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**Finance D42
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The taxable-municipal yield spread: estimating τ_{pd}

The spread between taxable bond yields and municipal yields is an indication of the marginal tax bracket of the marginal holder of corporate bonds. This is an important argument in understanding the value of debt tax shields afforded by corporate debt. Empirical work has found that the spread between taxable and muni yields at the short end of the maturity spectrum is relatively large and approximates the marginal corporate tax rate faced by banks over time.¹ At the longer end of the maturity spectrum, the “implied marginal tax bracket” declines, that is, the relative spread between taxables and munis drops.

This general empirical observation holds today as well. Based on yields published in the Wall Street Journal, October 6, 1995, I estimate some back-of-the-envelope spreads between taxable and muni yields and calculate the inferred marginal tax bracket. Merrill Lynch published the yields on several indexes of municipal bonds. The AAA-Guaranteed index of 25-year Revenue Bonds was 5.67%. In the bond market listing of selected corporate bonds, BellSouth Telecomm was listed as AAA-rated, had bonds outstanding with close to five years to maturity that had a yield of 6.17%. Bonds in the same rating category can have different risks, but I felt

¹Skelton, Jeffery. *Banks, firms and the relative pricing of tax-exempt and taxable bonds*, Journal of Financial Economics, 1983. This is the classic source. There has been a lot of work done since, but this general empirical finding has been replicated often.

that in the AAA category, I was pretty safe. But the maturities were substantially different. For a simple adjustment, I calculated the term-structure yield spread between T-bonds maturing in 25 years over those maturing in 5 years: 67 basis points. Adding this to the BellSouth yield gave a “comparable” taxable yield of 6.84%. We would expect that the after tax rates of return should be equal across the two securities for the marginal investor: i.e.,

$$r_{muni} = r_{taxable} (1 - \tau_{pd})$$

Solving for the implied tax bracket:

$$\tau_{pd} = 1 - \left(\frac{r_{muni}}{r_{taxable}} \right)$$

Substituting the numbers above, the implied marginal tax bracket is $1 - (.0567 / .0684) = 21\%$.

Information about the shorter end of the maturity spectrum is difficult to ascertain from the information in the WSJ, but in the Credit Markets report, it states that “yields range from 4.1% in 1998 to 5.88% in 2022.” Since no quality information is given, it is difficult to make an accurate assessment, but T-bond yields maturing in 1998 ranged from 5.75% to 5.83% and 5.78% looked like a very representative yield to maturity. Calculating the implied marginal tax bracket using the 1998 numbers: $1 - (.041 / .0578) = 29\%$. This makes no adjustment for difference in quality between munis in the 4.1% and T-bonds, which would increase the implied tax bracket.

Based on Vanguard's fund yields, the yield on the money market muni fund is 3.6% (maturity of up to 90 days) and the yield on the intermediate muni fund is 4.7% (yield of 5-7 years I believe). The T-bill yields on two- and three-month bills are around 5.3%-5.35%. The implied personal tax rate on taxable bonds based on the spread between short term T-bills and the money

market municipal fund is: $1 - (.036/.05325) = 32.9\%$ implied personal tax rate, which is quite high, very close to federal corporate tax rate. And this doesn't account for the added credit risk of municipals over governments.

At the five to seven year level, Treasury bond yields are between 5.9% and 6.0%. The implied personal tax rate on taxable bonds based on the spread at this tenor is: $1 - (.047/.0595) = 21.0\%$. This is very consistent with the marginal tax bracket I found at the long end of the spectrum.

There is not consensus about what causes the implied tax bracket to decline with the tenor of the bonds, but most authors argue *not* to interpret this as being due to lower current marginal tax brackets at all. The differences could reflect expectations over time that the differential taxation of taxable and municipal bonds would reduce over time, and today there may be expectations that the exclusion of municipal bond interest may not be around for the lifetime of longer term municipals. But it may also be that there are real systematic differences between munis and the "comparable" taxables that are not held constant and are more important for the longer maturity bonds.