CDIAC Conference

Refunding a Bond Issue

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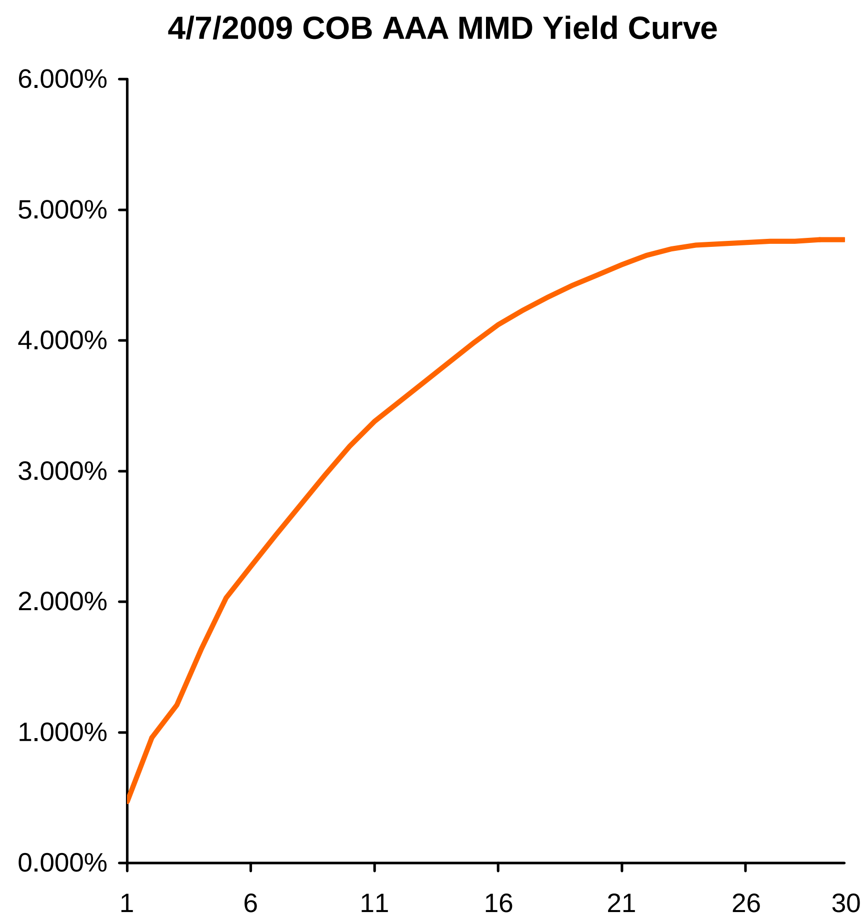
What is a Refunding?

- Proceeds of the new bonds are used to pre-pay old bonds
- Replaces an old debt with a new one
- Usually done to lower the interest costs of the issuer
- Recently, increased use of refundings to fix broken deals (e.g., auction rate securities gone wild)
- Like refinancing home mortgage, first calculation is whether the interest rate savings outweigh the costs of the transaction

Why Refundings Happen

- Interest rates rise and fall. A refunding can capture current market opportunities
- Because of the upward sloping shape of the yield curve, shorter loans have lower rates
- In a static market, just the passage of time often creates refunding opportunities
- Alternatively, interest rates can fall significantly shortly after the original bond sale



Non-Economic Refundings

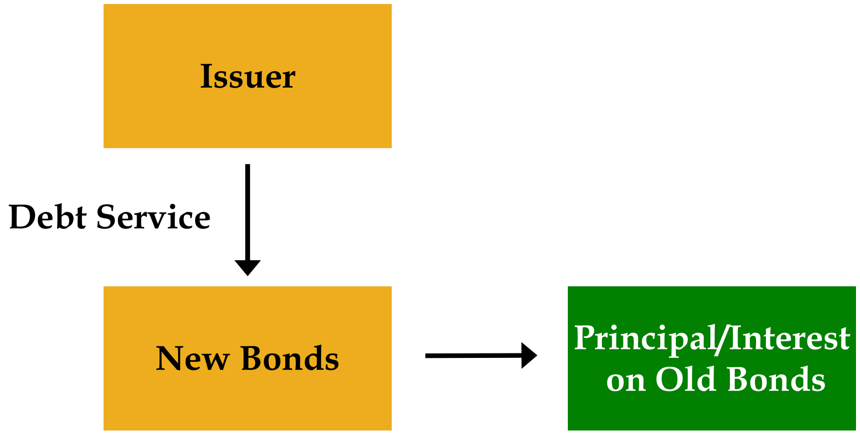
- Covenant change
- Restructuring payments (e.g., deferring debt service for cash-flow savings)
- Restructuring of products that failed (i.e. auction rate securities, insured variable rate demand obligations, etc.)

Call (Prepayment) Protection

- If a loan can be prepaid at the borrower's option, the lender wants a prepayment premium, a higher yield, or both
- Current convention in municipal bonds is that bonds cannot be called for 10 years
- Current convention is 10-year par call (i.e. no premium)
- A decade ago, 10-year calls often came with a premium of 102, declining to par over time
- Earlier calls can be had at a price

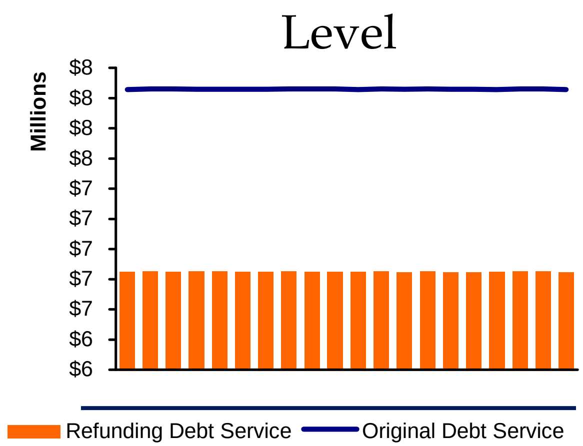
Mechanics of a Simple Refunding

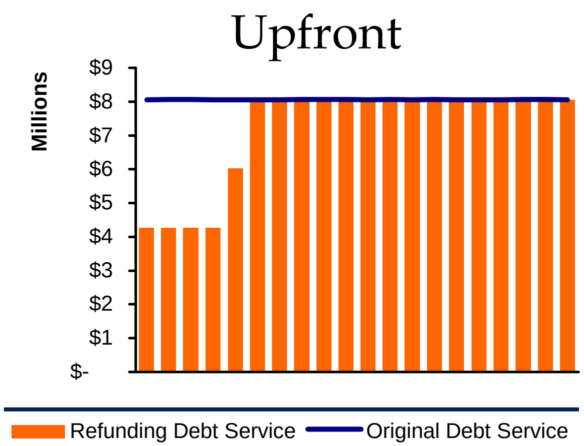
- Refunding Bonds are issued to:
  - Pay scheduled principal and interest on old bonds until the call date
  - At the call date, the principal of the old bonds is paid to investors, plus a call premium, if applicable
  - At that point, only the new (or refunding bonds) are outstanding

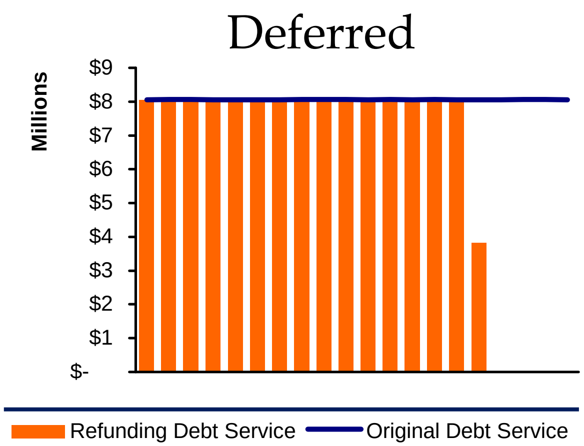


Savings Patterns

- Savings can be structured in three basic ways:
  - Level - equal annual savings through maturity (most common and most conservative)
  - Upfront – near term savings with remaining debt service equal to prior debt service
  - Deferred – maintains prior debt service in the near term and shortens final maturity







Old Versus New Debt Service

Date	Original Series 1999 Bonds			Series 2009 Refunding Bonds Uniform Savings		Series 2009 Refunding Bonds Upfront Savings		Series 2009 Refunding Bonds Deferred Savings	
	Par Amount	Interest	Debt Service	Series 2009 Debt Service	Savings	Series 2009 Debt Service	Savings	Series 2009 Debt Service	Savings
7/1/1999	-	3,500,000	3,500,000	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2000	1,060,000	7,000,000	8,060,000	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2001	1,135,000	6,925,800	8,060,800	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2002	1,210,000	6,846,350	8,056,350	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2003	1,295,000	6,761,650	8,056,650	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2004	1,385,000	6,671,000	8,056,000	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2005	1,485,000	6,574,050	8,059,050	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2006	1,590,000	6,470,100	8,060,100	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2007	1,700,000	6,358,800	8,058,800	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2008	1,820,000	6,239,800	8,059,800	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2009	1,945,000	6,112,400	8,057,400	N/A	N/A	N/A	N/A	N/A	N/A
7/1/2010	2,080,000	5,976,250	8,056,250	6,848,750	1,207,500	4,268,750	3,787,500	8,053,750	2,500
7/1/2011	2,230,000	5,830,650	8,060,650	6,854,750	1,205,900	4,268,750	3,791,900	8,059,500	1,150
7/1/2012	2,385,000	5,674,550	8,059,550	6,849,000	1,210,550	4,268,750	3,790,800	8,055,500	4,050
7/1/2013	2,550,000	5,507,600	8,057,600	6,851,750	1,205,850	4,268,750	3,788,850	8,056,750	850
7/1/2014	2,730,000	5,329,100	8,059,100	6,852,250	1,206,850	6,018,750	2,040,350	8,057,500	1,600
7/1/2015	2,920,000	5,138,000	8,058,000	6,850,250	1,207,750	8,056,250	1,750	8,057,250	750
7/1/2016	3,125,000	4,933,600	8,058,600	6,850,500	1,208,100	8,057,500	1,100	8,055,500	3,100
7/1/2017	3,345,000	4,714,850	8,059,850	6,852,500	1,207,350	8,059,000	850	8,056,750	3,100
7/1/2018	3,580,000	4,480,700	8,060,700	6,850,750	1,209,950	8,060,250	450	8,060,250	450
7/1/2019	3,830,000	4,230,100	8,060,100	6,850,000	1,210,100	8,055,750	4,350	8,055,250	4,850
7/1/2020	4,095,000	3,962,000	8,057,000	6,849,750	1,207,250	8,055,250	1,750	8,056,500	500
7/1/2021	4,385,000	3,675,350	8,060,350	6,854,500	1,205,850	8,058,000	2,350	8,058,000	2,350
7/1/2022	4,690,000	3,368,400	8,058,400	6,848,500	1,209,900	8,058,250	150	8,054,000	4,400
7/1/2023	5,020,000	3,040,100	8,060,100	6,851,750	1,208,350	8,055,500	4,600	8,059,000	1,100
7/1/2024	5,370,000	2,688,700	8,058,700	6,848,250	1,210,450	8,054,250	4,450	8,056,750	1,950
7/1/2025	5,745,000	2,312,800	8,057,800	6,847,750	1,210,050	8,053,750	4,050	3,816,750	4,241,050
7/1/2026	6,145,000	1,910,650	8,055,650	6,849,500	1,206,150	8,053,250	2,400		8,055,650
7/1/2027	6,580,000	1,480,500	8,060,500	6,852,750	1,207,750	8,057,000	3,500		8,060,500
7/1/2028	7,040,000	1,019,900	8,059,900	6,851,750	1,208,150	8,059,000	900		8,059,900
7/1/2029	7,530,000	527,100	8,057,100	6,846,000	1,211,100	8,053,500	3,600		8,057,100
Total	**$100,000,000**	**$145,260,850**	**$245,260,850**	**$137,011,000**	**$24,164,900**	**$143,940,250**	**$17,235,650**	**$124,669,000**	**$36,506,900**

Federal Tax Law Distinguishes Between Two Types of Refundings

- **"Advance Refunding"**
  - New debt is sold more than 90 days before the redemption date of the old debt
- **"Current Refunding"**
  - New debt is sold less than 90 days before the redemption date of the old debt

Basic Tax Rules

- In general, a bond issue can be "advance" refunded only once; but
- A bond issue can be "current" refunded as often as is economic
- In an advance refunding, proceeds of the "new" issue are invested (at a rate up to the borrowing rate) until the call date when the old bonds are redeemed
  - These funds are held in an "escrow" account
  - If interest rates on the escrow securities are lower than the refunding bond yield there is "negative arbitrage"
    - More refunding bonds must be sold to make up for "negative arbitrage" of lower earnings
    - Can impact issuer's ability to reach savings targets
  - If interest rates on the escrow securities are higher than the refunding bond yield, there would be "positive arbitrage"
    - Under tax law, the escrow yield is reduced to be $\leq$ the bond or arbitrage yield

Escrow Rules

- The IRS knows that (in typical times) the interest rates you pay on debt are less than what you can earn on your investments ("arbitrage")
- Yield on escrow cannot exceed yield on bond
- Typical escrow investment is in Treasury securities
- Treasury offers special "low yielding" securities to help you manage this rule
- State and Local Government Securities (SLGS)
- Offering earning rates as low as 0%

Savings Thresholds

- A refunding “uses up” a valuable asset, your call option
- How should we measure the savings?
- % of refunded par: we should realize (after all costs) a savings, in present value terms, of at least x% of the refunded debt
  - Issuers typically use a Present Value Savings target of between 3% and 5% of refunded par measured on a maturity-by-maturity or aggregate basis
- “Gross” or “net" savings
  - For example, it is important to take into account the offset in savings from lower interest rates by the loss of any earnings on a debt service reserve fund
    - The yield on a debt service reserve fund is limited to the bond yield on the refunding bonds
    - Lowering the arbitrage rate on new bonds may require more arbitrage rebate, eating away some of the “net” savings

Maturity-by-Maturity Savings Analysis

Uniform Savings Refunding Maturity-by-Maturity Savings Analysis				
Maturity Date	Original Coupon	Par Amount	Calculated Savings	Calculated Savings Percent
7/1/2010	7.00%	$2,080,000	$40,090	1.927%
7/1/2011	7.00%	2,230,000	83,892	3.762%
7/1/2012	7.00%	2,385,000	131,369	5.508%
7/1/2013	7.00%	2,550,000	182,839	7.170%
7/1/2014	7.00%	2,730,000	238,931	8.752%
7/1/2015	7.00%	2,920,000	299,527	10.258%
7/1/2016	7.00%	3,125,000	365,341	11.691%
7/1/2017	7.00%	3,345,000	436,690	13.055%
7/1/2018	7.00%	3,580,000	513,850	14.353%
7/1/2019	7.00%	3,830,000	597,065	15.589%
7/1/2020	7.00%	4,095,000	686,544	16.765%
7/1/2021	7.00%	4,385,000	784,257	17.885%
7/1/2022	7.00%	4,690,000	888,784	18.951%
7/1/2023	7.00%	5,020,000	1,002,237	19.965%
7/1/2024	7.00%	5,370,000	1,123,957	20.930%
7/1/2025	7.00%	5,745,000	1,255,235	21.849%
7/1/2026	7.00%	6,145,000	1,396,377	22.724%
7/1/2027	7.00%	6,580,000	1,550,001	23.556%
7/1/2028	7.00%	7,040,000	1,714,142	24.349%
7/1/2029	7.00%	7,530,000	1,890,239	25.103%
Total:		**85,375,000**	**15,181,366**	**17.782%**

Other Savings Thresholds

- Total dollar savings rule:
  - An issuer may impose an absolute minimum dollar savings as well
- "People in suits" rule:
  - The savings we realize should be significantly greater than the fees paid to the people who are offering to "help" us!
- Black-Shoals option pricing models
  - Rooted in a model developed by Fischer Black and Myron Scholes in 1973.
  - Calculates the "value" of an option based on assumptions and mathematically complex model
  - Policy question is amount of value that must be captured in a refunding
- Sliding targets based on where interest rates are in the cycle (i.e., how low or high compared to historical averages

Debt Management

- Who monitors outstanding debt?
- Refunding policies

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