Kalotay Analytics

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Don't Waste a Free Lunch: Managing the Advance Refunding Option

Andrew Kalotay and Lori Raineri

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61 Broadway New York, NY 10006 212.482.0900 www.kalotay.com

A Deep Dive into Advance Refunding

- Determine optimum refunding policy, given that advance refunding allowed only once during funding life-cycle
  - Calling (current refunding) preserves eligibility of refunding issue; advance refunding doesn't
- By-products of study: debunk misconceptions
  - Academic paper's claim that advance refunding always destroys value (can never be optimal)
  - Practitioners' view that negative arbitrage is always undesirable

What is Advance Refunding?

- Bonds can be refunded ahead of call date
  - Must be eligible
  - Feasible when funding rate is lower than bonds' coupon
  - Current practice of coupon levitation to 5% virtually guarantees advance refunding (and associated transaction costs)

- How municipality executes
  - Sells new bonds
  - Invests proceeds in escrow portfolio of Treasuries which cash match outstanding debt service to the *call date* ('defeasance')
  - Escrow yield capped by yield of new issue
    - Difference called 'negative arbitrage'
  - Net result: lower debt service

Observations about Advance Refunding

It is an ***option*** (ARO), and it is ***free***

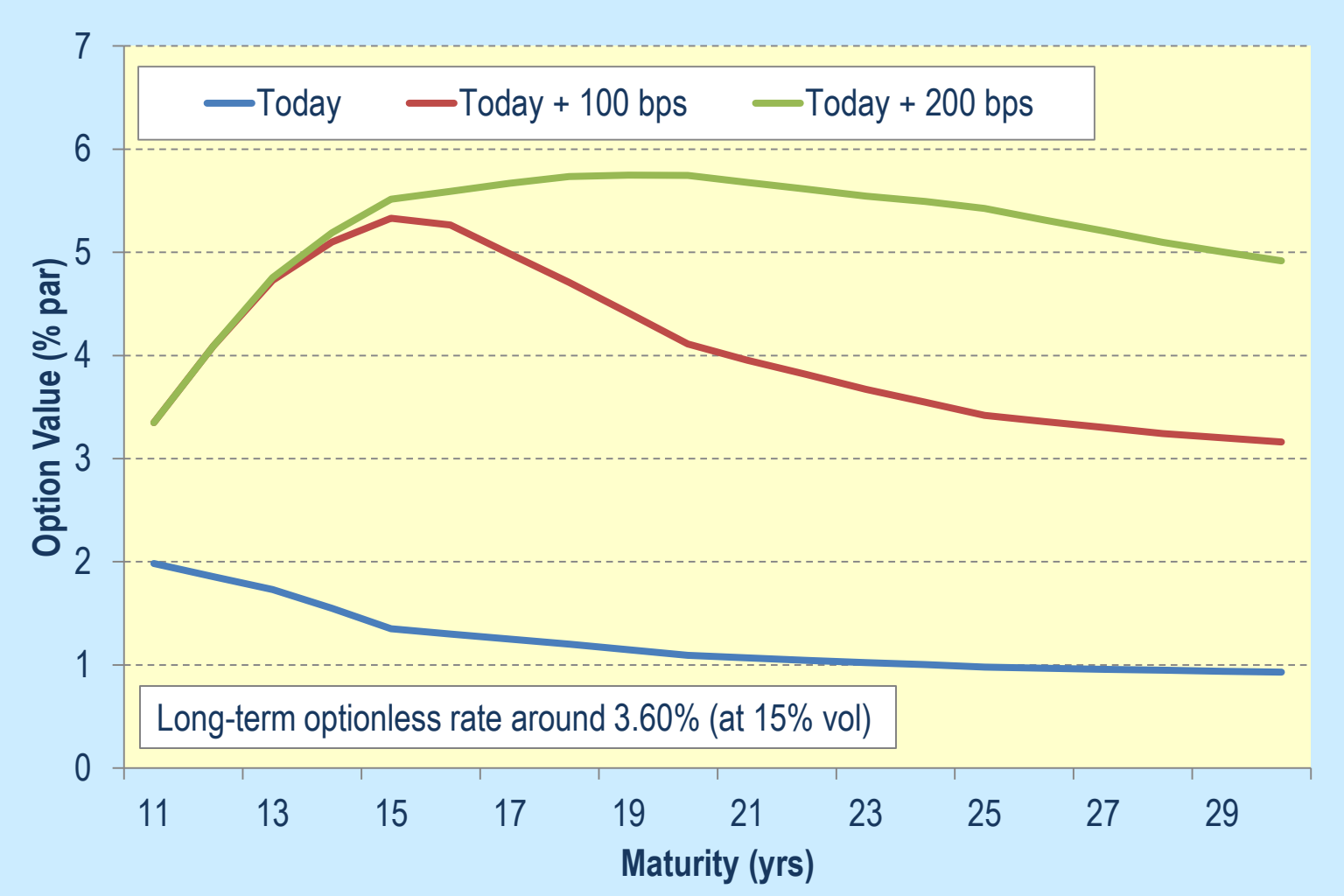
- Investors charge only for the call option, not for the ARO

But is it ***valuable***?

- Not according to an academic paper on advance refunding:
  "Issuing new securities generally has zero net present value, but in this case … value is destroyed for the issuer through the pre-commitment to call."

- Mistaken on two counts:
  - Savings from advance refunding can exceed value of call option, indicating that advance refunding is preferable to waiting
  - Advance-refundable bond has positive NPV to the issuer

Sensitivity of ARO to Treasury Rates
New 5% NC-10 Bonds



Call Option on Advance-Refundable Bond Gives Rise to Two Additional Options

Advance refund

OR

Current refund with an *advance-refundable* bond

So a call option on an advance-refundable bond is worth more than a regular call option

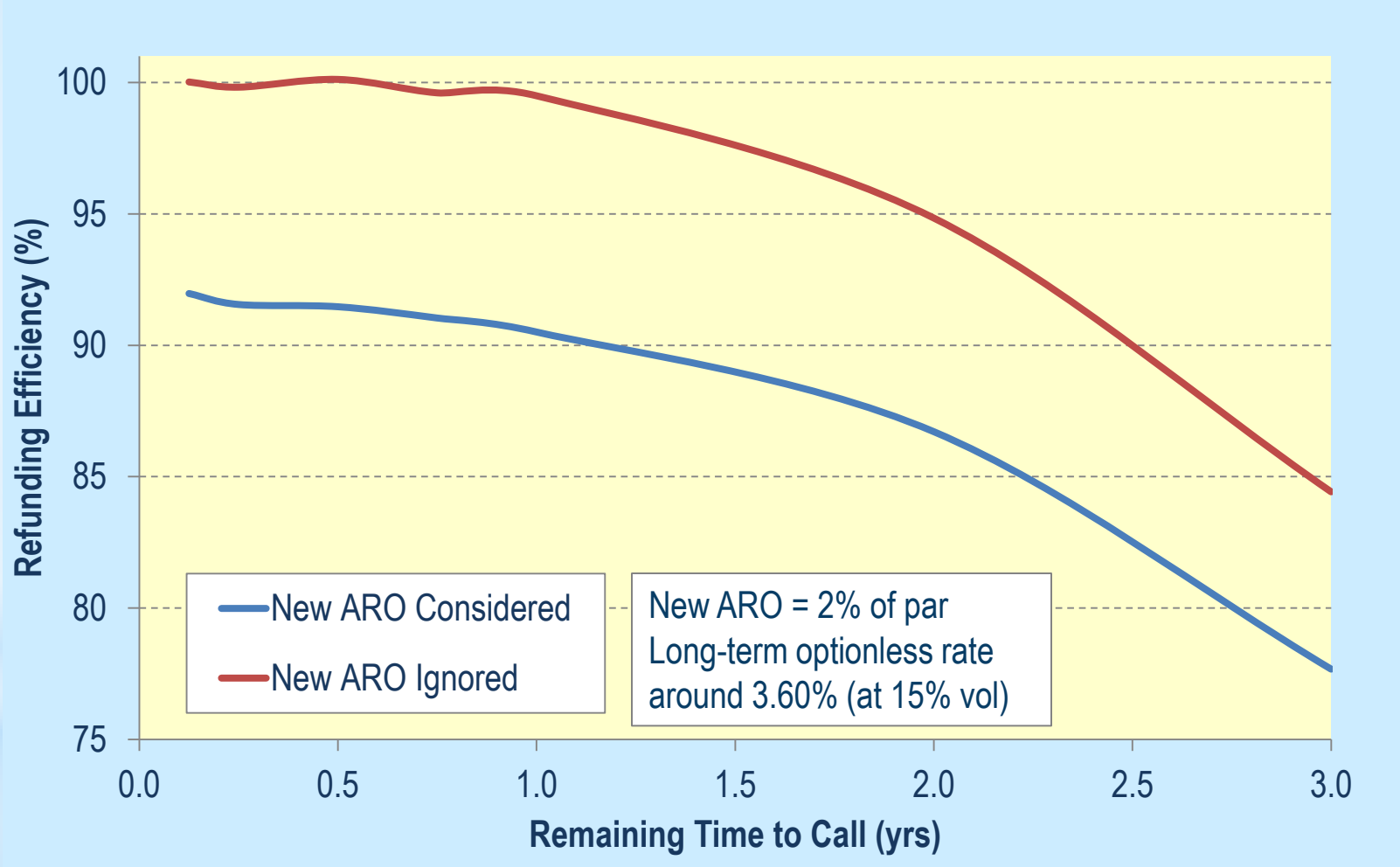
Refunding Efficiency Signals When to Act

$$Refunding\ Efficiency = \frac{PV(Savings)}{Option\ Value_{old} - Option\ Value_{new}}$$

Option Value = Right to current refund (call) + Right to refund with *advance-refundable* bond (if applicable) + Right to advance refund (if applicable)

Should refund when efficiency is 100%
Consider hedging alternatives if efficiency is close to 100%
Refunding below 90% efficiency is wasteful

New ARO Critical to Refunding Decision
30-Yr 5% NC-10 Bonds Assuming Current Treasuries



A Closer Look at Negative Arbitrage

- Defined as excess of *long-term* funding rate over escrow yield to *call date*
- Alternative threshold is issuer's funding rate to *call date*
  - Funding Rate to Call **<** Escrow Yield ➔ Escrow Cost **<** Bond Price
  - So bond is 'redeemed' below market (an arbitrage)
  - Implication explored in forthcoming paper
- Why has this escaped issuers and their advisors?
  - *Because they don't discount correctly*
  - They Use TIC, rather than the term structure of interest rates

Takeaways

The right to advance refund is a free option

It is valuable

- Value increased by market practice of coupon levitation

Current refunding preserves eligibility to advance refund

- Implication: don't advance refund near the call date

Positive arbitrage can exist in the presence of 'negative arbitrage'

Don't waste a free lunch!