Kalotay Analytics

FIXED INCOME INNOVATION, PRECISION & PERFORMANCE

MuniOAS™

Cutting-Edge Analytics for Tax-Exempt Bonds

MuniOAS facilitates efficient hedging and rich/cheap analysis by delivering accurate, 'tax-neutral' risk measures for all fixed coupon munis.

Discount muni prices are depressed by the tax payable at maturity. This de minimis tax effect is well understood by professionals. However, standard analytics fail to account for it, and consequently underestimate effective duration and overestimate OAS, often by wide margins.

Kalotay's patent-pending tax-neutral approach extends conventional OAS to incorporate the detrimental effect of taxes.

Analysis of 15-Year 2.75% Bond, Callable at Par in Year 5

Inputs	Price	Interest Rate Volatility	Benchmark Yields (%)			Tax Rates (%)	
			5 yr	10 yr	15 yr	Income & S/T Gains	L/T Gains
	95	15%	1.50	1.58	1.65	40	20

Results		OAS (bps)	Duration
MuniOAS (Tax-Neutral)		46.3	15.65
Standard		60.5	11.67

Key Features

- Only OAS model that properly handles the de minimis tax effect on munis

- Calculates tax-neutral OAS, effective duration, convexity, and key-rate durations

- Unmatched speed (1 million bonds/minute), without compromising accuracy

- Extension of Kalotay's flagship BondOAS library for fixed rate taxable bonds, including callables, putables, sinking funds, pay-in-kind, and step-ups

- Converts standard 5% NC-10 benchmark yield curve to par optionless yield curve

- Cross-platform SDKs seamlessly integrate into client systems, cloud services, or vendor applications

- Ideal for interactive applications and high-volume processing

- Deployed on major trading platforms, portfolio management systems, and risk systems

Live Demo: https://analytics.kalotay.com/munianalyzer

De Minimis Smoothing

The tax rate applicable to the gain on discount munis is discontinuous at the de minimis threshold. It jumps from capital gains (20%) to ordinary income (40%). MuniOAS uses a volatility-dependent algorithm to smooth out the discontinuous present values. Without smoothing, risk measures near the de minimis point would be nonsensical.

Price of 10-Yr 3% Bond as Rates Change

Getting Risk Right

When rates rise, prices of munis near par fall much further than predicted by standard duration calculations. Another problem is that prices of discounts look deceptively cheap with standard OAS. MuniOAS gets both right.

Duration — 10-Yr Bonds (various coupons), 10-Yr Rate 3%

OAS — 10-Yr 3% Bond (various prices)
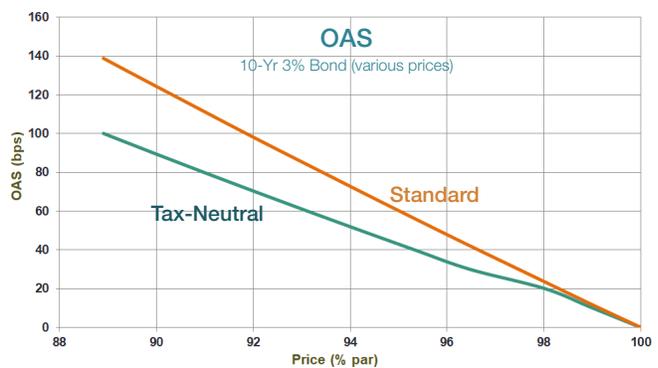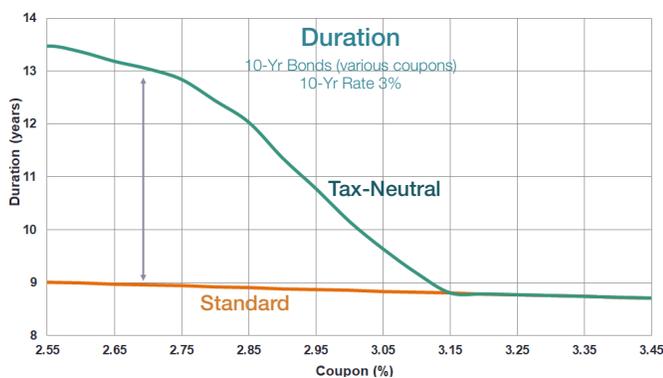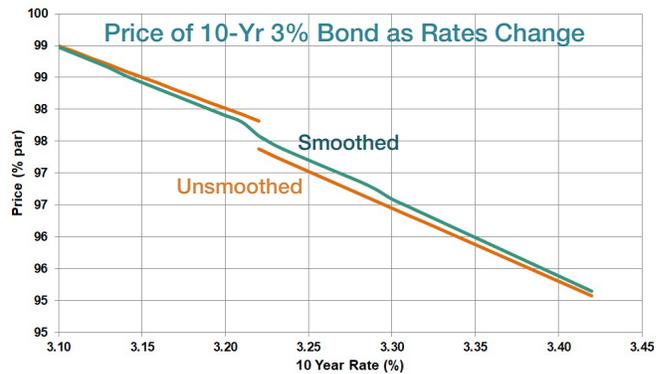
Related Products

MuniSignal — Tax Loss Harvesting & Tax Rate Arbitrage

- Patent-pending framework for maximizing after-tax performance
- Tracks holder's basis and accrued OID
- Calculates benefit of selling, using 'hold value' as reference point
- Signals when to sell, taking into account the forfeited tax option vaue

CurviLinear — Yield Curve & Volatility Estimation

- Constructs market-implied yield curves from live bond prices
- Simultaneously solves for interest rate volatility

About Kalotay Analytics

For three decades Kalotay Analytics has been at the core of leading fixed income valuation and risk systems. The firm's patented technology performs computationally intensive calculations with the precision and speed demanded by sophisticated fixed income market participants.

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