

# SESSION FOUR

## Refunding an Issue



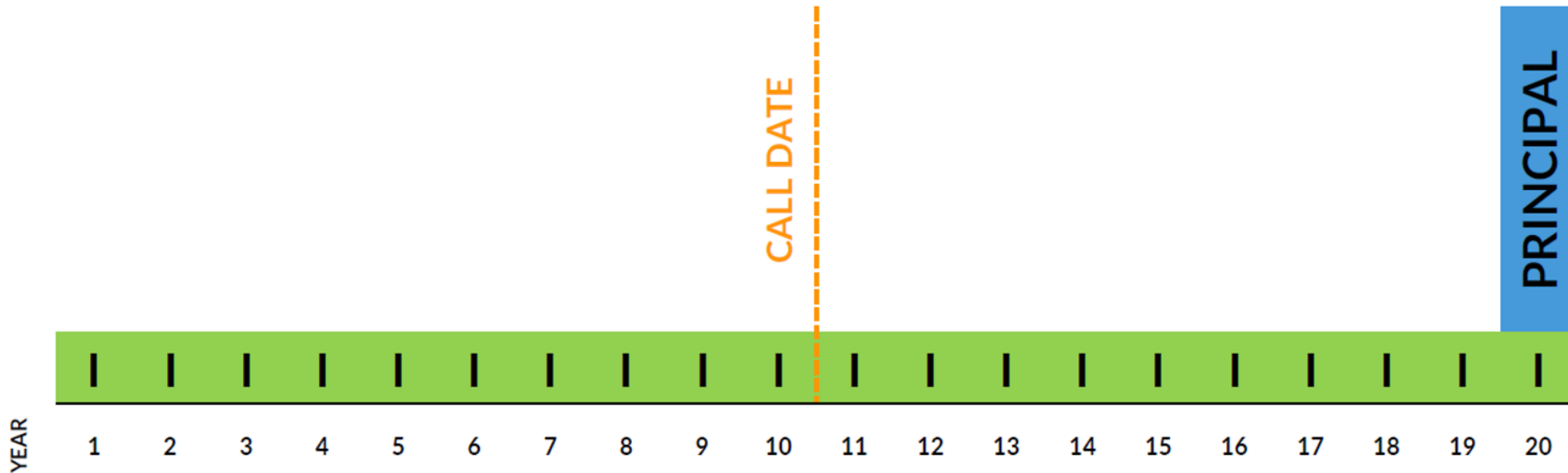
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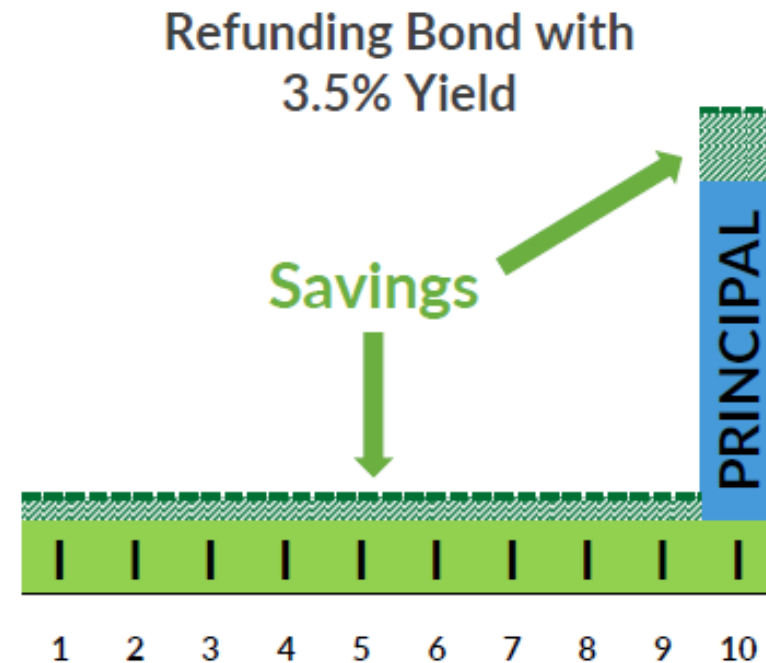
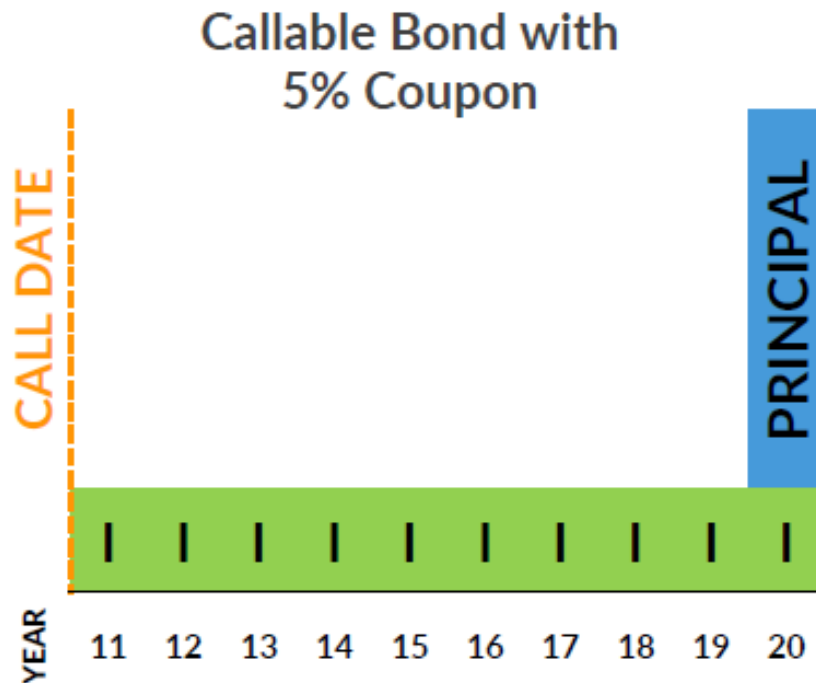
# Picture A Typical Tax-Exempt Bond...

- Pays interest semiannually with principal repaid on the maturity date
- Typically sold at a premium (i.e. 5% coupon with a yield of 4% → Price: 108.176)
- Can be redeemed at par anytime after 10 years (no prepayment penalty)
- Why might an issuer want to refinance a bond?



# Generating Debt Service Savings

- A refunding is when proceeds of a new bond issue are used to pay debt service on a prior issue of the same issuer
- Savings are generated in a refunding when the yield of the refunding bond is less than the coupon of the refunded bond
- $\text{Refunded debt service} - \text{refunding debt service} = \text{SAVINGS}$



## Paying Off an Existing Loan With a New Loan (Refinance):



### MORTGAGE EXAMPLE:

- Mortgages can be prepaid at any time
- Considerations:
  - New interest rate
  - Transaction cost
  - Term of new loan (e.g., a new 30-year loan would extend overall repayment)



### BOND EXAMPLE:

- Borrower has call option...but
- Bond investor typically has call protection (commonly for 10 years from issuance)
- Similar considerations

## Optional Redemption:



### SAMPLE PROVISION:

The Series 2027 Bonds maturing on and after **August 1, 2038**, are subject to redemption prior to their respective stated maturity dates, at the option of the County, ... on or after **August 1, 2037** at the principal amount of the Bonds called for redemption, together with interest accrued thereon, **without premium.....**

First 10  
years call  
protected

First  
optional  
call date

Call price  
– at par in  
this case



**Why are refunded bonds generally no longer considered part of an issuer's outstanding debt once the refunding closes?**

# Types Of Refundings & Timing



## CURRENT REFUNDING:

- New bond proceeds are used to redeem refunded bonds within 90 days of issuance of refunding bonds
- Tax-exempt bonds can be issued to currently refund outstanding tax-exempt bonds

Tax-exempt advance refundings were eliminated in 2017 federal tax bill

Taxable bonds may be issued for advance refunds



## ADVANCE REFUNDING:

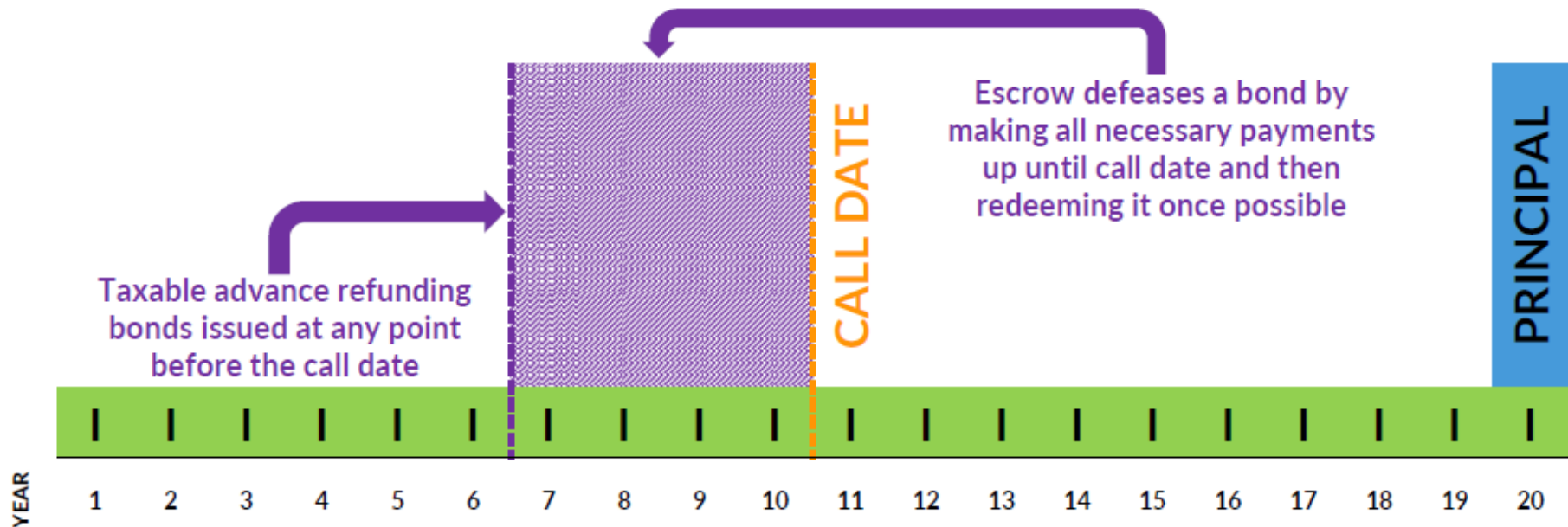
- New bond proceeds are used to redeem refunded bonds more than 90 days from issuance of refunding bonds
- Proceeds sized to be sufficient to fund an escrow account that, along with interest earnings, will pay all debt service on refunded bonds until the call date, and then redeem the bonds
- Advance refundings are typically less efficient, especially when the interest rate earned on escrow is less than the borrowing rate (negative arbitrage)



# Refunding Before The Call Date

## Advance Refunding

- Today, advance refundings must be done with taxable bonds →
- In a taxable advance refunding, an escrow is funded with taxable bond proceeds that pays debt service on the refunded bond through its call date
  - Savings are typically generated in the same mechanism as in a current refunding (taking a higher coupon and replacing it with a lower yield)

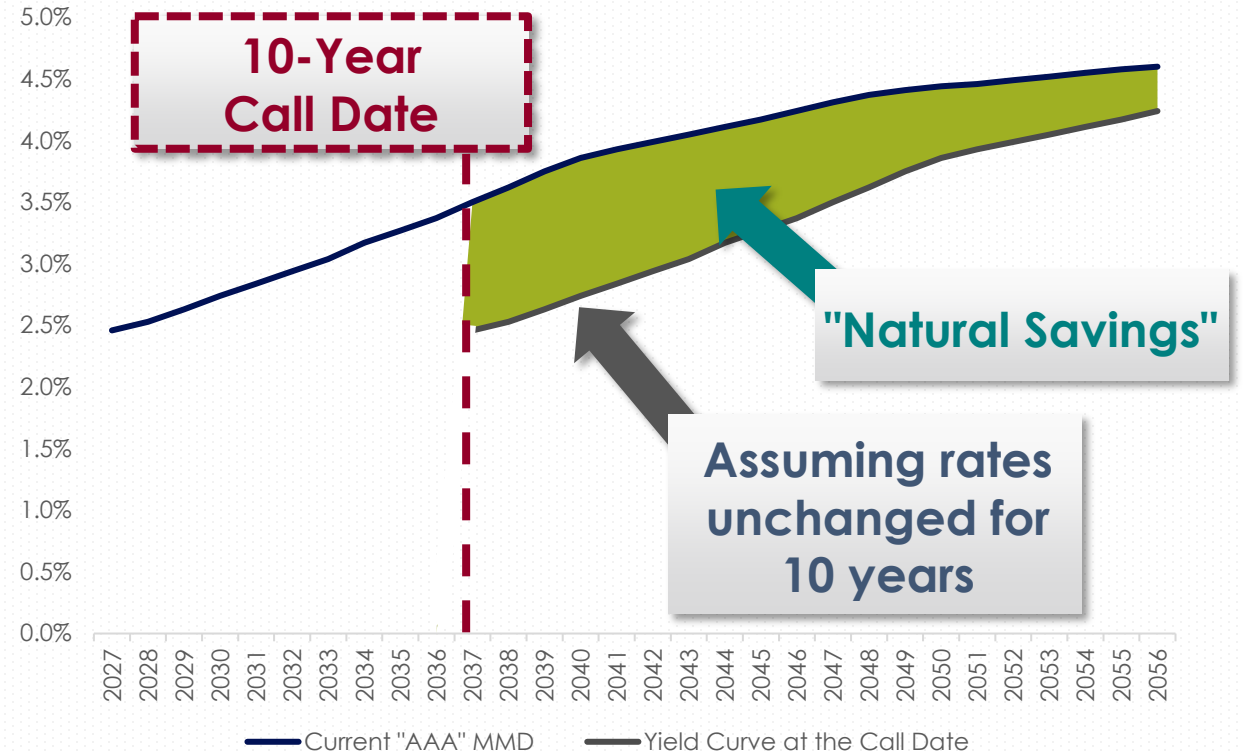


# What Creates Savings?

- The market standard use of "premium couponing" (e.g., 5% coupons to yield 3% to the investor) creates a higher likelihood of future refunding
- Because of the typical shape of the yield curve, the passage of time generally helps create savings
- At the optional call date, there is a "roll down" for corresponding refunding bonds maturities (e.g., a 20-year bond at issuance is now a 10 year bond)

## ROLLING DOWN THE YIELD CURVE

| YEAR | PAR         | COUPON | YIELD |
|------|-------------|--------|-------|
| 2032 | \$1,975,000 | 5.000  | 2.500 |
| 2033 | \$2,075,000 | 5.000  | 2.610 |
| 2034 | \$2,180,000 | 5.000  | 2.720 |
| 2035 | \$2,290,000 | 5.000  | 2.820 |

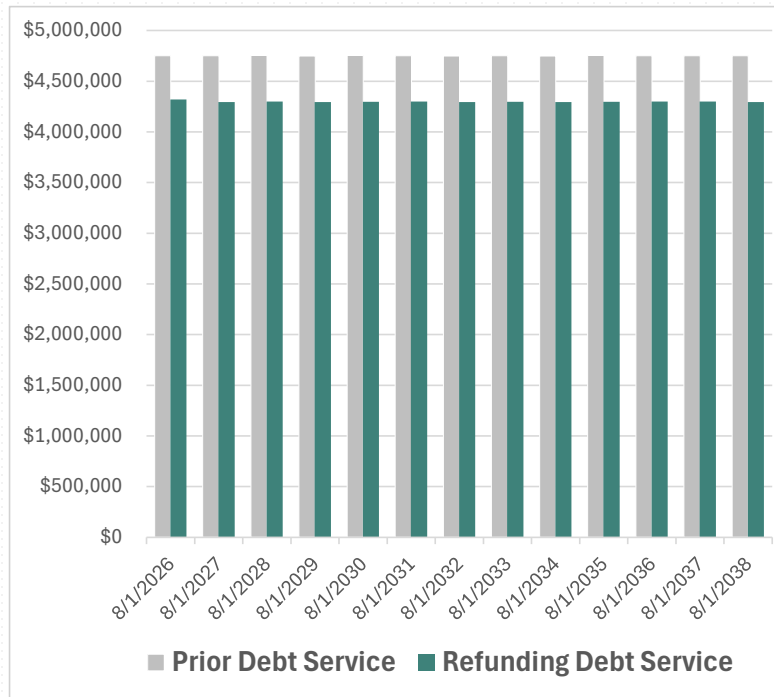


# Measuring Savings

- Savings typically presented as "present value (PV) savings"
- Future cashflows discounted back at the yield of the refunding bonds (the current cost of funds)
- Most common measurement is present value savings divided by par amount of refunded bonds, shown as a percent
- Net PV savings takes into account other factors, such as investment earnings on debt service reserve fund or funds on hand

## Savings Summary:

- \$452,926 Avg. Annual Cash Flow Savings
- \$4,802,213 NPV Savings
- 10.77% Savings of Refunded Bonds (Refunded Par Amount of \$44.6 M)



| Date     | Prior Debt Service | Refunding Debt Service | Savings            | Present Value Savings |
|----------|--------------------|------------------------|--------------------|-----------------------|
| 8/1/2026 | \$4,751,500        | \$4,318,708            | \$432,792          | \$423,138             |
| 8/1/2027 | \$4,750,500        | \$4,294,000            | \$456,500          | \$431,489             |
| 8/1/2028 | \$4,753,250        | \$4,299,500            | \$453,750          | \$415,924             |
| 8/1/2029 | \$4,749,250        | \$4,293,750            | \$455,500          | \$404,890             |
| 8/1/2030 | \$4,753,500        | \$4,297,000            | \$456,500          | \$393,493             |
| 8/1/2031 | \$4,750,250        | \$4,298,500            | \$451,750          | \$377,617             |
| 8/1/2032 | \$4,749,500        | \$4,293,000            | \$456,500          | \$370,020             |
| 8/1/2033 | \$4,750,750        | \$4,295,500            | \$455,250          | \$357,825             |
| 8/1/2034 | \$4,748,500        | \$4,295,250            | \$453,250          | \$345,454             |
| 8/1/2035 | \$4,752,500        | \$4,297,000            | \$455,500          | \$336,636             |
| 8/1/2036 | \$4,752,000        | \$4,300,250            | \$451,750          | \$323,736             |
| 8/1/2037 | \$4,751,750        | \$4,299,500            | \$452,250          | \$314,253             |
| 8/1/2038 | \$4,751,250        | \$4,294,500            | \$456,750          | \$307,737             |
|          |                    |                        | <b>\$5,888,042</b> | <b>\$4,802,213</b>    |

# Refunding Savings

## WHEN TO PULL THE TRIGGER?



### A MOVING TARGET:

- Rule of thumb was often 3% PV savings
- "Conservative" policies called for 5% savings, often for advance refundings
- During periods of very low interest rates, double-digit savings were common



## CITY & COUNTY OF SAN FRANCISCO DEBT POLICY

GOs will be used to finance or refinance the construction of real property or real property improvements, but are not limited to libraries, hospitals, cultural, affordable housing, and educational facilities or projects that benefit the public, achieve a particular public safety or social objective for City

GOs will be used to finance the acquisition, construction of real property, the acquisition of capital

Absent any significant non-economic factors, it is the policy of the City that a refunding should produce minimum debt service savings of at least 3% of the par value of the refunded bonds on a net present value basis, using the refunding issue's True Interest Cost ("TIC")<sup>1</sup> as the discount rate.

may be eligible for capital lease financing. Eligible equipment must have a per unit cost of at least \$100,000 unless it is an integral part of a system (such as a computer network) where the aggregate of the various components must total at least \$100,000. The useful life of the item must be in excess of three years and at least 120% of the financing and refinancing term.

5. **Refunding Obligations:** Refunding bonds will be issued typically to achieve debt service savings for the City, although other non-economic factors may support the issuance of such obligations. Pursuant to section Charter section 9.109 and section 43.8.4(b) of the City's Administrative Code, the Board of Supervisors will establish by resolution the minimum savings to be generated by the issuance of such refunding.

Absent any significant non-economic factors, it is the policy of the City that a refunding should produce minimum debt service savings of at least 3% of the par



### BEST PRACTICES

## Refunding Municipal Bonds

Issuers should include guidelines and criteria in their debt management policies that address when a refunding is permitted based on potential debt service savings or other criteria, preservation of future refunding flexibility when issuing any new money debt, and monitoring of refunding opportunities on outstanding debt.



## FORMAL POLICY VS. WISE PRACTICE:

- Policies typically set a "minimum" goal
  - Risk of losing an opportunity
  - Risk of leaving significant savings on the table
- Refunding options have value; in practice, only can be exercised every ten years
- Prior to the call date, the challenge of a forward or advance
  - Bird in the hand vs. potential future savings
- After the call date, the call option is a 'wasting asset'

# Savings vs. Costs — Why 3% Savings Isn't Always Enough

*Costs of issuance are largely fixed — so they consume a much bigger share of savings for a small issuer than a large one*

## Smaller Public Agency \$7 million bond issue

|                             |             |
|-----------------------------|-------------|
| Refunded Par Amount         | \$7,000,000 |
| NPV savings threshold       | 3.0%        |
| Net Present Value savings   | \$210,000   |
| Projected costs of issuance | \$200,000   |
| COI as Percentage of NPV    | 95.2%       |

**Meets 3% — but barely worth doing**

## Larger Public Agency \$50 million bond issue

|                             |              |
|-----------------------------|--------------|
| Refunded Par Amount         | \$50,000,000 |
| NPV savings threshold       | 3.0%         |
| Net Present Value savings   | \$1,500,000  |
| Projected costs of issuance | \$360,000    |
| COI as share of savings     | 24.0%        |

**Meets 3% — more worthwhile to do**

**Bottom line:**

Legal, financial advisor, rating agency, and disclosure fees are mostly fixed regardless of deal size — so a small issuer can clear the 3% savings threshold and still find the refinancing may not be worth the effort once issuance costs are netted out.



**In a maturity-by-maturity analysis, why might an issuer choose to refund only some of a bond issue's maturities and not the entire outstanding balance?**

# Maturity By Maturity Analysis Fine Tunes Potential Savings On A Refunding

- When a partial refunding is possible, no need to refund maturities that don't meet goals

## MATURITY-BY-MATURITY REFUNDING MONITOR

| REFUNDED MATURITY | REFUNDED COUPON | REFUNDED PAR | CALL DATE | CALL PRICE | ESCROW RATE | REFUNDING YIELD | REFUNDING PAR | NPV SAVINGS | SAVINGS AS % OF REFUNDED PAR | NEGATIVE ARBITRAGE | ESCROW EFFICIENCY |
|-------------------|-----------------|--------------|-----------|------------|-------------|-----------------|---------------|-------------|------------------------------|--------------------|-------------------|
| 8/1/2027          | 4.00%           | \$2,090,000  | 8/1/2026  | 100        | 1.32%       | 1.54%           | \$2,222,072   | \$28,223    | 1.35%                        | \$7,952            | 78%               |
| 8/1/2028          | 4.00%           | 2,440,000    | 8/1/2026  | 100        | 1.32%       | 1.77%           | 2,594,189     | 68,798      | 2.82%                        | 18,930             | 78%               |
| 8/1/2029          | 3.00%           | 2,815,000    | 8/1/2026  | 100        | 1.32%       | 1.92%           | 2,936,953     | 38,995      | 1.39%                        | 28,753             | 58%               |
| 8/1/2030          | 4.00%           | 3,185,000    | 8/1/2026  | 100        | 1.32%       | 2.07%           | 3,386,268     | 165,324     | 5.19%                        | 41,038             | 80%               |
| 8/1/2031          | 4.00%           | 3,615,000    | 8/1/2026  | 100        | 1.32%       | 2.22%           | 3,843,440     | 212,836     | 5.89%                        | 55,801             | 79%               |
| 8/1/2032          | 4.00%           | 4,070,000    | 8/1/2026  | 100        | 1.32%       | 2.18%           | 4,327,193     | 313,378     | 7.70%                        | 60,056             | 84%               |
| 8/1/2033          | 4.00%           | 4,555,000    | 8/1/2026  | 100        | 1.32%       | 2.28%           | 4,842,841     | 381,061     | 8.37%                        | 74,945             | 84%               |
| 8/1/2034          | 4.00%           | 5,080,000    | 8/1/2026  | 100        | 1.32%       | 2.38%           | 5,401,017     | 448,020     | 8.82%                        | 92,188             | 83%               |
| 8/1/2039          | 4.00%           | 5,635,000    | 8/1/2026  | 100        | 1.32%       | 2.53%           | 5,991,089     | 482,587     | 8.56%                        | 116,540            | 81%               |
| 8/1/2040          | 4.00%           | 6,225,000    | 8/1/2026  | 100        | 1.32%       | 2.68%           | 6,618,372     | 500,516     | 8.04%                        | 144,467            | 78%               |
| 8/1/2041          | 4.00%           | 41,455,000   | 8/1/2026  | 100        | 1.32%       | 3.05%           | 44,074,639    | 2,500,909   | 6.03%                        | 1,217,266          | 67%               |

# Other Reasons For Refunding Bonds

## CASH FLOW RESTRUCTURE:

- Restructuring debt payments with a modified amortization schedule and/or repayment term can help issuers better align debt with annual cash flows

## RISK REDUCTION:

- Refunding bonds can help to take advantage of enhanced credit profile and/or valuation if there has been improvement since the original issuance.
- Replacing variable-rate debt with fixed-rate debt

## RATE MANAGEMENT:

- Structuring savings in targeted years

## AMEND OR REMOVE RESTRICTIVE COVENANT:

- Onerous bond/indenture covenants may be revisited and potentially removed





**What is the key trade-off an issuer accepts by choosing a tax-exempt forward delivery refunding instead of waiting to do a current refunding right at the call date?**

# Forward Delivery Refunding

- Tax-exempt refundings should always generate greater savings than taxable refundings, all else equal... but waiting until near the call date entails risk of interest rates rising
- Tax-exempt forward delivery refunding is a middle-ground approach: locks in majority of savings, at the expense of leaving a slice of potential savings on the table
  - Tax-exempt refunding bonds are priced, locking-in savings, well ahead of the call date (e.g., a year)
  - Bonds settle far in the future...within 90 days of call date, allowing for tax-exempt status
  - Pricing premium for delayed (forward) settlement -- currently ~4-5 bps per month between pricing and delivery
  - A relatively short “forward” usually more favorable than issuing advance refunding bonds at taxable rates

- **Additional considerations:**
  - Some potential incremental effort (Updated OS required at deliver)
  - Risk forward does not settle
  - Savings begin only after the call date
  - Practical limit to how far ahead of the call date a forward is feasible
- Other strategies can accomplish similar objectives (e.g., "Cinderella" refunding)

## EXAMPLE: OPTIONS IN FALL 2026 FOR BONDS CALLABLE IN SUMMER 2027

|                 | TAXABLE<br>ADVANCE | T-E<br>CURRENT* | T-E<br>FORWARD |
|-----------------|--------------------|-----------------|----------------|
| PRICE:          | Oct 2026           | May 2027        | Oct 2026       |
| SETTLE:         | Nov 2026           | May 2027        | May 2027       |
| CALL DATE:      | Aug 2027           | Aug 2027        | Aug 2027       |
| NPV<br>SAVINGS: | \$4m / 5%          | \$12m / 15%     | \$10m / 12.5%  |

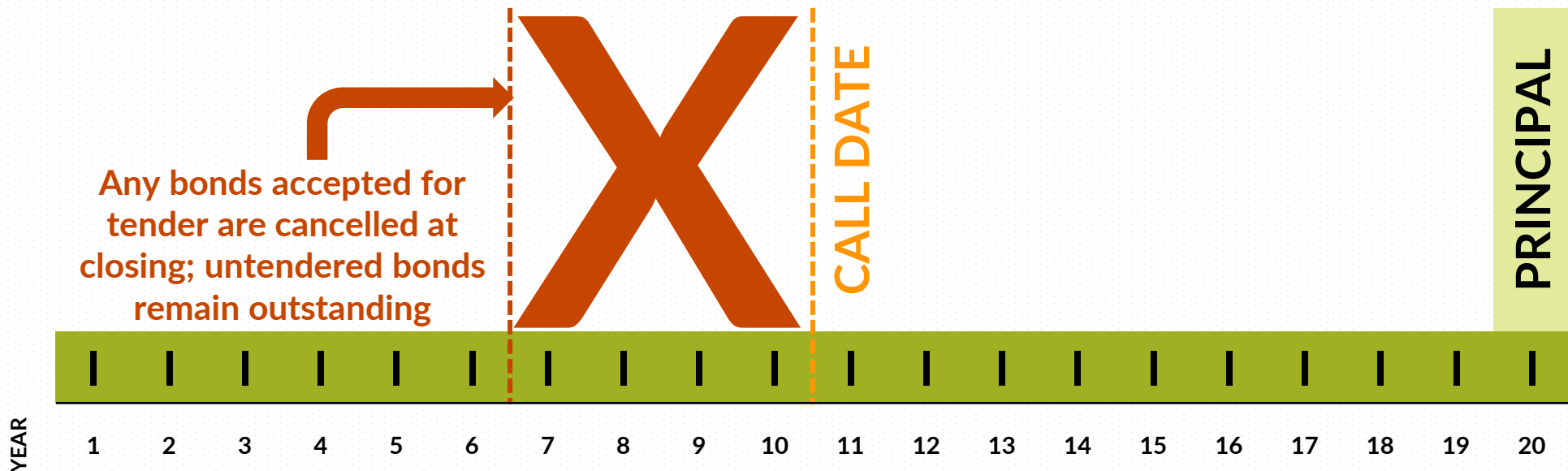
\* illustrative option in Fall 2026



**Why might an issuer use a tender offer instead of a traditional refunding to retire outstanding bonds?**

## Other Refunding Opportunities — Tenders

- Tender is an alternate refunding process used to achieve issuer savings either because (i) the refunded have not reached their first optional call date or (ii) the coupons are too high to achieve savings via a traditional refunding
- In a tender refunding, the issuer makes an offer to buy its bonds back from investors, funding the purchase price with new tax-exempt refunding bonds
- A tender refunding can be performed at any time and once tendered, bonds can be cancelled immediately rather than waiting until the call date
- Investors are incentivized by a premium to the market value, but participation cannot be guaranteed
- Because bonds are bought back at market value (with a premium), the price paid, not just the coupon of the refunded bonds, drives savings



## Other Refunding Opportunities — Tender Market Dynamics

- For tax-exempt bonds, tenders are an alternative to taxable advance refundings
  - Premium bonds are priced to first call date, not maturity date, so TE tender prices are often close to par
  - Analysis is similar to trade-off of a forward refunding, however, only portion of the bonds will be tendered
- For taxable advance refunding bonds great opportunity exists to tender and fund the purchase with new tax-exempt refunding bonds (as long as call date of original refunded bonds has passed)

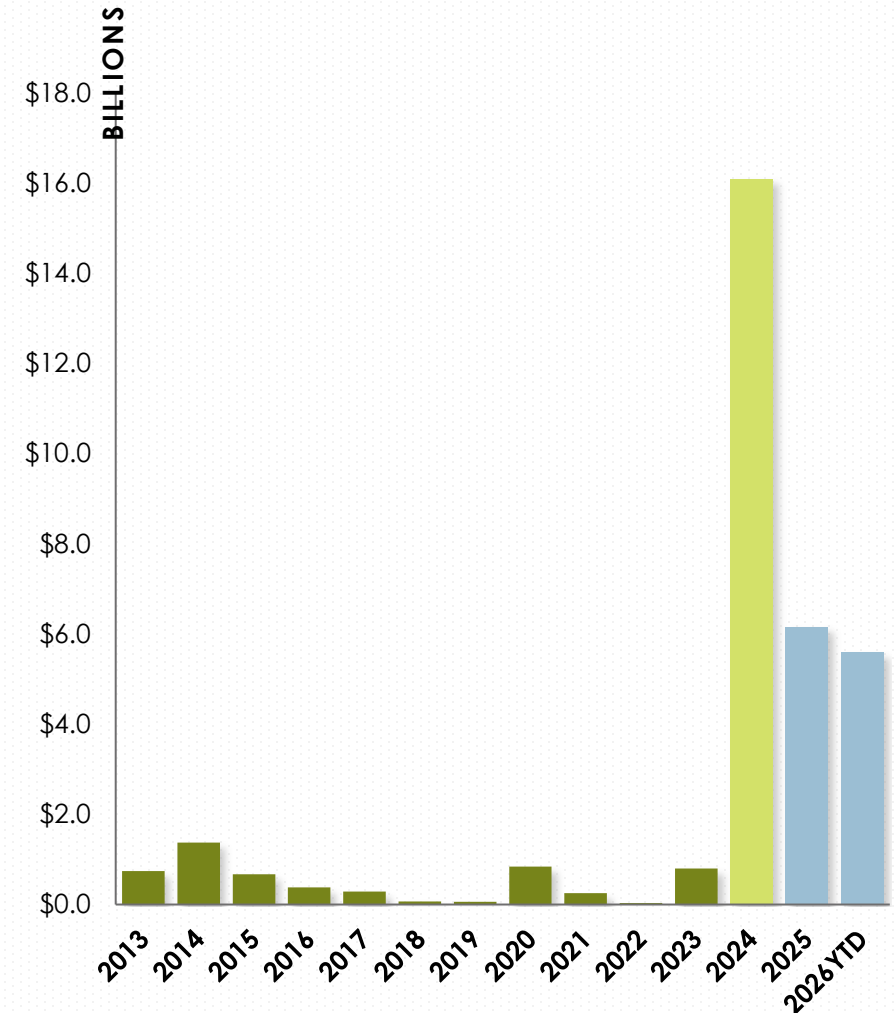
10 YEAR AAA MUNI TAXABLE VS. TAX-EXEMPT HISTORICAL SPREADS (2021 TO PRESENT)



# Other Refunding Opportunities — Refunding Babs

- **Build America Bonds ("BABs") are taxable bonds subsidized by the Federal Government**
  - Introduced in 2009 as part of the American Recovery and Reinvestment Act
  - Bond program expired in 2010
  - Most BABs were sold with a “make-whole redemption” language
  - Often included an “extraordinary MWC” with a lower redemption premium
  - The primary motivation of refinancing BABs using the extraordinary redemption provision make-whole call is to eliminate future sequestration risk, not to achieve debt service savings
  - Under current market conditions, high taxable rates have reduced the make whole call prices for taxable debt, and BABs can often be refunded with tax-exempt bonds at break-even or even slightly positive savings
  - Many issuers have already refunded their BABs

**BAB REFUNDED PAR AMOUNT (\$B) SINCE ANNOUNCEMENT OF SEQUESTRATION**

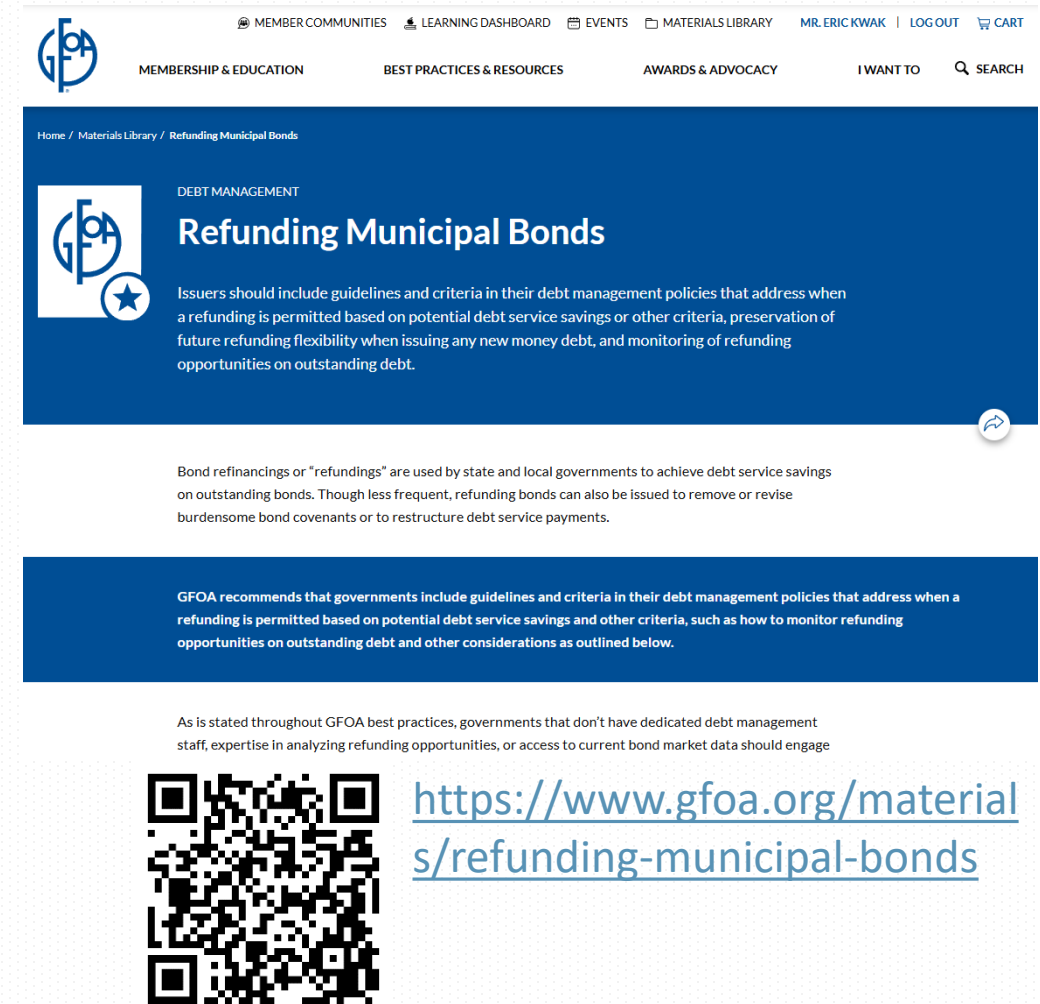


# Legal Considerations

- Refunding is an issuance of new bonds (the refunding bonds) to pay debt service on a prior issue (the refunded bonds)
- Legal Authority:
  - General Obligation refunding bonds are typically issued under Articles 9 and 11 of Chapter 3 of Part 1 of Division 2 of Title 5 of the Government Code
  - Revenue refunding bonds are typically issued under Article 10 of Chapter 3 of Part 1 of Division 2 of Title 5 of the Government Code
- Purpose of a refunding is either to reduce the debt service on the financing or to remove or replace a restrictive covenant imposed by the terms of the refunded bonds (for example, an excessive coverage ratio)
- For accounting purposes, refunded bonds are not considered part of the issuer's outstanding debt because the refunded bonds are to be paid from the proceeds of the refunding bonds and not from the revenues originally pledged
- Refunded bonds may continue to hold a lien on the revenues originally pledged, however, unless the indenture or bond resolution provides for defeasance of the refunded bonds prior to maturity or redemption
- General rule is there must be savings

# General Refunding Best Practices

- Issuers should include refunding guidelines and criteria in their debt management policies
- Municipal bonds are typically issued with an optional redemption date or “call date” approximately 10 years from the date of issuance. This provision allows issuers to refinance the outstanding bonds with refunding bonds
- Governments should establish a process to identify and monitor potential refunding opportunities



The screenshot shows the GFOA website's 'Refunding Municipal Bonds' page. The header includes navigation links for Member Communities, Learning Dashboard, Events, Materials Library, MR. ERIC KWAK, Log Out, and Cart. Below the header, the page is categorized under 'DEBT MANAGEMENT' and features the GFOA logo with a star. The main heading is 'Refunding Municipal Bonds'. The text states: 'Issuers should include guidelines and criteria in their debt management policies that address when a refunding is permitted based on potential debt service savings or other criteria, preservation of future refunding flexibility when issuing any new money debt, and monitoring of refunding opportunities on outstanding debt.' A sub-section explains that bond refinancings or 'refundings' are used by state and local governments to achieve debt service savings on outstanding bonds, though less frequent, they can also be used to remove or revise burdensome bond covenants or to restructure debt service payments. A GFOA recommendation states that governments should include guidelines and criteria in their debt management policies that address when a refunding is permitted based on potential debt service savings and other criteria, such as how to monitor refunding opportunities on outstanding debt and other considerations as outlined below. A note mentions that as stated throughout GFOA best practices, governments that don't have dedicated debt management staff, expertise in analyzing refunding opportunities, or access to current bond market data should engage. A QR code is provided for more information, with the URL <https://www.gfoa.org/materials/refunding-municipal-bonds> listed next to it.

# Other Key Refunding Best Practices

- **Refunding Savings Thresholds**

- Minimum NPV savings as % of refunded bonds
- Graduated NPV savings based on number of years between call and final maturity
- Minimum dollar size savings
- Other forms of graduated analysis

- **Structuring Savings**

- Level savings recommended

- **Advance Refundings**

- Breakeven Analysis
- Escrow Efficiency
- Refunding Efficiency

- **Monitoring Refunding Opportunities**

- Refunding Horizon
- Refunding Monitor

- **Preserving Future Refunding Opportunities**

# Conclusion



- Remember that the option to call bonds has a value
- It can only be exercised once
- Use it wisely!!



- Question debt policy refunding targets
- Rules-of-thumb: they may not be well informed



- With the common use of 5% or higher coupons (premium bonds), municipal bond loans can be thought of as bullet loans (effectively "coming due" in ten years), but with an interest rate cap of 5% if you don't refund



- Approach refunding opportunities with caution
- Virtually everybody advising you regarding a refunding only makes money if you refund your bonds

# QUESTIONS?



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