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**Municipal Volume Falls Again in May**

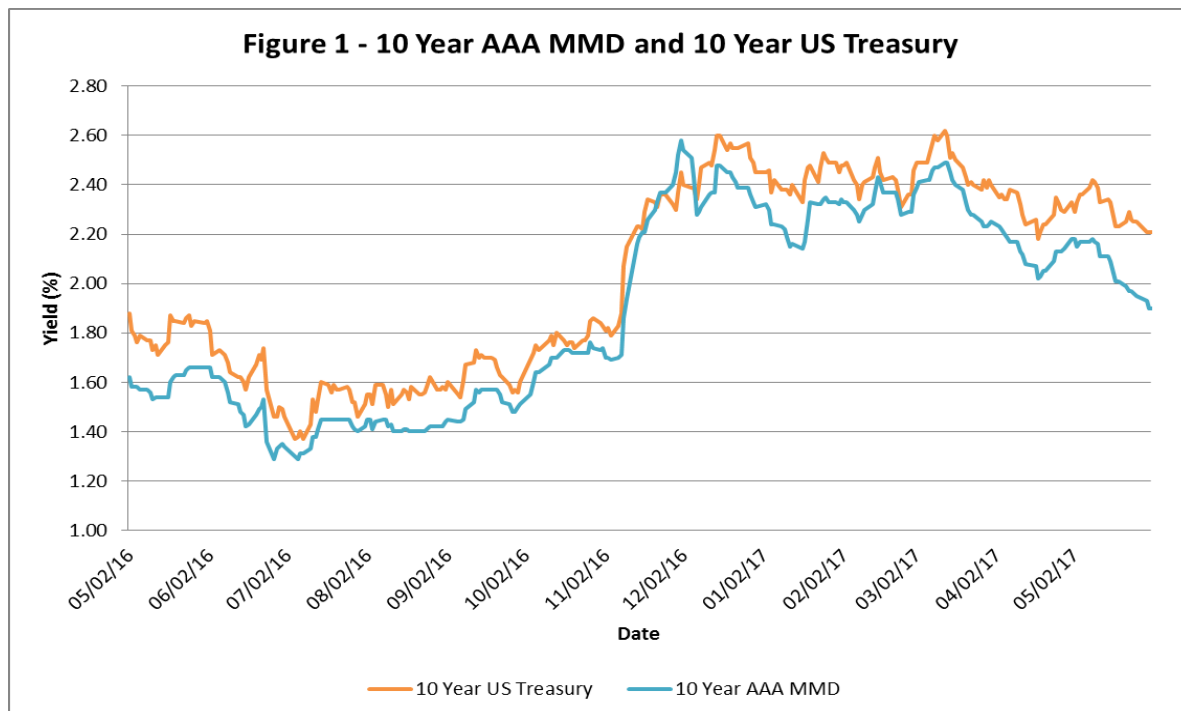
**Variable Rate Market Update**

**Growth of Green Bonds Continues**

## Municipal Volume Falls Again in May

For the fourth consecutive month, municipal volume dropped in May. The total volume of deals reached only \$34.25 billion in 1,009 transactions, 19.8% below issuance levels of the same month in 2016. May saw fewer refundings when compared to the year before, with \$10.33 billion in 234 issues, an amount 38.2% below the prior year's level. New money decreased as well in May, reaching \$13.89 billion, 14.3% below last year's \$16.22 billion. While last year at this time issuance totaled \$178.25 billion, issuance to date for 2017 is at \$154.48 billion. The overall decline in volume is attributed to a drop in refundings this year, as new money issuance for 2017 is still above levels seen in the last three years.

The Municipal Market Data ("MMD") 'AAA' Muni Market 10 year yield ended March at 1.90%, 24 basis points ("bps") below where it stood on April 28<sup>th</sup>; the 30 year yield also dropped, ending May at 2.74%, 28 bps lower than its level at the end of April.



In May, the 10-year US Treasury yield decreased from 2.29% at the end of April to 2.21% at the end of May. The 30-year Treasury yield also fell, down 15 basis points (“bps”) for the month; finishing May at 2.87%, from 3.02% on April 28<sup>th</sup>.

As of April 28<sup>th</sup>, the ratios of ‘AAA’ General Obligation municipal yields to Treasury yields were:

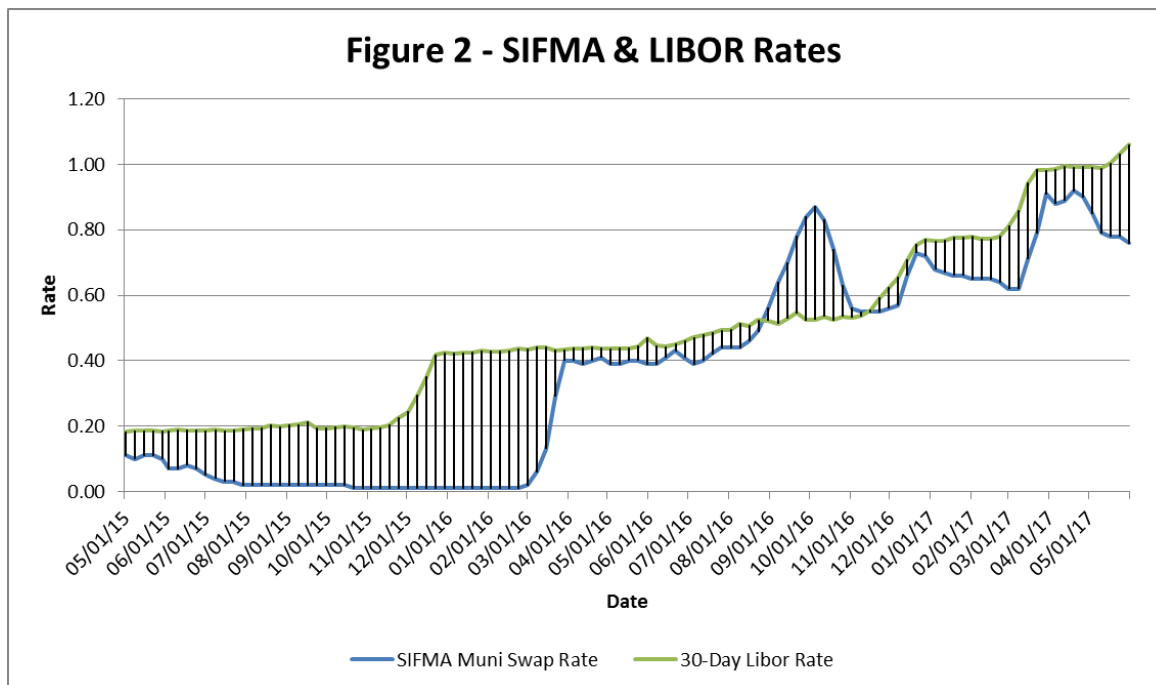
<u>Year</u>	<u>Yield</u>	<u>% Yield</u>
1 Year	0.81 / 1.17	69.23%
5 Year	1.22 / 1.75	69.71%
10 Year	1.90 / 2.21	85.97%
30 Year	2.74/2.87	95.47%

Sources: The Bond Buyer, Bloomberg, US Department of Treasury, US Federal Reserve

### Variable Rate Market Update

The SIFMA Municipal Swap Index, an average of high-grade, tax-exempt, variable rate bonds, fell from .85% on May 3<sup>rd</sup> to .76% on May 31<sup>st</sup>. The 30-day LIBOR rose in May, beginning the month at 0.99173% and ending at 1.0603%.

Sources: The Bond Buyer, Bloomberg, SIFMA



Source: Bloomberg

## Growth of Green Bonds Continues

As a financing tool, the relatively new concept of Green Bonds has been trying to find its niche in the global capital markets. Developed on a set of loosely agreed to principles only a few years ago as a means of matching potential green projects with those that desire to invest in them, use of the designation has grown rapidly. Although there does not seem to be, as of yet at least, any interest rate benefit attributable to a Green Bond certification, it has not slowed global issuers from seeking it. Indeed, through 2016 and the first quarter of 2017, the growth rate and composition of Green Bond certifications has been both rapid and deep. For calendar year 2016, there were \$93.4 billion of labelled Green Bonds issued; a 120% increase from 2015.

One of the unique aspects of the Green Bond concept, and one of the features that excites its proponents so much, is that its usage transcends boundaries. Not only boundaries that divide the traditional capital markets into categories such as sovereigns, corporates, municipals, etc., but national boundaries as well. It may be surprising to some, but the most prevalent issuers of Green Bonds in 2016 were financial institutions at 44.4% of the total according to Moody's Investors Service. Corporations were the second most frequent issuers at 22.8%, while public and infrastructure bonds, of which U.S. municipal bonds were a subset, were the third most frequent borrowers under a Green Bond label at 15.1%.

Beyond the sector of issuance, the countries of issuance is also somewhat surprising with China leading the way in 2016. Despite a reputation of having a lot of work to do with regards to environmental stewardship, 35.2% of Green Bond labelled issuances during the year were Chinese. The U.S. came in second at 15.3%, followed by a list of mostly European countries. In total, there were 27 countries that had issuers float some type of Green Bond in 2016.

The first quarter of 2017 shows that the issuance of Green Bonds is still accelerating. The quarter witnessed \$29.5 billion of labelled offerings, a 75% increase over the first quarter of 2016. Much of the difference was comprised of France issuing a €7 billion sovereign issue. An interesting change also occurred in the first quarter with corporate issuers supplanting banks at the top spot by sector.

As far as U.S. public finance issuers go, 2016 should be remembered as a transformational year. With limited interest as late as 2015, a number of large and influential issuers brought Green Bond labelled bonds to the market in 2016. Among them were the University of Texas, the Metro Water Reclamation District of Greater Chicago, and the San Diego County Water Authority. Both the Massachusetts Water Resources Authority and New York's MTA brought multiple Green Bond issues to market during the year. Many signs seem to indicate that U.S. municipal bond issuers will be frequent and vocal proponents of Green Bond labelled bonds.

The primary consideration going forward for the future of the Green Bonds concept seems to revolve around the question of how investors will respond going forward. Even vocal supporters of the concept have admitted that there has been little, if any, discernable yield advantage to issuing Green Bonds thus far. Although it is important to remember that it is still early in the game and there has been little time as of yet for institutions to roll out and market products designed to focus on the designation. Another factor may be that with credit spreads tightly compressed as they have been for several years, there is little room for yields to reflect any pricing advantage for Green Bonds even if there is one; i.e. almost everything has been getting a good price. This may change if the capital markets enter a period of prolonged rising interest rates.

As it currently stands, there is a tremendous amount of goodwill engendered around the Green Bond concept. The not-for-profit Climate Bonds Initiative organization estimates that the total amount of outstanding bonds in that would have been eligible to qualify as a Green Bond was \$694 billion. The fact that issuers have decided to pay the extra fee for \$118 billion of eligible bonds so far in the life span of this financing tool says that there is a lot of internal motivation to make the concept work despite the lack of external pay-off just yet.

Sources: Moody's Investor Service, Climate Bonds Initiative, Bloomberg

May 2017 Selected Bond Issues								
General Obligation and Essential Service Revenue								
<u>Sale Date</u>	<u>Par (\$ mil)</u>	<u>Issuer</u>	<u>Project</u>	<u>Ratings</u>	<u>Final Maturity</u>	<u>Yield</u>	<u>Spread to MMD</u>	<u>Notes</u>
05/18/2017	\$563.52	District of Columbia	General Obligation Refunding Bonds	Aa1/AA/AA	06/01/2037	3.330%	61	
05/25/2017	\$69.80	Atlantic City, NJ	General Obligation Refunding Bonds	/AA/	03/01/2042	3.960%	120	
05/24/2017	\$854.76	State of Hawaii	General Obligation Bonds	Aa1/AA+/AA	05/01/2037	3.500%	82	
05/04/2017	\$58.48	Scottsdale, AZ	General Obligation Refunding Bonds	Aaa/AAA/AAA	07/01/2034	3.400%	65	
Education Sector								
<u>Sale Date</u>	<u>Par (\$ mil)</u>	<u>Issuer</u>	<u>Project</u>	<u>Ratings</u>	<u>Final Maturity</u>	<u>Yield</u>	<u>Spread to MMD</u>	<u>Notes</u>
05/05/2017	\$1,135.60	University of California	College & University Revenue Bonds	Aa2/AA/AA	05/15/2049	3.320%	29	
05/24/2017	\$66.93	University of Colorado	Revenue Refunding Bonds	/AA+/	06/01/2034	3.020%	47	
05/24/2017	\$49.69	Missouri Health and Educational Facilities Authority	Revenue Refunding (Webster University Project)	A2/ /	04/01/2036	3.600%	96	
05/11/2017	\$21.94	University of Cincinnati	Revenue Refunding Bonds	Aa3/AA-/	06/01/2031	3.190%	65	
Water/Utility Sector								
<u>Sale Date</u>	<u>Par (\$ mil)</u>	<u>Issuer</u>	<u>Project</u>	<u>Ratings</u>	<u>Final Maturity</u>	<u>Yield</u>	<u>Spread to MMD</u>	<u>Notes</u>
05/10/2017	\$450.15	Los Angeles, CA	Wastewater System Revenue Refunding Bonds (Green Bonds)	AA/AA/AA	06/01/2039	3.140%	22	
05/05/2017	\$322.99	Massachusetts State Water Resources Authority	Water Revenue Refunding Bonds (Refunding Bonds)	Aa1/AA+/AA+	08/01/2032	2.800%	19	
05/22/2017	\$22.70	Northwest Arkansas Conservation Authority	Wastewater Revenue Refunding Bonds	/AA/	03/01/2038	3.600%	87	
March 2017 Selected Bond Issues								
Healthcare Sector								
<u>Sale Date</u>	<u>Par (\$ mil)</u>	<u>Issuer</u>	<u>Project</u>	<u>Ratings</u>	<u>Final Maturity</u>	<u>Yield</u>	<u>Spread to MMD</u>	<u>Notes</u>
05/16/2017	\$274.52	California Health Facilities Financing Authority	Revenue Refunding Bonds	Baa2/BBB+/	08/15/2049	4.200%	124	
05/11/2017	\$135.48	Illinois Finance Authority	Hospital Revenue Refunding Bonds	/AA-/AA	08/15/2039	4.000%	108	
05/12/2017	\$421.56	Louisiana Public Facilities Authority	Revenue Refunding Bonds	A3/ /A-	05/15/2046	3.820%	85	
05/10/2017	\$945.66	Cuyahoga County, OH	Hospital Revenue Refunding Bonds	Baa3/BBB-/BBB-	02/15/2057	4.900%	189	

Source: Bloomberg

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