From NIC to TIC to RAY: Calculating True Lifetime Cost of Capital for Municipal Borrowers

by Peter Orr and Martin Luby

Discussion by Winthrop Smith

5th Annual Municipal Finance Conference

July 12, 2016
Callable Premium Bonds

• What is a 5% 20-year maturity w/ 10-year call?
  • 20-year bond with in-the-money call?
  • 10-year bond with out-of-the-money put?
    • Bond Anticipation Bond?

• Concerns
  • Issuer not paid for full debt schedule
  • Reasonable debt level requires refinancing
  • Market Opacity
Key Assumptions for the RAY Calculation

• Interest Rate Process
  • Reversion to Historical Average Yield Curve
  • Many Factors

• Structuring
  • Par Bonds
  • Matched Maturities for Bonds and Escrows
Using RAY for Competitive Bids

• Can public officials have confidence in calculations?
• Can bidders understand calculations?
• Will bidders be discouraged?
• Can calculations be processed & verified quickly?
• Is it better to be *optimal* or *robust*?
Refunding Adjusted Cost of Funds

4% Coupon vs. 5% Coupon

3.86% RAY for 4s
3.81% RAY for 5s
3.91% TIC for 4s
4.14% TIC for 5s

Assumed Probability of Future Refinancing Rate [scale not shown]
Suggestion for Further Research

• How sensitive is RAY to key assumptions?
  • Target yield curve
  • Matched maturity structure

• Investigate other competitive bid procedures, such as:
  • Publish option values for various coupons & maturities before bid
  • Calculate adjusted TIC with preset option values