



Taxable Advance Refunding Considerations and Strategies

GFOAA Virtual Summer Conference

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August 14, 2020

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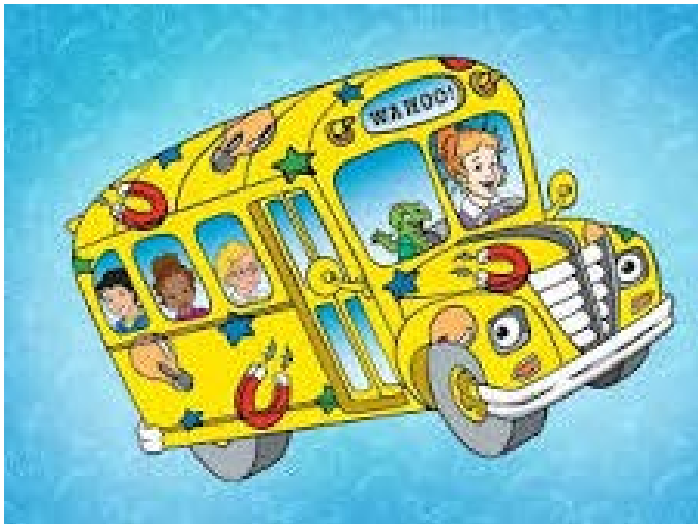
Works to develop and implement effective public affairs strategies with experience in private, public and non-profit sectors, spanning state, local and federal levels of government.

** Note: Maritza is not engaged in PFM Financial Advisors LLC municipal advisory marketing efforts nor is Maritza a registered Municipal Advisor.*



FEDERAL LEGISLATIVE UPDATE

Learning Objectives



REFUNDING 101

TAXABLE ADVANCE
REFUNDING EXERCISE

Q & A



Government Relations/ Federal Legislative Update



House and Senate Bills to Restore Tax-Exempt Advance Refunding

H. R. 2772

MAY 15, 2019

Mr. RUPPERSBERGER (for himself, Mr. STIVERS, Ms. SEWELL of Alabama, Mr. ZELDIN, Ms. NORTON, Mr. KRISHNAMOORTHY, Mr. GARAMENDI, Mr. KILMER, Mr. CUELLAR, and Mr. BARR) introduced the following bill; which was referred to the Committee on Ways and Means

- ◆ Restores the language that was repealed in TCJA
- ◆ Effective Upon 30 Days of Enactment

S. 4129

JULY 1, 2020

Mr. WICKER (for himself, Ms. STABENOW, Mr. BENNET, Mrs. CAPITO, Mr. BARRASSO, Mr. MENENDEZ, Mr. MORAN, and Mr. CARPER) introduced the following bill; which was read twice and referred to the Committee on Finance

- ◆ Repeals the TCJA language that repealed Tax-Exempt Advance Refunding
- ◆ Effective Upon Enactment

Either bill would need to be included and passed as part of a larger piece of legislation



Refundings 101



Refunding Overview

- ◆ What: Refinancing of old bonds with new bonds
- ◆ A refunding (or refinancing) is an issue, the proceeds of which are used to pay all or a portion of the principal, interest and/or redemption price of a prior issue (the “refunded bonds” or the “prior issue”).
- ◆ The new bonds are referred to as the “refunding bonds”
- ◆ 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.



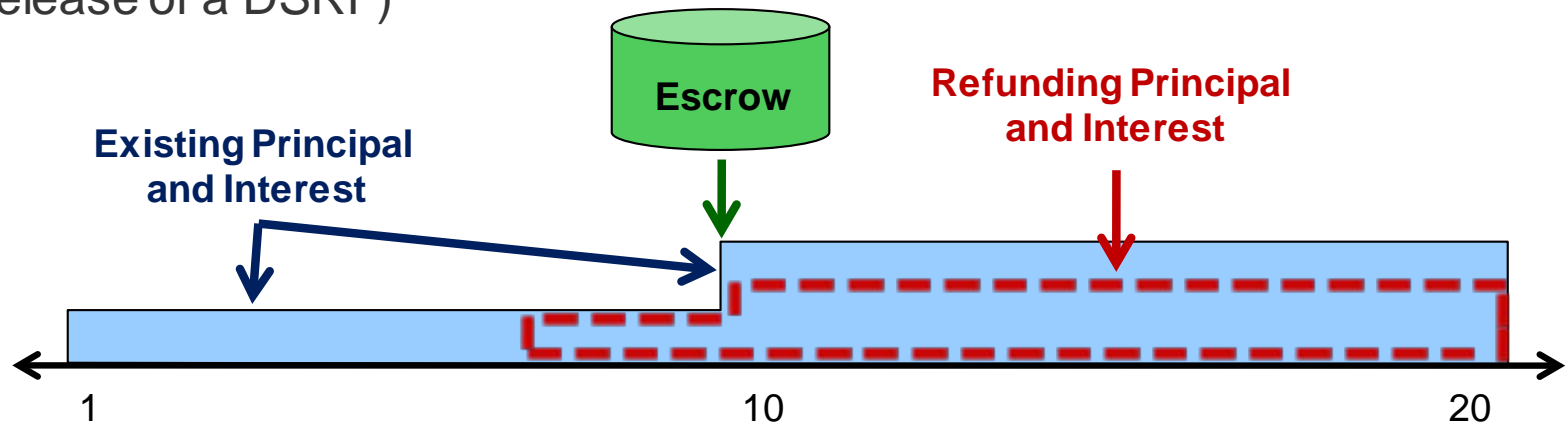
When & Why should I consider one?

◆ When:

- interest rates are lower, and savings can be captured
- savings meet minimum threshold stated in a debt policy

◆ Why: Generally two common reasons...

- To restructure debt costs to create cash flow savings and relief due to budget or other financial stress
- For relief from onerous requirements or restrictive debt covenants (i.e. release of a DSRF)

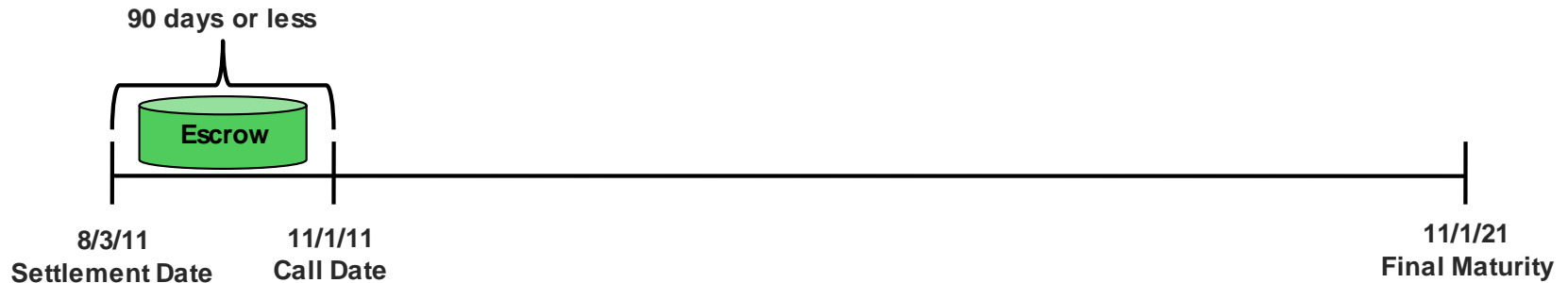




Common Types of Refundings

Common types of refundings include:

- **Current Refunding** – Old bonds are called or mature within 90 days of the issuance of the new refunding bonds

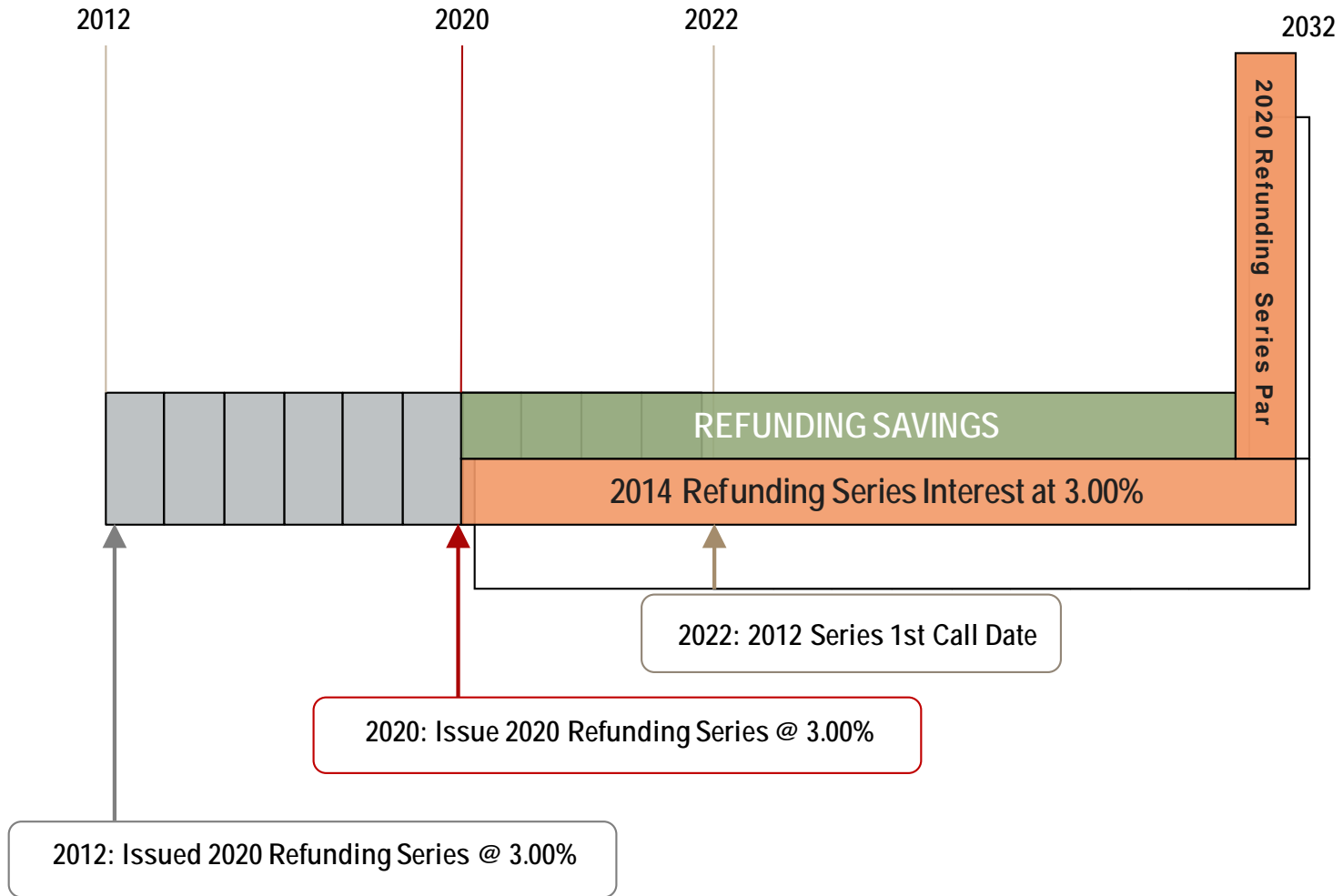


- **Advance Refunding** – Old bonds are called or mature more than 90 days prior to the issuance of the new bonds





Refunding Dynamics





Tax-Exempt Current Refunding

Strategy:	Wait until existing bonds become currently callable (i.e. 90 days prior to call date); execute refunding on or after that date
Benefits:	<ul style="list-style-type: none">• Traditional structure with tax-exempt issuance• Limited negative arbitrage – very efficient• Ability to capture benefit of potential lower interest rates at time of current refunding
Financial Risks:	<ul style="list-style-type: none">• Exposure to interest rate risk (i.e., higher rates); loss of ability to lock in current borrowing rates• Exposure to credit risks (i.e. rating downgrade)• Exposure to market access at time of current refunding• Tax risk (i.e. IRS eliminates tax-exempt bonds)

Note: Bond counsel and/or in-house counsel should be consulted regarding legal considerations



Taxable Advance Refunding

Strategy:	Issue taxable refunding bonds on an advance refunding basis (>90 days prior to refunded bonds' call date)
Benefits:	<ul style="list-style-type: none">• Locks in current market conditions, eliminating interest rate risk• Allows for potential positive arbitrage in refunding escrows
Financial Risks:	<ul style="list-style-type: none">• Generally higher interest rates than tax-exempt bonds• Opportunity cost of executing taxable transaction now vs. tax-exempt transaction in the future• Potential for more restrictive / costly redemption features associated with taxable bonds• Inability to benefit from future changes to tax law

Note: Bond counsel and/or in-house counsel should be consulted regarding legal considerations



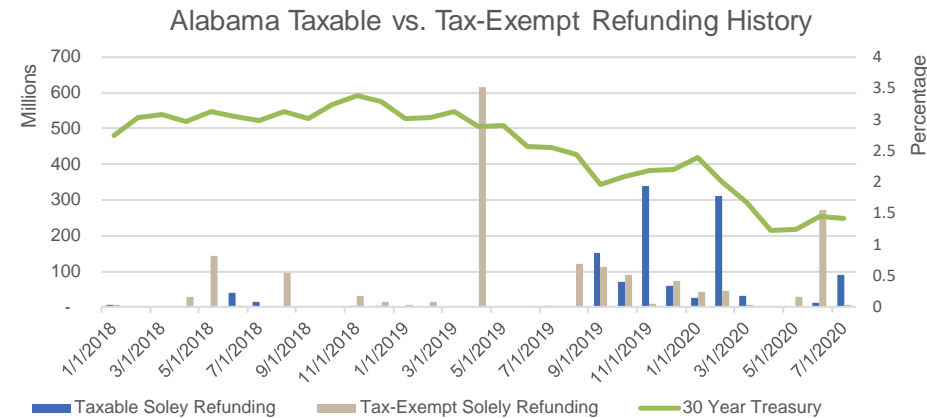
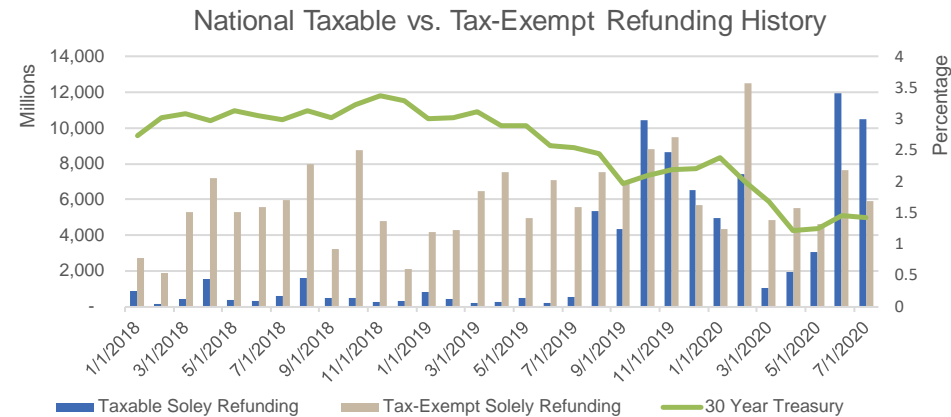
For outstanding bonds, what options remain in seeking to achieve the economic benefits of refundings?

- Tax-Exempt Current Refunding:** Wait out the call protection period and, if market conditions permit, execute a current refunding not more than 90 days before the bonds become subject to optional redemption.

% Soley Tax-Exempt Refunding		
	National	Alabama
2018	89%	83%
2019	67%	63%
2020YTD	53%	46%
Total	68%	61%

- Taxable Advance Refunding:** If market conditions permit, execute an advance refunding using taxable bonds.

% Soley Taxable Refunding		
	National	Alabama
2018	11%	17%
2019	33%	37%
2020YTD	47%	54%
Total	32%	39%

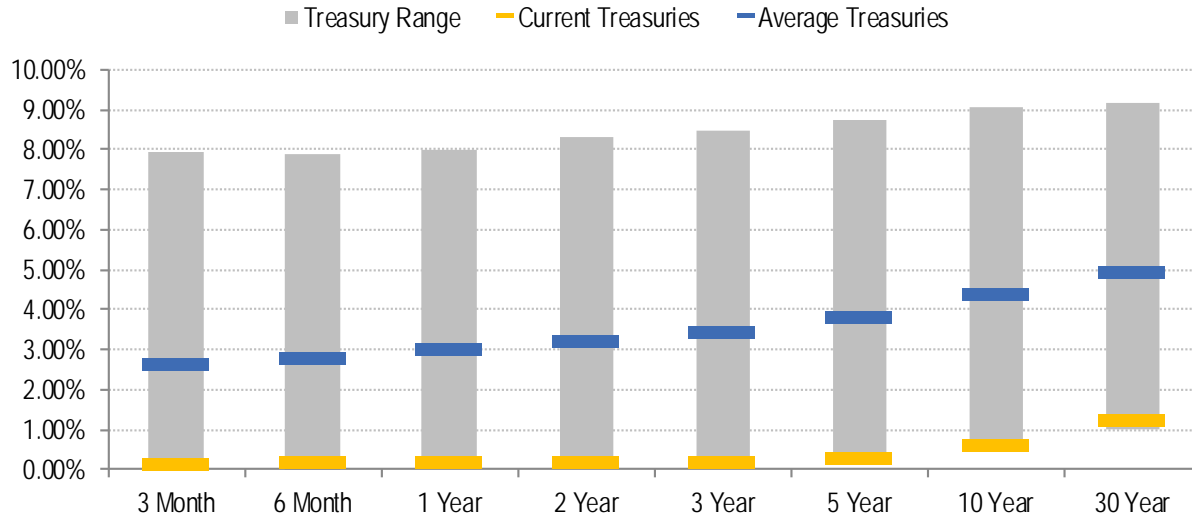


Source: Bloomberg (excludes derivatives)



Current and Historical Taxable Interest Rates

As of July 27, 2020, U.S. Treasury yields continue to be at or near historic lows, but volatile. In the past 30 years, U.S. Treasury yields from the 2 year to 30-year maturity have been lower less than 1.00% of the time.



Statistic	3 Month	6 Month	1 Year	2 Year	3 Year	5 Year	10 Year	30 Year
7/27/2020	0.10%	0.14%	0.16%	0.14%	0.17%	0.27%	0.59%	1.23%
Average	2.62%	2.75%	2.96%	3.17%	3.41%	3.79%	4.34%	4.90%
Spread to Avg.	-2.52%	-2.61%	-2.80%	-3.03%	-3.24%	-3.52%	-3.75%	-3.67%
Minimum	-0.09%	0.00%	0.06%	0.14%	0.16%	0.27%	0.54%	1.00%
Spread to Min.	0.19%	0.14%	0.10%	0.00%	0.01%	0.00%	0.05%	0.23%
Maximum	7.85%	7.91%	7.99%	8.32%	8.50%	8.75%	9.05%	9.18%
Spread to Max.	-7.75%	-7.77%	-7.83%	-8.18%	-8.33%	-8.48%	-8.46%	-7.95%
Percent of Market Days Lower	17.43%	13.68%	9.37%	0.00%	0.01%	0.00%	0.04%	0.13%

Source: Thompson Municipal Market Monitor; Market Conditions as of July 27, 2020



BUT WAIT! THERE'S MORE....Refunding 201

- ◆ **Forward Delivery Bonds:** Issue “forward delivery” bonds seeking to lock in savings prior to the allowable tax-exempt current refunding date.
- ◆ **Cinderella Bonds:** Consider the possibility of refunding outstanding bonds with taxable “Cinderella Bonds” that might be converted to tax-exempt obligations in the future.
- ◆ **Cash Optimization:** Utilize cash on hand to defease outstanding bonds (versus a bond-funded refunding transaction) and fund new money capital projects with tax-exempt bonds instead of cash-funding.
- ◆ And let's not forget.....**Swap(s)** and other derivatives

- ◆ See Appendix for additional information on Forward Delivery Bonds, Cinderella Bonds & Cash Optimization Strategies



Side Bar – Bond Pricing 101: Tax-exempt vs. Taxable Pricing

Tax-Exempt Bond Pricings

- Bonds sold with variety of coupons
 - Discount Bonds: Coupon $<$ Re-Offer Yield
 - Par Bonds: Coupon = Re-Offer Yield
 - Premium Bond: Coupon $>$ Re-Offer Yield
- Call Features:
 - 10-year par call
 - Non-callable
 - Short Calls

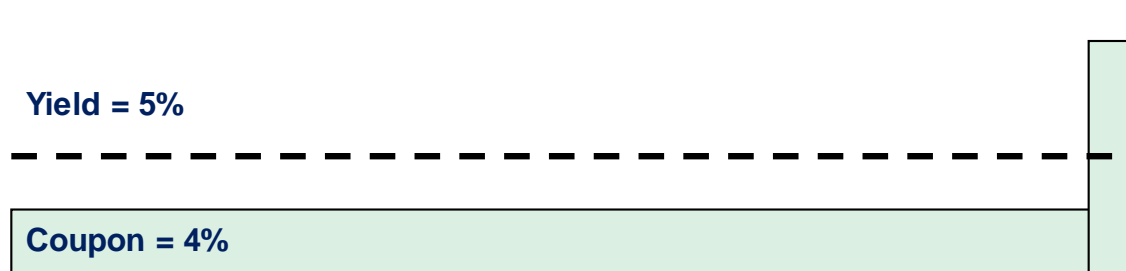
Taxable Bond Pricings

- Bonds sold @ Par (Typically)
 - Par Bonds: Coupon = Re-Offer Yield
- Call Features:
 - Make-Whole Call (traditional in corporate taxable market)
 - 10-year par call



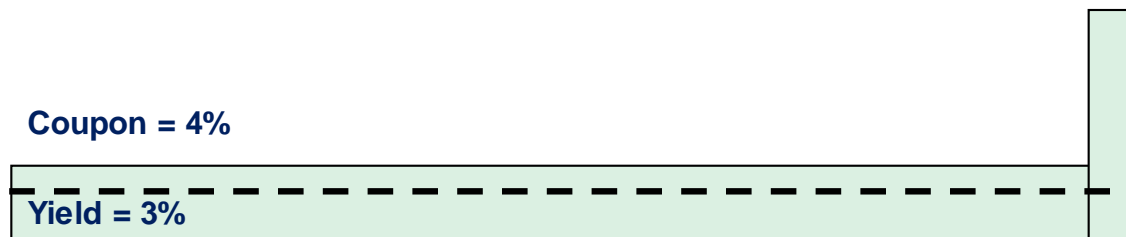
Bond Pricing 101: Discount vs. Premium Bonds

◆ Original Issue Discount Bonds (OIDs)



Discount Bond	
Coupon	4%
Price	97.277%
Yield	5%

◆ Original Issue Premium Bonds (OIPs)



Premium Bond	
Coupon	4%
Price	102.829%
Yield	3%

Note: For illustrative purposes only.



Taxable Advance Refunding Exercise



Prior Bonds of City of ABC, AL

- Series 2012 Warrants were issued in September 2012
- \$24M of the Series 2012 Bonds are callable on September 1, 2022
- Series 2012 Warrants were issued with level principal payments
- Estimated Refunding Statistics:
 - Estimated Taxable Advance Refunding suggests Net PV savings of \$1.45 million or 6.03% of refunded par
 - Negative Arbitrage of \$807,000
- City of ABC, AL's Refunding Debt Policy establishes a threshold of 4% Net PV savings

Refunded Bond Information					
Series	Maturity	Outstanding Par	Coupon	Call Date	Callable Status
Series 2012	09/01/2023	2,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2024	2,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2025	2,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2026	2,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2027	2,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2028	2,000,000	4.000%	09/01/2022	Advance
Series 2012	09/01/2029	2,000,000	3.000%	09/01/2022	Advance
Series 2012	09/01/2030	2,000,000	3.000%	09/01/2022	Advance
Series 2012	09/01/2031	2,000,000	3.000%	09/01/2022	Advance
Series 2012	09/01/2032	1,000,000	4.000%	09/01/2022	Advance
Series 2012	09/01/2032	1,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2033	1,000,000	3.000%	09/01/2022	Advance
Series 2012	09/01/2033	1,000,000	5.000%	09/01/2022	Advance
Series 2012	09/01/2034	2,000,000	3.000%	09/01/2022	Advance
Total		24,000,000			

Note: For illustrative purposes only.



Should City of ABC proceed with the proposed refunding?

- ◆ A) Yes, absolutely. The refunding meets the City's debt policy and is a good opportunity that should be pursued.
- ◆ B) No, the current call date is approximately 2 years away and given the negative arbitrage of \$807k the City should wait till the refunding could be executed on current basis with tax-exempt rates.
- ◆ C) Maybe but need more analysis to determine whether we should move forward.
- ◆ D) This feels like a trick question.





First...Let's revisit GFOA Best Practices

*The Government Finance Officers Association (GFOA) recommends that issuers 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.*

*GFOA also recommends that when evaluating a refunding transaction, issuers should **analyze their refunding objectives, the efficiency of any related escrow**, and the **unique aspects of executing** the refunding transaction.*

*“With the elimination of tax-exempt advance refunding bonds, several **alternative financing structures** have emerged which attempt to realize a portion of the savings previously available through tax-exempt advance refundings. **Issuers should be aware these alternative structures may involve additional risks, reduced savings and other disadvantages.** In all cases, **issuers should evaluate the potential risk/benefits** of these structures relative to the option of **simply waiting until the call date** of the outstanding bonds and executing a tax-exempt current refunding if and when rates permit.”*

Source: <https://www.gfoa.org/materials/refunding-municipal-bonds>



GFOA Best Practices – Policy Considerations

GFOA Best Practices	PFM Considerations
<ul style="list-style-type: none">• Define Net PV savings thresholds (i.e. 3 or 5% and/or a minimum dollar savings); some issuers use a grid requiring higher savings for longer call dates. Policy should consider whether applied to an entire issue or a maturity-by-maturity basis	<ul style="list-style-type: none">• PFM considers that the starting point for review of refunding candidates should be on a maturity-by-maturity basis• Issuers may want to revisit debt policies post tax reform and consider re-defining savings thresholds to differentiate between tax-exempt and taxable refundings
<ul style="list-style-type: none">• Negative arbitrage efficiency – issuers may want to set a guideline that negative arbitrage is less than a certain percentage of NPV savings (i.e. < 100%)	<ul style="list-style-type: none">• Typically, seek that net PV saving (on a maturity-by-maturity basis) exceed negative arbitrage
<ul style="list-style-type: none">• Rate efficiency/sensitivity analysis – issuers should consider how much interest rates would have to rise by the call date to produce savings matching those that could be achieved with an advance refunding	<ul style="list-style-type: none">• Evaluate break-even yields on both a series-by-series and maturity-by-maturity basis• Ultimately, a decision to wait to the call date vs. executing on a taxable advance refunding hinges on an Issuer’s viewpoint on future market rates
<ul style="list-style-type: none">• Refunding efficiency – issuers should understand the call feature on the proposed refunded bonds has economic value, and they may want to set a minimum of how much of the potential value of the call option should be captured with an advance refunding	<ul style="list-style-type: none">• PFM utilizes a proprietary option value calculation method based on an industry recognized option valuation model to evaluate the expected potential future savings of a refunding candidate vs. the known savings of refunding today.• For refunding bonds greater than 10-years, Issuers should consider lost refunding optionality with taxable bonds (sold at par) vs. tax-exempt callable premium bonds



Typical Approach for ABC, AL

1. Evaluate individual refunding candidates based on a maturity-by-maturity savings analysis.
2. Run a full sizing and structuring analysis based on the candidates identified in step 1.
3. Run a comparative analysis to demonstrate the potential savings associated with waiting and issuing tax-exempt refunding bonds in the future (<90 days from the call date of the refunded bonds).
4. Compare the taxable and tax-exempt refunding results and run a break-even analysis.
5. Consider alternative refunding strategies (i.e. forwards)
6. Determine whether to pursue a taxable advance refunding opportunity now, an alternative structure, or wait to execute a tax-exempt current refunding.



Step 1: Maturity-by-maturity analysis

- Aggregate PV Savings:** Net 6% PV Savings, Escrow Efficiency (55%) and Refunding Efficiency (72%) are all favorable
- Maturity-by-maturity analysis:** reveals approximately \$13 million (54%) of the proposed refunded bonds currently does not meet City of ABC's 4% net PV savings

Refunded Bond Information						Existing Opportunity: Taxable Advance					
Series	Maturity	Outstanding Par	Coupon	Call Date	Callable Status	Refunding Delivery Date	PV Savings		Arbitrage		Option Value
							Dollars	Percent	Dollars	% of PV Savings	Refunding Efficiency
Series 2012	09/01/2023	2,000,000	5.000%	09/01/2022	Advance	09/01/2020	14,847	0.742%	(39,323)	264.851%	28.531%
Series 2012	09/01/2024	2,000,000	5.000%	09/01/2022	Advance	09/01/2020	72,823	3.641%	(47,870)	65.734%	61.164%
Series 2012	09/01/2025	2,000,000	5.000%	09/01/2022	Advance	09/01/2020	137,559	6.878%	(49,928)	36.296%	77.070%
Series 2012	09/01/2026	2,000,000	5.000%	09/01/2022	Advance	09/01/2020	192,784	9.639%	(54,036)	28.029%	84.603%
Series 2012	09/01/2027	2,000,000	5.000%	09/01/2022	Advance	09/01/2020	240,005	12.000%	(58,871)	24.529%	89.266%
Series 2012	09/01/2028	2,000,000	4.000%	09/01/2022	Advance	09/01/2020	151,563	7.578%	(68,092)	44.926%	77.505%
Series 2012	09/01/2029	2,000,000	3.000%	09/01/2022	Advance	09/01/2020	46,897	2.345%	(71,243)	151.914%	54.785%
Series 2012	09/01/2030	2,000,000	3.000%	09/01/2022	Advance	09/01/2020	46,307	2.315%	(75,199)	162.392%	55.683%
Series 2012	09/01/2031	2,000,000	3.000%	09/01/2022	Advance	09/01/2020	41,986	2.099%	(79,145)	188.502%	50.638%
Series 2012	09/01/2032	1,000,000	4.000%	09/01/2022	Advance	09/01/2020	101,767	10.177%	(42,044)	41.314%	78.717%
Series 2012	09/01/2032	1,000,000	5.000%	09/01/2022	Advance	09/01/2020	186,480	18.648%	(42,547)	22.816%	86.248%
Series 2012	09/01/2033	1,000,000	3.000%	09/01/2022	Advance	09/01/2020	11,432	1.143%	(43,504)	380.545%	26.964%
Series 2012	09/01/2033	1,000,000	5.000%	09/01/2022	Advance	09/01/2020	194,541	19.454%	(44,559)	22.904%	84.232%
Series 2012	09/01/2034	2,000,000	3.000%	09/01/2022	Advance	09/01/2020	8,448	0.422%	(90,926)	1,076.274%	8.846%
Total		24,000,000					1,447,439	6.031%	(807,287)	55.773%	72.087%
Total (4% only)		11,000,000					1,204,698	10.952%	(360,077)	29.889%	83.242%

Note: For illustrative purposes only.



Step 2: Sources & Uses Comparison - aggregate refi vs. candidates with 4% only savings

Aggregate Refunding Sources and Uses	
Sources	
Par Amount	\$26,170,000
Total	\$26,170,000
Uses	
Refunding Deposit	\$25,904,621
Cost of Issuance	\$265,379
Total	\$26,170,000

Partial Sources and Uses	
Sources	
Par Amount	\$12,130,000
Total	\$12,130,000
Uses	
Refunding Deposit	\$12,005,216
Cost of Issuance	\$124,784
Total	\$12,130,000

Aggregate Summary of Refunding Results	
Dated/Delivery Date	9/1/2020
Refunding Par	\$26,170,000
Refunded Par	\$24,000,000
Arbitrage Yield	1.899%
Escrow Yield	0.149%
Avg cpn of refunded bonds	3.873%
Negative Arbitrage	\$861,274
Net PV Savings (\$)	\$1,516,840
Net PV Savings (%)	6.320%

Aggregate Summary of Refunding Results	
Dated/Delivery Date	9/1/2020
Refunding Par	\$12,130,000
Refunded Par	\$11,000,000
Arbitrage Yield	1.787%
Escrow Yield	0.149%
Avg cpn of refunded bonds	4.685%
Negative Arbitrage	\$372,556
Net PV Savings (\$)	\$1,248,301
Net PV Savings (%)	11.348%



Step 2: The “run”.....aggregate refi vs. candidates with 4% only savings

- FY 2021 DS savings for partial refunding captures approximately 95% savings of that generated by full refunding
- Partial refunding captures approximately 82% of total NPV savings of that generated by full refunding
- Partial refunding refunds approximately 54% less in bonds preserving future refunding flexibility

Fiscal Year	Prior Debt Service	Refunding Debt Service	Gross Savings	NPV Savings
9/1/2021	990,000	868,959	121,041	121,296
9/1/2022	990,000	865,187	124,813	122,673
9/1/2023	2,990,000	2,865,995	124,005	119,631
9/1/2024	2,890,000	2,770,072	119,928	113,285
9/1/2025	2,790,000	2,670,022	119,978	110,907
9/1/2026	2,690,000	2,569,723	120,277	108,802
9/1/2027	2,590,000	2,468,137	121,863	107,869
9/1/2028	2,490,000	2,365,019	124,982	108,258
9/1/2029	2,410,000	2,287,876	122,124	103,648
9/1/2030	2,350,000	2,229,415	120,586	100,349
9/1/2031	2,290,000	2,169,316	120,684	98,473
9/1/2032	2,230,000	2,107,621	122,380	97,912
9/1/2033	2,140,000	2,019,368	120,632	94,538
9/1/2034	2,060,000	1,935,171	124,829	95,858
Total	31,900,000	30,191,880	1,708,120	1,503,500

Fiscal Year	Prior Debt Service	Refunding Debt Service	Gross Savings	NPV Savings
9/1/2021	520,000	405,426	114,574	113,956
9/1/2022	520,000	403,586	116,415	113,731
9/1/2023	520,000	406,540	113,460	108,934
9/1/2024	520,000	404,295	115,705	109,114
9/1/2025	2,520,000	2,406,615	113,385	105,078
9/1/2026	2,420,000	2,302,244	117,756	106,870
9/1/2027	2,320,000	2,201,728	118,272	105,168
9/1/2028	2,220,000	2,104,767	115,233	100,414
9/1/2029	140,000	63,878	76,123	65,151
9/1/2030	140,000	63,878	76,123	64,002
9/1/2031	140,000	63,878	76,123	62,874
9/1/2032	2,140,000	2,023,878	116,123	94,077
9/1/2033	1,050,000	935,954	114,047	90,604
9/1/2034	-	-	-	-
Total	15,170,000	13,786,664	1,383,336	1,239,974

Note: For illustrative purposes only.



Step 3: Comparative Analysis....what if we wait

- Assuming no change in rates; if City of ABC waits to refund its Series 2012 bonds in 2022 with a current, tax-exempt refunding its net PV savings would increase from roughly \$1.45 million to \$3.45 million; an increase of almost \$2 million.

Refunded Bond Information				Existing Opportunity: Taxable Advance			Future Opportunity: Tax-Exempt Current Refunding Executed at Current Refunding Date			
Series	Maturity	Outstanding Par	Coupon	Refunding Delivery Date	PV Savings		Refunding Delivery Date	PV Savings		Comparison Existing Opportunity vs Future Opportunity (Today \$)
					Dollars	Percent		Dollars	Percent	
Series 2012	09/01/2023	2,000,000	5.000%	09/01/2020	14,847	0.742%	08/02/2022	67,582	3.379%	(52,002)
Series 2012	09/01/2024	2,000,000	5.000%	09/01/2020	72,823	3.641%	08/02/2022	154,752	7.738%	(80,162)
Series 2012	09/01/2025	2,000,000	5.000%	09/01/2020	137,559	6.878%	08/02/2022	236,051	11.803%	(95,397)
Series 2012	09/01/2026	2,000,000	5.000%	09/01/2020	192,784	9.639%	08/02/2022	310,008	15.500%	(112,460)
Series 2012	09/01/2027	2,000,000	5.000%	09/01/2020	240,005	12.000%	08/02/2022	376,737	18.837%	(130,023)
Series 2012	09/01/2028	2,000,000	4.000%	09/01/2020	151,563	7.578%	08/02/2022	322,306	16.115%	(164,279)
Series 2012	09/01/2029	2,000,000	3.000%	09/01/2020	46,897	2.345%	08/02/2022	229,919	11.496%	(178,026)
Series 2012	09/01/2030	2,000,000	3.000%	09/01/2020	46,307	2.315%	08/02/2022	249,219	12.461%	(197,078)
Series 2012	09/01/2031	2,000,000	3.000%	09/01/2020	41,986	2.099%	08/02/2022	268,159	13.408%	(219,548)
Series 2012	09/01/2032	1,000,000	4.000%	09/01/2020	101,767	10.177%	08/02/2022	235,988	23.599%	(128,126)
Series 2012	09/01/2032	1,000,000	5.000%	09/01/2020	186,480	18.648%	08/02/2022	328,998	32.900%	(134,021)
Series 2012	09/01/2033	1,000,000	3.000%	09/01/2020	11,432	1.143%	08/02/2022	125,810	12.581%	(110,966)
Series 2012	09/01/2033	1,000,000	5.000%	09/01/2020	194,541	19.454%	08/02/2022	328,046	32.805%	(124,607)
Series 2012	09/01/2034	2,000,000	3.000%	09/01/2020	8,448	0.422%	08/02/2022	212,657	10.633%	(198,086)
Total		24,000,000			1,447,439	6.031%		3,446,235	14.359%	(1,924,782)
Total (4% only)		11,000,000			1,204,698	10.952%		2,138,136	19.438%	(888,914)

Note: For illustrative purposes only.



Step 3: Comparative Analysis....what if we wait (Cash Flows Comparison)

- Waiting results in no cash flow savings in FY2021
- Waiting subjects City of ABC to various risks for a period of roughly 2 years
 - Market Risks (i.e. higher interest rates)
 - Tax Risks (i.e. tax reform eliminating tax-exempt rates)
 - Credit Risks (i.e. City of ABC is downgraded)
 - Market Access (i.e. markets are shut down again)

<i>Scenario:</i>	Taxable Advance Refunding	Future Tax-Exempt Current Refunding
<i>Delivery Date:</i>	9/1/2020	8/2/2022
<i>Refunded Bonds Call Date:</i>	9/1/2030	3/1/2032
<i>PV Savings:</i>	1,507,186	3,463,329
<i>PV% of Refunded Par:</i>	6.28%	14.43%

Bond Year	Taxable Advance Refunding				Future Tax-Exempt Current Refunding			
	Prior Debt Service	Refunding Debt Service	Gross Savings	Present Value to 09/01/2020 @ 1.9%	Prior Debt Service	Refunding Debt Service	Gross Savings	Present Value to 09/01/2020 @ 1.14%
9/1/2021	990,000	868,959	121,041	121,296	990,000	990,000	0	990,000
9/1/2022	990,000	865,187	124,813	122,673	495,000	495,000	495,000	494,549
9/1/2023	2,990,000	2,865,995	124,005	119,631	2,990,000	2,673,527	316,473	312,135
9/1/2024	2,890,000	2,770,072	119,928	113,285	2,890,000	2,583,250	306,750	299,514
9/1/2025	2,790,000	2,670,022	119,978	110,907	2,790,000	2,495,250	294,750	284,506
9/1/2026	2,690,000	2,569,723	120,277	108,802	2,690,000	2,402,500	287,500	274,333
9/1/2027	2,590,000	2,468,137	121,863	107,869	2,590,000	2,315,250	274,750	259,158
9/1/2028	2,490,000	2,365,019	124,982	108,258	2,490,000	2,223,250	266,750	248,725
9/1/2029	2,410,000	2,287,876	122,124	103,648	2,410,000	2,151,750	258,250	238,082
9/1/2030	2,350,000	2,229,415	120,586	100,349	2,350,000	2,099,750	250,250	228,158
9/1/2031	2,290,000	2,169,316	120,684	98,473	2,290,000	2,046,250	243,750	219,784
9/1/2032	2,230,000	2,107,621	122,380	97,912	2,230,000	1,991,250	238,750	212,911
9/1/2033	2,140,000	2,019,368	120,632	94,538	2,140,000	1,914,750	225,250	198,597
9/1/2034	2,060,000	1,935,171	124,829	95,858	2,060,000	1,842,750	217,250	189,401
Total	31,900,000	30,191,880	1,708,120	1,503,500	30,415,000	26,739,527	3,675,473	3,459,853

Note: For illustrative purposes only.



Step 4: The Break-Even

- Assuming no change in rates, the estimated break-even rates suggest rates could increase between 1.13% (113 basis points) and 2.50% (250 basis points) before the City of ABC would be indifferent between a taxable advance refunding today vs. a tax-exempt refunding in 2 years.

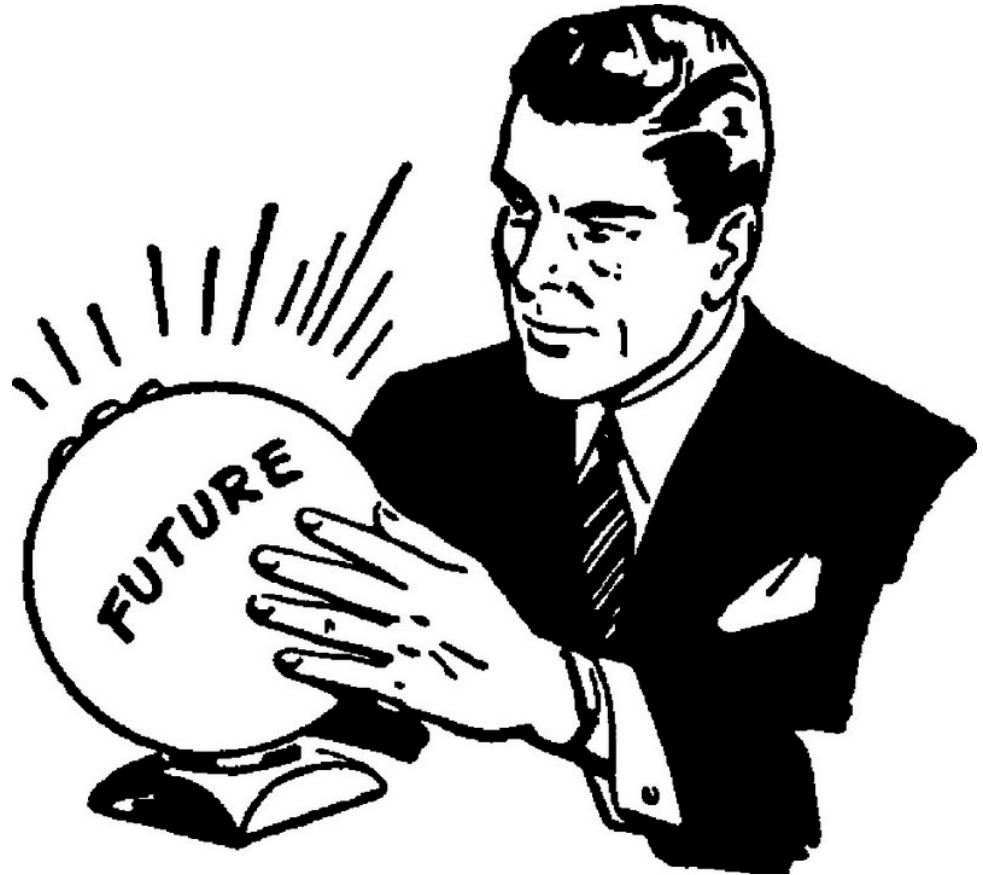
Refunded Bond Information				Existing Opportunity: Taxable Advance			Future Opportunity: Tax-Exempt Current Refunding Executed at Current Refunding Date				
Series	Maturity	Outstanding Par	Coupon	Refunding Delivery Date	PV Savings		Refunding Delivery Date	PV Savings		Comparison	
					Dollars	Percent		Dollars	Percent	Existing Opportunity vs Future Opportunity (Today \$)	Maturity Level Break-Even Spread to Existing Taxable Advance Opportunity
Series 2012	09/01/2023	2,000,000	5.000%	09/01/2020	14,847	0.742%	08/02/2022	67,582	3.379%	(52,002)	2.500%
Series 2012	09/01/2024	2,000,000	5.000%	09/01/2020	72,823	3.641%	08/02/2022	154,752	7.738%	(80,162)	1.778%
Series 2012	09/01/2025	2,000,000	5.000%	09/01/2020	137,559	6.878%	08/02/2022	236,051	11.803%	(95,397)	1.446%
Series 2012	09/01/2026	2,000,000	5.000%	09/01/2020	192,784	9.639%	08/02/2022	310,008	15.500%	(112,460)	1.296%
Series 2012	09/01/2027	2,000,000	5.000%	09/01/2020	240,005	12.000%	08/02/2022	376,737	18.837%	(130,023)	1.182%
Series 2012	09/01/2028	2,000,000	4.000%	09/01/2020	151,563	7.578%	08/02/2022	322,306	16.115%	(164,279)	1.366%
Series 2012	09/01/2029	2,000,000	3.000%	09/01/2020	46,897	2.345%	08/02/2022	229,919	11.496%	(178,026)	1.327%
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Series 2012	09/01/2031	2,000,000	3.000%	09/01/2020	41,986	2.099%	08/02/2022	268,159	13.408%	(219,548)	1.294%
Series 2012	09/01/2032	1,000,000	4.000%	09/01/2020	101,767	10.177%	08/02/2022	235,988	23.599%	(128,126)	1.300%
Series 2012	09/01/2032	1,000,000	5.000%	09/01/2020	186,480	18.648%	08/02/2022	328,998	32.900%	(134,021)	1.286%
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Total (4% only)		11,000,000			1,204,698	10.952%		2,138,136	19.438%	(888,914)	

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So...should City of ABC proceed with a taxable advance refunding?

- ◆ A) Yes, the City should continue to proceed with the full refunding at it meets their debt policy.
- ◆ B) Yes, the City should proceed with a partial refunding and evaluate future refunding opportunities for the unrefunded bonds.
- ◆ C) No, based on the suggested break-even rates, the City should take its chances and wait for a current refunding to achieve greater savings.
- ◆ D) It depends on the additional factors.





Concluding Considerations

- It is PFM's belief that the long-term financial health of a government is best served by taking into consideration all the factors, both economic and policy-driven, that would influence the decision to refund bonds.
- PFM's approach seeks to align with GFOA's best practices that an Issuer's policies should consider one or more "efficiency" measures when contemplating a refunding transactions
- The "right answer" may simply be to wait for outstanding bonds to become callable (i.e., a current refunding)
- Issuers should carefully consider any refunding bonds – especially a non-traditional approach – with their financial advisor and bond counsel
- Change in tax law may also change how Issuer's of new bonds think about redemption provisions
- Reminder – taxable bonds are (generally) issued at par. When accounting for negative arbitrage in an escrow, refunded par will be greater than an Issuer's refunding par. As such, Alabama issuers with concerns related to their constitutional debt limit should be mindful of how this impacts their constitutional debt limit on a long-term basis.



Questions?



Appendix



Delayed Delivery (“Forward”) Refunding

Strategy:	Issue tax-exempt current refunding bonds with a delivery date (closing) within the 90-day current refunding window, but priced much earlier than traditional bonds (i.e., several months between pricing and closing)
Benefits:	<ul style="list-style-type: none">• Allows issuer to lock in current market conditions on a tax-exempt basis – removes interest rate risk• Limited negative arbitrage
Financial Risks:	<ul style="list-style-type: none">• Penalty or premium for delayed delivery may erode potential savings• Opportunity costs (i.e. risk that tax law changes making forward strategy unnecessary)• Exposure to counterparty risk

Note: Bond counsel and/or in-house counsel should be consulted regarding legal considerations



“Cinderella” Refunding

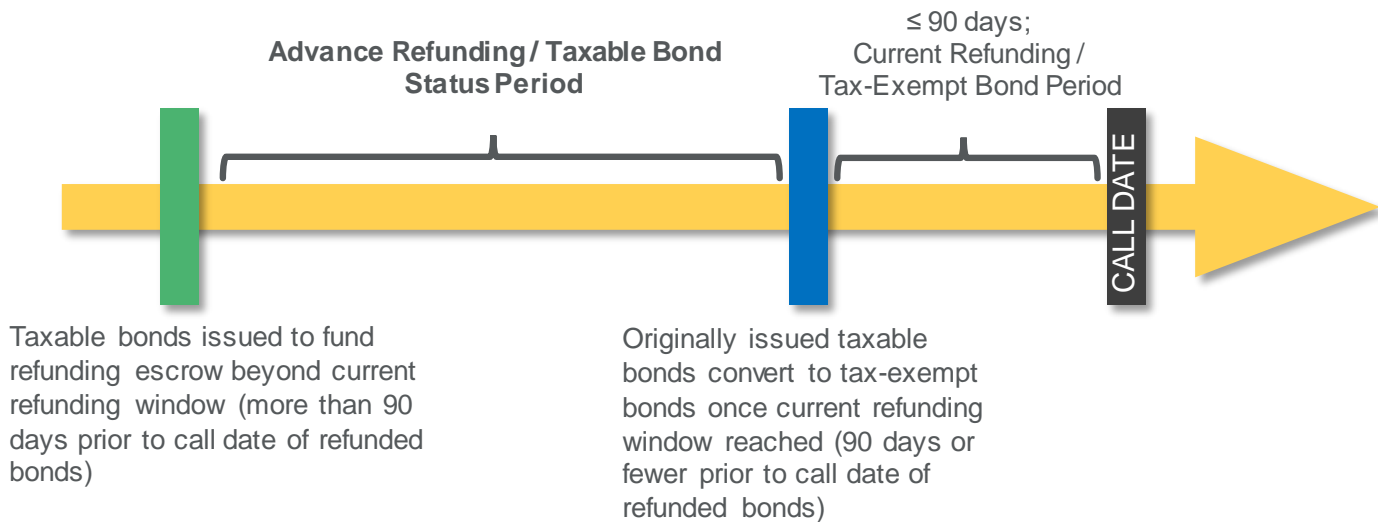
Strategy:	Issue advance refunding bonds on a taxable basis (initially) which converts to tax-exempt bonds within 90-day current refunding window
Benefits:	<ul style="list-style-type: none">• Allows issuer to lock in current market conditions and benefit from lower cost of tax-exempt debt
Financial Risks:	<ul style="list-style-type: none">• Limited ability to use this strategy with public bond offering – typically used with a bank placement• Limitations on length of initial (taxable) period – bank purchaser may accommodate months, but not years• Added cost of taxable interest rate during initial period• Inability to deliver tax-exempt opinion at conversion date

Note: Bond counsel and/or in-house counsel should be consulted regarding legal considerations



Financing Features and Techniques: “Cinderella” Bonds

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





Cash Optimization

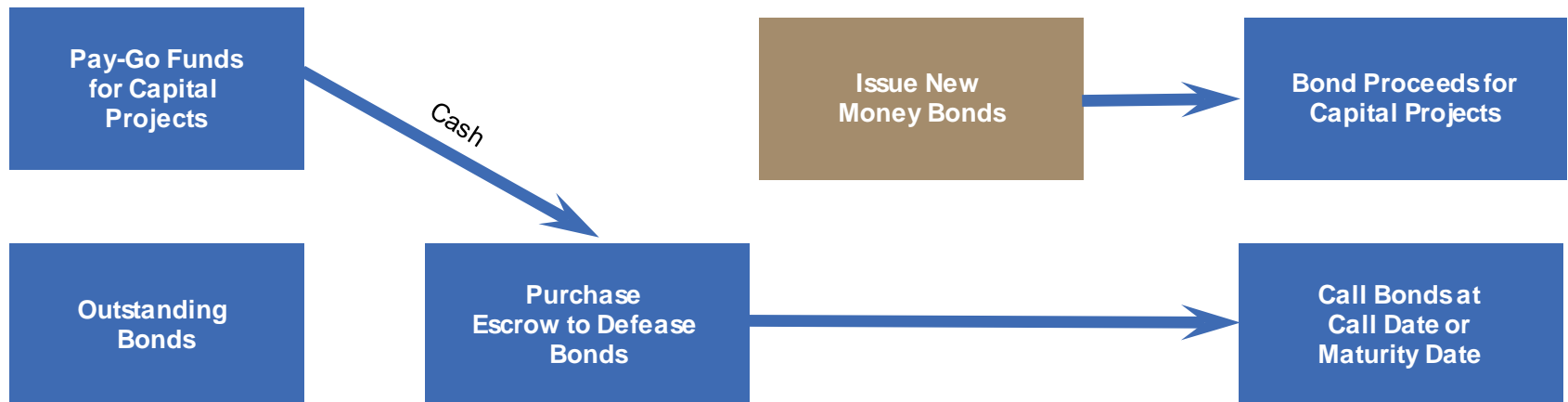
Strategy:	Utilize cash otherwise dedicated to capital projects to defease outstanding bonds instead of issuing refunding bonds. Issue new (tax-exempt) debt to fund capital projects instead
Benefits:	<ul style="list-style-type: none">• Mimics economics of advance refunding
Financial Risks:	<ul style="list-style-type: none">• Similar opportunity cost considerations as advance refundings• Less flexibility in decision-making (i.e., strategy may need to be established during budget process, well in advance of new debt issuance)

Note: Bond counsel and/or in-house counsel should be consulted regarding legal considerations



Overview of Cash Optimization

- Cash optimization involves a re-allocation of capital to take advantage of municipal borrowing rates and taxable investment yields
- Existing pay-as-you-go capital funds are used to defease outstanding debt instead of issuing refunding bonds
- New money capital projects are funded with a tax-exempt new money debt issuance instead of existing pay-as-you-go capital
- The elimination of tax-exempt advance refundings and the subsequent dependence on taxable bonds to advance refund outstanding debt has generally led to increasing the cost and decreasing the viability of issuing traditional advance refunding bonds
- The opportunity and economics of cash optimization are driven by the currently attractive level and relationships of interest rates — the resultant debt service savings of a successful cash optimization can provide similar economic benefit as an advance refunding





Important Tax Considerations

- Cash optimization strategies involve important tax considerations that must be reviewed by tax advisors and bond counsel
- Within this strategy, no refunding bonds are issued – outstanding bonds are defeased with cash
 - Bond proceeds are used to fund capital projects, not refunded debt service
 - Cash is used to defease prior bonds
 - Defeased bonds may have essentially any refunding status
- Consideration must be given to the current and potential future value of the defeased bonds' call option and the potential opportunity cost of defeasing outstanding bonds in the current interest rate environment versus preserving the call option for future use

		REFUNDING STATUS		
		CURRENT	FORWARD	ADVANCE
CALL STATUS	Callable	Consider whether monetizing or preserving call option is better than cash optimization		Bonds issued on a taxable basis and may not be cost-effective
	Non-Callable	Optimal cash optimization candidates		

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Treatment of Proceeds - Considerations Under IRS Regulations

- ◆ Cash defeasance creates replacement proceeds
 - Pay-go funds used to buy defeasance escrows are *Invested Sinking Fund* proceeds and restricted to the arbitrage yield of defeased bonds
 - Beneficial if the defeased bonds' arbitrage yield exceeds the new money borrowing rate
- ◆ Pay-go funds that have already been appropriated/earmarked for capital projects likely become replacement proceeds of new money issue
 - May create a nexus between the new money issuance and the pay-go funds – cannot “un-appropriate” or “un-earmark”
- ◆ Reimbursement of prior expenditures may be problematic
 - If the new money reimburses prior capital expenditures, any moneys invested in a defeasance escrow within one (1) year after issuance of the reimbursement bonds constitute replacement proceeds of the new money bonds
 - Escrowed moneys are restricted to arbitrage yield of new money reimbursement bonds

Replacement Proceeds

Relationship or “nexus” to a bond issue causes moneys to be subject to arbitrage restrictions (e.g., deposits to a debt service fund or cash-funded reserve fund)



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