

## MAXIMIZING AFTER-TAX RETURNS

### A Breakeven Analysis of Tax-Sensitive Investment Mandates

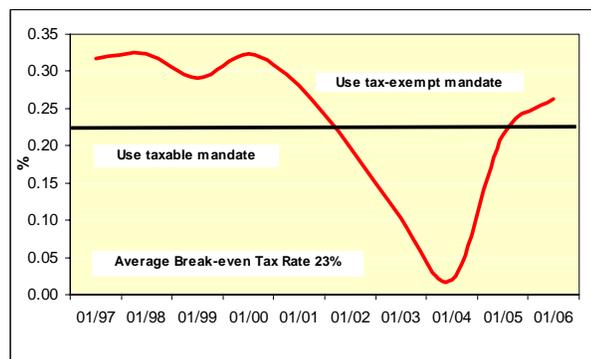
#### EXECUTIVE SUMMARY:

Results of three studies examining investment returns show that, in aggregate, investors with tax rates above 23% received higher returns from tax-exempt securities than from taxable investments over the last nine years. The annual return advantage for taxpayers in the top tax bracket (35%) was approximately 0.26%.

While the results of the studies generally favored a tax-exempt investment mandate, taxable securities outperformed in 26% of the examined time periods, leaving possible room for outperformance if an investment mandate takes a blended approach.

It appears that the tax-exempt security's yield advantage occurred in a low yield environment. After peaking in mid-2005, this advantage steadily diminished as interest rates rose.

Please note that these studies' return comparisons include market indices that may not adequately address the actual supply-and-demand dynamics of the respective markets. For effective tax-sensitive investing, investors should also consider the technical aspects of tax-exempt investments, such as reduced market liquidity, limited supply and municipal funding fluctuations.



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### **INTRODUCTION:**

Profitable corporations and other taxpaying entities naturally need to consider cash and short-term investments in their overall tax management strategies. From time to time, as shown by empirical and anecdotal evidence, the treasury management community may fail to fully appreciate the tax implications of short-term investment returns.

One common mistake is the tendency to purchase taxable securities even though a tax-exempt investment mandate could result in higher after-tax returns. A 2006 survey by the Association for Financial Professionals revealed that municipal securities accounted for less than 9% of short-term allocation, even though 46% of the respondents allowed municipal notes, 28% allowed variable rate demand notes, and 35% allowed auction rate notes in their investment policies. Similarly, a taxpaying investor should avoid the potential mistake of requiring a tax-exempt mandate and excluding all taxable securities from the portfolio.

In response, we conducted a performance evaluation of several comparable short-term investment vehicles to demonstrate the after-tax return differentials between taxable and tax-exempt mandates. By introducing the concept of a “breakeven” tax rate, we hope to provide a simple tool for investors to use when incorporating investment policy decisions into their overall tax strategies. Please note that, in the marginal income tax rate system of the U.S., the breakeven rate is the top tax rate, not the average tax rate.

We acknowledge that corporate income taxation is a complex subject and is an area in which we are not experts. This study focuses strictly on comparative index returns. We also recognize that the return objective of cash portfolios is typically a subordinate consideration to capital preservation and liquidity management.

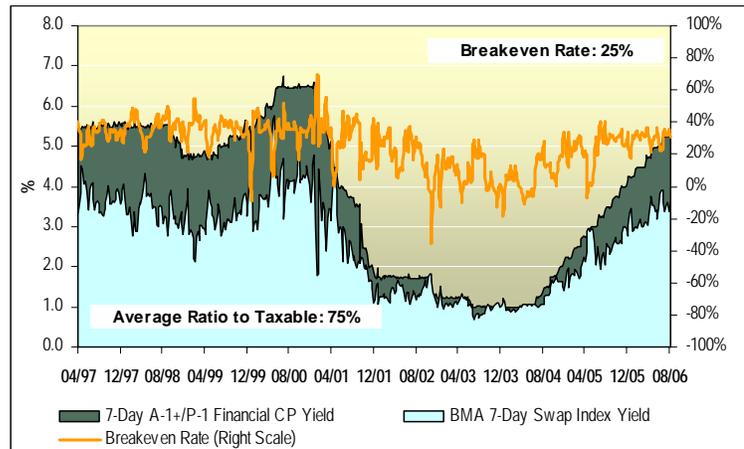
### **YIELD COMPARISON OF 7-DAY CASH INSTRUMENTS:**

To begin our return comparison, we chose two comparable cash benchmarks: the Bond Market Association (BMA) Municipal Swap Index and the Bloomberg index of dealer-placed 7-day A-1+/P-1 Commercial Paper (CP) Index. The BMA Swap Index is comprised of 7-day tax-exempt variable rate demand notes (VRDNs), the lion’s share of marketable tax-exempt cash instruments. We began the benchmark comparison in April 1997, the first date on which historical data is available from the BMA Swap Index.

#### **Results from Exhibit 1:**

- The average weekly tax-exempt to taxable yield ratio was 75%.
- The breakeven tax rate during the period was 25% ( $1 - 0.75$ ). An investor whose tax rate is lower would receive more after-tax income from a taxable security than from a tax-exempt security.
- Between 2001 and 2004, when interest rates were low, the yield differential collapsed, making the tax-exempt yield more attractive. Note that the rate was negative in certain periods, suggesting that the tax-exempt yield was more than 100% of the taxable yield.
- The BMA Index’s weekly yield volatility was noticeably higher than that of the CP index throughout the period. Higher seasonality of tax-exempt cash flows may be the cause of the large yield swings.

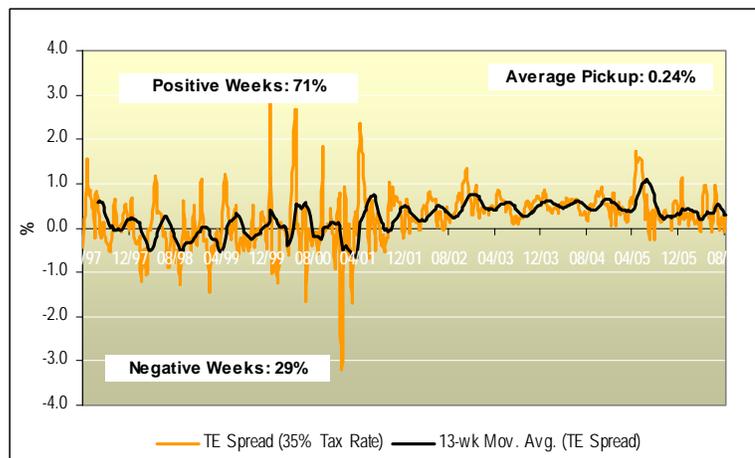
**Exhibit 1: Yield Comparison of 7-Day Cash Investments**



Source: Bloomberg yield history data download of BMA Municipal Swap Index (MUNIPSA) yield and US Commercial Paper Placed Top/Top 7 Day Yield Index (DCPA007Y). Both are reported as money market (Actual/360) yields.

Results from Exhibit 1 suggest that investors in the top tax bracket (35% for taxable income above \$18.3 million since 1992), should adopt a tax-exempt investment mandate. Exhibit 2 provides further evidence that investors in the top tax bracket may want to consider tax-exempt investments. This line graph depicts the yield spread history of the taxable equivalent yield of the BMA Index over the CP index.

**Exhibit 2: Taxable Equivalent Spread of 7-Day Cash Investments**  
(Assumed Tax Rate = 35%)



Source: Same as Exhibit 1.

**Results from Exhibit 2:**

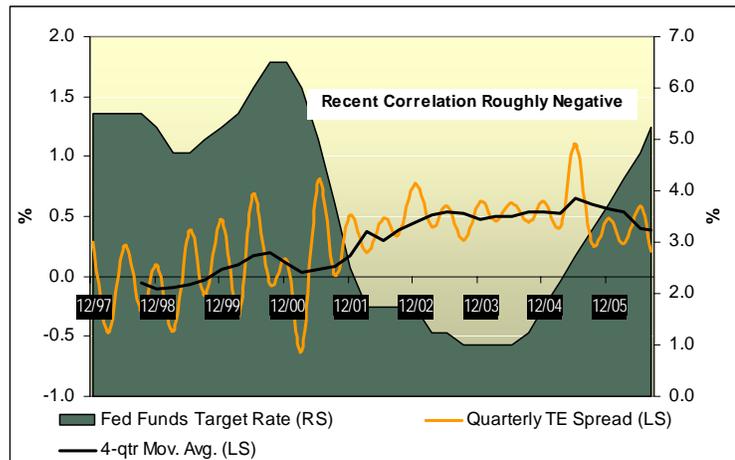
- The average weekly taxable-equivalent yield advantage of a 7-day tax-exempt security was 0.24% over a taxable security for an investor in the 35% tax bracket. The taxable-equivalent (TE) spread is the spread of the BMA Index’s tax-equivalent yield (yield/(1-0.35%)) over the CP index yield.
- In 29% of the 490 weeks under study, taxable investments provided higher yields than the TE yields of tax-exempt securities for the same taxpayer.

To illustrate the relationship of cash returns and the general direction of interest rates, we looked to the Fed Funds rate history for some guidance. The line graph in Exhibit 3 depicts the same BMA TE spread over CP as previously discussed, but in addition, we have overlaid the Fed Funds rate history.

**Results from Exhibit 3:**

- The yield advantage of tax-exempt securities seems to correlate negatively with the Fed Funds rate since 2000.
- The tax-exempt spread advantage peaked in June 2005, and is currently in a downward trend, although the excess yield remains positive.

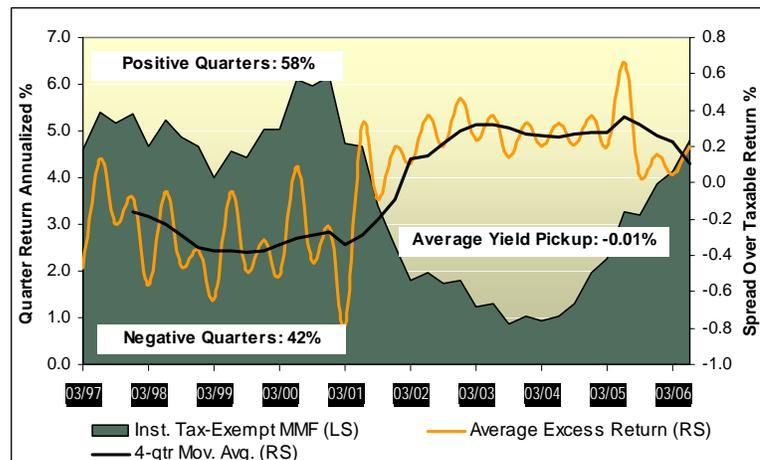
**Exhibit 3: BMA Swap Spread over CP Yield and the Federal Funds Rate History**



Source: Same as Exhibit 1. Bloomberg historical data download of the Federal target funds rate (FDTR).

Exhibit 4 depicts the TE spread between the Tax-exempt and Taxable Lipper Institutional Money Market Fund Averages. Please note the similar shapes of the data series in Exhibit 4 and in Exhibit 3. (Results are actual quarterly returns.)

**Exhibit 4: Quarterly Taxable Equivalent Return of Lipper Institutional Money Market Fund Averages (Assumed Tax Rate = 35%)**



Source: Median quarterly returns of taxable and tax-exempt institutional money market funds, as presented by Lipper (A Reuters Company) Index Performance Averages.

**Results from Exhibit 4:**

- Similar to our observation in Exhibit 3, the yield advantage of tax-exempt money market funds over taxable funds seems to negatively correlate with the level of fund returns.
- Over the last 38 quarters, returns from the tax-exempt and taxable money market fund groups were roughly the same for taxpayers in the top tax bracket.
- Since June 2005, the spread advantage from tax-exempt money funds peaked and subsequently trended downward. Currently, the spread advantage is close to zero.

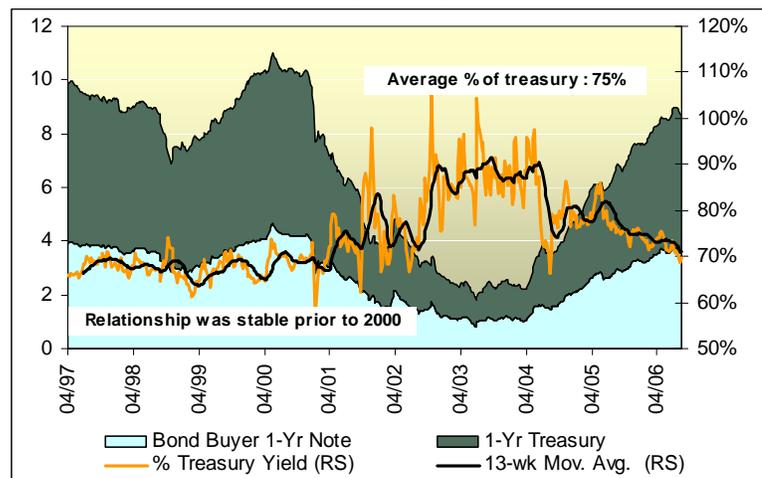
**YIELD COMPARISON OF 1-YEAR MATURITY INDICES:**

As a good percentage of cash investors buy securities with longer maturities than money market funds and 7-day resets, we will now review the yield difference of 1-year securities. For the tax-exempt proxy, we used the Bond Buyer 1-Year Note Index, an index of 1-year notes from 10 municipal issuers rated MIG-1 by Moody's. Representing the taxable group is the 1-year constant maturity treasury (CMT) published by the Federal Reserve.

**Results from Exhibit 5 (Compare to Exhibit 1):**

- The average ratio of tax-exempt to taxable yield was 75% and the breakeven tax rate was 25%. These results were exactly the same as the 7-day securities.
- The low interest rate environment between 2001 and 2004 caused tax-exempt yields to rise as a percentage of taxable yields, making them more attractive than taxable investments. This observation is also consistent with Exhibit 1.

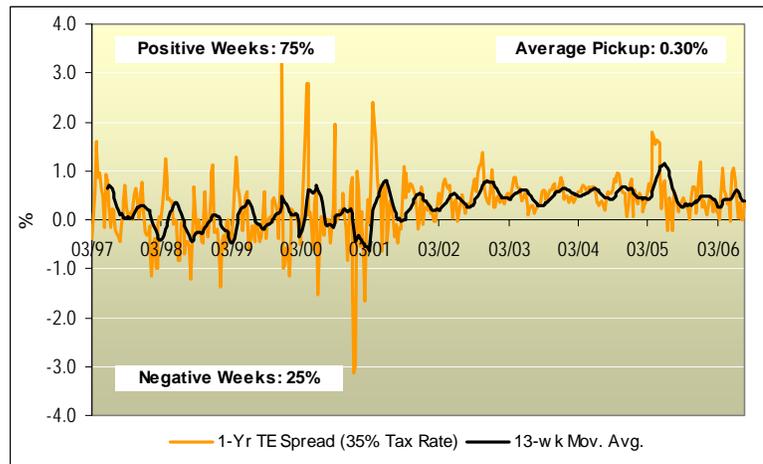
*Exhibit 5: Yield Comparison of 1-Year Securities*



Source: Bloomberg yield history data download of Bond Buyer US Weekly 1-Year Note Index (BBWK1YRN) and Federal Reserve 1-Year Constant Maturity Treasury (H15T1Y).

Below we look at the taxable equivalent spread between the Bond Buyer 1-Year Note Index and CMT.

**Exhibit 6: Taxable Equivalent Spread of 1-Year Securities**  
(Assumed Tax Rate = 35%)



Source: Same as Exhibit 5

**Result from Exhibit 6 (Compared to Exhibit 2):**

- The average weekly taxable-equivalent yield advantage of a 1-year tax-exempt security was 0.30% over the Treasury index for the 35% taxpayer.
- Twenty-five percent of the time, the Treasury index provided better yield than tax-exempt securities on a tax-equivalent basis. This figure is lower than in the 7-day security analysis, where the frequency of the taxable CP yield advantage was 29%.
- Yield spread volatility was high from week to week. There did not appear to be an indication that favored either strategy until mid-2001, when the tax-exempt strategy clearly demonstrated its yield advantage. Recently, that advantage appears to be diminishing.

**TOTAL RETURN OF MARKET INDICES:**

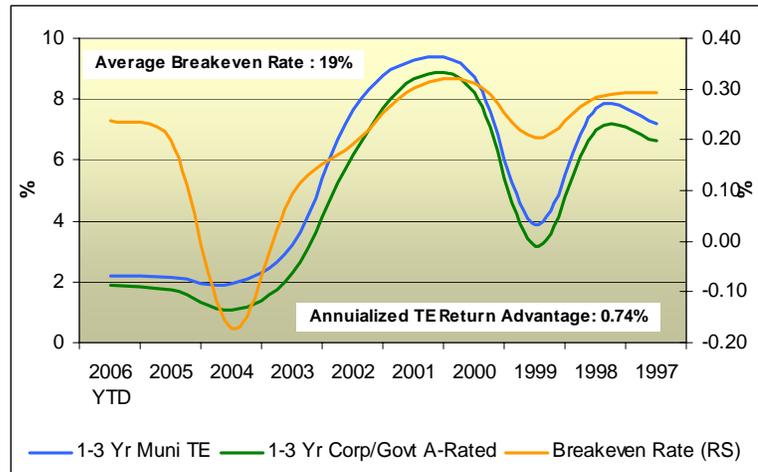
So far, our discussion has focused on income returns (or book value yield), which we believe is more appropriate for investors intending to hold securities to maturity. We will now turn our attention to a comparison in a total return context for those with market value benchmarks and more active investment mandates. The two representative short-duration groups we chose were the Merrill Lynch 1-3 Year Municipal Index and the Merrill Lynch 1-3 Year Corporate & Government (A-rated and above) Index. We will look at index returns in annual intervals to smooth out the high return volatility common with market indices.

**Results from Exhibit 7:**

- On a taxable-equivalent basis with an assumed 35% top tax rate, returns from municipal securities were consistently above those of taxable securities. The annualized return advantage in the 9-year period was 0.74%.
- The breakeven tax rate is measured as 100% subtracted by the tax-exempt to taxable return ratio, and is represented by the orange line (reads to right scale). This corresponds closely with the overall levels of total returns. Higher return years were associated with higher breakeven rates.

- The average breakeven tax rate of 19% was lower than in the analyses of both the 7-day and the 1-year indices. Since the orange line never crested above the 35% mark, a top bracket taxpayer would have been better off with the tax-exempt mandate in each of the last nine years.

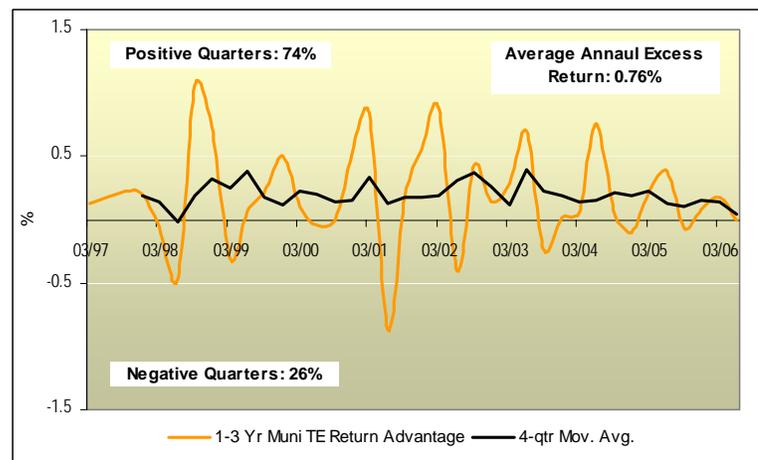
**Exhibit 7: Annual Total Return Comparison of 1-3 Year Indices**  
(Assumed Tax Rate = 35%)



Source: Annual returns of the ML 1-3 year Municipal Index (U1A0) and the ML 1-3 year U.S. Corporate & Government (A-rated and above) Index (B110). Merrill Lynch Global Index System.

Results from Exhibit 7 seem to suggest that total return investors should benefit from a tax-exempt mandate. However, when factoring in volatility of market based returns, that statement may not always be true. To illustrate, we plotted the quarterly, not annual, return differentials in Exhibit 8 to potentially come to a more accurate conclusion.

**Exhibit 8: Taxable Equivalent Return Spread of 1-3 Year Indices**  
(Assumed Tax Rate = 35%)



Source: Same as Exhibit 7.

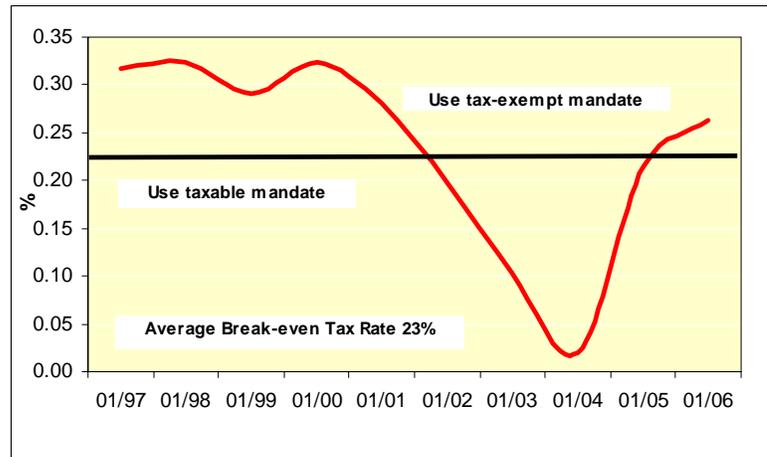
**Results from Exhibit 8:**

- Despite 0.76% in additional annual taxable-equivalent return, tax-exempt securities had lower returns than taxable assets in 26% of the quarters on a taxable-equivalent basis.
- The 4-quarter moving average of the spread difference peaked in June 2003. Since then, the tax-exempt return advantage has been on a steady decline.

**PULLING ALL OF THE COMPARISONS TOGETHER ...**

After assessing tax implications on the 7-day, 1-year, and 1-3-year total-return security groups, we now average the three breakeven lines to arrive at a general breakeven point (for illustrative purposes). The simple average method of combining three maturities may not be analytically accurate, but it can be a useful starting point to answer the following question: Should I adopt a taxable or tax-exempt investment mandate given *my own* tax situation?

*Exhibit 9: Average Breakeven Tax Rate*



Source: Taken from data in previous exhibits.

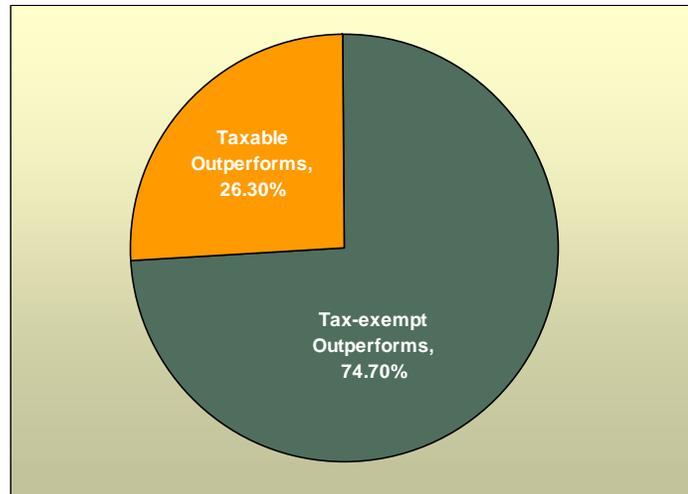
In Exhibit 9, the red line represents the breakeven tax rate at which the returns from taxable and tax-exempt securities were the same on a taxable-equivalent basis for an investor. Investors in higher tax buckets likely would have received higher returns from tax-exempt securities and vice versa. The black line refers to the average breakeven tax rate of 23% in the last 9-year period.

Excluding the abnormally low ratios in 2003 (0.10%) and 2004 (0.02%), when interest rates were at unusually lower levels, the average breakeven ratio increased to 28%.

In this simple illustration, an investor at the 23% tax rate who invested evenly among the 7-day, 1-year, and 1-3-year parts of the yield curve probably would have done equally well with a tax-exempt or taxable mandate.

Supplementing this information is the pie chart in Exhibit 10, which summarizes an

important point repeated in the three studies: Over the past 9 years, taxable securities provided higher after-tax returns than tax-exempt securities with comparable maturities 26% of the time.



Source: Taken from data in previous exhibits.

## CONCLUSIONS

Our comparative study of tax implications on investment returns under three maturity scenarios helps to validate the potential return advantage of tax-exempt investing for corporate cash accounts in a taxable situation. While the advantage was generally evident over the nine-year period, there were periods when taxable investing would have yielded higher returns. Our analysis yielded the following general conclusions:

- Investors whose top tax rates are 23% or higher may want to consider adopting a tax-exempt mandates.
- Investors should not necessarily exclude taxable investments from their investment policies, as they provided higher returns than tax-exempt securities 26% of the time.
- Relative performance was potentially affected by general interest rate levels. The tax-exempt advantage peaked in mid-2005, and is on the decline.

Please note that these studies are based purely on index yields and return statistics. They do not capture many of the factors in real world investing. For example, actual yield levels offered by broker-dealers are often different from index levels. Other issues include limited bond supply and less liquidity for municipal bonds. In addition, our data period of nine years may have reflected only the recent tax phenomenon, not a historical norm. Lastly, operational considerations such as tax reporting and remittance may also affect final decision making.

In conclusion, we believe that the relevant issue for the tax-sensitive investor is not whether or not to adopt a taxable or tax-exempt investment mandate, but is instead to invest in both tax-exempt and taxable securities so as to provide the highest after-tax return. Being cognizant of one's tax situation and allowing some flexibility in your

mandate may increase long-term return opportunities.

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