# Escrow Optimization in a Shifting Yield Curve Environment

## Structured Products Group

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# Basics of Escrow Structuring and Procurement

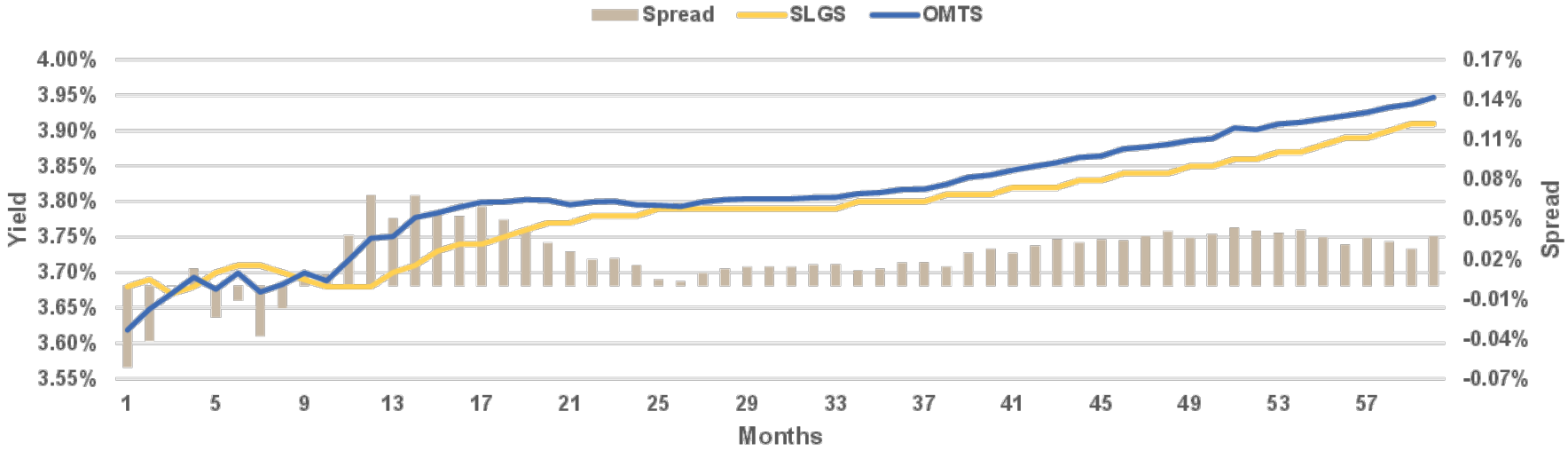
- What is an escrow?
  - Portfolio of securities pledged to pay debt service on a specific set of liabilities
- Why are escrows important?
  - Escrow yield is one of the two major drivers of savings on a refunding transaction
  - Appropriate strategy might save millions of taxpayer dollars
- What are “SLGS”?
  - United States Treasury Securities, State and Local Government Series (SLGS)
    - Designed to help issuers comply with arbitrage regulations while having easy access to Treasury securities[1]
  - Purchased directly from U.S. Treasury Department via SLGSafe System
    - Time Deposit (fixed rate)
    - Demand Deposit (variable rate and tax-exempt)
- Open-market securities are purchased in the secondary market from broker-dealers
  - Important to run a competitive bidding process and show evidence of fair market value purchases

[1] *Source: Treasury Direct, About the State and Local Government Series Securities.*

# Understanding SLGS and Open-market Treasuries

# Relationship Between Open-market Treasuries and SLGS

- SLGS rates are set daily by 10:00 a.m. Eastern and are fixed for the day regardless of market conditions
- **SLGS Rate Interpolation**
  - The SLGS Regulations state that SLGS yields are set one basis point below open-market Treasuries, but the spread varies considerably due to a number of technical factors
  - Interpolation of the SLGS curve is imperfect and should be carefully monitored
- Open-market securities trade throughout the day and vary in yield – sometimes considerably
  - The relationship between SLGS and open-market securities can dictate the optimal investment strategy for issuers




*Source: Bloomberg, yields as of April 23, 2026.*
*Source: Treasury Direct, SLGS Daily Rate Table.*

# Relationship Between Open-market Treasuries and SLGS (cont.)

- Intraday volatility can materially alter the spread between open-market Treasuries and SLGS


*Source: Bloomberg.*

# Poll Question #1

- Which of the following is **FALSE** about SLGS and open-market securities?

  A. SLGS rates are set at approximately 8:35 a.m. and are held constant all day, whereas open-market securities trade and vary in yield throughout the day

  B. SLGS are designed to be set one basis point below open-market Treasury securities

  C. The interpolation of the SLGS curve is perfect

  D. SLGS are purchased from the U.S. Treasury Department, whereas open-market securities are purchased in the secondary market from broker-dealers

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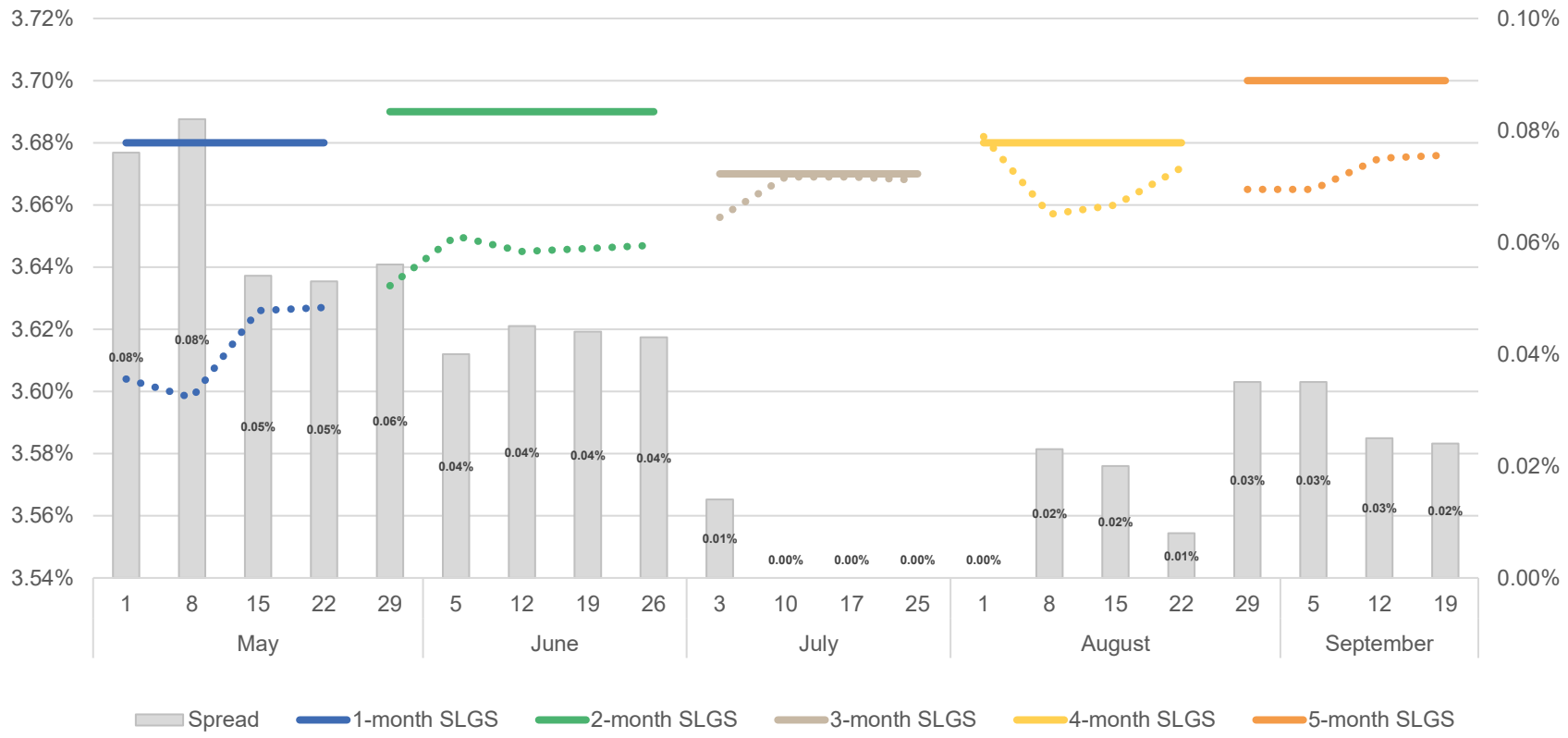
# Maturity Considerations – Comparing Apples & Oranges

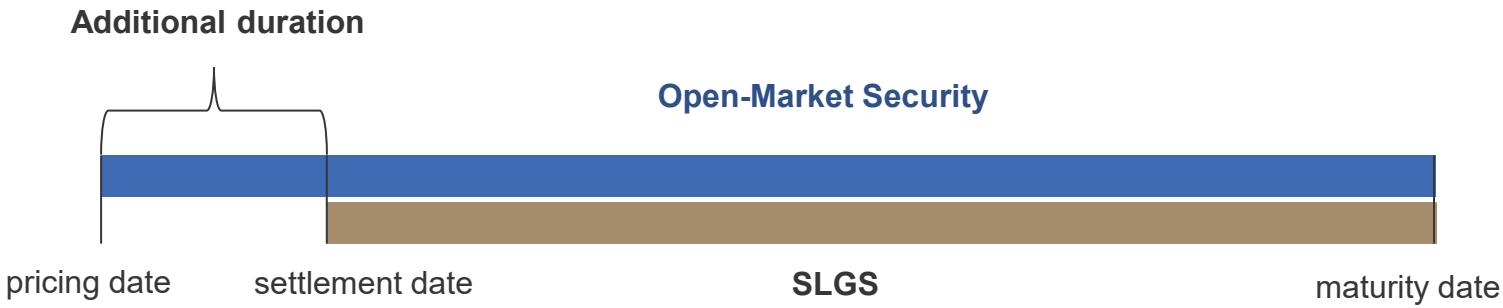
- When the yield curve is inverted, the “maturity buckets” of SLGS may provide benefit relative to open-market securities. The opposite is true in a normal, upward sloping yield curve environment. (See below chart)[1]




[1]*Source: Bloomberg, rates as of April 23, 2026*

# Maturity Considerations – Comparing Apples & Oranges

- **"Phantom" duration from gap between pricing and settlement dates**
  - Due to the forward settlement of escrow security purchases, open-market securities often provide incremental yield compared to comparable maturity SLGS in an upward sloping ("normal") yield curve environment
  - Opposite effect is true when the curve is inverted



# Escrow Pricing – Impact of Forward Settlement

**Example #1**: Two-year Treasury Note for one month forward settlement in an upward sloping (“normal”) yield curve environment

- Opposite impact in an inverted yield curve environment, which we experienced the past few years

T 1 ¼ 05/31/28 Govt | 1) Send (VCON)

| | | | |
|---|---|---|---|
| Type | B/S | Trade Date | 04/23/26 |

11) Forward Pricing Analysis | 12) Forward Breakeven Pricin

**Trade Information**

| | | |
|---|---|---|
| Settlement Date | 04/27/26 | |
| Settlement Price | 94-27¾ | |
| Settlement Yield | 3.824253 | |
| Repo Rate (ACT/ 360 ) | 3.665 | % |
| Face Amount | 1000 | M |
| Termination Date | 05/27/26 | |
| B/E Repo Rate | 3.66500 | |

**Profit/Loss Analysis**

| | | |
|---|---|---|
| Spread | | bp |
| Net Profit/Loss | | |
| Forward Price | 95.055458 | 95-01¾ |
| Price Drop | -0.188270 | -0-06 |
| Fwd Yld Street | 3.827992 | |
| Yield Drop | -0.3738 | bp |
| Notes | | |


*Source: Bloomberg, market conditions as of April 23, 2026*
*For illustrative purposes only – actual results may vary considerably.*

# Escrow Pricing – Impact of Forward Settlement (cont.)

**Example #2**: Three-month Treasury Note for five months forward settlement in relatively flat yield curve environment until the one-year mark

- Again, opposite impact in an inverted yield curve environment

T 1 3/4 12/31/26 Govt | 1) Send (VCON)

| | | |
|---|---|---|
| Type | B/S | Trade Date 04/24/26 |
| 11) Forward Pricing Analysis | 12) Forward Breakeven Pricir | |
| **Trade Information** | | |
| Settlement Date | 04/27/26 | |
| Settlement Price | 98-23 1/8 | |
| Settlement Yield | 3.675449 | |
| Repo Rate (ACT/ 360 ) | 3.665 % | |
| Face Amount | 1000 M | |
| Termination Date | 09/30/26 | |
| B/E Repo Rate | 3.66500 | |
| **Profit/Loss Analysis** | | |
| Spread | bp | |
| Net Profit/Loss | | |
| Forward Price | 99.544432 | 99-17 3/8 |
| Price Drop | -0.821776 | -0-26 1/4 |
| Fwd Yld Street | 3.572919 | |
| Yield Drop | 10.2531 bp | |
| Notes | | |


*Source: Bloomberg, market conditions as of April 23, 2026*
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# Poll Question #2

- Forward settlement of open-market security escrows hurts pricing in an inverted yield curve environment and helps pricing in a normal, upward sloping yield curve environment

A. True

B. False

# Poll Question #2

- Forward settlement of open-market security escrows hurts pricing in an inverted yield curve environment and helps pricing in a normal, upward sloping yield curve environment

  A. True

  B. False

# Advanced Escrow Strategies

# Potential Value In Escrows From Other Sectors

- **Permitted investments for escrows tend to be very conservative and are often limited to direct obligations of the U.S. Government, but consider other options if permitted:**
  - **Government Sponsored Enterprises (GSEs) – often referred to as "Agencies"**
    - Usually created by an act of Congress and includes obligations of Fannie Mae, Freddie Mac, the Federal Home Loan Banks, etc.
  - **Resolution Funding Corporation Interest STRIPs**
    - Securities created as part of the Savings & Loan bailout that are guaranteed by the U.S. Government
  - **US Agency For International Development Bonds (US AIDs)**
    - Sovereign debt obligations that carry a U.S. Government guarantee
      - Examples include bonds issued by Israel and Ukraine
    - U.S. Government guarantee payment lag of 3 business days must be taken into account
      - Consider adding an extra day or two to be conservative
      - Can create challenges with date matches to corresponding liabilities

# Other Potential Value Opportunities

- **Two other ideas for enhancing value in cash defeasance escrows:**
  - **Yield restriction blending**
    - Identify if any negative yield restriction liability exists from previous investments associated with the bonds (e.g., older cash defeasance, originally done as tax exempt advance refunding, etc.)
  - **Demand Deposit SLGS**
    - Tax-exempt investment that allows an issuer to keep all of the earnings even if the yield exceeds the arbitrage yield
      - DD SLGS yield has hovered around 2.80% since the end of 2025
        - Consider reinvestment risk carefully because of potential Fed action
        - Spread and time horizon are both very important

*Source: Treasury Direct, SLGS Daily Rate Table.*

# Case Study: Yield Restriction Blending

- **A sophisticated issuer with a complex debt profile was partially defeasing seven series of bonds**
- Initial assumption: each sub-escrow would be restricted to the yield of the corresponding bonds being defeased
  - **Yield restriction blending**
    - Recognizing that the issuer had done many refundings/defeasances in the past, we inquired about the various yield restriction positions and reviewed their rebate reports
    - There was sufficient negative yield restriction liability to allow all of the sub-escrows to be invested at maximum available SLGS rates
    - Savings compared to initial plan: **~$680,000**



*For illustrative purposes only, and actual results may vary substantially. Please refer to additional disclosures at the end of this presentation.*

# Maximizing NPV Savings via Call Date Optimization

- Due to the high-interest rate environment, unrestricted current refundings can potentially benefit from investing in SLGS at yields in excess of corresponding arbitrage yields
  - Issuers should consider how to maximize their NPV savings
- Common misconception: If the arbitrage yield is lower than the SLGS yield, an issuer should invest in Time Deposit SLGS for as long as possible
  - **Why is this wrong?** Must consider the cost of keeping the refunded bonds outstanding vs. the interest earned on the SLGS

| Yield Restricted | Arbitrage Yield | Refunded Coupons | SLGS Yield | Best Solution |
|---|---|---|---|---|
| No | 3.00% | 3.00% | 3.70% | Time Deposit SLGS for longest duration |
| No | 3.00% | 5.00% | 3.70% | Call refunded bonds ASAP |

  - More challenging/dynamic when short-term interest rates are falling
    - Can even consider different call dates for different individual bonds depending on coupon rates
      - Always consult with advisors and legal team

# Escrowing to Maturity vs. Escrowing to Call Scenario[1]

- An escrow to maturity could be permitted for certain refunding or defeasance transactions
- **Escrow to maturity**: preserves call option on bonds for a potential future restructuring

| Bond Component | OMS Yields |
|---|---|
| Series 2016A - Serial Bonds | 20,077,659 |
| Series 2016A - 2036 Term Bond | 32,086,229 |
| Series 2016A - 2045 Term Bond | 76,307,539 |
| **Total Portfolio Cost** | **128,471,427** |

- **Escrow to call:** call option will be exercised on 7/1/2026

| Bond Component | OMS Yields |
|---|---|
| Series 2016A - Serial Bonds | 20,217,313 |
| Series 2016A - 2036 Term Bond | 32,191,731 |
| Series 2016A - 2045 Term Bond | 78,747,690 |
| **Total Portfolio Cost** | **131,156,734** |

- Escrow to maturity is approximately $2.7 million less expensive
- The Issuer has preserved the option to call the bonds, in whole or in part, in the future
  - If interest rates drop 1%, the Issuer could see a gross benefit of over $9 million from an escrow restructuring
  - If interest rates drop 2%, the Issuer could see a gross benefit of over $20 million from an escrow restructuring

*For illustrative purposes only – actual results may vary considerably based upon available investment yields and coupons of bonds being defeased.*

*[1]Source: Bloomberg, yields as of July 1, 2025.*

# Escrow Bidding Methodologies

# “Security-by-security”

- Strives to obtain the best price possible on each individual security
  - Particularly valuable for portfolios containing multiple large securities and/or various security types because different broker-dealers sometimes specialize in different types of securities (e.g. T-Notes vs. T-STRIPs)
- Allows for optimal combination of SLGS and open-market securities (when SLGS program is available)
- Price transparency allows for allocations to specific sub-portfolios for accounting and/or tax purposes
  - Fair market value established for each individual security rather than an entire portfolio
- Allows for incremental competition from broker/dealers who do not participate in all-or-none bids
- Competition may be lacking if you are buying many small securities and/or providers are very busy because of a SLGS program suspension or lower interest rate environment

# “All-or-none”

- May allow for faster and more efficient execution depending on size, complexity, and how busy potential providers are
  - SLGS suspension significantly increases volume
- Securities deliveries only need to be coordinated with one broker/dealer
- May achieve better pricing on smaller portfolios and/or portfolios with many small securities (“odd lots”)
- Bidding agent fee may be lower because modeling and execution are more straightforward

# Poll Question #3

- Which of the following is false about escrow bidding methodologies?

A. In all-or-none bidding, securities deliveries only need to be coordinated with one broker-dealer

B. The bidding agent fee may be lower in an all-or-none bidding process because modeling and execution are more straightforward

C. Security-by-security strives to obtain the best price possible on each individual security

D. Issuers should choose a certain methodology and stick with it over the years

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# Questions/Discussion

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