



Basics of Refundings

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Before we get started...



Poll Question:

◆ How would you describe your experience with the issuance of refunding bonds?



Beginner – No Experience



Intermediate – Completed at least one refunding issue



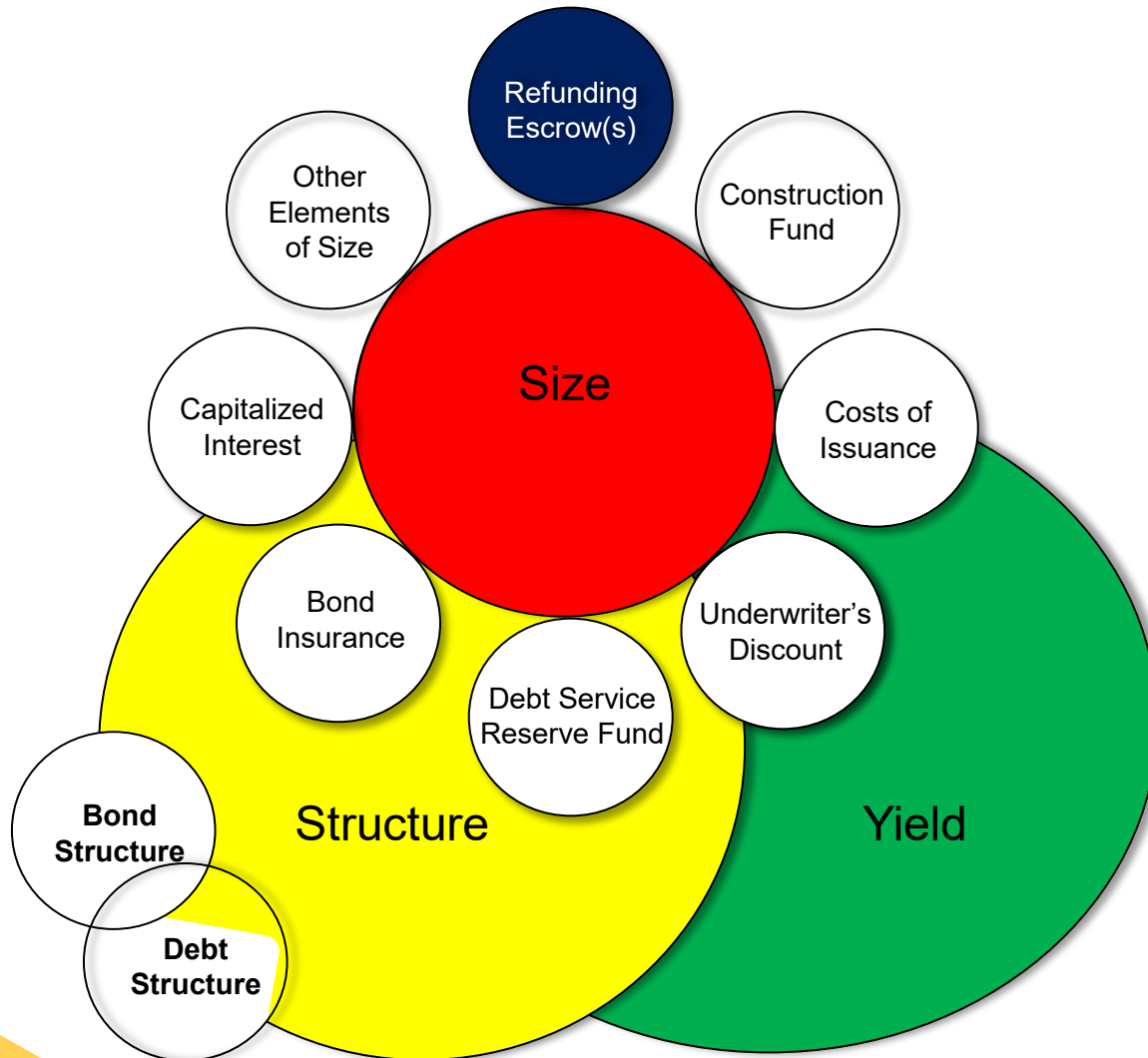
Advanced Intermediate – More than one but less than five refunding issue



Expert – Completed more than five refunding issue



Tao of Municipal Modeling (reprise)





Terminology and Definitions

- ◆ A **REFUNDING** constitutes the issuance of debt obligations, the proceeds of which are used to pay all, or a portion of, the principal, interest or redemption price of a prior bond issue, including the issuance costs, accrued interest, capitalized interest, reserve or replacement funds or similar costs properly allocated to the refunding issue. §150-1(d)(1)
- ◆ Proceeds of the refunding bonds are typically used to purchase investments, which are held in an irrevocable escrow pledged to bondholders. The receipts from the escrowed investments are sufficient in timing and amount to pay the principal, interest and redemption premium (if any) on the refunded bonds when these **DEFEASANCE REQUIREMENTS** become due and payable.
- ◆ Defeasance requirements can be calculated to the maturity date of the refunded bonds (a **REFUNDING TO MATURITY**), or to some earlier date, usually the call date (a **REFUNDING TO CALL**).
- ◆ The resultant refunding escrow, then, is an **ESCROW TO MATURITY** or **ESCROW TO CALL**, respectively.



Terminology and Definitions (cont'd)

- ◆ If the defeasance requirements of the refunded bonds are fully met by the escrowed investments, the prior bonds are considered **ECONOMICALLY DEFEASED**.
- ◆ The bond resolution or trust indenture of the prior bonds usually defines the criteria and procedures by which the lien on the assets/revenues pledged to pay debt service on the prior bonds may be formally released. When these criteria and procedures are met as part of an economic defeasance, then the prior bonds may also be **LEGALLY DEFEASED**. That is, the refunded bonds may no longer be considered outstanding from the issuer's viewpoint.
- ◆ NOTE: It is possible to effect an economic defeasance without legally defeasing the prior bonds, although most refundings constitute legal defeasances.



Types of Refundings

- ◆ If only a portion of the outstanding bonds of a prior issue is refunded, that refunding issue is a **PARTIAL REFUNDING**, as opposed to a **FULL REFUNDING**.

- ◆ If the proceeds of the refunding issue are fully expended within 90 days of issuance, the refunding issue is considered a **CURRENT REFUNDING**.
 - Final escrow requirement is paid within 90 days of closing. Bonds redeemed or paid at maturity
 - Yield on investments held in current refunding escrow are not yield restricted and are exempt from arbitrage rebate.

- ◆ All other refundings are **ADVANCE REFUNDINGS**.
 - Final escrow requirement is paid more than 90 days from closing. Bonds redeemed or paid off after 90 days from closing.
 - Tax-exempt advance refundings are no longer allowed under new tax reform law. When President Trump signed H.R.1 (the "Tax Cuts and Jobs Act") on December 22, 2017, tax-exempt advance refundings of tax-exempt bonds were eliminated after December 31, 2017.
 - Tax-exempt advance refundings were eliminated to prevent issuers from having more than one issue of tax-exempt bonds outstanding for a given project.
 - However, taxable advance refundings of tax-exempt are still permitted.

 - **ADDITIONALLY, in late 2018 the IRS issued guidance allowing for the tax-exempt advance refunding of Build America Bonds and other tax-advantaged bonds for which the tax-advantaged status can be "turned off" upon refunding issuance.**



Poll Question



Poll Questions:

- ◆ Which of the following statements is FALSE?
 - a) Pursuant to H.R.1 (the "Tax Cuts and Jobs Act"), tax-exempt advance refunding's are no longer permitted after December 31, 2017
 - b) A refunding bond issue in which all the proceeds are spent within 90 days is a Current Refunding
 - c) A refunding bond issue in which all the proceeds are spent within 90 days is a Advance Refunding
 - d) Taxable bonds may be issued to Advance Refund tax-exempt bonds at any time

- ◆ True or False: When issuing refunding bonds, an issuer must refund all of the outstanding maturities of a series of bonds.

- ◆ Refunding bond proceeds are typically used to purchase investments which are held in an irrevocable escrow pledged to the holders of refunded bonds. What type of investments are typically purchased?
 - a) Bitcoin
 - b) Direct US Government Obligations (Treasuries or State and Local Government Series Securities)
 - c) High Yield Corporate Bonds ("Junk Bonds")
 - d) Apple Stock



Rationale – WHY REFUND?

There are three basic reasons to refund prior debt:

1. **INTEREST RATE SAVINGS - (HIGH TO LOW REFUNDING)**: If the prior bonds are callable, and if interest rates decrease between the issuance of the prior bonds and the refunding bonds, then the issuer may be able to capture debt service savings.
2. **DEFEASANCE – (LOW TO HIGH REFUNDING)**: Refunding bonds may be issued to defease prior debt and to release the issuer from onerous or outdated covenants established when the bonds were originally issued. Usually, to effect a change in the covenants, the refunding must defease a significant portion of the outstanding prior bonds as described in the trust indenture or bond resolution. A defeasance may be completed as a high-to-low refunding to the call date of the prior series (if savings are produced), or the defeasance may be completed as a low-to-high refunding to maturity if the prior bonds cannot be refunded for savings.
 - Low to High Refundings will not create any debt service savings as the yield on the refunding issue is higher than the coupon on the prior issue. But, if you can efficiently invest the refunding proceeds (at the arbitrage yield for tax-exempt or higher if taxable), you can minimize the cost on a net present value basis
3. **RESTRUCTURING**: Issuers will complete a refunding, either high-to-low or low-to-high, to change the amount of debt service payable in any given period. Such a restructuring of the prior debt service often involves the deferral or extension of the prior debt, producing (at least) short-term debt service relief. A restructuring may or may not generate present value savings, and therefore may be a refunding to call or maturity, as the case may be. Pay close attention to the discount rate used when computing NPV savings or loss.



Poll Question



Poll Question:

- ◆ An issuer's rationale for refunding outstanding debt can be:
 - a) Interest rate savings
 - b) Relief from onerous bond covenants
 - c) Restructure amortization of principal and debt service schedule
 - d) All of the above



Refunding Savings Criteria

Gross Debt Service Savings = Old Debt Service – New Debt Service

or

Refundedd Debt Service – Refundingg Debt Service

Net Present Value Savings = NPV Refundedd Debt Service – NPV Refundingg Debt Service

- Cash flows should be discounted at the same rate to the same date
- Industry convention is to discount cash flows at the arbitrage yield of refunding bonds
- May also discount cash flows using the current cost of capital or all-in TIC

Refunding Policies often establish a minimum level of net present value savings as a percentage of refunded or refunding par.

- NPV Savings of at least 3% of the refunded par amount is a common benchmark.

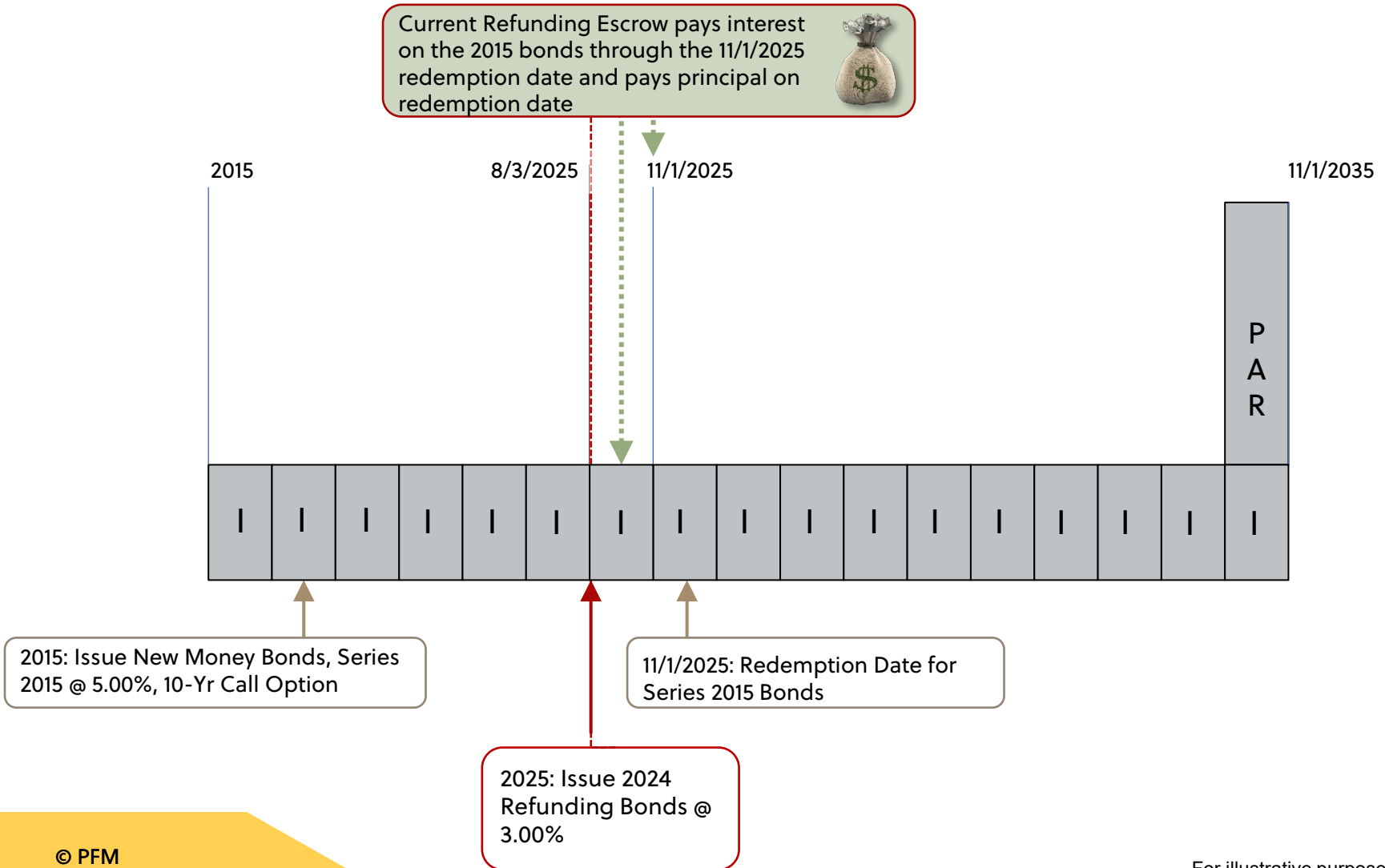


Rationale – WHY REFUND? Refunding Savings (cont'd)

- ◆ Whether a high-to-low refunding generates debt service savings depends on five factors (assuming the final maturity is not extended):
 - a) interest rates on the prior bonds (old coupons) vs. interest rates on the refunding bonds (new yields)
 - b) length of time between the call and maturity dates of the prior bonds;
 - c) length of time between settlement of the refunding bonds and call date of the prior bonds (term of escrow);
 - d) allowable/achievable investment rate on the escrowed securities (arbitrage yield vs. escrow yield);
 - e) issuance costs

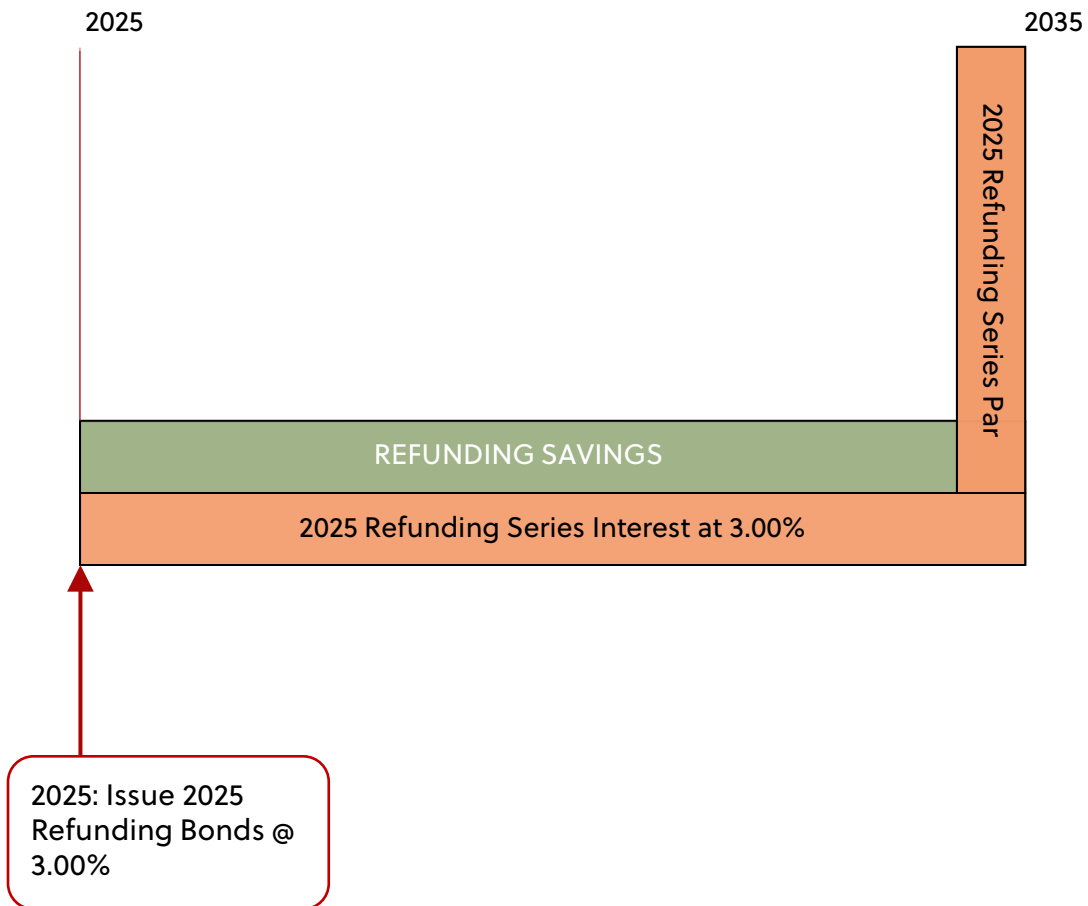


Refunding Dynamics





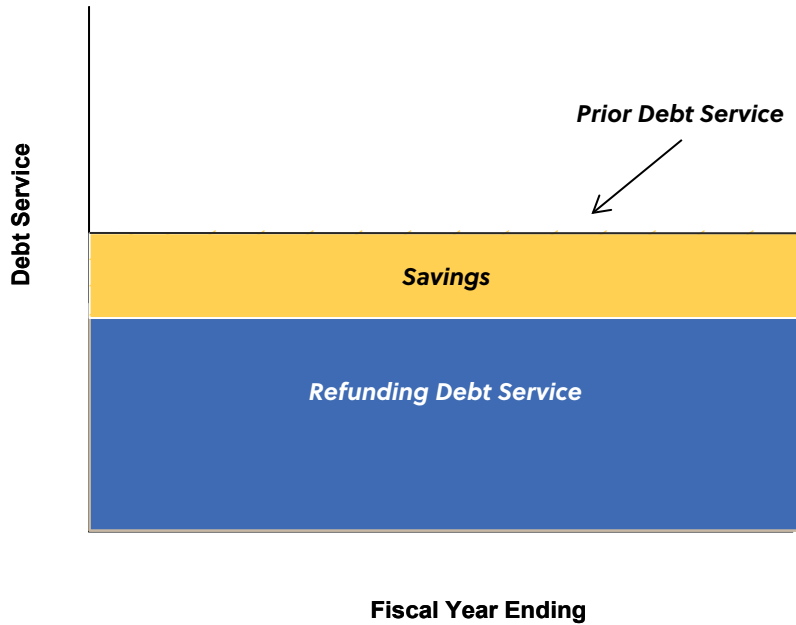
Refunding Dynamics (cont'd)



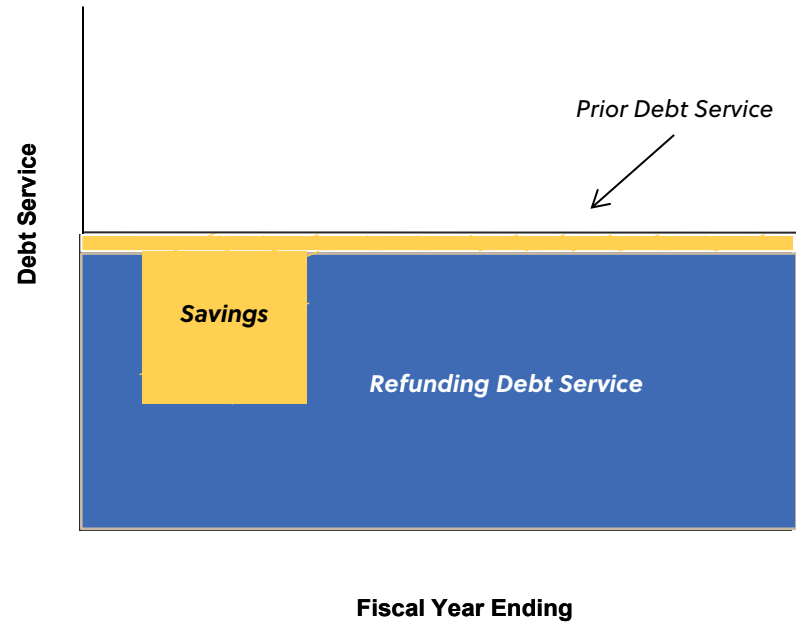


Refunding Saving Structures

LEVEL SAVINGS

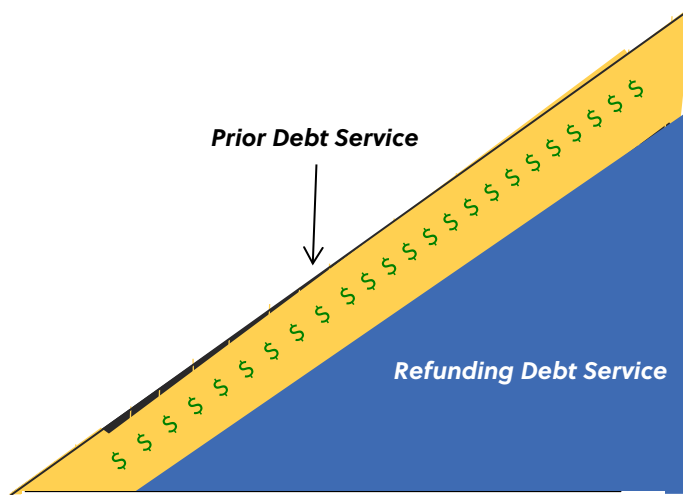


MIXED SOLUTION



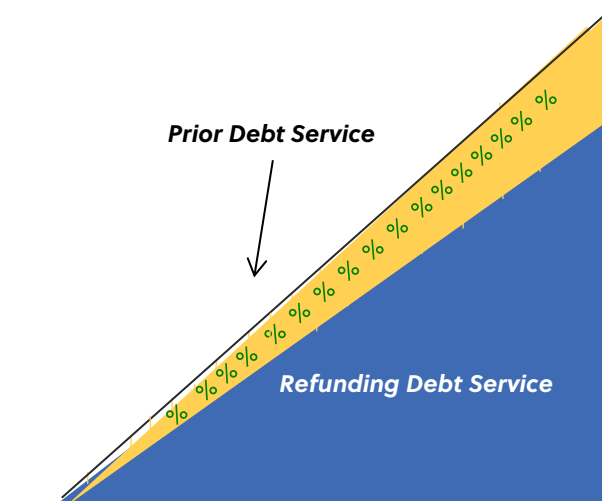


UNIFORM SAVINGS



Fiscal Year Ending

PROPORTIONAL SAVINGS

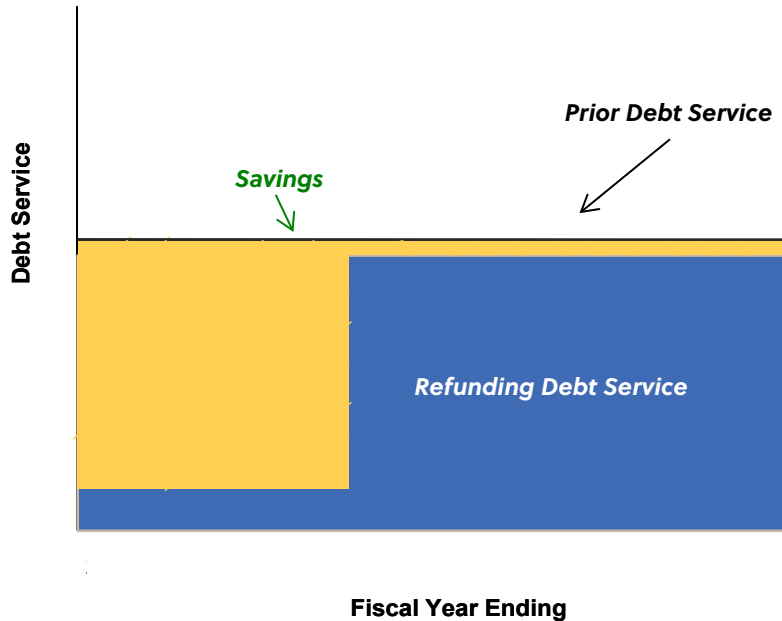


Fiscal Year Ending

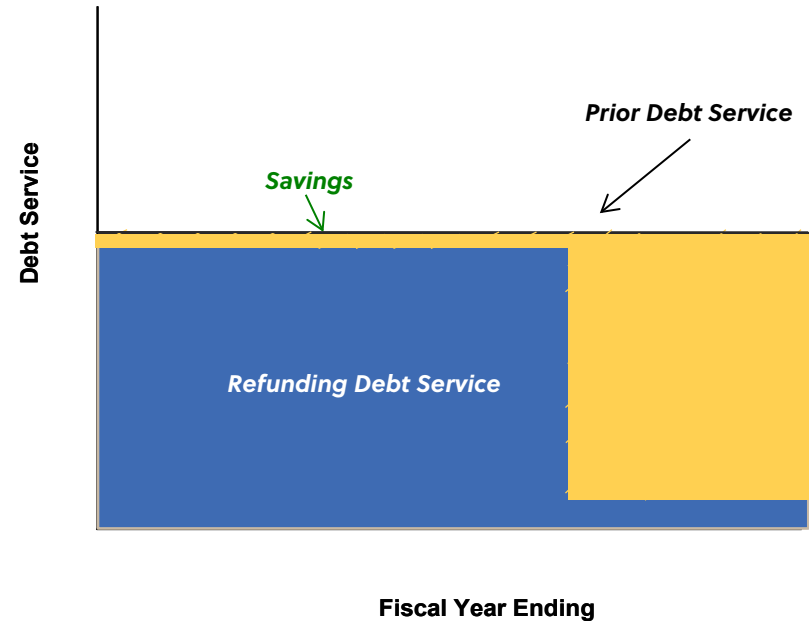


Refunding Saving Structures (cont'd)

ACCELERATED SAVINGS



DEFERRED SAVINGS





Poll Question



Poll Question:

◆ Which of the following factors impact debt service savings when refunding bonds?

- a) Interest rate on new refunding bonds
- b) Length of time between call date and maturity date of refunded bonds
- c) Efficiency of investments held in escrow between closing date on refunding bonds and redemption date of refunded bonds
- d) Issuance costs on new refunding bonds
- e) All of the above



What options remain to achieve economic benefits of refundings?

- ◆ **Tax-Exempt Current Refunding:** Wait until shortly before the call date and, if market conditions permit, execute a current refunding with a closing date not more than 90 days before the bonds become subject to optional redemption.
- ◆ **Forward Delivery Bonds:** Issue “forward delivery” bonds to lock in savings prior to the allowable tax-exempt current refunding date. Price bonds today and close in the future on a date within 90 days of the redemption date
- ◆ **Taxable Advance Refunding:** If market conditions permit, execute an advance refunding using taxable bonds.
- ◆ **Forward-Starting Swap:** Use an interest rate swap, either current or forward-starting, to lock in current rates and achieve benefits that might otherwise be available using an advance refunding.
- ◆ **BVAL RateLock:** Execute a forward interest rate contract today and settle more than 90 days in the future. At settlement make/receive a payment that will offset lower/higher bond yields at issuance.
- ◆ **Cinderella Bonds:** Refund outstanding bonds with taxable “Cinderella Bonds” that convert to tax-exempt obligations on the redemption date in the future.
- ◆ **Cash Optimization:** Utilize cash on hand to defease outstanding bonds (versus issuance of refunding bonds) and fund new money capital projects with tax-exempt bonds instead of cash-funding.
- ◆ **Build America Bonds:** Consider the possibility of advance refunding on a tax-exempt basis. Subsidy eliminated upon issuance of tax-exempt refunding bonds.



Tax-Exempt Current Refunding

Strategy: Wait until existing bonds become currently callable (i.e. 90 days prior to the call date) to execute a tax-exempt current refunding.

Benefits: Traditional structure with tax-exempt issuance, no legal restrictions or considerations, limited negative arbitrage, ability to capture benefits of potentially lower interest rates at time of current refunding.

Risks: Issuers are exposed to interest rate risk (i.e. higher interest rates) - loss of ability to lock in current borrowing levels, issuer exposed to credit risk if credit deteriorates while awaiting current refunding period, issuance will be subject to market access at time of current refunding.

Legal Considerations: No unique legal considerations. Customary tax-exempt bond rules apply.



Forward Delivery Bonds

Strategy: Enter into agreement with a financial institution to purchase bonds, on a forward basis, that will have delivery once a current refunding becomes possible, locking in current market rates (plus a forward premium).

Benefits: Allows issuer to lock in rates at levels close to current market rates for a future current refunding.

Risks: Depending on forward period, forward premium could erode economic benefit, no ability to benefit from lower interest rates or improved credit position at call date (opportunity cost), risk that tax law changes make forward strategy unnecessary, exposure to counterparty risk / market access, future market dislocation could create challenges to selling bonds in future.

Legal Considerations: Minimal tax concerns (other than change in law risk). Seek to minimize the additional conditions to closing and underwriter/purchaser “outs” that may prevent the eventual closing.



Taxable Advance Refunding

Strategy: Issue taxable refunding bonds on an advance refunding basis (more than 90 days prior to call date).

Benefits: Locks in current interest rate levels, limited legal restrictions and considerations, allows for potential arbitrage (or negative arbitrage) in refunding escrows depending on reinvestment rates.

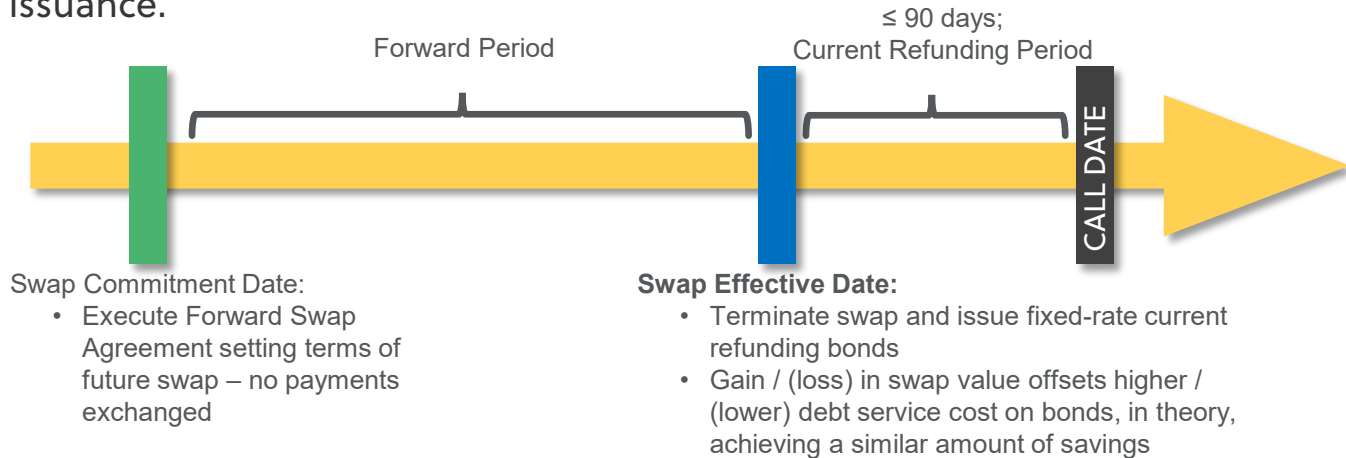
Risks: Typically higher costs associated with taxable bonds (versus tax-exempt bonds), limited ability to benefit from lower interest rates or improved credit position at call date (opportunity cost), potential for more restrictive / costly redemption features associated with taxable bonds, inability to benefit from future changes to tax law.

Legal Considerations: Because the refunding issue bears taxable interest, there are few tax considerations. A further question is: under what circumstances can the issuer further refund the taxable advance refunding bonds? If the taxable bonds have no call protection, then they can be currently refunded with tax-exempt bonds, as long as the original refunded tax-exempt bonds and the third-generation, tax-exempt current refunding bonds are not outstanding concurrently for more than 90 days. If the taxable refunding bonds have a call protection of their own, there may still be a technical possibility for a tax-exempt advance refunding of that taxable issue – look for future guidance from the IRS on this point.



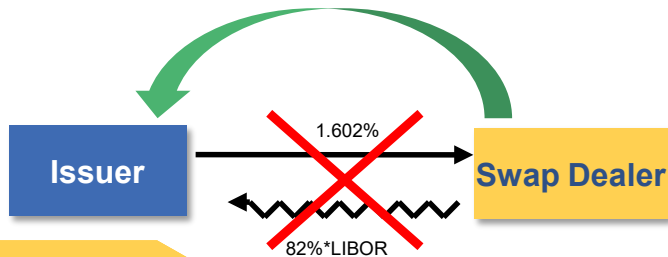
Forward Starting Swaps

Strategy: Enter into a forward-starting, cash-settle swap in current market; at current refunding date terminate swap and issue tax-exempt bonds. Receipt / payment of termination payment from / to counterparty is partially offset by higher / lower interest rates at time of termination and refunding issuance.



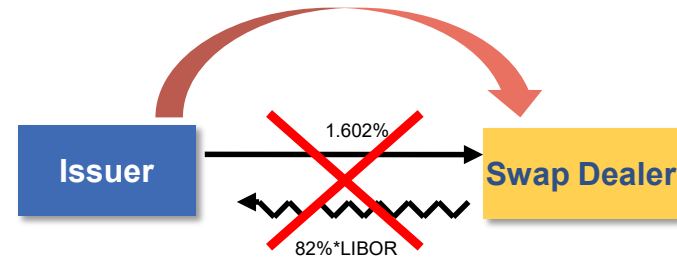
At-Market Swap Rate > Executed Swap Rate¹

Issuer Receives Termination Payment



At-Market Swap Rate < Executed Swap Rate¹

Issuer Makes Termination Payment





Forward Starting Swaps

Benefits: Allows issuer to lock in interest rates at close to current levels for a future time of issuance, efficient structure driven by liquidity of swap market.

Risks: No ability to benefit from lower interest rates or improved credit position at call date (opportunity cost), tax and issuer credit risk results in basis risk (mismatch of swap and bond issuance rates), exposure to counterparty credit risk, risk of potential out-of-pocket termination payment even if bonds not ultimately issued, extended forward period may erode economic benefit.

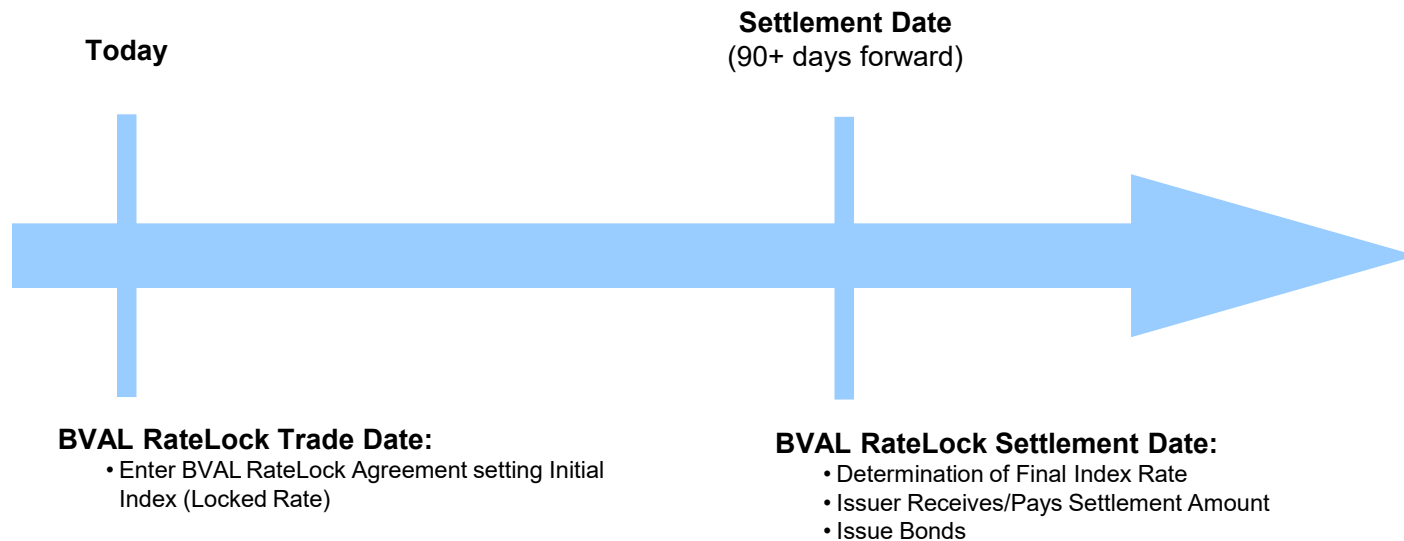
Legal Considerations: Issuer's termination payment obligation will be required to be a parity payment obligation, but existing trust agreement or bank agreements may subordinate such payments; swap will need to be "identified" by issuer for tax integration purposes; consider whether a forward-starting swap fits within the issuer's debt management policy; swap dealer will require extensive legal opinions of issuer's counsel (e.g., enforceability, no conflict, security interest); consider accounting and disclosure treatment; if no recent swap activity, issuer will need to sign or adhere to ISDA Dodd-Frank Protocols.

From a tax perspective, if the forward-starting swap is "integrated" with the later bond issue, any termination payment on the swap will be treated as an adjustment to the issue price (which will affect the bond yield and the amount of sale proceeds of the bond issue).



BVAL RateLock

Strategy: An rate lock is a forward interest rate contract executed today, based on today's rates and terms, and then settled more than ninety (90) days in the future. The rates being "locked" equal that of Bloomberg's AAA GO yield curve on the date the contract is executed, plus a forward premium (the forward premium also includes the Provider's trading spread). On the settlement date, the issuer will either receive or pay a settlement amount to the RateLock Provider depending on whether the final rates on the settlement date are either higher or lower than the locked rates. The receipt or payment from the agreement will offset the higher or lower bond yields at issuance.





BVAL RateLock

Benefits: Allows the issuer to mitigate interest rate risk (i.e. if rates rise between now and the actual issuance date, then the issuer has locked in today's lower BVAL yield curve + a forward premium).

An BVAL RateLock is typically less costly (lower forward premium) than a forward delivery bond and are usually available for longer periods of time (2+ years potentially).

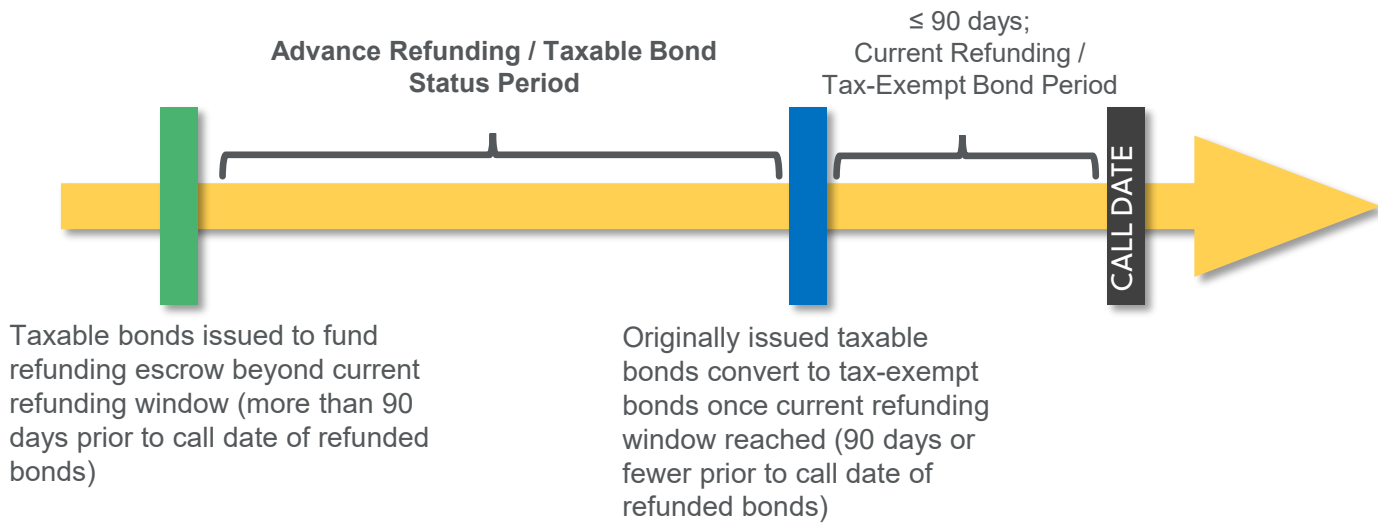
Risks: Because the agreement is based solely on a single yield curve (BVAL 'AAA' GO), basis risk (a frequent risk associated with swaps where swap rates do not move in lock-step with BVAL bond yields) is limited to changes in the borrowing spread on the issuer's bonds versus the BVAL 'AAA' GO yield curve.

Legal Considerations: Possible collateral posting requirement depending on terms of the ISDA Agreement. Credit exposure/default risk to bank counterparty (mitigated due to shorter forward period and by selecting highly rated bank counterparties).



"Cinderella" Bonds

Strategy: Issue taxable bonds in current market that convert to tax-exempt bonds at current refunding date.





“Cinderella” Bonds

Benefits: Allows issuer to lock in rates at levels close to current market rates for a future current refunding.

Risks: Non-traditional structure will carry additional costs / limited liquidity in market, reduced ability to benefit from lower interest rates at time of conversion due to “sunk costs” of advance taxable borrowing (opportunity cost), risk that tax law changes make conversion strategy unnecessary, changes to issuer credit could negatively impact tax-exempt conversion economics, future market dislocation could create challenges at conversion to tax-exempt structure.

Legal Considerations: Documents may need to be structured so that a “reissuance” can be triggered to cause the conversion. (In other words, it may not be as simple as filing an 8038-series form with the IRS and getting a bond counsel opinion.)



Cash Optimization

Strategy: Utilize existing cash on hand to defease outstanding bonds instead of issuing refunding bonds. Issue tax-exempt bonds to fund new money projects.

Benefits: Economics can mimic results of an advance refunding. In optimal conditions, new money debt service will be less than the defeased debt service of refunded bonds, generating overall debt service savings for the issuer. When available, issuers may take advantage of the relationship between tax-exempt new money borrowing costs and taxable investment rates in the defeasance escrow, which is capped by the arbitrage yield of the defeased bonds. Economics improve as prior arbitrage yield and escrow yield of defeased bonds exceed yield of new money bonds.

Risks: Issuers must consider the impacts of exercising call options on outstanding bonds and the associated opportunity risk related to defeasing bonds in the current market.

Legal Considerations: Strategy avoids issuance of any refunding bonds (advance or current). Issuers must consider any nexus between funds used to defease existing debt and the issuance of new money bonds or risk creating replacement proceeds, which are limited to the arbitrage yield of the new money bonds (versus yield of defeased bonds). For successful execution of cash optimization strategy, issuers should issue new money bonds to pay post-issuance capital expenditures, rather than to reimburse prior capital expenditures, which would lead to replacement proceeds.



Build America Bonds

Strategy: Tax-exempt advance refundings are permitted for BABs, on the condition that the issuer forfeits subsidy payments on refunded bonds during the escrow period. As mentioned before, HR1 prevents issuers from having two outstanding tax-exempt bonds for the same project; however, because BABs are taxable obligations, issuing tax-exempt advance refundings are permissible in their case.

Benefits: Traditional structure with tax-exempt issuance, locks in current interest rate levels, limited negative arbitrage

Risks: Often results in negative cashflow savings during the interest-only period.

Legal Considerations: Tax-exempt advance refundings cannot be structured as a crossover refunding. Waiver of subsidy payments.



Risks & Considerations Matrix

| Alternatives to Tax-exempt Advance Refundings: Risks & Considerations | | | | | | | | | |
|---|---|--------------------|------------------|----------|-------------------|---------------------------------------|---|-------------------------------|--------------------|
| | Added Borrowing Costs / Features for Non-traditional Structures | Interest Rate Risk | Opportunity Cost | Tax Risk | Counterparty Risk | Issuer Credit Risk (change to rating) | Issuer Risk Profile Change / Market Perception Risk | Increased Transactional Costs | Market Dislocation |
| Tax-exempt current refunding | | ? | | ? | | ? | | | ? |
| Taxable advance refunding | ? | | ? | ? | | | | ? | |
| Forward-starting swap | ? | | ? | ? | ? | ? | ? | ? | ? |
| Forward delivery bonds | ? | | ? | ? | ? | ? | ? | ? | ? |
| BVAL RateLock | ? | | ? | ? | ? | ? | ? | ? | ? |
| Cinderella" Bonds | ? | ? | ? | ? | | ? | ? | ? | ? |
| Cash Optimization | | ? | ? | | | ? | | | ? |

**Risks and considerations are not intended as specific recommendations.*



Poll Question



Poll Question:

◆ Which of the following is NOT a viable alternative to refund tax-exempt bonds?

- a) Tax exempt current refunding
- b) Taxable advance refunding
- c) Tax exempt forward refunding
- d) Cinderella bonds
- e) Forward starting interest rate swap
- f) Snow White bonds



Review of Refunding Screen



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