Par Munis — Sub-Par Performance

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My Perspective: Portfolio Manager

- Director of Municipals at AllianceBernstein for 28 years
- Managed for institutions and high-net-worth individuals; all subject to taxes
- AUM grew from $500m to $50B
- Mark-to-market performance important for both compensation and growth
- Clients were highly tax sensitive
- To be successful, we needed to be tax-smart both today and in the future

➤ Today, we’ll show why institutional investors have a strong preference for premium coupon munis
Muni Benchmark Curve is for 5% Premium Coupon Bonds

AAA Municipal Yields*

Prices of 5% Coupon, AAA Muni Curve

*Municipal Market Advisors 5% 10 year par call as of July 6, 2021
De Minimis Tax Rule – When Tax-Exempt Munis Aren’t Tax Free

- Gain on munis purchased at a discount are taxed at maturity:
  - Small gains taxed as capital gains; ~ 20%
  - Large gains taxed as ordinary income; ~ 40%
  - De minimis threshold: 100 minus (0.25 X number of whole years to maturity)

- Market Prices of Discount Munis Reflect Potential Tax
  - Price is reduced by the present value of the tax
  - Future tax liability increases duration:
    - higher interest rates $\rightarrow$ lower PV of cash flows $\rightarrow$ higher taxes $\rightarrow$ lower PV $\rightarrow$ and so on
  - Process converges to ‘tax-neutral’ value
Tax Cost Increases Interest Rate Sensitivity

2% 10-Yr NCL Bond

Conventional vs. Tax-Neutral

Price (% par) vs. Change in Interest Rates (bps)
De Minimis Tax Liability Extends Duration

![Graph showing duration vs. price for Conventional and Tax-Neutral bonds. The graph indicates that Tax-Neutral bonds have a higher duration for a given price compared to Conventional bonds. The 2% 10-Yr NCL Bond is highlighted.]
Example: Investors Value Bonds on an After-Tax Basis

In August 2016, Los Angeles Unified School District sold the following two bonds in their General Obligation Series B issue:

<table>
<thead>
<tr>
<th></th>
<th>Par Bond</th>
<th>Premium Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coupon</strong></td>
<td>2.00%</td>
<td>5.00%</td>
</tr>
<tr>
<td><strong>Price</strong></td>
<td>98.000</td>
<td>129.865</td>
</tr>
<tr>
<td><strong>Maturity</strong></td>
<td>7/1/29</td>
<td>7/1/28</td>
</tr>
<tr>
<td><strong>Call Date</strong></td>
<td>7/1/26</td>
<td>7/1/26</td>
</tr>
<tr>
<td><strong>Call Price</strong></td>
<td>100.000</td>
<td>100.000</td>
</tr>
<tr>
<td><strong>Ratings (Moodys/Fitch)</strong></td>
<td>Aa3/AA+</td>
<td>Aa3/AA+</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>$75,940,000</td>
<td>$79,740,000</td>
</tr>
<tr>
<td><strong>Yield to Worst</strong></td>
<td>2.18%</td>
<td>1.68%</td>
</tr>
<tr>
<td><strong>OAS</strong>*</td>
<td>16</td>
<td>10</td>
</tr>
</tbody>
</table>

* MMD 5% Callable AAA curve converted to a non-call par, 30% implied volatility
Discount Munis Look Cheap... Are They?

 OID Basis ~98
Tax-Neutral OAS Shows Discounts Are Fairly Valued

[Chart showing the relationship between price and conventional OAS, with various markers indicating different OAS levels for conventional and tax-neutral OAS.]
Calculating 1-year Expected Return of a Par Bond

<table>
<thead>
<tr>
<th>Today</th>
<th>One Year Forward</th>
<th>Expected Mark-to-Market Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10-Yr Yield</td>
<td>Price</td>
</tr>
<tr>
<td>10-Yr Yield</td>
<td>Price</td>
<td>9-Yr Yield</td>
</tr>
<tr>
<td>3.86%</td>
<td>80.15</td>
<td>-18.70%</td>
</tr>
<tr>
<td>3.39%</td>
<td>84.74</td>
<td>-13.72%</td>
</tr>
<tr>
<td>2.98%</td>
<td>88.91</td>
<td>-9.29%</td>
</tr>
<tr>
<td>2.64%</td>
<td>92.67</td>
<td>-5.39%</td>
</tr>
<tr>
<td>2.35%</td>
<td>96.00</td>
<td>-2.00%</td>
</tr>
<tr>
<td>2.10%</td>
<td>99.16</td>
<td>1.17%</td>
</tr>
<tr>
<td>1.89%</td>
<td>101.01</td>
<td>3.00%</td>
</tr>
<tr>
<td>1.72%</td>
<td>102.46</td>
<td>4.42%</td>
</tr>
<tr>
<td>1.57%</td>
<td>103.69</td>
<td>5.62%</td>
</tr>
<tr>
<td>1.45%</td>
<td>104.73</td>
<td>6.63%</td>
</tr>
<tr>
<td>1.35%</td>
<td>105.60</td>
<td>7.47%</td>
</tr>
</tbody>
</table>

Forward yield and the distribution of potential yields calculated from MMD AAA 5% curve assuming a log-normal distribution at a 30% volatility.
Premium Coupon Bonds Shine!

*Par Bonds Expected to Significantly Underperform Due to Their Negative Convexity*

![Graph showing expected returns for different interest rate volatilities for 1.50%, 2.00%, and 5.00% bonds. The graph illustrates how interest rate volatility affects the expected returns of different coupon bonds.]
Summary – Taxes Matter!

- Tax costs depress municipal bond prices when prices fall below par
- Changing tax liabilities creates unique challenges in determining interest rate sensitivity and expected return of munis
- Fairly priced premium munis expected to outperform par bonds in the near term
- The extent of underperformance depends on the shape of the yield curve, and it is positively correlated with interest rate volatility
Some take-aways...

- **Issuers** should sell premium coupon bonds to attract institutional demand and realize lower financing costs
  - Since 5% bonds callable at par are refunded even if rates move significantly higher, consider higher call prices to extend duration
  - To assure refunding only when rates actually decline, call price for a 30-yr 5% bond in year 10 should be near 150; sale price would increase by 20 points

- **Academics** need to account for the impact of taxes, and call options, on tax-exempt municipal bond prices

- **Investors** should avoid par bonds, unless they yield significantly more than premium bonds
References