FIDELITY CAPITAL MARKETS

Overview of the Taxable Municipal Market

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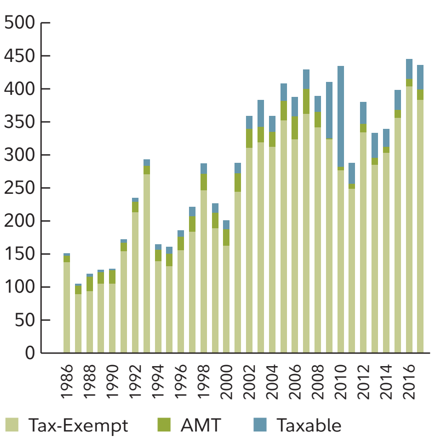
Background

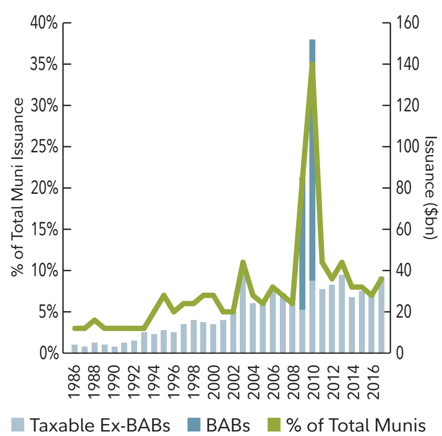
The taxable municipal bond market began to develop after passage of the Tax Reform Act of 1986, which eliminated the ability for issuers to sell tax-exempt bonds for certain purposes. Taxable issuance grew along with the overall municipal market, but remained in a range from 3% to 7% of the total from 1986 until 2002. After 2002, the share began to increase, rising to 21% in 2009 and 35% in 2010, because of the Build America Bonds (BABs) program. Taxable issuance totaled $85 billion and $152 billion in those two years, respectively. Excluding 2009 and 2010, the taxable share of municipal issuance has increased to between 6% and 11% of the total since 2002. In 2017, $37 billion of taxable municipals were issued, representing 9% of the total. While the market has grown substantially from its early years, it remains tiny in comparison to the investment grade corporate bond market in the United States, where $1.4 trillion of debt was issued in 2017.[1]

TOTAL MUNICIPAL BOND ISSUANCE ($BN)



Sources: Bond Buyer, Fidelity Capital Markets; as of June 11, 2018.

TAXABLE MUNICIPAL BOND ISSUANCE



Sources: Bond Buyer, Fidelity Capital Markets; as of June 11, 2018.

Taxability and Federal Programs

Interest on most municipal securities is exempt from federal income taxes, and most states exempt the interest on in-state bonds from state income taxes as well. However, interest on municipal bonds that are issued to finance a project that does not meet certain public purpose or public use tests under the Internal Revenue Service (IRS) requirements to qualify for tax exemption is taxable under federal law.[2] For example, taxable municipal bonds may be issued to finance industrial development, raise public pension funding levels, refund municipal bonds that have been previously refunded, or, because of the Tax Cuts and Jobs Act of 2017, to advance refund a new issue.[3] States tend to treat municipal securities that do not meet IRS requirements for tax exemption the same as municipal securities that do meet those requirements.[4] Straight taxable munis (no federal program) and BABs represent more than 90% of the market (see Table 3 on page 8).

In the past, there have been federal programs that supported the issuance of taxable bonds by state or local government issuers to promote a policy objective such as infrastructure, school construction, or energy conservation. Under certain federal programs, municipal bond issuers receive cash rebates from the U.S. Department of the Treasury (Treasury) to subsidize a portion of their interest payments. These taxable municipal bonds are sometimes referred to as direct-pay bonds. Such programs include BABs[5] and Recovery Zone Economic Development Bonds (RZEDBs),[6] which were authorized by the American Recovery and Reinvestment Act of 2009 (ARRA) to encourage state and local government issuers to finance projects that would create jobs and stimulate the economy with the aid of a federal subsidy. Qualified School Construction Bonds (QSCBs)[7] were also authorized by ARRA. While the program authorizations expired in 2010, a significant number of BABs, RZEDBs, and QSCBs remain outstanding.

Other federal programs that promoted taxable municipal bond issuance include qualified tax credit bonds. These bonds were issued by state or local governments to provide funds for certain eligible projects. Bondholders receive federal income tax credits in lieu of periodic interest payments. Qualified tax credit bond programs include Qualified Zone Academy Bonds (QZABs), Qualified Energy Conservation Bonds (QECBs), and Clean Renewable Energy Bonds (CREBs).[8] Authorization for new tax credit bonds under these programs was eliminated with the passage of the Tax Cuts and Jobs Act of 2017.

In these federally subsidized programs, issuers were usually given the option to either receive a direct-payment subsidy from Treasury (direct-pay bonds) to offset their interest payments on the bonds, or elect to issue tax credit bonds, where investors receive tax credits directly from Treasury.

Considerations for Investing in the Taxable Municipal Market

Taxable municipal bonds can be exempt from state and local income taxes for investors who reside in the state of issuance, which may cause the after-tax yield earned on the bond to be higher than the after-tax yield on a corporate bond of similar credit quality and duration, where the interest is taxed at the federal, state, and local level. The official statement for new municipal securities issues generally includes detailed information with respect to the tax status of the issue. Appendix A provides a yield multiplier table comparing in-state taxable municipal bonds versus corporate bonds for each state.[9]

Taxable municipal bonds are not subject to IRS de minimis rules like tax-exempt bonds. The de minimis tax rule states a price threshold to determine whether a tax-exempt discount bond purchased in the secondary market can have the accretion of the discount taxed as a capital gain or ordinary income. Accretion adjusts the cost basis from the purchase amount (discount) to the anticipated redemption amount at maturity. Taxable bonds are not subject to this IRS rule. The accretion of any discount on a taxable bond purchased in the secondary market will only be treated as a capital gain.

Taxable municipal bond investments may make sense in tax-deferred accounts such as IRAs, 401(k)s, and pension funds because interest earned in these types of accounts is tax deferred. Institutional investors, such as insurance companies and taxable mutual funds, are also players in this segment.

Taxable municipal bonds are still secured with the same revenue streams and/or tax pledges that secure the tax-exempt bonds of the same issuers, whether they be state or local governments, public utilities, transportation enterprises, institutions of higher education, private schools, hospitals, or issuers from other sectors, and may offer credit risk diversification versus other taxable fixed income products such as corporate bonds.

While taxable municipal securities can certainly be advantageous under certain circumstances, an investor should consider the overall impact of, among other things, federal income tax on interest. Investors should consult their tax advisor for personalized guidance on the specifics of tax liabilities related to municipal securities.

Early Redemption Features

Some taxable municipal bonds are issued with an early redemption feature known as a make-whole call. Make-whole call provisions are more common in the corporate bond market than in the traditional tax-exempt municipal market. This type of call provision on a bond allows the issuer to redeem the debt early. The issuer typically must make a lump-sum payment to the investor derived from a formula based on the net present value (NPV) of future coupon payments that would have been paid periodically over the life of the bond along with the principal payment(s). Issuers typically don't anticipate the need to use this type of call provision as they can be quite costly; therefore, make-whole calls are rarely exercised. However, if the issuer does decide to use this type of call provision, then investors will be compensated, or "made whole," for the remaining coupon and principal payments. The official statement for new municipal securities issues includes detailed information with respect to all early redemption features, including any make-whole call provisions.

Taxable municipal bonds may also be issued with extraordinary redemption provisions (ERP). An ERP can be either mandatory or optional, meaning the occurrence of an event can either require the issuer to redeem the bonds early or provide the issuer the option to do so. Typically, an optional ERP gives the issuer the right to call a bond due to an unusual one-time event as specified in the official statement. An example would be a catastrophe that destroys the project financed with the bond proceeds. Many direct-pay bonds were issued with optional ERPs that may be exercised by the issuer if the federal government was to reduce or eliminate the subsidy that the issuer receives to offset a portion of the cost of its interest payments.[10] In fact, when the federal government first reduced the subsidy payment in 2013, some issuers that had previously sold bonds with ERPs that could be exercised under such a condition at par value, did call in some of their bonds early. However, many of the direct-pay bonds that remain outstanding carry ERPs that could be exercised under current conditions (because the subsidy remains below the original level), but at a premium to par value. A typical premium redemption price for a direct-pay bond (such as a BAB) is expressed as a spread of 100 basis points over an interpolated U.S. Treasury rate that is tied to the stated maturity of the bond. As interest rates have fallen since these bonds were issued, many of them currently trade at a spread over Treasuries that is lower than 100 basis points, implying that issuers' current borrowing costs are lower than the interest costs on these bonds, and that refinancing the bonds could be advantageous for them.

Performance

Taxable municipal securities tend to exhibit return attributes like other investment grade fixed income categories such as tax-exempt municipal bonds, corporate bonds, and U.S. Treasuries. Table 1 compares the total return profiles of taxable municipal bonds against these other fixed income categories. The indices were chosen for comparison because they have similar duration profiles (see Appendix B for index definitions). Of the three indices, taxable municipals performed closer to corporate bonds than to tax-exempt bonds or Treasuries. For example, in the seven-year period ending 2017, taxable municipal bonds generated an annualized total return of 5.55%, compared to a 5.00% return for corporates, a 3.89% return for tax-exempt bonds, and a 2.65% return for Treasuries. At 0.75, the correlation of monthly total returns with the corporate bond index was the highest. However, the dispersion of those returns (in terms of standard deviation) was narrower for taxable municipals than for corporates. Additionally, at 5.7 years, the average effective duration over the period for the taxable municipal index was shorter than that for the corporate index, which had an average effective duration of 6.4 years. Furthermore, the taxable municipal index has a higher composite credit rating of AA3 as compared to a rating of A2 for the corporate index. As with the tax-exempt index, no tax benefit adjustments were made to the interest component of total returns for the taxable municipal index.

TABLE 1

YEAR	ICE BofAML 5–10 YEAR U.S. TAXABLE MUNICIPAL SECURITIES INDEX	ICE BofAML 5–10 YEAR U.S. MUNICIPAL SECURITIES INDEX	ICE BofAML 5–10 YEAR AAA–A U.S. CORPORATE EXCLUDING 144A INDEX	ICE BofAML U.S. TREASURY INDEX
2011	12.22	10.59	7.62	9.79
2012	10.62	4.42	11.53	2.16
2013	–4.23	–0.94	–2.23	–3.35
2014	10.11	6.06	7.50	6.02
2015	2.18	3.28	2.36	0.83
2016	4.45	–0.43	3.86	1.14
2017	4.49	4.69	4.93	2.44
Annualized Total Return*	5.55%	3.89%	5.00%	2.65%
Correlation† with Taxable Municipal Securities Index	1.00	0.68	0.75	0.73
Annualized Standard Deviation‡ of Monthly Returns§	4.17%	3.48%	4.22%	3.57%
Index Effective Duration** Average and Range in Yrs	5.7 [4.9–6.2]	5.5 [5.3–5.7]	6.4 [6.1–6.7]	6.0 [5.2–6.7]
Index Composite Rating†† as of June 11, 2018	AA3	AA3	A2	AAA

Past performance is no guarantee of future results.

Sources: Bloomberg, ICE Bond Indices, Fidelity Capital Markets; as of June 11, 2018.

*Geometric average of annual total returns in USD, 2011–2017.

†The correlation reveals the strength of return relationships between investments. A perfect linear relationship is represented by a correlation of 1, while a perfect negative relationship has a correlation of –1. A correlation of 0 indicates no relationship between the investments. Correlation is a critical component to asset allocation and can be a useful way to measure the diversity of a combined plan portfolio.

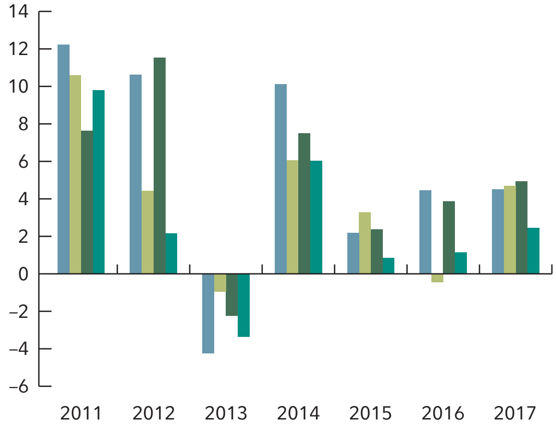
‡Standard deviation shows how much variation there is from the average (mean or expected value). Low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data is spread out over a large range of values. A higher standard deviation represents greater relative risk.

§Annualized standard deviation of monthly returns, 2011–2017.

**A quantitative measure that indicates the degree to which a bond or bond fund's price will fluctuate in response to changes in comparable interest rates. If rates rise 1.00%, for example, a bond or fund with a 5-year duration is likely to lose about 5.00% of its value.

††Fidelity Capital Markets provides the composite rating. The rating agencies used are Moody's, S&P, and Fitch.

TOTAL RATE OF RETURN (%)



ICE BofAML 5–10 Year U.S. Taxable Municipal Securities Index

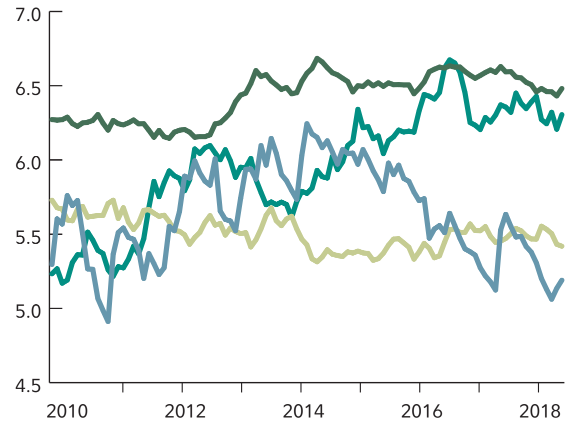
ICE BofAML 5–10 Year U.S. Municipal Securities Index

ICE BofAML 5–10 Year AAA–A U.S. Corporate Excluding 144a Index

ICE BofAML U.S. Treasury Index

Past performance is no guarantee of future results.
Sources: Bloomberg, ICE Bond Indices, Fidelity Capital Markets; as of June 11, 2018.

INDEX DURATION (YRS)



ICE BofAML 5–10 Year U.S. Taxable Municipal Securities Index

ICE BofAML 5–10 Year U.S. Municipal Securities Index

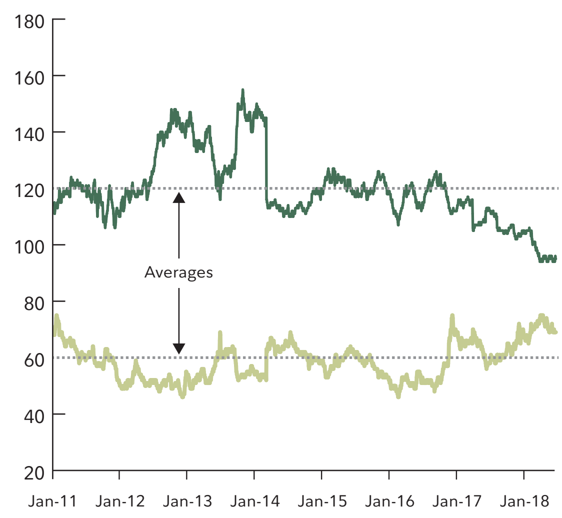
ICE BofAML 5–10 Year AAA–A U.S. Corporate Excluding 144a Index

ICE BofAML U.S. Treasury Index

Past performance is no guarantee of future results.
Sources: Bloomberg, ICE Bond Indices, Fidelity Capital Markets; as of June 11, 2018.

The yield ratio between the taxable municipal index and the corporate index declined from 114% in January 2011 to 95% in June 2018. However, for most of the period, the ratio remained near its average level of 120% (notwithstanding the volatility related to Puerto Rico issuers in the taxable municipal index, which contributed to a spike in the index's yield in 2013, and subsequent adjustment lower in 2014, as those issuers were removed from the index). It was not until mid-2017 that the ratio began to fall meaningfully below its average level, ultimately dropping below 100% in February 2018—the implication being that taxable municipal bonds outperformed corporate bonds over the past 12–18 months. As it turns out, since mid-2017 taxable municipal bonds have also outperformed tax-exempt bonds, with the yield ratio between the tax-exempt municipal index and taxable municipal index increasing to its highest level since January 2011. In June 2018, the tax-exempt/taxable municipal yield ratio reached 75%, as compared to its average level of 59% since January 2011.

INDEX YIELD RATIO (%)



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[ICE BofAML 5–10 Year AAA–A U.S. Corporate Excluding 144a Index]

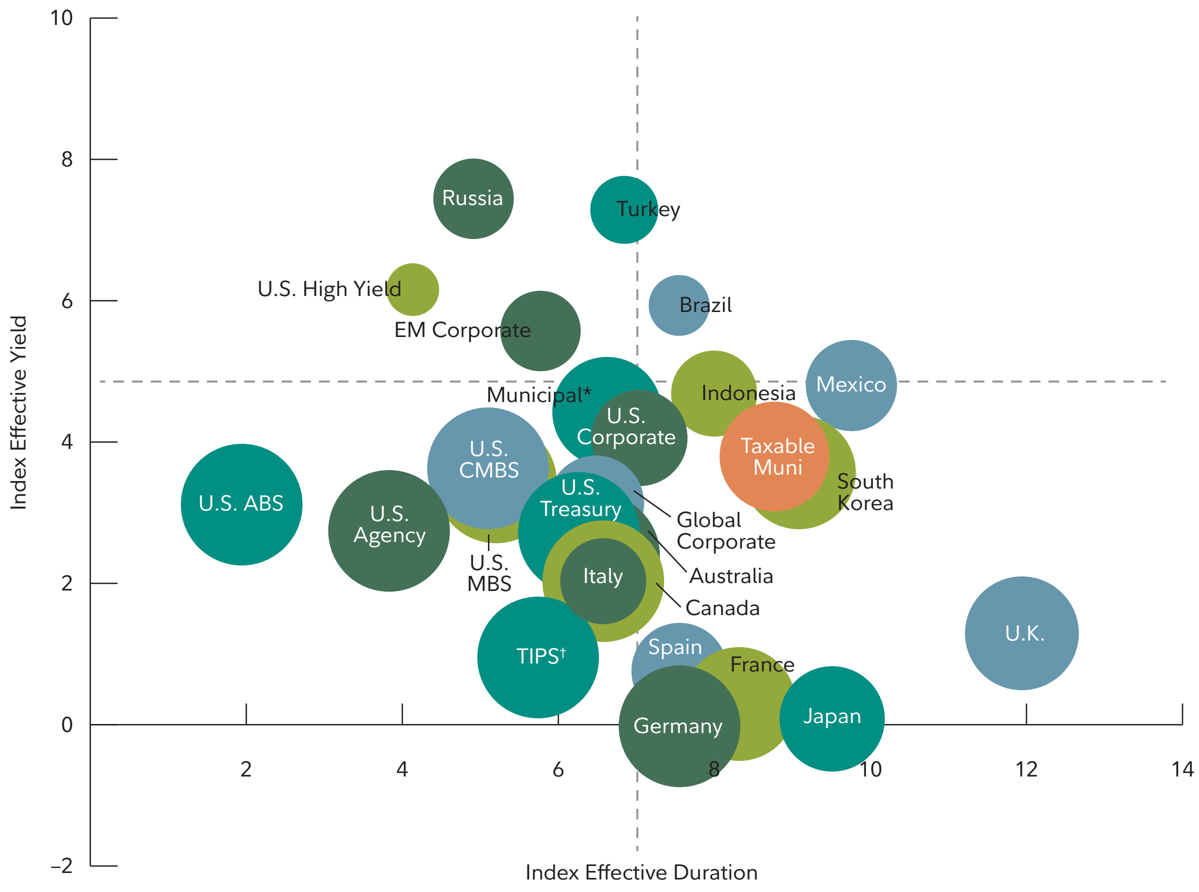
[ICE BofAML 5–10 Year U.S. Municipal Securities Index]/
[ICE BofAML 5–10 Year U.S. Taxable Municipal Securities Index]

Sources: Bloomberg, ICE Bond Indices, Fidelity Capital Markets; as of June 19, 2018.

The bubble chart below compares the effective yield of 26 fixed income indices against their respective effective durations. The size of the bubble indicates the quality of an index's composite rating (the larger the bubble, the higher the rating). On this relative measure, the broad taxable municipal index (red bubble) is situated near the South Korea sovereign bond index. As it happens, the indices share similar yield, duration, and credit rating characteristics. However, this is where the close similarities with the other indices that share credit rating characteristics with the taxable municipal index end.

For example, in comparison to France and the U.K., the broad taxable municipal index has a substantially higher effective yield, and, in the case of the U.K., a lower duration as well. When tax-adjusted, the tax-exempt municipal index sports a higher yield and lower duration than the taxable muni index, while the credit ratings for the two indexes are the same. Of the AAA-rated U.S. indices, the mortgage-backed securities, asset-backed securities, and commercial mortgage-backed securities indices have effective yields that are 17–67 basis points lower, but durations that are 3.5–6.8 years shorter. In relation to the U.S. Treasury and agency indexes, the taxable municipal index has an effective yield that is slightly more than 100 basis points higher, but also has an effective duration that is 2.5 years longer than the Treasury index and 4.9 years longer

INDEX EFFECTIVE YIELD VS. EFFECTIVE DURATION



Sources: Bloomberg, ICE Bond Indices, Fidelity Capital Markets; as of June 19, 2018.
*Effective yield adjusted for 40.8% tax rate.
†Market-weighted coupon rather than effective yield.
Note: Size of bubble corresponds to index composite rating (larger bubble = higher rating).

than the agency index. In comparison to the U.S. investment grade corporate index, the taxable municipal index is 1.7 years longer in duration and 23 basis points lower in yield. However, its credit rating is a full rating category higher. Other bond indices that have both yields and durations nearer to the broad taxable municipal index include Indonesia and Mexico, but like the corporate index, have lower credit ratings—in this case, in the BBB category. See Appendix B for index definitions.

Market Size

The total size of the municipal market is approximately $3.8 trillion,[11] 71% of which is tax exempt. Municipal bonds where the interest is federally taxable as ordinary income comprise approximately $473 billion, or 12% of the total. The remaining 17%, or $625 billion, represents private activity bonds where the interest is subject to the Alternative Minimum Tax for individuals (see endnote 2). Three states—California, New York, and Texas—account for 37% of the total outstanding taxable municipal market. Table 2 shows the 10 states with the largest amount of taxable municipal bonds outstanding.

TABLE 2

TOP 10 STATES FOR OUTSTANDING TAXABLE MUNICIPAL BONDS ($BN)

State	Outstanding	% of Total
CA	$86.31	18%
NY	$52.86	11%
TX	$39.89	8%
IL	$34.16	7%
OH	$18.53	4%
NJ	$16.02	3%
FL	$14.46	3%
PA	$13.85	3%
MI	$11.65	2%
WA	$10.62	2%
All others	$174.15	37%

Sources: Bloomberg, Fidelity Capital Markets; as of June 11, 2018.

Most taxable municipal bonds outstanding were issued with no federal program subsidies, and thus have no ERP associated with reduced subsidy payments. This segment of the taxable municipal market is $275 billion, representing 58% of the total. Direct-pay BABs is the second largest segment at 35%. General obligation bonds and notes represent approximately 32% of outstanding taxable municipals, and revenue bonds and notes account for 63%. The remaining 5% of the market is comprised of certificates of participation, special assessment debt, and tax allocation bonds. Table 3 shows outstanding taxable municipal bonds by federal program type and by issue type.

TABLE 3

OUTSTANDING TAXABLE MUNICIPAL BONDS ($BN)

Federal Program	Outstanding	% of Total
No Federal Program	$274.73	58%
Build America Bonds (BABs)*	$167.23	35%
Qualified School Construction Bonds (QSCBs)*	$13.07	3%
Recovery Zone Economic Development Bonds (RZEDBs)*	$5.38	1%
Qualified Energy Conservation Bonds (QECBs)/Clean Renewable Energy Bonds (CREBs)*	$1.46	0.3%
Tax Credit Bonds	$10.63	2%

Issue Type	Outstanding	% of Total
General Obligation	$149.68	32%
Revenue	$299.98	63%
Other	$22.84	5%

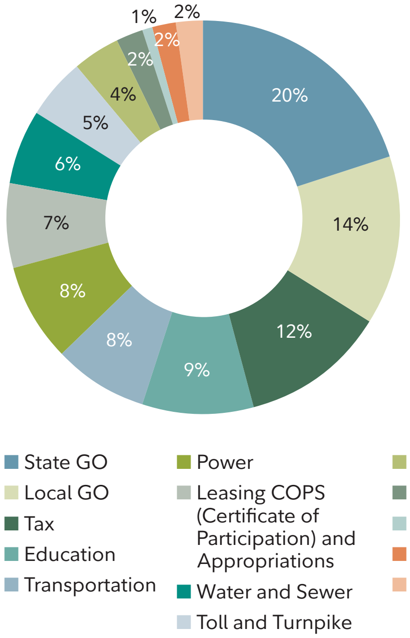
Sources: Bloomberg, Fidelity Capital Markets; as of June 11, 2018.

*Figures reflect direct-pay bonds.

Sector, Credit Rating, and Maturity

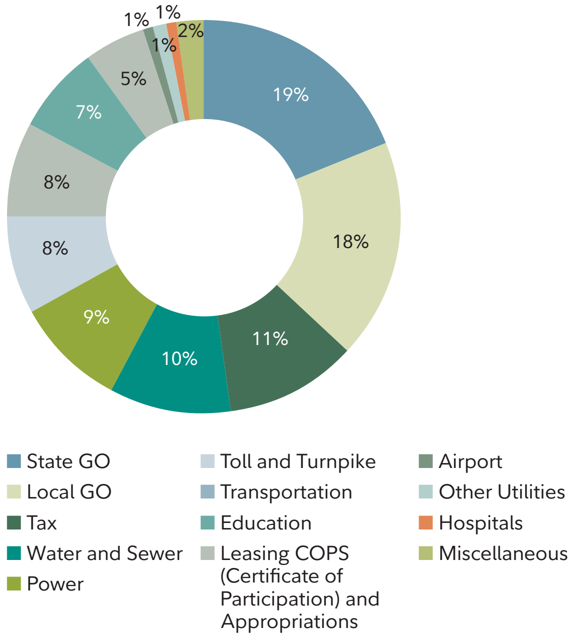
State general obligation (GO) is the largest sector in the broad taxable municipal index at 20%, followed by local GO at 14%, tax-backed at 12%, and education at 9% (see Appendix B for index definitions). Given that GO bonds are typically repaid with tax revenues, or tax revenues are pledged in the instance that a primary dedicated revenue source is insufficient, nearly half of the broad taxable index is composed of tax-supported debt. State GO is also the largest sector in the Build America Bond index at 19%, followed by local GO at 18%, tax-backed at 11%, and water and sewer at 10%. The primary sector difference between the two indexes (variance of at least 4 ppts.) is that the Build America Bond index has a larger allocation to the water and sewer sector. Other than that, the breakdown between the GO and tax-backed sectors at 46%–48% and the revenue-backed sectors at 54%–52% is nearly identical for the two indexes.

ICE BofAML BROAD U.S. TAXABLE MUNICIPAL SECURITIES INDEX



Sources: ICE Bond Indices, Fidelity Capital Markets; as of June 13, 2018.

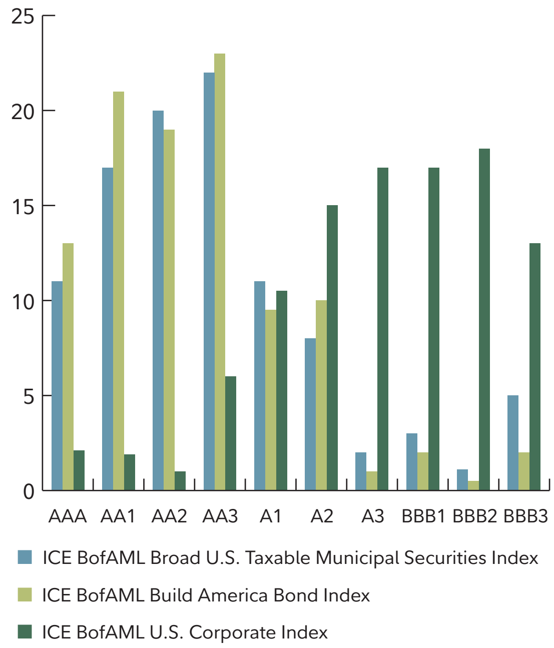
ICE BofAML BUILD AMERICA BOND INDEX BY SECTOR



Sources: ICE Bond Indices, Fidelity Capital Markets; as of June 13, 2018.

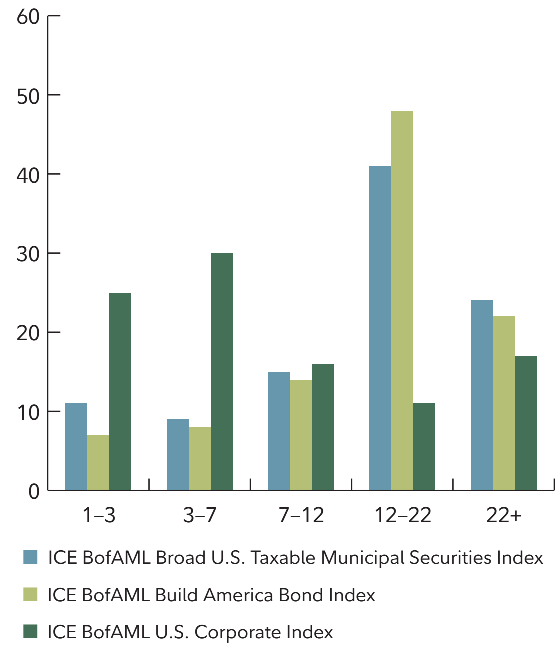
Seventy percent of the bonds in the broad taxable municipal index are in the top two rating categories, compared to 76% in the Build America Bond index. Bonds in the BBB category compose 8% and 4% of the two indexes, respectively. By comparison, the investment grade corporate index has 10% of its bonds in the top two rating categories and 48% in the BBB category. Both taxable municipal indices have a ratings distribution centered around AA3, which is almost two full rating categories higher than the corporate index's distribution, which is centered around BBB1–BBB2. On the other hand, the corporate index has a shorter maturity profile, with 55% of the bonds having a maturity of 7 years or less. Comparatively, the broad taxable municipal index has 20% of its bonds in this maturity range, and the Build America Bond index has 16%. The taxable municipal indices have a maturity distribution centered around the 12- to 22-year bucket, with 41% of the bonds in the broad taxable municipal index in this maturity range, and 48% of the bonds in the Build America Bond index. Bonds in the longest maturity segment (22+ years) comprise 24% for the taxable municipal index and 22% for the Build America Bond index. The corporate index's maturity distribution is centered around the 3- to 7-year bucket at 30%, while 17% of the bonds are in the longest maturity segment.

INDEX CREDIT RATING DISTRIBUTION (%)



Sources: ICE Bond Indices, Fidelity Capital Markets; as of June 13, 2018.

INDEX MATURITY DISTRIBUTION (%)



Sources: ICE Bond Indices, Fidelity Capital Markets; as of June 13, 2018.

Qualifying securities for the broad taxable municipal index, as well as for the corporate index, have minimum size requirements that vary based on the initial term to final maturity at time of issuance. Securities with an initial term to final maturity of 1–4 years must have a current amount outstanding of at least \$10 million. Securities with an initial term to final maturity of 5–9 years must have a current amount outstanding of at least \$15 million. And securities with an initial term to final maturity of 10 years or more must have a current amount outstanding of at least \$25 million. Qualifying securities for the Build America Bond index must have a minimum amount outstanding of \$1 million. Generally, securities that are part of a larger issue, particularly if the issue is index eligible, tend to trade more frequently in the secondary market, and are more liquid, than securities that are part of a smaller issue that is not index eligible. The average issue size in the municipal bond market as a whole in 2017 was \$37 million (total bonds issued divided by total number of issues; excludes notes). The average issue size for taxable municipal bonds was \$33 million. By comparison, the average deal size in the U.S. investment grade corporate bond market in 2017 was approximately \$550 million. The broad taxable municipal index has a market value of \$297 billion, representing approximately 63% of the total outstanding taxable municipal bond market. The corporate index has a market value of \$6.3 trillion, representing approximately 84% of the total outstanding U.S. investment grade corporate bond market.

Appendix A—Yield Multipliers

IN-STATE TAXABLE MUNICIPAL BOND VS. CORPORATE BOND YIELD MULTIPLIER TABLE*

STATE	INTEREST ON CORPORATE BONDS TAXABLE	INTEREST ON IN-STATE MUNICIPALS TAXABLE	HIGHEST STATE MARGINAL TAX RATE†	EQUIVALENT YIELD MULTIPLIER‡	STATE	INTEREST ON CORPORATE BONDS TAXABLE	INTEREST ON IN-STATE MUNICIPALS TAXABLE	HIGHEST STATE MARGINAL TAX RATE†	EQUIVALENT YIELD MULTIPLIER‡
Alabama	Y	N	5.00%	1.053	Montana	Y	N	6.90%	1.074
Alaska	N	N	0.00%	1.000	Nebraska	Y	N	7.79%	1.085
Arizona	Y	N	4.54%	1.048	Nevada	N	N	0.00%	1.000
Arkansas	Y	N	6.90%	1.074	New Hampshire	Y	N	5.00%	1.053
California	Y	N	13.30%	1.153	New Jersey	Y	N	8.97%	1.099
Colorado	Y	N	4.63%	1.049	New Mexico	Y	N	4.90%	1.052
Connecticut	Y	N	6.99%	1.075	New York	Y	N	8.82%	1.097
Delaware	Y	N	6.60%	1.071	New York City	Y	N	12.70%	1.145
District of Columbia	Y	N	8.95%	1.098	North Carolina	Y	N	5.50%	1.058
Florida	N	N	0.00%	1.000	North Dakota	N	N	2.90%	1.000
Georgia	Y	N	6.00%	1.064	Ohio	Y	N	5.00%	1.053
Hawaii	Y	N	8.25%	1.090	Oklahoma	Y	N	5.00%	1.053
Idaho	Y	N	7.40%	1.080	Oregon	Y	N	9.90%	1.110
Illinois	Y	Y	4.95%	1.000	Pennsylvania	Y	N	3.07%	1.032
Indiana	Y	N	6.61%	1.071	Rhode Island	Y	N	5.99%	1.064
Iowa	Y	Y	8.98%	1.000	South Carolina	Y	N	7.00%	1.075
Kansas	Y	N	5.70%	1.060	South Dakota	N	N	0.00%	1.000
Kentucky	Y	N	6.00%	1.064	Tennessee	Y	N	4.00%	1.042
Louisiana	Y	N	6.00%	1.064	Texas	N	N	0.00%	1.000
Maine	Y	N	7.15%	1.077	Utah	Y	N	5.00%	1.053
Maryland	Y	N	8.95%	1.098	Vermont	Y	N	8.95%	1.098
Massachusetts	Y	N	5.10%	1.054	Virginia	Y	N	5.75%	1.061
Michigan	Y	N	6.65%	1.071	Washington	N	N	0.00%	1.000
Minnesota	Y	N	9.85%	1.109	West Virginia	Y	N	6.50%	1.070
Mississippi	Y	N	5.00%	1.053	Wisconsin	Y	Y	7.65%	1.000
Missouri	Y	N	6.00%	1.064	Wyoming	N	N	0.00%	1.000

Sources: State sources, IRS, Fidelity Capital Markets; as of 12/31/2017.

*Multipliers reflect the highest state marginal tax rates.

†The highest state marginal tax rate assumes no deduction of state taxes from federal returns.

‡Equals "1.000" if interest on in-state municipals taxable or no state income tax. Otherwise equals 1 / (1 – state marginal rate).

Appendix B—Index Definitions

ICE BofAML 5–10 Year US Taxable Municipal Securities Index: ICE BofAML 5–10 Year US Taxable Municipal Securities Index is a subset of ICE BofAML US Taxable Municipal Securities Index including all securities with a remaining term to final maturity greater than or equal to 5 years and less than 10 years. Inception date: December 31, 2009.

ICE BofAML US Taxable Municipal Securities Index: ICE BofAML US Taxable Municipal Securities Index tracks the performance of US dollar denominated investment grade taxable municipal 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). In addition, qualifying securities must have at least one year remaining term to final maturity, at least 18 months to maturity at point of issuance, a fixed coupon schedule and a minimum amount outstanding of $250 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. Original issue zero coupon bonds and "global" securities (debt issued simultaneously in the eurobond and US domestic markets) qualify for inclusion in the Index. Tax-exempt U.S. municipal securities, 144a securities, and securities in legal default are excluded from the Index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on the public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 2009.

ICE BofAML Broad US Taxable Municipal Securities Index: ICE BofAML Broad US Taxable Municipal Securities Index tracks the performance of U.S. dollar denominated debt publicly issued by U.S. states and territories, and their political subdivisions, in the U.S. domestic market. Qualifying securities must be subject to U.S. federal taxes and must have at least 18 months to maturity at point of issuance, at least one year remaining term to final maturity to enter the index and one month remaining term to final maturity to remain in the index, a fixed coupon schedule (including zero coupon bonds) and an investment grade rating (based on an average of Moody's, S&P and Fitch). 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. 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. "Direct-pay" Build America Bonds (i.e., a direct federal subsidy is paid to the issuer) qualify for inclusion in the index, but "tax-credit" Build America Bonds (i.e., where the investor receives a tax credit on the interest payments) do not. Local bonds issued by U.S. territories within their jurisdictions that are tax exempt within the U.S. territory but not elsewhere are excluded from the Index. All 144a securities, both with and without registration rights, and securities in legal default are excluded from the Index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 2009.

ICE BofAML Build America Bond Index: ICE BofAML Build America Bond Index tracks the performance of U.S. dollar denominated investment grade taxable municipal debt publicly issued under the Build America Bond program by U.S. states and territories, and their political subdivisions, in the U.S. domestic market. Qualifying securities must have a minimum amount outstanding of $1 million, at least one year remaining term to final maturity, a fixed coupon schedule and an investment grade rating (based on an average of Moody's, S&P and Fitch). In addition, qualifying securities must be "direct pay" (i.e., a direct federal subsidy is paid to the issuer). Qualifying securities must have at least 18 months to final maturity at the time of issuance. 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 qualify for inclusion in the Index. All 144a securities, both with and without registration rights, and securities in legal default are excluded from the Index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: April 30, 2009.

ICE BofAML 5–10 Year US Municipal Securities Index: ICE BofAML 5–10 Year US Municipal Securities Index is a subset of ICE BofAML US Municipal Securities Index including all securities with a remaining term to final maturity greater than or equal to 5 years and less than 10 years. Inception date: December 31, 1996.

ICE BofAML US Municipal Securities Index: ICE BofAML US Municipal Securities 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 market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1988.

ICE BofAML 5–10 Year AAA–A US Corporate Excluding 144a Index: ICE BofAML 5–10 Year AAA–A US Corporate Excluding 144a Index is a subset of ICE BofAML US Corporate Index including all securities with a remaining term to final maturity greater than or equal to 5 years and less than 10 years and rated AAA through A3, inclusive, excluding 144a securities. Inception date: December 31, 1996.

ICE BofAML US Corporate Index: ICE BofAML 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), at least 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date, a fixed coupon schedule and a minimum amount outstanding of $250 million. Original issue zero coupon bonds, 144a securities (with and without registration rights), and pay-in-kind securities (including toggle notes) are included in the index. Callable perpetual securities are included provided they are at least one year from the first call date. Fixed-to-floating rate securities are included 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. Contingent capital securities ("cocos") are excluded, but capital securities where conversion can be mandated by a regulatory authority, but which have no specified trigger, are included. Other hybrid capital securities, such as those issues that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Equity-linked securities, securities in legal default, hybrid securitized corporates, eurodollar bonds (USD securities not issued in the US domestic market), taxable and tax-exempt US municipal securities and DRD-eligible securities are excluded from the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1972.

ICE BofAML US Treasury Index: ICE BofAML 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. Qualifying securities must have at least 18 months to final maturity at the time of issuance. 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1977.

ICE BofAML Global Corporate Index: ICE BofAML 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), at least 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date 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. 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. Contingent capital securities ("cocos") are excluded, but capital securities where conversion can be mandated by a regulatory authority, but which have no specified trigger, are included. Other hybrid capital securities, such as those issues that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Equity-linked securities, securities in legal default, hybrid securitized corporates, taxable and tax-exempt US municipal securities and DRD-eligible securities are excluded from the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1996.

ICE BofAML US High Yield Index: ICE BofAML 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), at least 18 months to final maturity at the time of issuance, at least one year remaining term to final maturity as of the rebalancing date, a fixed coupon schedule and a minimum amount outstanding of $250 million. In addition, qualifying securities must have risk exposure to countries that are members of the FX-G10, Western Europe or territories of the US and Western Europe. The FX-G10 includes all Euro members, the US, Japan, the UK, Canada, Australia, New Zealand, Switzerland, Norway and Sweden. Original issue zero coupon bonds, 144a securities (both with and without registration rights), and pay-in-kind securities (including toggle notes) are included in the index. Callable perpetual securities are included provided they are at least one year from the first call date. Fixed-to-floating rate securities are included 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. Contingent capital securities ("cocos") are excluded, but capital securities where conversion can be mandated by a regulatory authority, but which have no specified trigger, are included. Other hybrid capital securities, such as those issues that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Securities issued or marketed primarily to retail investors, equity-linked securities, securities in legal default, hybrid securitized corporates, eurodollar bonds (USD securities not issued in the US domestic market), taxable and tax-exempt US municipal securities and DRD-eligible securities are excluded from the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: August 31, 1986.

ICE BofAML US Fixed Rate CMBS Index: ICE BofAML US Fixed Rate CMBS Index tracks the performance of US dollar denominated investment grade 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), a fixed coupon schedule, at least one year remaining term to final maturity and at least one month to the last expected cash flow. In addition, qualifying securities must have 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 $10 million current amount outstanding for mezzanine and subordinated tranches. 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. Floating rate, 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. U.S. agency and 144a securities qualify for inclusion in the Index. Index constituents are market capitalization weighted. Accrued interest is calculated assuming same-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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1997.

ICE BofAML US Fixed Rate Asset Backed Securities Index: ICE BofAML US Fixed Rate Asset Backed Securities Index tracks the performance of US dollar denominated investment grade fixed rate asset 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). In addition, qualifying securities must have a fixed rate coupon (including callable fixed-to-floating rate securities), at least one year remaining term to final stated maturity, at least one month to the last expected cash flow, 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. Floating rate, 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. 144a securities qualify for inclusion in the Index. Index constituents are market capitalization weighted. Accrued interest is calculated assuming same-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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1990.

ICE BofAML US Mortgage Backed Securities Index: ICE BofAML 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 and 15-year 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, interest-only, balloon, mobile home, graduated payment and quarter coupon fixed rate mortgages are excluded from the index, as are all collateralized mortgage obligations. Index constituents are market capitalization weighted. Accrued interest is calculated assuming same-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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1975.

ICE BofAML US Treasury Index: ICE BofAML 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. Qualifying securities must have at least 18 months to final maturity at the time of issuance. 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1977.

ICE BofAML US Inflation-Linked Treasury Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: February 28, 1997.

ICE BofAML US Agency Index: ICE BofAML 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, at least 18 months to final maturity at point of issuance, 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. Securities in legal default are excluded from the Index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1977.

ICE BofAML Japan Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1985.

ICE BofAML Australia Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1985.

ICE BofAML French Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1985.

ICE BofAML German Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1985.

ICE BofAML Italian Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: November 30, 1987.

ICE BofAML Spanish Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: May 31, 1992.

ICE BofAML UK Gilt Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1985.

ICE BofAML Canada Government Index: ICE BofAML 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 18 months to maturity at point of issuance, 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. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 1985.

ICE BofAML Russian Government Index: ICE BofAML Russian Government Index tracks the performance of RUB denominated sovereign debt publicly issued by the Russian government. Qualifying securities must have at least 18 months to maturity at point of issuance, at least one year remaining term to final maturity, a fixed coupon schedule and a minimum amount outstanding of RUB 10 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. Global securities issued in the U.S. and international markets qualify for inclusion in the index. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Index constituents are market capitalization weighted. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www.mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 2005.

ICE BofAML US Dollar South Korea Sovereign Index: ICE BofAML US Dollar South Korea Sovereign Index is a subset of ICE BofAML US Emerging Markets External Sovereign Index including all securities with South Korea as the country of risk. Inception date: April 30, 1998.

ICE BofAML US Dollar Indonesia Sovereign Index: ICE BofAML US Dollar Indonesia Sovereign Index is a subset of ICE BofAML US Emerging Markets External Sovereign Index including all securities with an Indonesia country of risk. Inception date: December 31, 1996.

ICE BofAML US Dollar Brazil Sovereign Index: ICE BofAML US Dollar Brazil Sovereign Index is a subset of ICE BofAML US Emerging Markets External Sovereign Index including all securities with a Brazil country of risk. Inception date: December 31, 1991.

ICE BofAML US Dollar Turkey Sovereign Index: ICE BofAML US Dollar Turkey Sovereign Index is a subset of ICE BofAML US Emerging Markets External Sovereign Index including all securities with a Turkey country of risk. Inception date: August 31, 1997.

ICE BofAML Emerging Markets Diversified Corporate Index: ICE BofAML Emerging Markets Diversified Corporate Index tracks the performance of US dollar denominated emerging markets corporate senior and secured debt publicly issued in the US domestic and eurobond markets. In order to qualify for inclusion in the Index an issuer must have primary risk exposure to a country other than a member of the FX-G10, a Western European country, or a territory of the US or a Western European country. The FX-G10 includes all Euro members, the US, Japan, the UK, Canada, Australia, New Zealand, Switzerland, Norway and Sweden. Individual securities of qualifying issuers must be denominated in US dollars, must be senior or secured debt, must have at least one year remaining term to final maturity a fixed coupon and at least $500 million in outstanding face value. Qualifying securities must have at least 18 months to final maturity at the time of issuance. The index includes corporate debt of qualifying countries, but excludes sovereign, quasi-government, securitized and collateralized debt. Original issue zero coupon bonds, 144a securities (both with and without registration rights), and pay-in-kind securities (including toggle notes), 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. Securities rated Ca/CC or lower by any of the three rating agencies do not qualify for inclusion. Contingent capital securities ("cocos") are excluded, but capital securities where conversion can be mandated by a regulatory authority, but which have no specified trigger, are included. Other hybrid capital securities, such as those issues that potentially convert into preference shares, those with both cumulative and non-cumulative coupon deferral provisions, and those with alternative coupon satisfaction mechanisms, are also included in the index. Securities issued or marketed primarily to retail investors do not qualify for inclusion in the index. Equity-linked securities, securities in legal default and hybrid securitized corporates are excluded from the index. Index constituents are market capitalization weighted, subject to a 5% issuer cap. Issuers that exceed the limits are reduced to 5%, and the face value of each of their bonds is adjusted on a pro rata basis. Similarly, the face values of bonds of all other issuers that fall below the cap are increased on a pro rata basis. In the event there are fewer than 20 issuers, each is equally weighted and the face values of their respective bonds are increased or decreased on a pro rata basis. 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. Information concerning constituent bond prices, timing and conventions is provided in the ICE BofAML Bond Index Guide, which can be accessed on our public website (www. mlindex.ml.com), or by sending a request to iceindices@theice.com. 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. New issues must settle on or before the calendar month end rebalancing date in order to qualify for the coming month. No changes are made to constituent holdings other than on month end rebalancing dates. Inception date: December 31, 2004.

Endnotes

[1]Source for municipal issuance is the Bond Buyer. Source for U.S. investment grade corporate issuance is Bloomberg.

[2]Some municipal bonds may be deemed to be private activity bonds (PABs). Interest from PABs generally is not taxable, however interest from specified PABs issued after August 7, 1986, must be added to income for the purposes of calculating an individual's Alternative Minimum Tax (AMT). A discussion of municipal bonds where the interest may be subject to the AMT is beyond the scope of this paper.

[3]The Tax Cuts and Jobs Act of 2017 eliminated advance refundings as a qualified use of proceeds for tax-exempt bonds.

[4]State and local government taxation of interest income on municipal securities is determined by individual state laws. The specific provisions and conditions of such exemption vary from state to state. Many states provide residents with a state income tax exemption for municipal securities issued by in-state borrowers, but not for municipal securities issued by out-of-state borrowers. However, not all states provide an exemption for interest income on municipal securities.

[5]The structure of the federal subsidy for most BABs is in the form of a direct-payment subsidy paid by the U.S. Department of the Treasury directly to the issuer. The original subsidy to state or local governmental issuers was equal to 35% of the total coupon interest payable to investors. BABs may also have been issued as qualified tax credit bonds.

[6]The structure of the federal subsidy for RZEDBs is in the form of a direct-payment subsidy paid by the U.S. Department of the Treasury directly to the issuer. The original subsidy to state or local governmental issuers was equal to 45% of the total coupon interest payable to investors. RZEDBs may also have been issued as qualified tax credit bonds.

[7]The structure of the federal subsidy for QSCBs is in the form of a direct-payment subsidy paid by the U.S. Department of the Treasury directly to the issuer. The original subsidy to state or local governmental issuers was equal to 100% of the total coupon interest payable to investors. QSCBs may also have been issued as qualified tax credit bonds.

[8]The Tax Cuts and Jobs Act of 2017 ended federal fund allocations for all tax credit bond programs effective January 1, 2018. Bondholders receive federal income tax credits in lieu of periodic interest payments. These credits compensate bondholders for lending money to the issuer and function as payments of interest on the bond. Bondholders that receive tax credits on bonds issued on or before December 31, 2017, continue to receive tax credits.

[9]The yield multiplier that equates the yield on a taxable municipal bond to the yield on a corporate bond is calculated as 1 / (1 – state effective marginal rate). The difference between the after-tax yields on the two securities stems from the fact that while both are taxed at the federal level, only the corporate bond is taxed at the state and local level. The calculation is the same when comparing tax-exempt yields on in-state versus out-of-state bonds. However, not all states provide an exemption for interest income on municipal securities. States do not tax the interest on U.S. Treasury securities, and thus it is unnecessary to calculate a multiplier to compare taxable municipal bonds with U.S. Treasuries.

[10]In 2012, automatic federal spending cuts known as "sequestration" were triggered by the failure of Congress to meet deficit reduction targets mandated by the Budget Control Act of 2011 (BCA). These cuts began to take effect on March 1, 2013, and were intended to remain in effect until the end of fiscal year 2021. The 35% subsidy was reduced by 7.2% in 2014, 7.3% in 2015, 6.8% in 2016, and 6.9% in 2017 (these reductions were effective for the individual years specified and are noncumulative). In implementing sequestration, the Office of Management and Budget (OMB) concluded that tax credit payments to individuals were exempt from sequestration, but credit payments to other entities—including to issuers of BABs and other taxable municipal bonds that receive a direct subsidy—were not. There have been repeated extensions of sequestration's expiration date, which currently ends in 2025. BAB credit payments could face still deeper cuts through sequestration because the Statutory Pay-as-You-Go Act of 2010 requires that revenue or mandatory spending laws must not increase federal budget deficits. This Pay-as-You-Go requirement is enforced through sequestration—in this case, solely of mandatory spending items (including BAB credit payments), unless specific legislation is passed that prevents sequestration from being triggered, like it was in 2017 following passage of the Tax Cuts and Jobs Act. Passage of the Act on its own would have required sequestration to offset the revenue loss through an outright elimination of BAB payments to issuers. Thus, BAB credit payments to issuers remain at risk of being cut further in future years when the federal government runs large budget deficits, and does not prevent sequestration from being triggered.

[11]Data for size of market comes from Bloomberg and includes all outstanding municipal securities issued with a CUSIP as of June 11, 2018.

Notes

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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.

Although bonds generally present less short-term risk and volatility than stocks, bonds do entail interest rate risk (as interest rates rise, bond prices usually fall, and vice versa) and the risk of default, or the risk that an issuer will be unable to make upcoming or principal payments. Additionally, bonds and short-term investments may entail greater inflation risk, or the risk that the return of an investment will not keep up with increases in the prices of goods and services, than stocks. Any fixed-income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.

Interest income generated by municipal bonds is generally expected to be exempt from federal income taxes and, if the bonds are held by an investor resident in the state of issuance, from state and local income taxes. Such interest income may be subject to federal and/or state alternative minimum taxes. Investing in municipal bonds for the purpose of generating tax-exempt income may not be appropriate for investors in all tax brackets. Generally, tax-exempt municipal securities are not appropriate holdings for tax-advantaged accounts such as IRAs and 401(k)s.

Interest income generated by Treasury bonds and certain securities issued by U.S. territories, possessions, agencies, and instrumentalities is generally exempt from state income tax but is generally subject to federal income and alternative minimum taxes, and may be subject to state alternative minimum taxes. Short- and long-term capital gains and gains characterized as market discount, recognized when bonds are sold or mature, are generally taxable at both the state and federal levels. Short- and long-term losses recognized when bonds are sold or mature may generally offset capital gains and/or ordinary income at both the state and federal levels.

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