Refunding an Issue

KNN Public Finance, LLC

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INTRODUCTIONS | PRESENTERS

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NOTIONS OF REFUNDING

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PAYING OFF A LOAN WITH A NEW LOAN

MORTGAGE EXAMPLE:

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

BOND EXAMPLE:

- Bond investor has call protection, most commonly for 10 years
- Borrower has call option

OPTIONAL REDEMPTION

SAMPLE PROVISION:

The Series 2022 Bonds maturing on and after **August 1, 2033**, are **subject to redemption** prior to their respective stated maturity dates, **at the option of the County**, ... on or after **August 1, 2032** 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

PURPOSE OF REFUNDING BONDS

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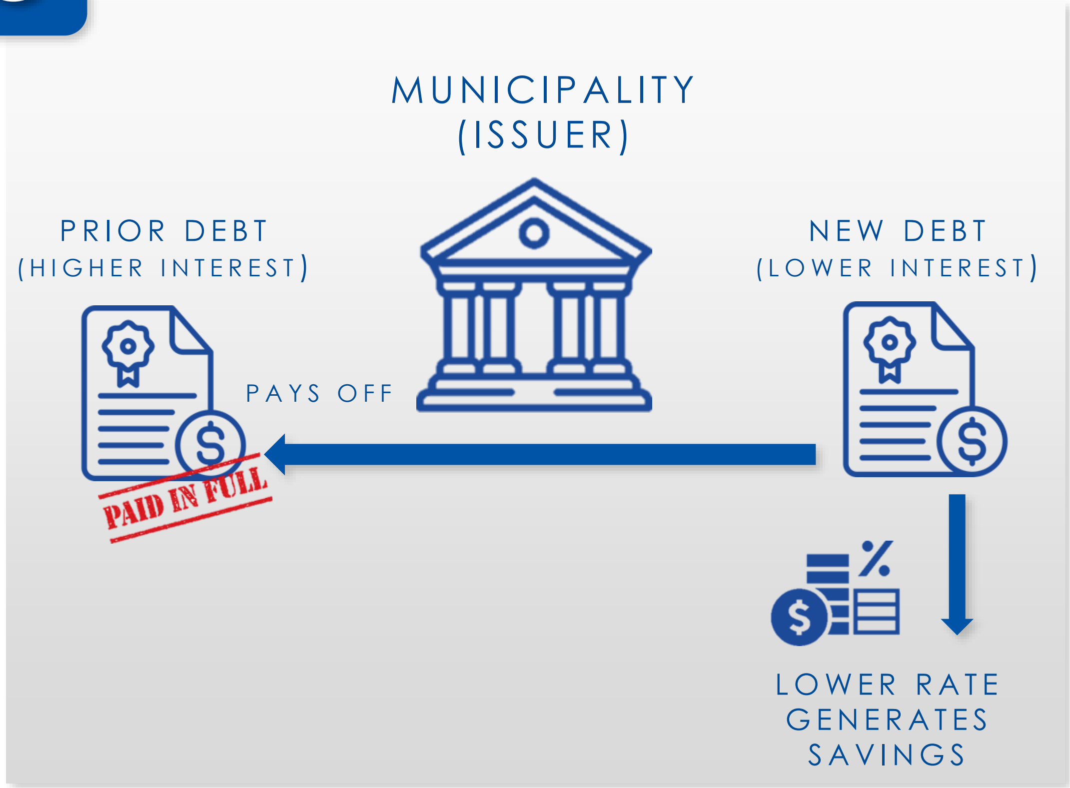
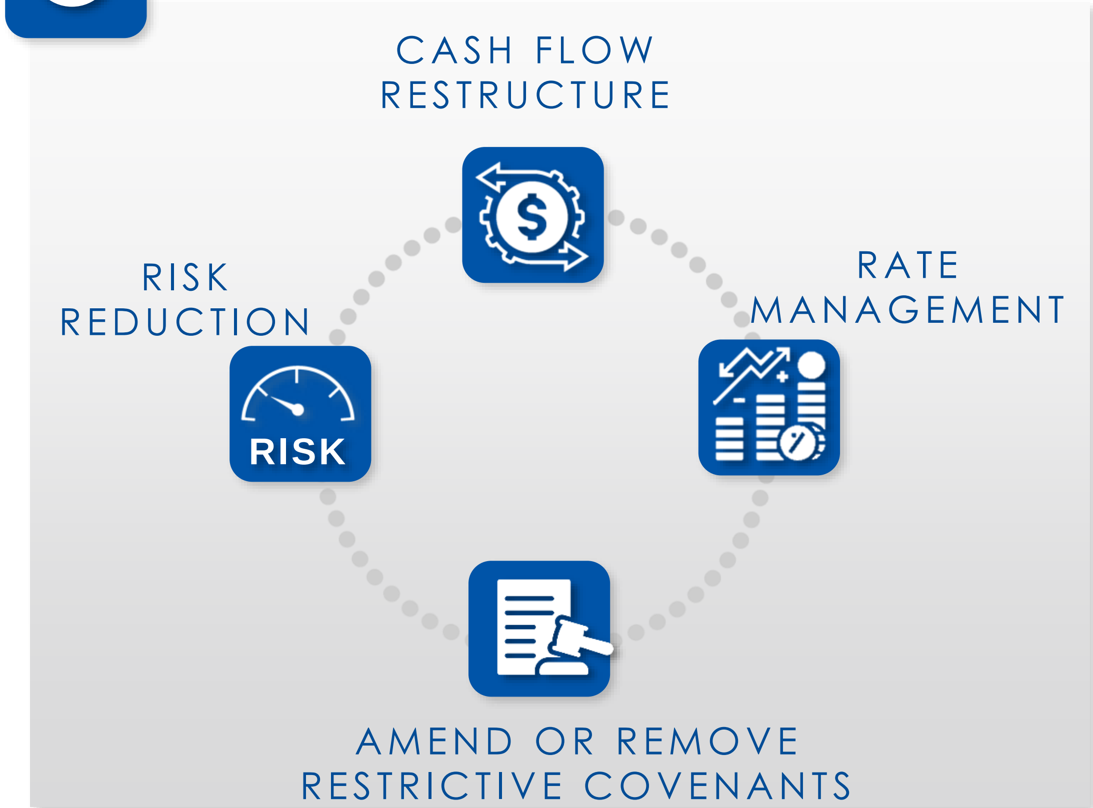
1 ACHIEVE DEBT SERVICE SAVINGS ON OUTSTANDING BONDS:



2 OTHER OCCASIONAL CONSIDERATIONS:



TYPES OF REFUNDING & TIMING

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- Refunding bonds are characterized as either current refunding or advance refunding

CURRENT REFUNDING:

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

ADVANCE REFUNDING:

- Refunding bonds are issued more than 90-days before call date
- Proceeds sized to be sufficient to fund an escrow that, along with interest earnings, will pay debt service until the call date and then call the bonds
- Advance refundings are typically less efficient, especially when the interest rate earned on escrow is less than the borrowing rate (negative arbitrage)

Tax-exempt advance refunding eliminated in 2017

Some agencies have issued *taxable* bonds to advance refund, still generating savings.

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CAPTURING SAVINGS

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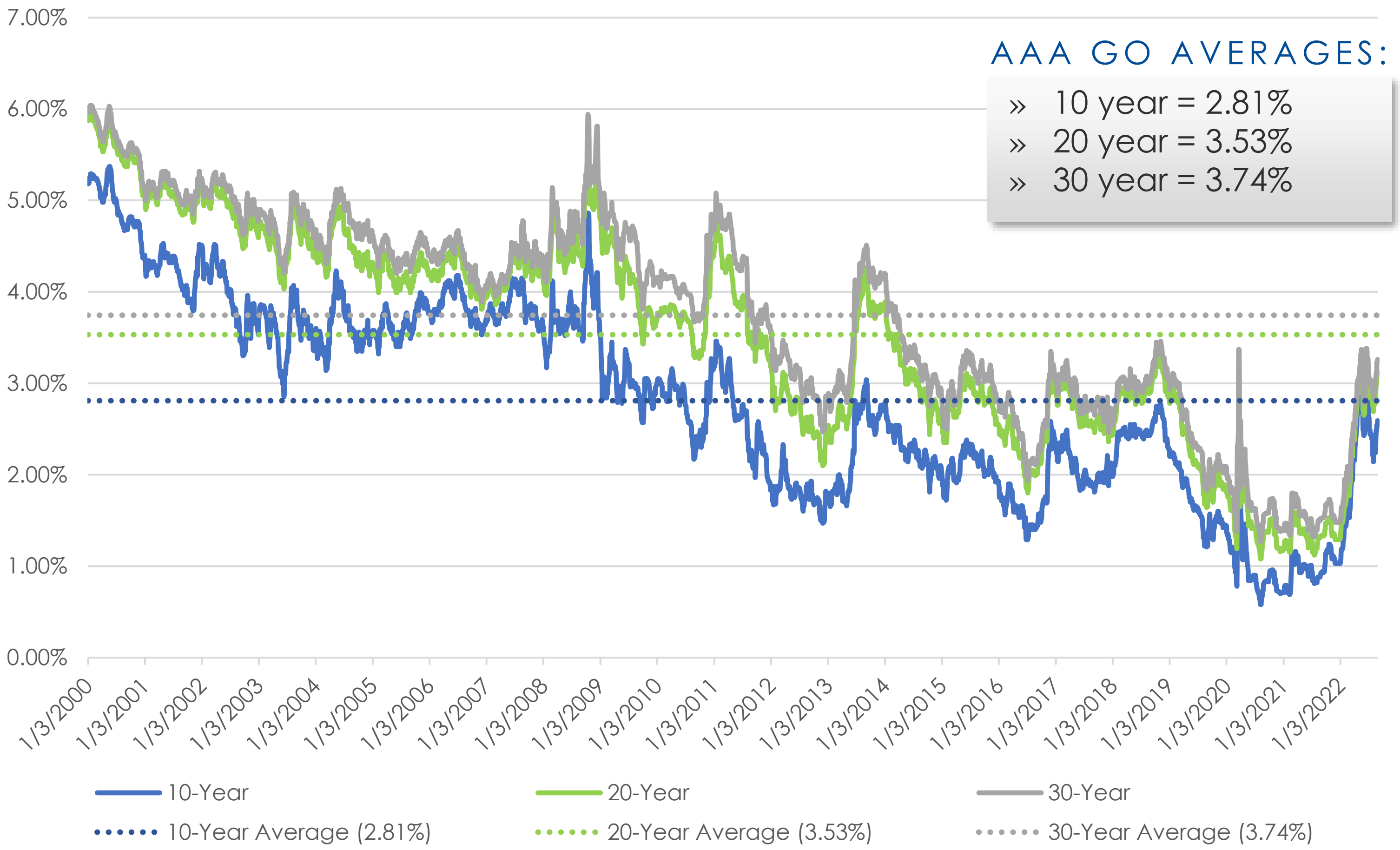
- What goes up, must(?) go down
- When to examine a bond for a refunding?
  - Nine months to a year before the optional call date
  - More frequently if market and policies might support a taxable advance refunding
- When evaluating a bond for refunding savings, the **coupon rate** of existing debt is compared to the **true interest cost** of the refunding bonds

CYCLICALITY OF INTEREST RATES



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WHAT CREATES SAVINGS?

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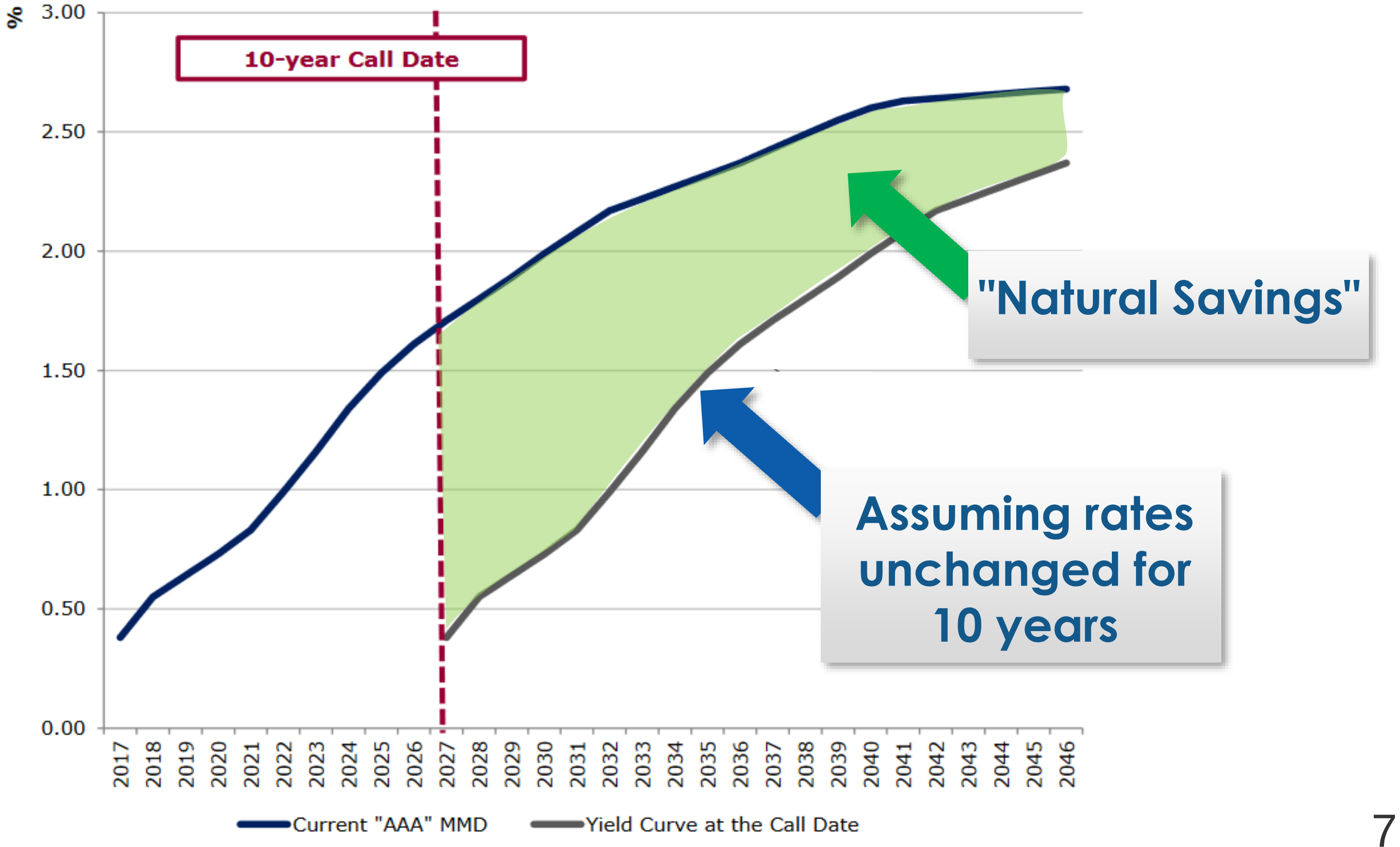
- Because of the typical shape of the yield curve, the passage of time alone may create savings
- At the optional call date, there is a "roll down" for corresponding maturities (e.g., years 10-30 are now years 0-20)
- The common use of “premium couponing” (e.g., 5% coupons to yield 3% to the investor) creates higher likelihood of future refunding: creates “optionality”

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



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MEASURING SAVINGS

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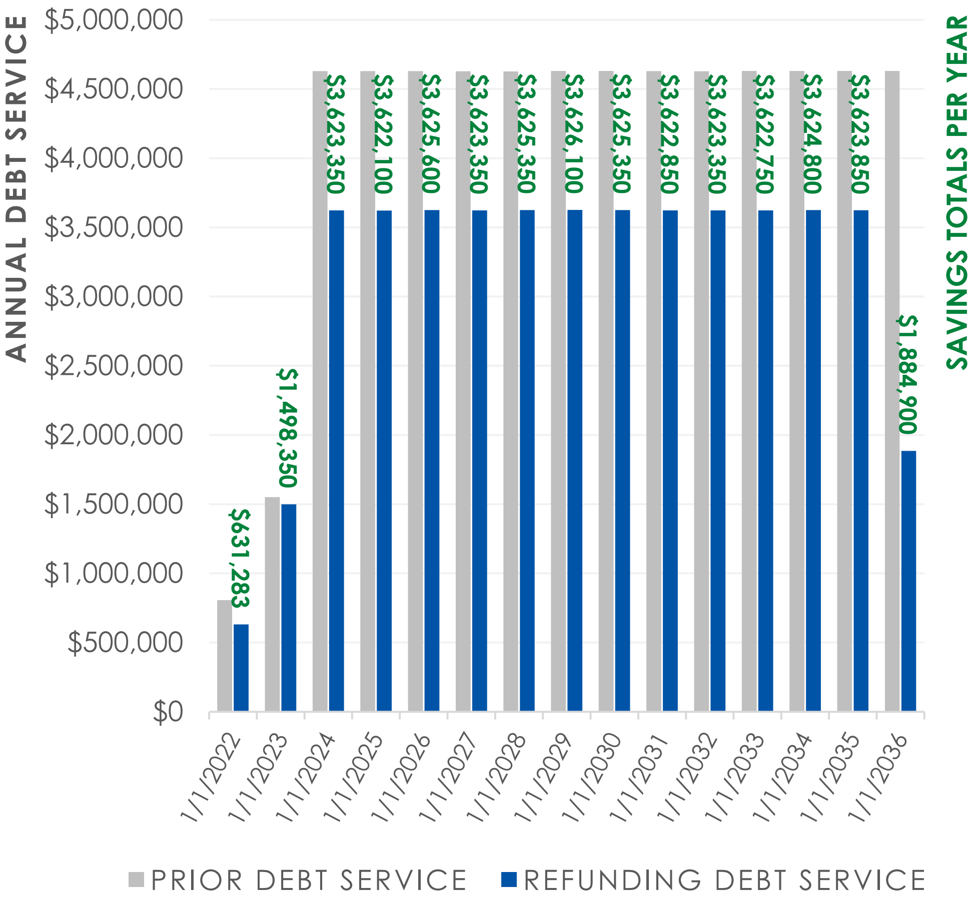
- Savings typically presented as "present value savings"
- Future cashflows typically discounted by the arbitrage yield on the refunding bonds (the current cost of funds)
- Most common measurement is present value savings divided by par amount of refunded bonds, shown as a percent
- Net-to-net refunding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

SAVINGS SUMMARY:

» **$845,073 Avg. Annual Cash Flow Savings**
» **$11,540,160 NPV Savings**
» **26.4% Savings of Refunded Bonds (Par Amount of $35.7M)**



DATE	PRIOR DEBT SERVICE	REFUNDING DEBT SERVICE	SAVINGS	PRESENT VALUE SAVINGS
2/1/2022	$806,356	$631,283	$158,806	$158,409
2/1/2023	$1,551,063	$1,498,350	$43,827	$43,141
2/1/2024	$4,629,263	$3,623,350	$997,027	$970,601
2/1/2025	$4,629,263	$3,622,100	$998,277	$960,388
2/1/2026	$4,629,263	$3,625,600	$994,777	$945,783
2/1/2027	$4,628,013	$3,623,350	$995,777	$935,413
2/1/2028	$4,627,263	$3,625,350	$993,027	$921,455
2/1/2029	$4,630,700	$3,626,100	$995,714	$912,793
2/1/2030	$4,630,500	$3,625,350	$996,264	$902,251
2/1/2031	$4,629,700	$3,622,850	$997,964	$892,861
2/1/2032	$4,628,100	$3,623,350	$995,864	$880,214
2/1/2033	$4,630,500	$3,622,750	$998,864	$872,113
2/1/2034	$4,630,500	$3,624,800	$996,814	$859,936
2/1/2035	$4,630,500	$3,623,850	$997,764	$850,488
2/1/2036	$4,630,500	$1,884,900	$515,334	$434,014
TOTAL	$62,541,481	$47,503,333	$12,676,102	$11,539,860

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REFUNDING SAVINGS: WHEN TO PULL THE TRIGGER?

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A MOVING TARGET:

- Rule of thumb was often 3% PV savings
- "Conservative" polices called for 5% savings
- Prior to recent interest rate run-up, double-digit savings were common

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'

CITY& COUNTY OF SAN FRANCISCO DEBT POLICY

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")[1] as the discount rate.

TAXABLE ADVANCE REFUNDING

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- Can generate significant savings when interest rates are low
- Federal tax law restrictions on tax-exempt debt don't apply to taxable debt
- When evaluating a taxable advance refunding, it is helpful to calculate the break-even rate as compared to a future current refunding

	TAXABLE ADVANCE REFUNDING 12/15/2021	TAX-EXEMPT CURRENT REFUNDING 12/01/2023	BREAKEVEN ANALYSIS
SUMMARY OF REFUNDING SAVINGS:	SEPTEMBER 2020 RATES	SEPTEMBER 2020 RATES	+156 BASIS POINTS
True Interest Cost (TIC):	1.92%	0.93%	2.49%
Escrow Size	$233,864,124	$213,912,804	$213,912,804
Negative Arbitrage	$7,255,650	$140,882	$417,508
Net Present Value (PV) Savings:	**$31,221,695**	**$49,548,834**	**$31,154,833**
% Savings of Refunded Bonds:	**14.7%**	**23.3%**	**14.6%**
Escrow Efficiency	**81.1%**	**99.7%**	**98.7%**

- Negative arbitrage is the dollar cost of the escrow above what the dollar cost if invested at the arbitrage yield
- Escrow efficiency measures the relationship of this cost to savings

Escrow Efficiency

$31,221,695 (NET PRESENT VALUE SAVINGS) / ($31,221,695 (NET PRESENT VALUE SAVINGS) + $7,255,650 (NEGATIVE ARBITRAGE)) = **81.1%**

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WHEN TO PULL THE TRIGGER?

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ANALYSIS AS OF SEPTEMBER 2019

	TAXABLE ADVANCE	TAX-EXEMPT	TAX-EXEMPT
SCENARIO	NOW	CURRENT @ CALL	CURRENT @ CALL
Market Cushion	None	None	204 bps
Closing Date	Feb 1, 2020	Dec 1, 2023	Dec 1, 2023
True Interest Cost	**2.71%**	**1.48%**	**3.53%**
Net Present Value Savings	**$16,715,700**	**$38,777,500**	**$16,713,500**
Present Value Savings %	**7.85%**	**18.20%**	**7.85%**

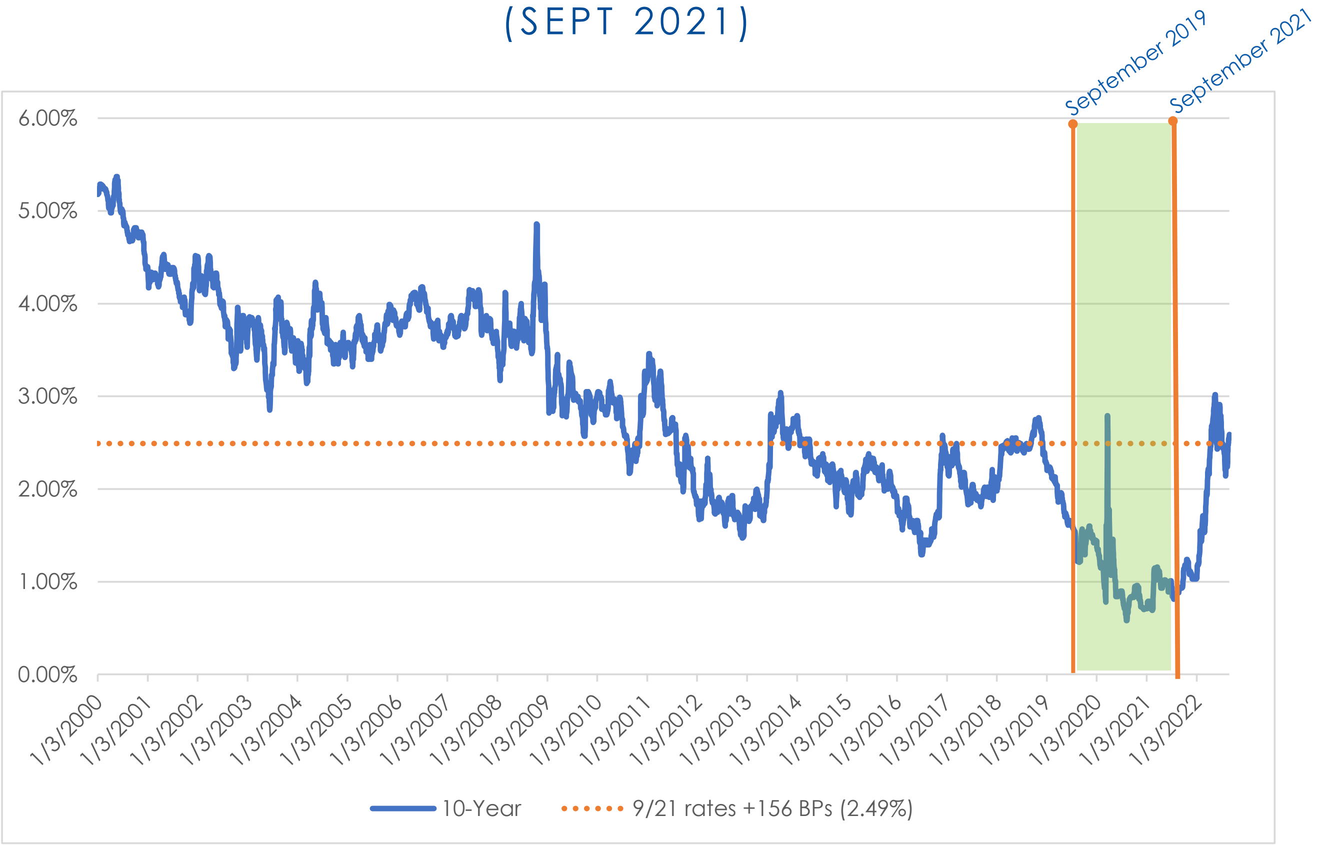
ANALYSIS AS OF DECEMBER 2020

	TAXABLE ADVANCE	TAX-EXEMPT	TAX-EXEMPT
SCENARIO	NOW	CURRENT @ CALL	CURRENT @ CALL
Market Cushion	None	None	211 bps
Closing Date	March 15, 2021	Dec 1, 2023	Dec 1, 2023
True Interest Cost	**2.04%**	**0.81%**	**2.93%**
Net Present Value Savings	**$25,171,000**	**$49,654,000**	**$25,216,000**
Present Value Savings %	**11.82%**	**23.31%**	**11.84%**

ANALYSIS AS OF SEPTEMBER 2021

	TAXABLE ADVANCE	TAX-EXEMPT	TAX-EXEMPT
SCENARIO	NOW	CURRENT @ CALL	CURRENT @ CALL
Market Cushion	None	None	156 bps
Closing Date	Dec 15, 2021	Dec 1, 2023	Dec 1, 2023
True Interest Cost	**1.92%**	**0.93%**	**2.49%**
Net Present Value Savings	**$31,222,000**	**$49,549,000**	**$31,155,000**
Present Value Savings %	**14.66%**	**23.26%**	**14.63%**

BREAKEVEN EVALUATION (SEPT 2021)



MATURITY BY MATURITY ANALYSIS

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MMA FINE TUNES THE POTENTIAL SAVINGS ON AN ADVANCE REFUNDING

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

MATURITY-BY-MATURITY TAXABLE ADVANCE 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
8/1/2025	4.00%	$2,090,000	8/1/2024	100	1.32%	1.54%	$2,222,072	$28,223	1.35%	$7,952	78%
8/1/2026	4.00%	2,440,000	8/1/2024	100	1.32%	1.77%	2,594,189	68,798	2.82%	18,930	78%
8/1/2027	3.00%	2,815,000	8/1/2024	100	1.32%	1.92%	2,936,953	38,995	1.39%	28,753	58%
8/1/2028	4.00%	3,185,000	8/1/2024	100	1.32%	2.07%	3,386,268	165,324	5.19%	41,038	80%
8/1/2029	4.00%	3,615,000	8/1/2024	100	1.32%	2.22%	3,843,440	212,836	5.89%	55,801	79%
8/1/2030	4.00%	4,070,000	8/1/2024	100	1.32%	2.18%	4,327,193	313,378	7.70%	60,056	84%
8/1/2031	4.00%	4,555,000	8/1/2024	100	1.32%	2.28%	4,842,841	381,061	8.37%	74,945	84%
8/1/2032	4.00%	5,080,000	8/1/2024	100	1.32%	2.38%	5,401,017	448,020	8.82%	92,188	83%
8/1/2033	4.00%	5,635,000	8/1/2024	100	1.32%	2.53%	5,991,089	482,587	8.56%	116,540	81%
8/1/2034	4.00%	6,225,000	8/1/2024	100	1.32%	2.68%	6,618,372	500,516	8.04%	144,467	78%
8/1/2039	4.00%	41,455,000	8/1/2024	100	1.32%	3.05%	44,074,639	2,500,909	6.03%	1,217,266	67%

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FORWARD DELIVERY REFUNDING

- Tax-exempt current refunding will always generate greater savings than taxable advance, all else equal… but waiting until near the call date entails risk of interest rates rising

- Forward delivery refunding is a middle-ground approach: locks in the bulk of the economics, at the expense of leaving a slice of potential savings on the table
  - Refunding bonds are priced, locking-in savings, well ahead of the call date (e.g., a year)
  - Bonds settle within 90 days of call date, allowing for tax-exempt status
  - Pricing premium for delayed settlement -- typically ~5 bps per month between pricing and delivery but can vary
  - A relatively short "forward" usually more favorable than issuing advance refunding bonds at taxable rates

- Additional considerations:
  - Some potential incremental effort (updating OS)
  - Savings begin only after the call date
  - Practical limit to how far ahead of the call date a forward is feasible

- If a forward is not feasible, more exotic strategies (e.g., "Cinderella" refunding) can accomplish similar objectives

EXAMPLE: OPTIONS IN FALL 2022 FOR BONDS CALLABLE IN SUMMER 2023

	TAXABLE ADVANCE	T-E CURRENT*	T-E FORWARD
PRICE:	Oct 2022	May 2023	Oct 2022
SETTLE:	Nov 2022	May 2023	May 2023
CALL DATE:	Aug 2023	Aug 2023	Aug 2023
NPV SAVINGS:	$8m / 10%	$12m / 15%	$10m / 12.5%

* illustrative option in fall 2022

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OTHER REFUNDING CONSIDERATIONS

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CASH FLOW RESTRUCTURE:

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

- Front-loading savings can help to reduce and/or stabilize rates for escalating debt service.

AMEND OR REMOVE RESTRICTIVE COVENANT:

- Onerous covenants may be revisited and potentially removed, particularly when replacing a short-term note with longer term debt.

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CONCLUSION

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- Remember that the option to call bonds has a value
- It can only be exercised once every ten years
- 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.

MSRB Rule G-42: Disclosure of Conflicts of Interest & Legal or Disciplinary Events

Pursuant to Municipal Securities Rulemaking Board ("MSRB") Rule G-42, on Duties of Non-Solicitor Municipal Advisors, Municipal Advisors are required to make certain written disclosures to clients which include, amongst other things, Conflicts of Interest and any Legal or Disciplinary events of KNN Public Finance, LLC ("KNN Public Finance") and its associated persons.

Conflicts of Interest

Other Municipal Advisor Relationships. KNN serves a wide variety of other clients that may from time to time have interests that could have a direct or indirect impact on the interests of another KNN client. For example, KNN serves as municipal advisor to other municipal advisory clients and, in such cases, owes a regulatory duty to such other clients just as it will to your entity, if hired. These other clients may, from time to time and depending on the specific circumstances, have competing interests. In acting in the interests of its various clients, KNN could potentially face a conflict of interest arising from these competing client interests. KNN fulfills its regulatory duty and mitigates such conflicts through dealing honestly and with the utmost good faith with its clients.

Compensation. KNN Public Finance represents that in connection with the issuance of municipal securities, KNN Public Finance may receive compensation from an Issuer or Obligated Person for services rendered, which compensation is contingent upon the successful closing of a transaction and/or is based on the size of a transaction. Consistent with the requirements of MSRB Rule G-42, KNN Public Finance hereby discloses that such contingent and/or transactional compensation may present a potential conflict of interest regarding KNN Public Finance's ability to provide unbiased advice to enter into such transaction. This conflict of interest will not impair KNN Public Finance's ability to render unbiased and competent advice or to fulfill its fiduciary duty to the Issuer.

If KNN Public Finance becomes aware of any additional potential or actual conflict of interest after this disclosure, KNN Public Finance will disclose the detailed information in writing to the Issuer in a timely manner.

Legal or Disciplinary Events

KNN Public Finance, LLC, has never been subject to any legal, disciplinary or regulatory actions nor was it ever subject to any legal, disciplinary or regulatory actions previously, when it was a division of Zions First National Bank or Zions Public Finance, Inc.

A regulatory action disclosure has been made on Form MA-I for one of KNN Public Finance municipal advisory personnel relating to a 1998 U.S. Securities and Exchange Commission ("SEC") order that was filed while the municipal advisor was employed with a prior firm, (not KNN Public Finance). The details of which are available in Item 9; C(1), C(2), C(4), C(5) and the corresponding regulatory action DRP section on Form MA and Item 6C; (1), (2), (4), (5) and the corresponding regulatory action DRP section on Form MA-I. Issuers may electronically access KNN Public Finance's most recent Form MA and each most recent Form MA-I filed with the Commission at the following website: www.sec.gov/edgar/searchedgar/companysearch.html.

The SEC permits certain items of information required on Form MA and Form MA-I to be provided by reference to such required information already filed on a regulatory system (e.g., FINRA CRD). The above noted regulatory action has been referenced on both Form MA and MA-I due to the information already filed on FINRA's CRD system and is publicly accessible through BrokerCheck at http://brokercheck.finra.org. For purposes of accessing such BrokerCheck information, the Municipal Advisor's CRD number is 4457537.

There has been no change to any legal or disciplinary event that has been disclosed on KNN Public Finance's original SEC registration Form MA filed on February 8, 2016 or Form MA-I's filed on January 22, 2016.