Supported Debt (NTSD) as a % of State Personal Income (PI)

State	NTSD/PI	State	NTSD/PI	State	NTSD/PI	State	NTSD/PI	State	NTSD/PI
Nebraska	0.0%	Idaho	1.1%	Utah	2.1%	Virginia	2.9%	Illinois	5.1%
Wyoming	0.1%	South Dakota	1.4%	Maine	2.1%	Alaska	3.0%	Mississippi	5.2%
North Dakota	0.3%	Nevada	1.4%	Vermont	2.2%	New Mexico	3.3%	New York	5.3%
Iowa	0.5%	Missouri	1.4%	Florida	2.2%	Kansas	3.4%	Kentucky	5.3%
Montana	0.5%	Arkansas	1.5%	Ohio	2.5%	Louisiana	3.7%	Washington	5.4%
Colorado	0.7%	South Carolina	1.5%	Georgia	2.5%	Wisconsin	3.8%	Delaware	5.4%
Texas	0.8%	New Hampshire	1.6%	West Virginia	2.6%	Maryland	3.8%	New Jersey	7.3%
Oklahoma	0.8%	North Carolina	1.6%	Alabama	2.6%	California	4.2%	Connecticut	9.7%
Tennessee	0.8%	Michigan	1.6%	Pennsylvania	2.7%	Rhode Island	4.3%	Massachusetts	9.8%
Indiana	0.8%	Arizona	1.8%	Minnesota	2.9%	Oregon	4.4%	Hawaii	10.5%

State Adjusted Net Pension Liability (ANPL) as a % of State Personal Income (PI)

State	ANPL/PI	State	ANPL/PI	State	ANPL/PI	State	ANPL/PI	State	ANPL/PI
North Carolina	1.6%	Wisconsin	3.3%	Oklahoma	4.5%	New Mexico	8.1%	South Carolina	11.7%
Florida	1.8%	Virginia	3.5%	Georgia	4.6%	Texas	8.2%	Vermont	12.8%
Nebraska	2.1%	New York	3.6%	Nevada	4.8%	Michigan	8.4%	Maryland	13.3%
New Hampshire	2.3%	Arizona	3.7%	Arkansas	5.0%	California	8.8%	West Virginia	13.4%
Tennessee	2.5%	Oregon	3.9%	Washington	6.0%	Pennsylvania	10.2%	Massachusetts	14.7%
Ohio	2.6%	Alabama	4.0%	Louisiana	6.0%	Rhode Island	10.4%	New Jersey	17.1%
Idaho	2.8%	Wyoming	4.1%	Mississippi	6.1%	Montana	11.0%	Connecticut	21.2%
Iowa	2.8%	Missouri	4.1%	Indiana	6.4%	Maine	11.3%	Kentucky	21.4%
North Dakota	3.0%	South Dakota	4.1%	Colorado	6.9%	Kansas	11.4%	Alaska	26.5%
Utah	3.2%	Minnesota	4.2%	Delaware	7.4%	Hawaii	11.6%	Illinois	30.1%

Combined NTSD & ANPL as a % of State Personal Income

State	Combined	State	Combined	State	Combined	State	Combined	State	Combined
Nebraska	2.1%	Oklahoma	5.3%	Minnesota	7.1%	Washington	11.4%	Vermont	15.0%
North Carolina	3.2%	Utah	5.3%	Wisconsin	7.1%	New Mexico	11.4%	West Virginia	16.0%
North Dakota	3.3%	Arizona	5.5%	Indiana	7.2%	Montana	11.5%	Maryland	17.1%
Iowa	3.3%	South Dakota	5.5%	Colorado	7.6%	Delaware	12.8%	Hawaii	22.1%
Tennessee	3.3%	Missouri	5.5%	Oregon	8.3%	Pennsylvania	12.9%	New Jersey	24.4%
Idaho	3.9%	Nevada	6.2%	New York	8.9%	California	13.0%	Massachusetts	24.5%
New Hampshire	3.9%	Virginia	6.4%	Texas	9.0%	South Carolina	13.2%	Kentucky	26.7%
Florida	4.0%	Arkansas	6.5%	Louisiana	9.7%	Maine	13.4%	Alaska	29.5%
Wyoming	4.2%	Alabama	6.6%	Michigan	10.0%	Rhode Island	14.7%	Connecticut	30.9%
Ohio	5.1%	Georgia	7.1%	Mississippi	11.3%	Kansas	14.8%	Illinois	35.2%

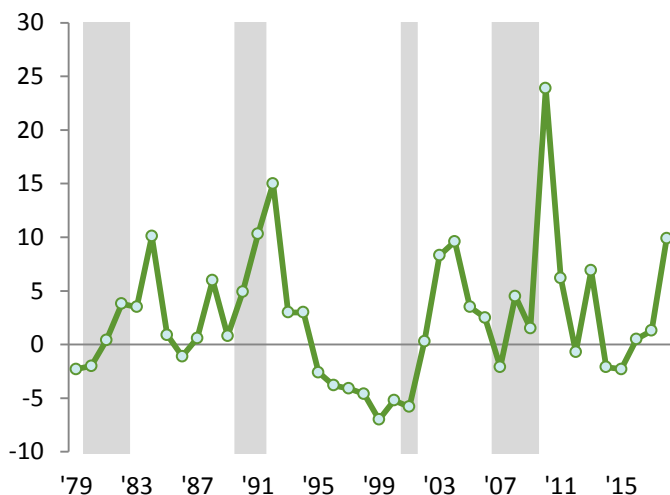
Source: Moody's, FCM; Dec 31, 2017

Net Tax Supported Debt: Debt secured by statewide taxes and other general resources, net of obligations that are self-supporting from pledged sources other than state taxes or operating resources, such as utility or local government revenues.

Adjusted Net Pension Liability: Moody's recalculation of net pension liabilities based on a market-determined discount rate and the market value of assets. Moody's allocates the net pension liabilities of multiple-employer cost-sharing plans among the plan sponsors based on the pro rata contribution of each sponsor to the plan and additional information from state officials and pension administrators.

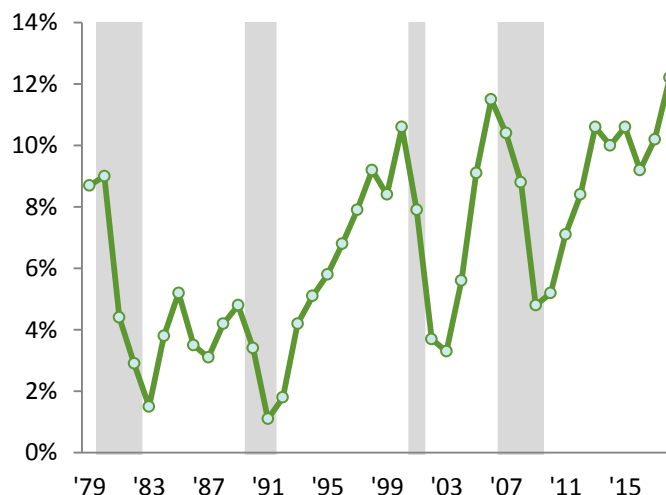
State Enacted Revenue Changes, Fund Balances, and Reserves

Total Enacted State Revenue Changes
\$bn



Source: National Association of State Budget Officers, FCM; Dec 31, 2017
Note: Gray bars denote years in which recession occurred.

Total State Fiscal Year-End Balances
as a % of Expenditures



Source: National Association of State Budget Officers, FCM; Dec 31, 2017
Note: Gray bars denote years in which recession occurred.

State Total Fiscal Year-End Balances as a % of Expenditures 2017

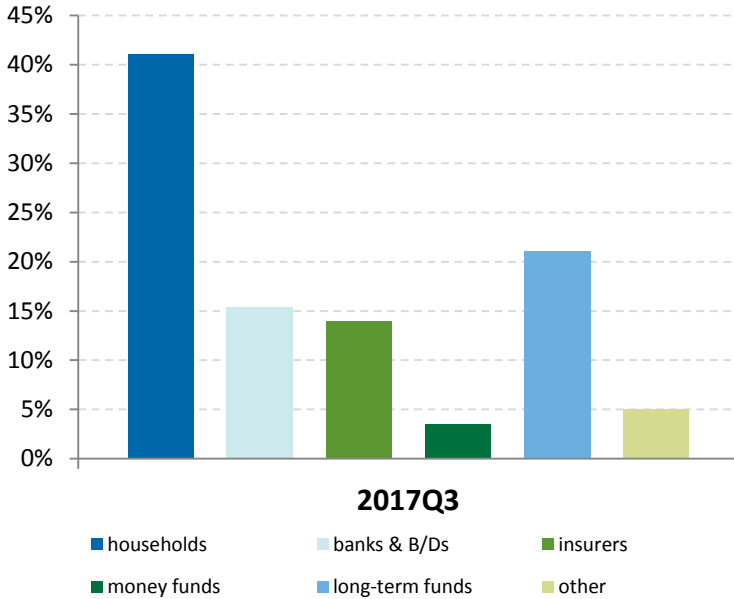
State	Balance/ Expenditures	State	Balance/ Expenditures	State	Balance/ Expenditures	State	Balance/ Expenditures	State	Balance/ Expenditures
Alaska	104.9%	Minnesota	12.5%	Florida	9.0%	Vermont	6.9%	Oklahoma	3.1%
Wyoming	103.0%	Washington	12.2%	Utah	8.6%	Maryland	6.3%	Louisiana	3.0%
West Virginia	24.7%	Delaware	11.6%	Missouri	8.5%	Colorado	5.9%	Arkansas	2.8%
Nebraska	21.4%	Indiana	11.5%	Nevada	8.2%	New Mexico	5.5%	Kentucky	2.4%
Texas	20.8%	New York	11.4%	New Hampshire	7.9%	Wisconsin	5.0%	Montana	2.0%
Oregon	20.4%	South Dakota	10.7%	Maine	7.8%	Mississippi	4.9%	Kansas	1.6%
Hawaii	16.1%	North Carolina	10.5%	Ohio	7.4%	Illinois	4.6%	New Jersey	1.3%
Tennessee	14.5%	Georgia	10.4%	Arizona	7.2%	North Dakota	4.0%	Connecticut	1.2%
South Carolina	14.1%	Alabama	10.2%	Rhode Island	7.0%	Massachusetts	3.5%	Iowa	0.0%
Idaho	12.8%	Michigan	9.7%	California	6.9%	Virginia	3.4%	Pennsylvania	-4.8%

Source: National Association of State Budget Officers, FCM; Dec 31, 2017

Note: Total balances include both the ending General Fund balance and Rainy Day Funds. Based on preliminary 2017 fiscal year end figures.

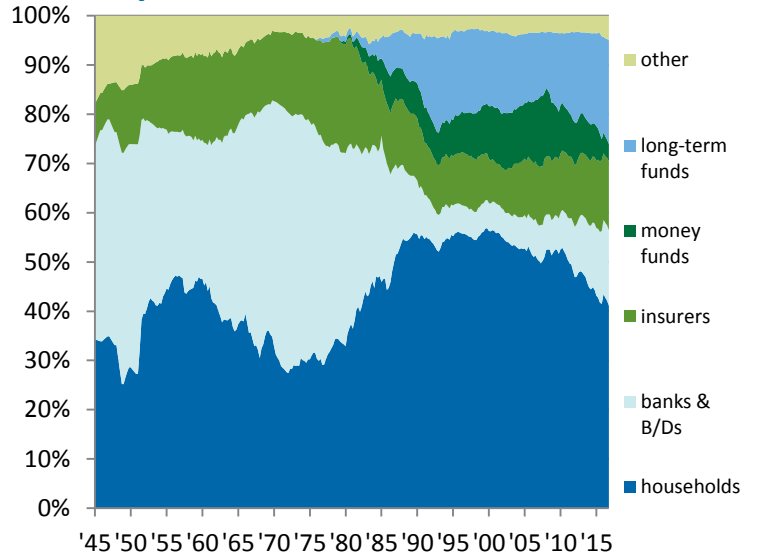
Municipal Securities Holders and Bond Issuance

Municipal Securities Holders



Source: Federal Reserve, FCM; Dec 31, 2017

Municipal Securities Holders

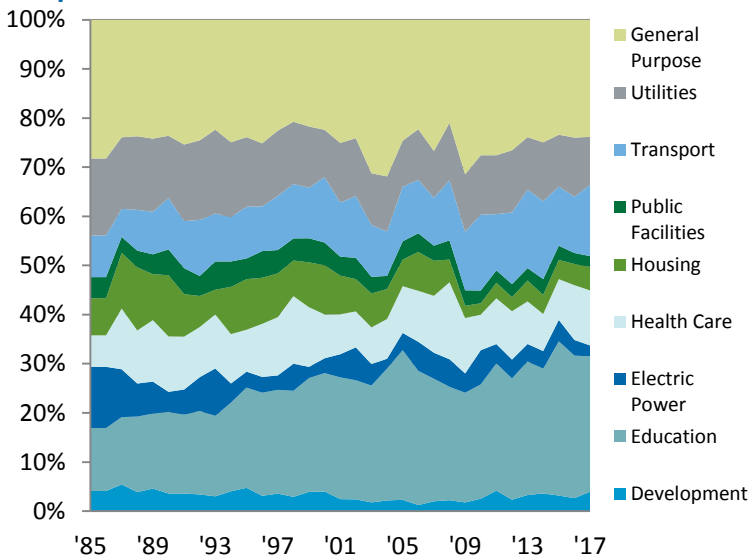


Source: Federal Reserve, FCM; Dec 31, 2017

Note: Household data smoothed 1991-2004 due to Federal Reserve 2004 methodology change

Municipal Bond Issuance

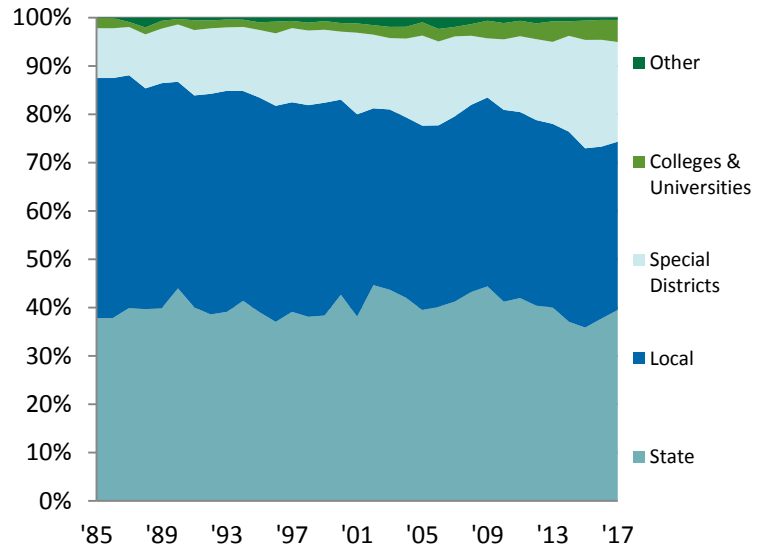
Purpose



Source: Bond Buyer, FCM; Dec 31, 2017

Municipal Bond Issuance

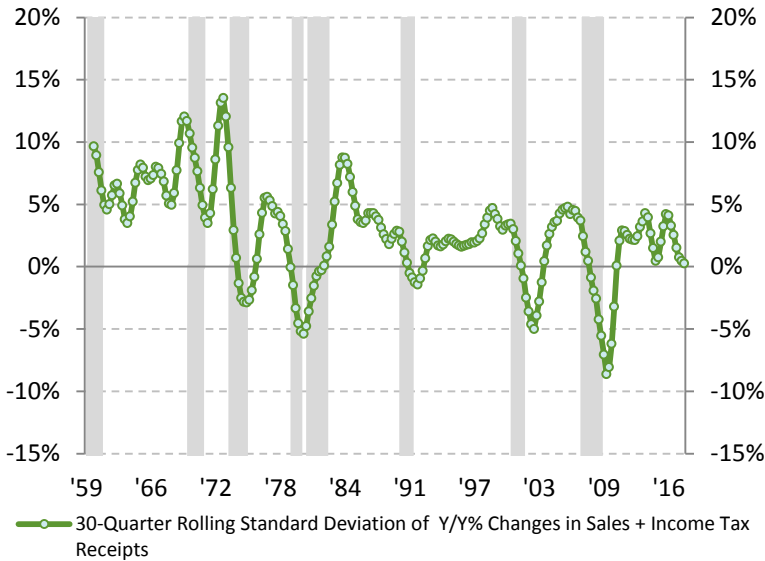
Government Type



Source: Bond Buyer, FCM; Dec 31, 2017

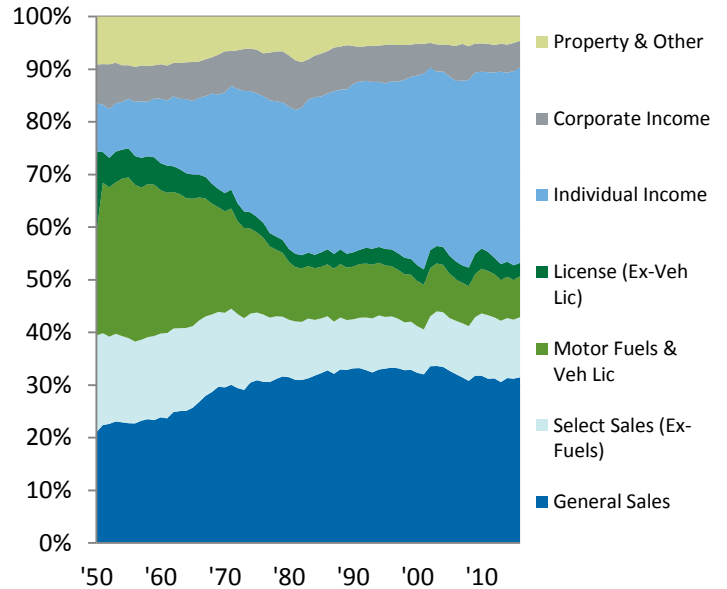
State Tax Revenues

Real Per Capita State & Local Government Sales and Income Tax Receipts



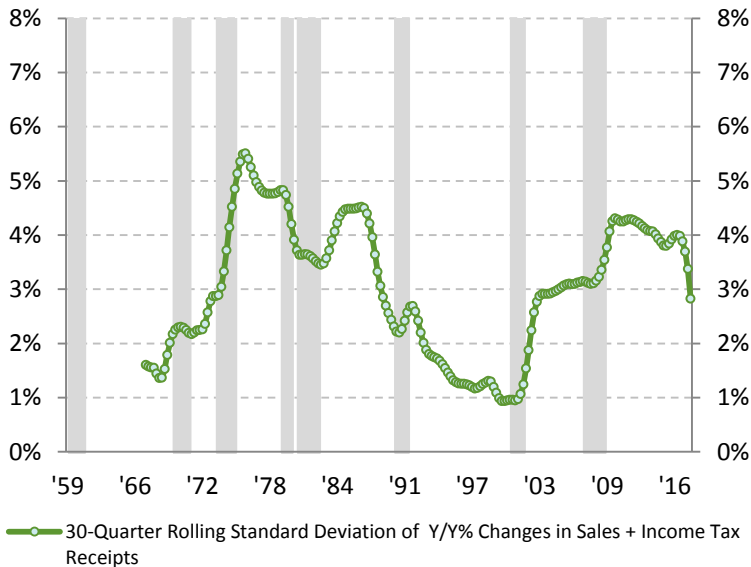
Source: Federal Reserve, Bloomberg, FCM; Dec 31, 2017
Note: Gray bars denote years in which recession occurred.

Composition of State Tax Revenue



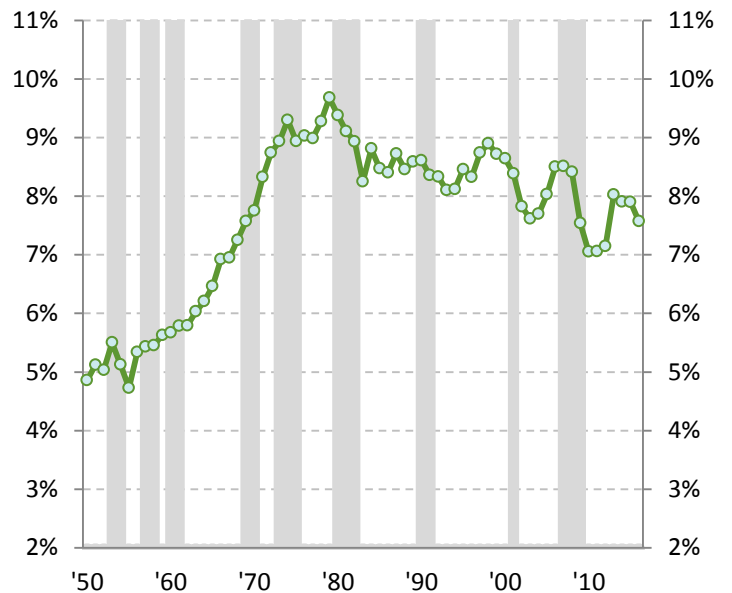
Source: US Census Bureau, FCM; Dec 31, 2017

Volatility of Real Per Capita State & Local Sales and Income Tax Receipts



Source: Federal Reserve, Bloomberg, FCM; Dec 31, 2017
Note: Gray bars denote years in which recession occurred.

Median State Personal Tax Burden



Source: US Census Bureau, Bureau of Economic Analysis, FCM; Dec 31, 2017
Note: Gray bars denote years in which recession occurred.

State Tax Revenues (cont.)

Annual State Tax Revenue - Average All Negative Growth Years 1990 - 2016

State	Avg All Neg Yrs	State	Avg All Neg Yrs	State	Avg All Neg Yrs	State	Avg All Neg Yrs	State	Avg All Neg Yrs
Arkansas	-0.7%	Mississippi	-2.7%	West Virginia	-3.3%	Alabama	-4.5%	Connecticut	-6.0%
South Dakota	-0.8%	Wisconsin	-2.7%	Nebraska	-3.4%	Utah	-4.6%	Florida	-6.6%
Maryland	-1.3%	Virginia	-2.7%	Missouri	-3.5%	Colorado	-4.8%	Louisiana	-6.8%
New York	-1.6%	Illinois	-2.8%	Washington	-3.6%	Montana	-4.8%	Arizona	-7.7%
Iowa	-1.8%	Michigan	-2.9%	Kansas	-3.7%	Georgia	-5.4%	Wyoming	-9.7%
Vermont	-2.1%	Ohio	-2.9%	South Carolina	-3.9%	Oregon	-5.4%	Idaho	-10.4%
Delaware	-2.1%	North Carolina	-3.0%	Tennessee	-4.3%	New Hampshire	-5.6%	California	-10.4%
Indiana	-2.4%	Rhode Island	-3.1%	New Jersey	-4.3%	Nevada	-5.6%	North Dakota	-10.9%
Maine	-2.5%	Hawaii	-3.2%	Minnesota	-4.3%	Oklahoma	-5.7%	Massachusetts	-12.4%
Kentucky	-2.6%	Pennsylvania	-3.3%	Texas	-4.4%	New Mexico	-6.0%	Alaska	-30.8%

Annual State Tax Revenue - Y/Y% Change Sensitivity to Change in Nominal GDP 1990 - 2016

State	Beta	State	Beta	State	Beta	State	Beta	State	Beta
North Dakota	-0.16	West Virginia	1.10	Washington	1.44	Maine	1.69	New Hampshire	2.00
Iowa	0.48	Nebraska	1.15	Delaware	1.47	New Jersey	1.70	Utah	2.24
Kentucky	0.65	Hawaii	1.16	Minnesota	1.48	Illinois	1.73	California	2.26
South Dakota	0.67	Oklahoma	1.17	Arkansas	1.48	Montana	1.80	Idaho	2.34
Alaska	0.81	Texas	1.21	Pennsylvania	1.53	South Carolina	1.81	Nevada	2.40
Wyoming	0.81	Missouri	1.23	Louisiana	1.62	Virginia	1.92	New Mexico	2.41
Indiana	0.99	Mississippi	1.28	Massachusetts	1.62	Oregon	1.93	Vermont	2.54
Wisconsin	1.04	Michigan	1.34	Ohio	1.62	Colorado	1.95	Florida	2.55
New York	1.06	Rhode Island	1.38	Alabama	1.64	Georgia	1.96	Connecticut	2.57
Maryland	1.07	Kansas	1.39	Tennessee	1.64	North Carolina	1.98	Arizona	2.63

Annual State Tax Revenue - Standard Deviation of Y/Y% Changes 1990 - 2016

State	Standard Deviation	State	Standard Deviation	State	Standard Deviation	State	Standard Deviation	State	Standard Deviation
South Dakota	2.8%	Missouri	4.2%	South Carolina	5.1%	New Jersey	5.8%	Arizona	7.2%
Maryland	3.5%	Indiana	4.3%	Tennessee	5.2%	Utah	5.8%	California	7.2%
Wisconsin	3.5%	Washington	4.4%	Illinois	5.3%	Oregon	6.0%	Connecticut	7.5%
Iowa	3.8%	Arkansas	4.4%	Texas	5.3%	Delaware	6.1%	New Mexico	7.6%
Minnesota	3.9%	Nebraska	4.7%	Massachusetts	5.4%	Florida	6.2%	Montana	7.9%
Ohio	3.9%	West Virginia	4.8%	Pennsylvania	5.4%	Michigan	6.2%	Vermont	9.7%
Kentucky	4.0%	Mississippi	4.9%	Kansas	5.4%	Nevada	6.3%	Wyoming	11.5%
Alabama	4.1%	North Carolina	4.9%	Hawaii	5.6%	Oklahoma	6.5%	North Dakota	13.8%
New York	4.2%	Maine	5.0%	Georgia	5.7%	Louisiana	6.6%	New Hampshire	16.0%
Rhode Island	4.2%	Virginia	5.0%	Colorado	5.8%	Idaho	6.7%	Alaska	42.2%

Source: US Census Bureau, Bloomberg, FCM; Dec 31, 2017

State Tax Revenues (cont.)

State Personal Tax Burden 2016

State	2016	State	2016	State	2016	State	2016	State	2016
Alaska	1.5%	Tennessee	6.0%	Montana	7.1%	Indiana	8.1%	Kentucky	9.2%
New Hampshire	3.3%	Oklahoma	6.1%	Alabama	7.2%	Wisconsin	8.2%	California	9.3%
Wyoming	4.9%	Missouri	6.2%	Maryland	7.2%	New Mexico	8.3%	West Virginia	9.6%
Texas	5.2%	Nebraska	6.6%	Pennsylvania	7.4%	North Carolina	8.3%	Maine	9.7%
South Dakota	5.3%	Georgia	6.8%	Arizona	7.5%	Iowa	8.4%	Mississippi	9.8%
Florida	5.5%	Kansas	6.9%	Ohio	7.7%	Oregon	8.5%	Delaware	9.9%
Virginia	5.8%	New Jersey	7.0%	Utah	7.7%	Nevada	8.7%	Arkansas	10.9%
Louisiana	5.8%	South Carolina	7.0%	Massachusetts	7.7%	Michigan	8.8%	Minnesota	11.0%
North Dakota	5.9%	Connecticut	7.1%	Rhode Island	8.0%	New York	8.9%	Hawaii	13.0%
Colorado	5.9%	Illinois	7.1%	Washington	8.0%	Idaho	8.9%	Vermont	13.2%

State Personal Tax Burden Average 1990 - 2016

State	Average	State	Average	State	Average	State	Average	State	Average
Alaska	2.0%	Missouri	6.9%	Ohio	7.9%	Iowa	8.5%	New Mexico	9.8%
New Hampshire	3.6%	New Jersey	7.2%	Oklahoma	8.1%	New York	8.6%	Maine	9.9%
South Dakota	5.9%	Maryland	7.2%	Indiana	8.1%	Michigan	8.6%	Delaware	10.0%
Colorado	6.1%	Georgia	7.2%	Massachusetts	8.1%	California	8.8%	Kentucky	10.1%
Texas	6.3%	Louisiana	7.5%	Connecticut	8.2%	Nevada	9.0%	Mississippi	10.3%
Virginia	6.6%	Nebraska	7.6%	North Dakota	8.3%	Utah	9.0%	Minnesota	10.8%
Wyoming	6.7%	Alabama	7.7%	South Carolina	8.4%	North Carolina	9.0%	West Virginia	10.9%
Tennessee	6.7%	Oregon	7.8%	Montana	8.4%	Wisconsin	9.3%	Arkansas	11.0%
Illinois	6.8%	Pennsylvania	7.8%	Rhode Island	8.4%	Washington	9.4%	Vermont	11.6%
Florida	6.8%	Kansas	7.8%	Arizona	8.5%	Idaho	9.6%	Hawaii	12.4%

Source: US Census Bureau, Bureau of Economic Analysis, FCM; Dec 31, 2017

Tax Burden: Total state tax revenue excluding corporate income and severance taxes divided by total state personal income excluding federal transfer receipts.

State-to-State Tax Base Migration

Net Outflow Breadth (number of states to which the tax base moved)

State	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
AZ	16	6	6	6	6	3	4	4	3	3	7	5	3	8	13	12	21	14	14	10	12	9	11	8
FL	15	14	13	16	13	7	9	6	5	2	3	2	8	16	16	19	21	15	6	12	8	4	0	3
SC	20	20	17	13	9	9	6	9	15	6	10	8	11	7	9	5	11	6	10	8	9	4	9	7
TN	4	6	3	5	13	10	10	18	21	18	8	11	5	8	7	12	12	15	12	11	14	13	11	9
NC	9	8	9	10	10	8	6	11	13	11	13	14	10	12	11	9	10	16	10	10	14	13	15	10
OR	10	16	13	7	8	10	15	14	9	10	16	22	13	11	12	11	13	13	9	15	10	4	8	5
MT	6	10	9	14	18	21	14	13	16	17	11	10	9	5	7	8	13	12	12	13	10	9	18	6
NV	14	8	9	8	5	3	6	8	3	7	7	6	13	17	18	18	22	26	23	17	19	10	11	13
ID	7	6	11	8	10	11	11	12	13	13	14	12	7	9	17	16	17	22	23	17	10	8	15	5
CO	9	10	12	15	11	9	7	10	12	19	29	22	20	15	13	8	9	13	9	11	11	10	8	12
WA	10	23	15	14	9	9	18	23	14	15	19	19	14	11	13	13	15	23	9	12	10	10	3	4
TX	22	18	21	18	18	13	15	18	23	22	29	19	17	12	10	7	6	3	6	10	2	5	9	13
AR	8	9	6	9	15	19	20	17	21	19	12	8	13	10	12	10	7	15	25	25	28	26	23	22
GA	9	9	9	8	8	12	9	12	16	17	17	18	21	19	18	20	18	31	23	20	17	16	20	16
AL	6	13	17	14	13	17	20	26	25	26	16	11	9	16	16	10	13	14	18	16	15	18	22	19
WY	18	18	20	23	20	19	24	18	20	16	19	19	20	9	11	14	12	17	20	16	25	19	17	27
UT	11	14	15	19	13	26	26	29	29	31	32	28	16	10	7	13	18	20	22	15	18	15	14	9
NM	18	7	15	18	21	21	26	26	23	14	16	11	13	14	20	18	12	14	20	28	27	28	29	21
KY	20	13	16	16	15	27	24	19	25	25	18	19	14	24	15	20	26	20	30	20	22	27	28	25
SD	21	21	21	26	33	29	33	27	21	29	23	16	26	20	16	19	18	18	17	12	16	16	17	22
ME	35	35	32	22	23	24	14	13	16	13	12	19	24	26	22	26	26	30	18	18	21	21	28	20
MS	16	15	12	17	16	17	19	30	40	30	21	26	21	36	23	17	23	24	27	27	34	24	38	25
VA	26	29	32	31	28	21	16	16	18	17	17	18	18	25	31	30	24	13	21	33	34	36	33	36
OK	29	28	25	19	19	31	31	33	31	34	33	33	35	23	17	23	8	16	21	22	20	25	19	29
VT	32	25	26	27	26	25	23	22	19	14	24	24	25	24	30	28	30	29	26	32	27	33	23	27
NH	33	32	31	22	24	22	15	18	17	16	27	32	32	27	34	31	30	31	30	25	22	27	30	26
MO	26	22	17	19	22	27	27	34	30	32	28	29	26	21	22	23	27	36	35	37	31	29	31	31
HI	39	41	42	43	40	33	38	29	21	17	21	22	19	25	28	28	30	27	20	24	20	27	15	28
LA	38	24	26	33	29	36	42	37	43	30	24	22	28	50	33	24	16	10	20	20	20	24	24	28
WV	18	24	21	23	34	28	34	32	35	30	25	26	27	34	31	23	28	21	23	30	32	35	39	37
MN	17	26	26	23	24	29	27	24	25	33	31	32	38	29	32	31	35	37	35	29	31	34	30	29
DE	35	33	30	36	30	30	29	26	26	30	24	25	28	28	29	28	32	32	32	35	30	30	19	34
IN	20	28	28	27	25	31	28	33	36	37	34	32	33	30	34	37	38	35	38	34	30	27	31	32
MA	41	35	36	34	32	23	22	15	26	39	43	36	38	35	35	35	32	33	32	28	31	33	28	32
ND	43	31	35	34	40	44	45	38	43	43	38	29	31	37	34	36	30	20	19	12	15	19	11	37
KS	30	25	37	29	25	23	30	36	44	34	41	36	35	34	27	32	23	26	32	30	33	33	36	35
WI	23	25	26	28	32	33	29	26	31	30	28	33	34	32	29	37	35	42	36	35	35	36	42	30
RI	37	38	37	35	37	31	24	23	21	17	21	38	38	42	38	43	39	34	34	34	32	32	31	29
CA	45	48	44	42	33	26	28	25	19	37	38	37	38	35	34	34	32	34	32	23	29	28	27	26
NE	31	34	23	26	37	39	37	39	42	39	35	35	37	37	34	31	35	28	33	28	28	31	28	29
AK	31	37	45	37	39	38	40	46	35	24	30	24	31	24	27	33	25	22	28	37	42	39	33	40
MD	38	40	42	40	40	34	33	31	23	21	26	33	30	35	36	38	33	27	27	38	38	41	38	39
IA	27	33	31	36	38	35	38	43	43	44	38	32	35	29	36	24	29	30	33	33	33	30	35	37
PA	36	39	42	40	44	38	40	33	34	35	30	36	34	36	36	41	39	32	30	35	40	41	35	42
OH	30	37	29	36	36	39	33	39	36	39	38	38	39	39	40	44	42	41	44	35	35	31	39	30
MI	39	36	31	30	30	36	38	32	35	40	37	40	46	44	49	50	50	48	46	33	29	29	33	27
CT	45	43	43	47	42	41	38	34	33	31	34	39	41	38	38	40	44	42	40	41	41	43	42	45
IL	35	38	35	39	38	40	42	36	38	41	47	46	44	40	36	38	38	46	43	40	41	42	43	41
NY	47	48	47	49	46	44	41	41	38	45	43	43	42	41	44	42	44	43	45	47	42	45	47	42
NJ	47	48	48	49	48	46	43	38	35	42	48	46	46	44	47	40	47	45	42	47	43	47	45	44

Source: IRS, FCM; Dec 31, 2017

<<< # of states to which net outflows moved >>>

45 35 25 15 5

State-to-State Tax Base Migration (cont.)

State-to-State Adjusted Gross Income Migration Flows 2015-2016

Net Outflow Breadth (number of states to which the tax base moved)

State	Breadth	State	Breadth	State	Breadth	State	Breadth	State	Breadth
Florida	3	Colorado	12	Mississippi	25	Oklahoma	29	Iowa	37
Washington	4	Nevada	13	California	26	Rhode Island	29	North Dakota	37
Idaho	5	Texas	13	New Hampshire	26	Ohio	30	West Virginia	37
Oregon	5	Georgia	16	Michigan	27	Wisconsin	30	Maryland	39
Montana	6	Alabama	19	Vermont	27	Missouri	31	Alaska	40
South Carolina	7	Maine	20	Wyoming	27	Indiana	32	Illinois	41
Arizona	8	New Mexico	21	Hawaii	28	Massachusetts	32	New York	42
Tennessee	9	Arkansas	22	Louisiana	28	Delaware	34	Pennsylvania	42
Utah	9	South Dakota	22	Minnesota	29	Kansas	35	New Jersey	44
North Carolina	10	Kentucky	25	Nebraska	29	Virginia	36	Connecticut	45

Net Dollar Flow (\$ millions)

State	Net Flow	State	Net Flow	State	Net Flow	State	Net Flow	State	Net Flow
Florida	17,214	Idaho	688	Vermont	(30)	Kentucky	(235)	Massachusetts	(1,413)
Texas	2,341	Utah	599	Arkansas	(35)	Iowa	(256)	Maryland	(1,570)
Washington	2,264	Georgia	553	Alabama	(166)	Alaska	(280)	Virginia	(1,610)
South Carolina	2,247	Montana	316	Rhode Island	(182)	North Dakota	(282)	Ohio	(1,754)
North Carolina	2,158	New Hampshire	231	New Mexico	(188)	Kansas	(408)	California	(2,006)
Arizona	1,992	Hawaii	154	Nebraska	(202)	Wisconsin	(462)	Connecticut	(2,616)
Colorado	1,786	Maine	151	Mississippi	(205)	Indiana	(552)	Pennsylvania	(2,622)
Oregon	1,489	Delaware	128	Louisiana	(215)	Missouri	(625)	New Jersey	(3,427)
Tennessee	1,313	Wyoming	98	Oklahoma	(215)	Minnesota	(651)	Illinois	(4,754)
Nevada	1,029	South Dakota	53	West Virginia	(233)	Michigan	(711)	New York	(8,430)

Source: IRS, FCM; Dec 31, 2017

Migration of Adjusted Gross Income (AGI): The migration of AGI between and among the states provides a more accurate measure than population shifts of the trend in a state's tax base. The Statistics of Income Division of the IRS maintains records of all individual income tax forms filed in each year, including the state of residence of the filers. The data used to produce the migration statistics come from individual income tax returns and represent between 95% and 98% of total annual filings. One gauge of the degree of movement in a state's tax base is the extent to which it is on the sending or receiving end of AGI migration. Breadth measures the number of other states to which the state lost part of its tax base in any given year.

State Economic Diversity

Hachman Index 2016

State	2016	State	2016	State	2016	State	2016	State	2016
Missouri	0.97	Minnesota	0.94	Massachusetts	0.90	Mississippi	0.87	Texas	0.77
Utah	0.97	New Hampshire	0.93	Rhode Island	0.90	Arkansas	0.86	New Mexico	0.77
Arizona	0.97	Oregon	0.93	Kansas	0.90	New York	0.85	Idaho	0.75
North Carolina	0.97	Ohio	0.93	Connecticut	0.89	Maine	0.85	Hawaii	0.74
Illinois	0.96	Michigan	0.92	Maryland	0.89	Louisiana	0.84	Oklahoma	0.70
New Jersey	0.96	South Carolina	0.91	Washington	0.89	Indiana	0.83	Nevada	0.62
Georgia	0.96	Alabama	0.91	Wisconsin	0.88	Montana	0.82	North Dakota	0.62
California	0.94	Tennessee	0.91	Colorado	0.88	Iowa	0.81	Nebraska	0.58
Pennsylvania	0.94	Vermont	0.90	Delaware	0.88	West Virginia	0.80	Alaska	0.56
Florida	0.94	Kentucky	0.90	Virginia	0.87	South Dakota	0.79	Wyoming	0.44

Hachman Index Average All Years 1991 - 2016

State	Average All Years	State	Average All Years	State	Average All Years	State	Average All Years	State	Average All Years
Illinois	0.97	Oregon	0.94	Colorado	0.91	Mississippi	0.88	Iowa	0.77
Missouri	0.97	Ohio	0.93	Kentucky	0.91	Delaware	0.87	Nebraska	0.71
California	0.96	Washington	0.93	Massachusetts	0.91	Indiana	0.85	Hawaii	0.70
Utah	0.96	Alabama	0.93	Michigan	0.91	Arkansas	0.84	Oklahoma	0.69
Arizona	0.96	Florida	0.92	Vermont	0.90	New York	0.84	West Virginia	0.69
New Jersey	0.95	Tennessee	0.92	Virginia	0.90	Texas	0.81	Alaska	0.58
Pennsylvania	0.95	South Carolina	0.92	Maryland	0.90	New Mexico	0.80	South Dakota	0.58
Georgia	0.95	Rhode Island	0.91	Wisconsin	0.90	Montana	0.80	North Dakota	0.57
North Carolina	0.94	New Hampshire	0.91	Maine	0.89	Louisiana	0.80	Nevada	0.46
Minnesota	0.94	Kansas	0.91	Connecticut	0.88	Idaho	0.79	Wyoming	0.35

Hachman Index Lowest Year 1991 - 2016

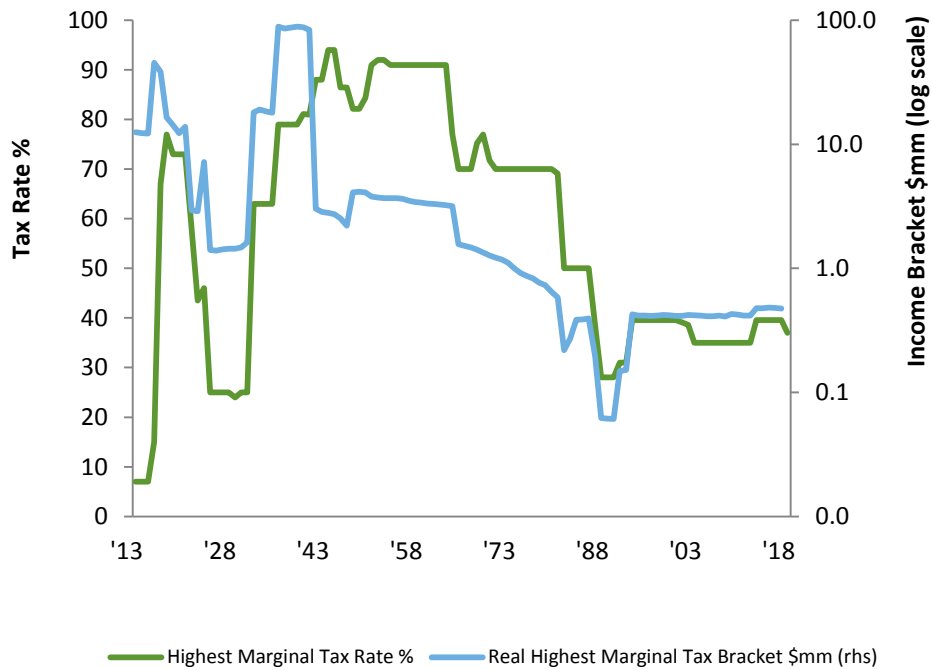
State	Lowest Year	State	Lowest Year	State	Lowest Year	State	Lowest Year	State	Lowest Year
Illinois	0.95	Georgia	0.91	Washington	0.87	Kansas	0.80	Louisiana	0.63
Missouri	0.95	South Carolina	0.90	Virginia	0.87	New York	0.80	Iowa	0.60
New Jersey	0.95	Tennessee	0.89	Michigan	0.86	Connecticut	0.77	Alaska	0.51
Arizona	0.94	Alabama	0.89	Colorado	0.85	Arkansas	0.77	Nebraska	0.50
California	0.94	Minnesota	0.89	Kentucky	0.84	New Mexico	0.76	West Virginia	0.47
Utah	0.93	Maryland	0.88	Rhode Island	0.83	Delaware	0.74	Oklahoma	0.42
Ohio	0.92	New Hampshire	0.88	Vermont	0.83	Idaho	0.73	South Dakota	0.34
Pennsylvania	0.92	Wisconsin	0.88	Maine	0.83	Texas	0.69	North Dakota	0.34
Oregon	0.92	Massachusetts	0.88	Mississippi	0.82	Montana	0.67	Wyoming	0.25
Florida	0.91	North Carolina	0.88	Indiana	0.82	Hawaii	0.64	Nevada	0.19

Source: US Bureau of Economic Analysis, FCM; Dec 31, 2017

Hachman Index: The measure of a state's overall economic diversity may be derived using the Hachman Index. This is an index of similarity that measures how closely industry earnings of the subject region (the state) resemble that of the reference region (the nation). The value of the index is between zero and one. As the value of the index approaches one, this means that the subject region's employment distribution among industries is more similar to that of the reference region. If the reference region is the nation, and, given the assumption that the nation's economy is diversified, a larger value of the Hachman Index relative to the nation means that a subject region is more diversified (and therefore less specialized).

U.S. Individual Income Tax Highest Tax Bracket

U.S. Individual Income Tax Highest Tax Bracket for Married Filing Jointly



Source: IRS, Robert J. Shiller, FCM; Dec 31, 2017

Note: The real highest marginal tax bracket was adjusted based on the annual average level of the Consumer Price Index.

Index Definitions

Bank of America Merrill Lynch (BAML) Global Bond Indices

The BofA Merrill Lynch US Municipal Securities Index: The Index tracks the performance of US dollar denominated investment grade tax-exempt debt publicly issued by US states and territories, and their political subdivisions, in the US domestic market. Qualifying securities must have at least one year remaining term to final maturity, at least 18 months to final maturity at the time of issuance, a fixed coupon schedule and an investment grade rating (based on an average of Moody's, S&P and Fitch). Minimum size requirements vary based on the initial term to final maturity at time of issuance. Securities with an initial term to final maturity greater than or equal to one year and less than five years must have a current amount outstanding of at least \$10 million. Securities with an initial term to final maturity greater than or equal to five years and less than ten years must have a current amount outstanding of at least \$15 million. Securities with an initial term to final maturity of ten years or more must have a current amount outstanding of at least \$25 million. The call date on which a pre-refunded bond will be redeemed is used for purposes of determining qualification with respect to final maturity requirements. Original issue zero coupon bonds are included in the Index. Taxable municipal securities, 144a securities and securities in legal default are excluded from the Index. Index constituents are capitalization-weighted based on their current amount outstanding times the market price plus accrued interest. Accrued interest is calculated assuming next-day settlement. Cash flows from bond payments that are received during the month are retained in the index until the end of the month and then are removed as part of the rebalancing. Cash does not earn any reinvestment income while it is held in the index. The index is rebalanced on the last calendar day of the month, based on information available up to and including the third business day before the last business day of the month. No changes are made to constituent holdings other than on month end rebalancing dates.

BofA Merrill Lynch US Corporate Index: The US Corporate Index tracks the performance of US dollar denominated investment grade corporate debt publicly issued in the US domestic market. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch). In addition, qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of \$250 million. Original issue zero coupon bonds, 144a securities, both with and without registration rights, and pay-in-kind securities, including toggle notes, qualify for inclusion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Eurodollar bonds (USD bonds not issued in the US domestic market), taxable and tax-exempt US municipal, warrant-bearing, DRD-eligible and defaulted securities are excluded from the Index.

BofA Merrill Lynch Global Corporate Index: The Global Corporate Index tracks the performance of investment grade corporate debt publicly issued in the major domestic and Eurobond markets. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch). For Canadian dollar securities only, Fitch is replaced by DBRS in the rating calculation. In addition, qualifying securities must have at least one year remaining term to final maturity and a fixed coupon schedule. Qualifying currencies and their respective minimum size requirements (in local currency terms) are: AUD 100 million; CAD 100 million; EUR 250 million; JPY 20 billion; GBP 100 million; and USD 250 million. Eurodollar bonds (USD bonds not issued in the US domestic market) and 144a securities, both with and without registration rights qualify for inclusion in the Index. Original issue zero coupon bonds and pay-in-kind securities, including toggle notes, also qualify for inclusion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Taxable and tax-exempt US municipal, warrant-bearing, DRD-eligible and defaulted securities are excluded from the Index.

BofA Merrill Lynch US High Yield Index: The US High Yield Index tracks the performance of US dollar denominated below investment grade corporate debt publicly issued in the US domestic market. Qualifying securities must have a below investment grade rating (based on an average of Moody's, S&P and Fitch). The country of risk of qualifying issuers must be an FX-G10 member, a Western European nation, or a territory of the US or a Western European nation. The FX-G10 includes all Euro members, the US, Japan, the UK, Canada, Australia, New Zealand, Switzerland, Norway and Sweden. In addition, qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of \$100 million. Original issue zero coupon bonds, 144a securities, both with and without registration rights, and pay-in-kind securities, including toggle notes, qualify for inclusion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Eurodollar bonds (USD bonds not issued in the US domestic market), taxable and tax-exempt US municipal, warrant-bearing, DRD-eligible and defaulted securities are excluded from the Index.

BofA Merrill Lynch US Fixed Rate Preferred Securities Index: The US Fixed Rate Preferred Securities Index tracks the performance of fixed rate US dollar denominated preferred securities issued in the US domestic market. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch) and must have an investment grade rated country of risk (based on an average of Moody's, S&P and Fitch foreign currency long term sovereign debt ratings). In addition, qualifying securities must be issued as public securities or through a 144a filing, must be issued in \$25, \$50, or \$100 par/liquidation preference

increments, must have a fixed coupon or dividend schedule and must have a minimum amount outstanding of \$100 million. \$1,000 par securities that are DRD eligible qualify for inclusion in the Index, provided their amount outstanding is at least \$250 million. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. The Index includes preference shares (perpetual preferred securities), American Depository Shares/Receipts (ADS/R), domestic and Yankee trust preferred securities having a minimum remaining term of at least one year, both DRD-eligible and non-DRD eligible preferred stock and senior debt. Auction market securities, convertibles, floaters, purchase units, purchase contracts, corporate pay-in-kind securities, securities issued by closed-end funds and derivative instruments such as repackaged securities and credit default swaps are excluded from the Index.

BofA Merrill Lynch All US Convertible Index: The All US Convertible Index tracks the performance of US dollar denominated convertible securities issued in the US domestic market. Qualifying securities are not required to have an investment grade rating (chapter 11 issuers removed on filing date) but must have a significant company footprint in the US (as measured by revenues). In addition, qualifying securities must be issued as public securities sold into the US market and publicly traded in the US (including in the OTC market), must have greater than or equal to \$50 million aggregate market value at issuance, and must be convertible into US dollar denominated common stock, ADRs, or cash equivalent. New issues are added on issue date, redeemed issues are removed on the last conversion day if a forced conversion and on the redemption day if a cash call. Appreciated issues are added at quarter end and depreciated/converted issues are removed at quarter end (below \$40 million).

BofA Merrill Lynch US Asset Backed Securities & Commercial Mortgage Backed Securities Index: The US Asset Backed Securities & Commercial Mortgage Backed Securities Index tracks the performance of US dollar denominated investment grade fixed and floating rate asset backed securities and fixed rate commercial mortgage backed securities publicly issued in the US domestic market. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch), at least one year remaining term to final stated maturity and at least one month to the last expected cash flow. 144a securities qualify for inclusion in the Index. Callable perpetual securities qualify provided they are at least one year from the first call date. Inverse floating rate, interest only and principal only tranches of qualifying deals are excluded from the Index as are all tranches of re-securitized and agency deals. Qualifying asset backed securities must have a fixed or floating rate coupon, an original deal size for the collateral group of at least \$250 million, a current outstanding deal size for the collateral group greater than or equal to 10% of the original deal size and a minimum outstanding tranche size of \$50 million for senior tranches and \$10 million for mezzanine and subordinated tranches. Qualifying commercial mortgage backed securities must have a fixed coupon schedule, an original deal size for the collateral group of at least \$250 million, a current outstanding deal size for the collateral group that is greater than or equal to 10% of the original deal size and at least \$50 million current amount outstanding for senior tranches and \$25 million current amount outstanding for mezzanine and subordinated tranches. Fixed-to-floating rate securities qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Floating rate securities are excluded.

BofA Merrill Lynch US Mortgage Backed Securities Index: The US Mortgage Backed Securities Index tracks the performance of US dollar denominated fixed rate and hybrid residential mortgage pass-through securities publicly issued by US agencies in the US domestic market. 30-year, 20-year, 15-year and interest-only fixed rate mortgage pools are included in the Index provided they have at least one year remaining term to final maturity and a minimum amount outstanding of at least \$5 billion per generic coupon and \$250 million per production year within each generic coupon. Hybrid mortgage pools that reset versus 1-year CMT, 1- year LIBOR or 6-month LIBOR during their adjustable rate period are also included in the index provided they have at least \$2.5 billion per generic coupon and \$250 million per production year within each generic coupon. Generic hybrid coupons are aggregated in quarter coupon increments. Hybrid mortgages are removed from the index when they are less than one year from the date at which they transition to an adjustable rate coupon. Balloon, mobile home, graduated payment and quarter coupon fixed rate mortgages are excluded from the index, as are all collateralized mortgage obligations.

BofA Merrill Lynch US Treasury Index: The US Treasury Index tracks the performance of US dollar denominated sovereign debt publicly issued by the US government in its domestic market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of \$1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch US Inflation-Linked Treasury Index: The US Inflation-Linked Treasury Index tracks the performance of US dollar denominated inflation-linked sovereign debt publicly issued by the US government in its domestic market. Qualifying securities must

have at least one year remaining term to final maturity, interest and principal payments tied to inflation and a minimum amount outstanding of \$1 billion. Strips are excluded from the Index; however, original issue zero coupon bonds are included in the Index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch US Agency Index: The US Agency Index tracks the performance of US dollar denominated US agency senior debt issued in the US domestic market. Qualifying securities must have an investment grade rating (based on an average of Moody's, S&P and Fitch). In addition, qualifying securities must be unsubordinated, must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of \$250 million. "Global" securities (debt issued simultaneously in the Eurobond and US domestic markets) qualify for inclusion in the Index. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Defaulted securities are excluded from the Index.

BofA Merrill Lynch Japan Government Index: The Japan Government Index tracks the performance of JPY denominated sovereign debt publicly issued by the Japanese government in its domestic market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of JPY 200 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch Australia Government Index: The Australia Government Index tracks the performance of AUD denominated sovereign debt publicly issued by the Australian government in its domestic market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of AUD 1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch French Government Index: The French Government Index tracks the performance of EUR denominated sovereign debt publicly issued by the French government in the French domestic or Eurobond market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of EUR 1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch German Government Index: The German Government Index tracks the performance of EUR denominated sovereign debt publicly issued by the German government in the German domestic or Eurobond market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of EUR 1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch Italian Government Index: The Italian Government Index tracks the performance of EUR denominated sovereign debt publicly issued by the Italian government in the Italian domestic or Eurobond market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of EUR 1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch Spanish Government Index: The Spanish Government Index tracks the performance of EUR denominated sovereign debt publicly issued by the Spanish government in the Spanish domestic or Eurobond market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of EUR 1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch UK Gilt Index: The UK Gilt Index tracks the performance of GBP denominated sovereign debt publicly issued by the UK government in its domestic market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of GBP 500 million. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch Canada Government Index: The Canada Government Index tracks the performance of CAD denominated sovereign debt publicly issued by the Canadian government in its domestic market. Qualifying securities must have at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of CAD 1 billion. Callable perpetual securities qualify provided they are at least one year from the first call date. Fixed-to-floating rate securities also qualify provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transitions from a fixed to a floating rate security. Bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch USD Emerging Market Sovereigns, Brazil Index: The USD Emerging Market Sovereigns, Brazil Index tracks the performance of USD denominated sovereign debt publicly issued by the Brazilian government. Qualifying securities must have at least one year remaining term to final maturity, a fixed or floating coupon schedule and a minimum amount outstanding of USD 300 million. Debt issued in the issuer's domestic market, bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch USD Emerging Market Sovereigns, Mexico Index: The USD Emerging Market Sovereigns, Mexico Index tracks the performance of USD denominated sovereign debt publicly issued by the Mexican government. Qualifying securities must have at least one year remaining term to final maturity, a fixed or floating coupon schedule and a minimum amount outstanding of USD 300 million. Debt issued in the issuer's domestic market, bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch USD Emerging Market Sovereigns, Turkey Index: The USD Emerging Market Sovereigns, Turkey Index tracks the performance of USD denominated sovereign debt publicly issued by the Turkey government. Qualifying securities must have at least one year remaining term to final maturity, a fixed or floating coupon schedule and a minimum amount outstanding of USD 300 million. Debt issued in the issuer's domestic market, bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch USD Emerging Market Sovereigns, South Korea Index: The USD Emerging Market Sovereigns, South Korea Index tracks the performance of USD denominated sovereign debt publicly issued by the South Korean government. Qualifying securities must have at least one year remaining term to final maturity, a fixed or floating coupon schedule and a minimum amount outstanding of USD 300 million. Debt issued in the issuer's domestic market, bills, inflation-linked debt and strips are excluded from the Index; however, original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

BofA Merrill Lynch USD Emerging Market Sovereigns, Indonesia Index: The USD Emerging Market Sovereigns, Indonesia Index tracks the performance of USD denominated sovereign debt publicly issued by the Indonesian government. Qualifying securities must have at least one year remaining term to final maturity, a fixed or floating coupon schedule and a minimum amount outstanding of USD 300 million. Debt issued in the issuer's domestic market, bills, inflation-linked debt and strips are excluded from the Index; however,

original issue zero coupon bonds are included in the index and the amounts outstanding of qualifying coupon securities are not reduced by any portions that have been stripped.

S&P Municipal Bond Indices

The S&P Municipal Bond Index is a broad, comprehensive, market value-weighted index. All bonds in the index are exempt from U.S. federal income taxes, but may be subject to alternative minimum tax (AMT). The bond issuer is a U.S. state (including the Commonwealth of Puerto Rico and U.S. territories) or local government or agency such that interest on the bond is exempt from U.S. federal income taxes, but may be subject to alternative minimum tax (AMT). The bond must have a dated date within three months of the rebalancing date to be considered eligible for a new addition to the index. The bond must be held by a mutual fund and Securities Evaluations | ICE Data Services must provide daily pricing on the bond. The bond must be denominated in U.S. dollars. The amount outstanding, or par amount, is used to determine the weight of the bond in the index. The bond must have a minimum par amount of US\$ 2 million to be eligible for inclusion. As of the rebalancing date, the bond must have a minimum term to maturity greater than one calendar month. For any bond with an announced full call, the call date must be greater than one calendar month. Bonds are deleted from the index at the rebalancing for the following reasons: (1) bonds that are completely called or tendered during the course of the month, (2) defaulted bonds that have made a final distribution, (3), bonds that are scheduled to be completely called or redeemed during the course of the calendar month following the rebalancing date, (4) bonds where partial calls and redemptions have reduced the known outstanding amount to less than US\$ 2 million during the course of the month, (5) bonds that have gone through a partial pre-refunding and have, consequently, had new CUSIPs assigned (if the "new" bonds are considered eligible for inclusion, the bonds are added to the index on a monthly rebalancing date accordingly), (6) bonds that are no longer priced by Securities Evaluations | ICE Data Services for more than five consecutive days. The state level municipal bond sub-indices consists of bonds in the S&P Municipal Bond Index that have been issued by municipalities or municipal authorities within the 50 states, the District of Columbia, Puerto Rico, Guam and the U.S. Virgin Islands.

Municipal Market Data (MMD)

Municipal Market Data produces daily generic yield curves which reflect the offer-side of the municipal market determined from trading activity and primary markets. The MMD "AAA" curve represents non-AMT, tax-exempt yields on triple-A rated state general obligation bonds. The MMD curve evaluates trades and primary market maturities of at least \$2 million and assumes a 10-year par call for maturities longer than 10 years. Yields are reflective of coupon structures that are the general preference of institutional buyers and tend to be standard structures for primary issues. Currently, the coupon of preference is 5.00%, and maturities beyond 10 years are yield to call (callable in year 10), not yield to maturity.

Bloomberg Barclays Indices

Bloomberg Barclays Municipal Bond Index Total Return Index

The Bloomberg Barclays U.S. Municipal Index covers the USD-denominated long-term tax exempt bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds and prerefunded bonds.

Bloomberg Barclays US Corporate Total Return Index

The Bloomberg Barclays US Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD denominated securities publicly issued by US and non-US industrial, utility and financial issuers.

Past performance is no guarantee of future results.

All indexes are unmanaged, and performance of the indexes includes reinvestment of dividends and interest income, unless otherwise noted. Indexes are not illustrative of any particular investment, and it is not possible to invest directly in an index.

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In general the bond market is volatile, and fixed income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa. This effect is usually more pronounced for longer-term securities.) Fixed income securities also carry inflation risk, liquidity risk, call risk, and credit and default risks for both issuers and counterparties.

Any fixed income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.

Diversification does not ensure a profit or guarantee against a loss. Interest income earned from tax-exempt municipal securities generally is exempt from federal income tax, and may also be exempt from state and local income taxes if you are a resident in the state of issuance. A portion of the income you receive may be subject to federal and state income taxes, including the federal alternative minimum tax. In addition, you may be subject to tax on amounts recognized in connection with the sale of municipal bonds, including capital gains and "market discount" taxed at ordinary income rates. "Market discount" arises when a bond is purchased on the secondary market for a price that is less than its stated redemption price by more than a statutory amount. Before making any investment, you should review the official statement for the relevant offering for additional tax and other considerations.

The municipal market can be adversely affected by tax, legislative or political changes and the financial condition of the issuers of municipal securities. Investing in municipal bonds for the purpose of generating tax-exempt income may not be appropriate for investors in all tax brackets or for all account types. Tax laws are subject to change and the preferential tax treatment of municipal bond interest income may be revoked or phased out for investors at certain income levels. You should consult your tax adviser regarding your specific situation.

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