

MUNICIPAL DEBT ESSENTIALS

SEPTEMBER 24-26, 2024 | POMONA, CALIFORNIA

INTRODUCTION

Evolution of the Bond Market and Current Trends



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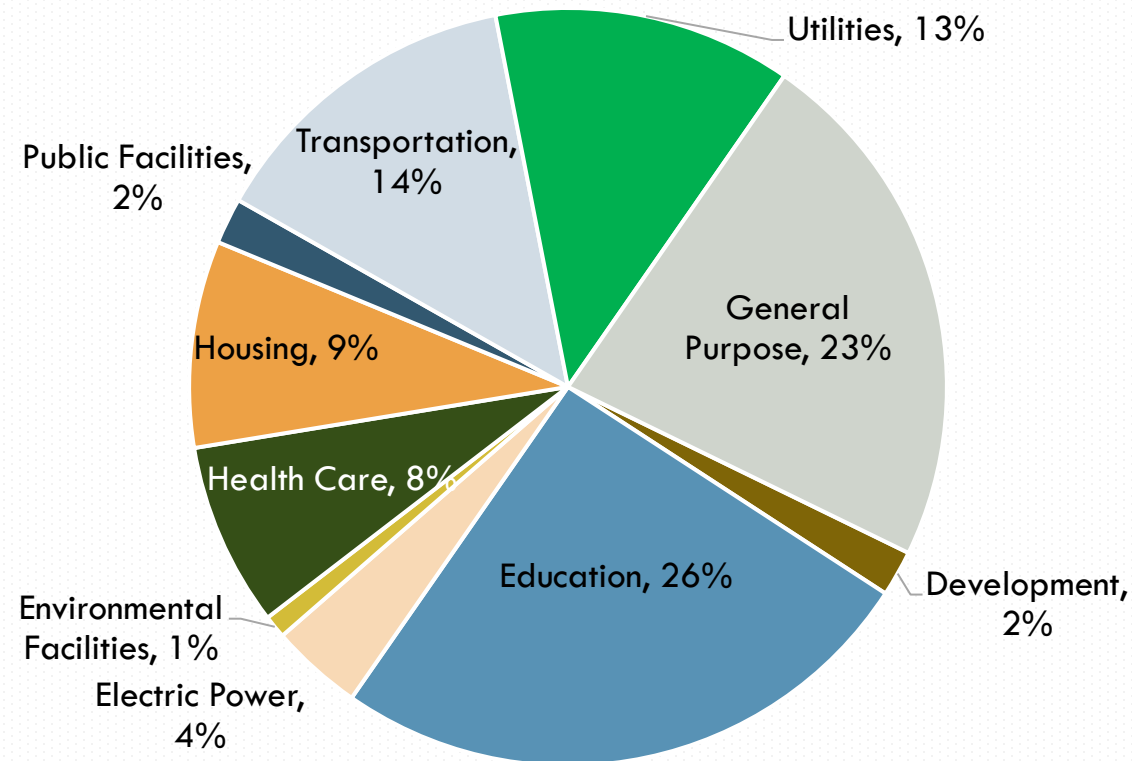


Municipal Market Snapshot

Municipal vs. Corporate Bonds Comparison⁽¹⁾

	Municipal Securities	Corporate Securities
Market Size ⁽²⁾	\$4.0 Trillion	\$10.6 Trillion
No. of Securities	~1,000,000	~47,000
Daily Trading Volume	\$13.0 Billion	\$1,444 Billion
New Issue Volume	\$389 Billion	\$1,958 Billion
Default Rates ⁽³⁾	0.09%	2.23%

Municipal Issuance by Sector⁽⁴⁾ (CY 2023)



(1) Sources: MSRB Muni Facts (2023), Federal Reserve, FINRA, SIFMA, Moody's and Bloomberg.

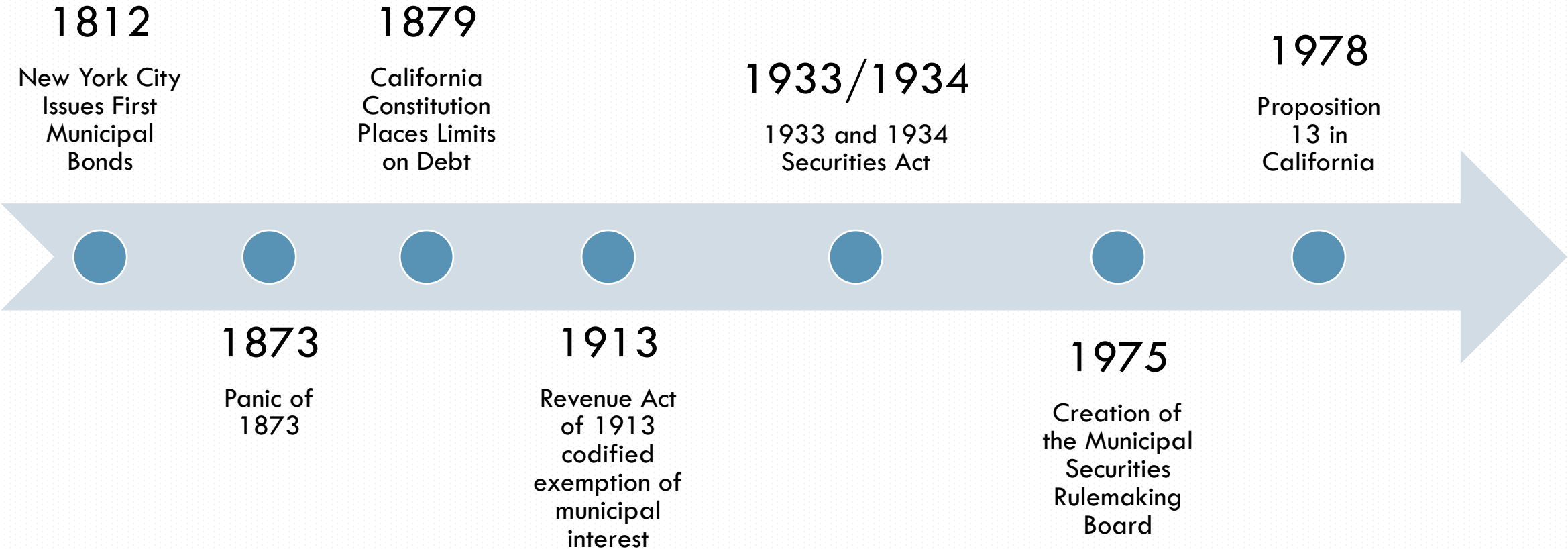
Note: Calendar year 2023 data unless otherwise noted.

(2) As of September 30, 2023.

(3) According to Moody's Investment-Grade, 10-year cumulative default rates average over the period 1970–2022.

(4) Source: Bond Buyer.

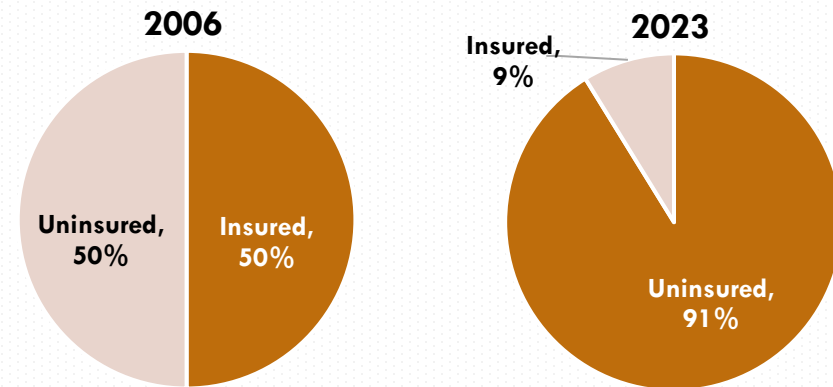
Municipal Market Timeline – 1800's & 1900's



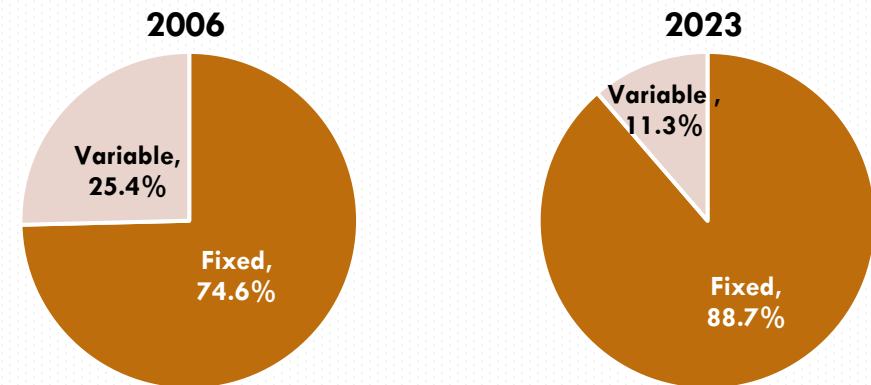
The 2000's – Financial Crisis and ARRA

Financial Crisis (2007-2008)	
Consolidation/Elimination of Banks	<ul style="list-style-type: none"> Bear Stearns and Lehman Brothers
Reduction of Monoline Bond Insurers	<ul style="list-style-type: none"> FGIC, FSA, MBIA and Ambac
Reduction of Variable Rate Debt and Derivatives	<ul style="list-style-type: none"> Auction Rate Securities and Interest Rate Swap
American Recovery and Reinvestment Act (2009)	
Build America Bonds (BABs) and Other Tax Credit Bonds	<ul style="list-style-type: none"> Taxable bonds with direct pay federal subsidy to issuers Average annual taxable issuances in 2009 and 2010 increased by more than 4-folds vs. the years just prior to ARRA
AMT Exemption	<ul style="list-style-type: none"> Eliminates AMT on private activity and governmental bonds

Uninsured vs. Insured Bonds⁽¹⁾



Fixed Rate vs. Variable Rate Bonds⁽¹⁾

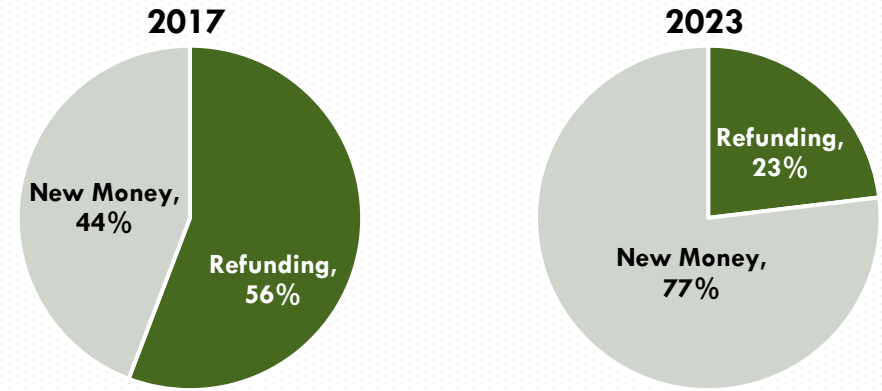


(1) Source: Securities Data Corporation.

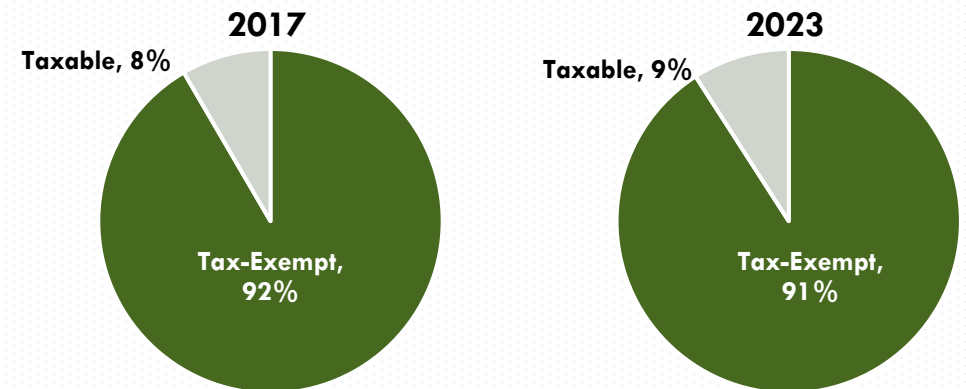
The 2010's – Tax Reform

Tax Cuts and Jobs Act of 2017 (TCJA)	
Individual Tax Rates	<ul style="list-style-type: none"> • 7-brackets but with lower rates (0%-37%) • Kept AMT but at higher income threshold
Corporate Tax Rates	<ul style="list-style-type: none"> • Reduced “C” corporations tax rate from 35% to 21%
State and Local Taxes	<ul style="list-style-type: none"> • Capped deduction of state and local property taxes up to \$10,000
Advance Refunding Bonds	<ul style="list-style-type: none"> • Eliminated tax-exempt advance refundings
Tax Credit Bonds	<ul style="list-style-type: none"> • Eliminated tax credit and direct pay bonds

Refunding vs. New Money Bonds⁽¹⁾



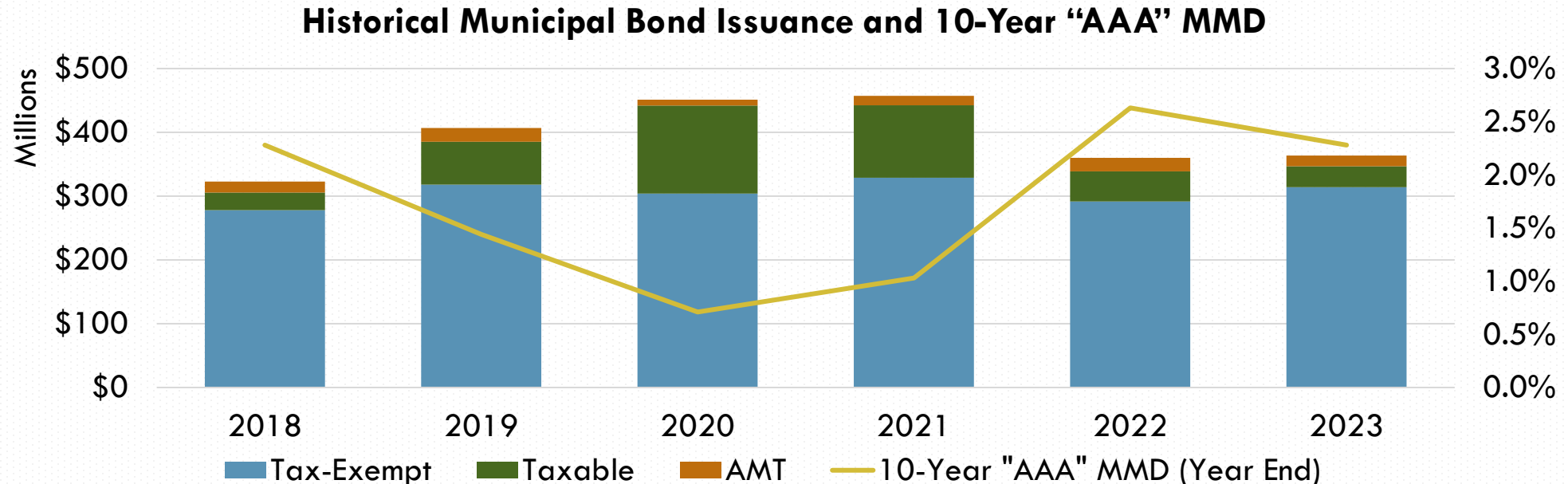
Tax-Exempt vs. Taxable Bonds⁽¹⁾



(1) Source: Securities Data Corporation.

The 2020's – COVID-19 Pandemic

- COVID-19 pandemic led to low interest rates and increased municipal bond issuance
- Federal government provided relief to state and local governments and helped stabilize the financial markets (e.g. CARES Act, American Rescue Plan Act, Municipal Liquidity Facility, etc.)



(1) Source: Securities Data Corporation and Thomson Reuters.

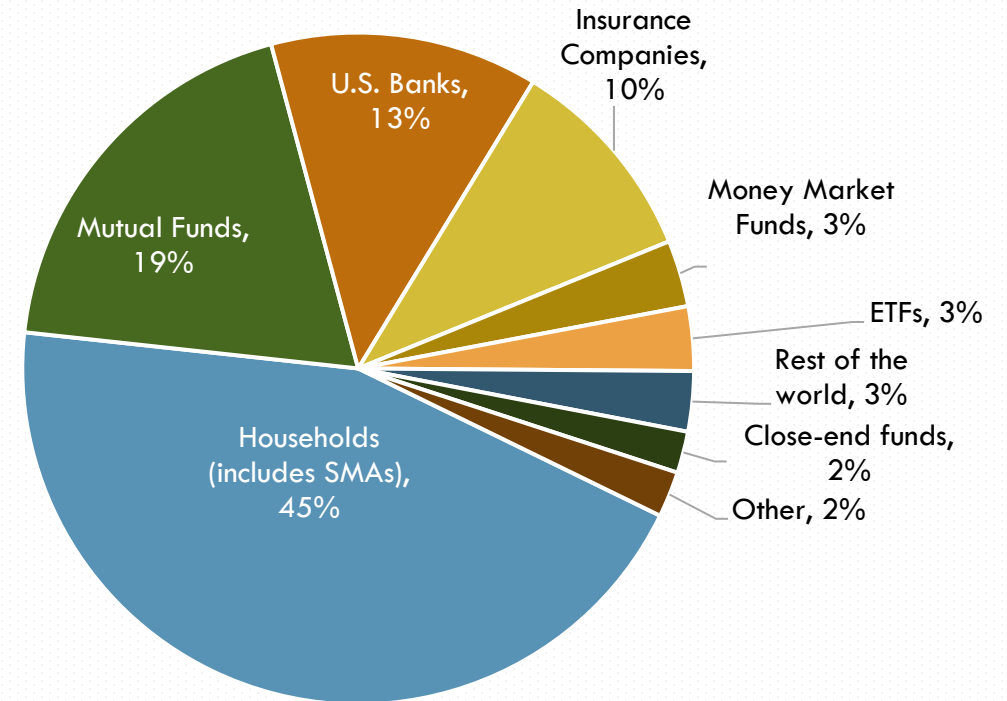
More Regulation and Disclosure

- **Rule 15c2-12 (1989)**
 - Response to Washington Public Power Supply
 - Requires standards of disclosure for municipal bonds by underwriters
- **Amendment of 15c2-12 (1995)**
 - Response to Orange County bankruptcy
 - Requires continuing disclosure
- **15c2-12 New Disclosure (2019)**
 - Adds two new disclosure items
- **SEC Enforcement Division Unit (2010)**
- **Dodd-Frank Act (2010)**
 - Expands MSRB's mission and grants rulemaking authority over municipal advisors
- **SEC Municipal Advisor Rule (2014)**
 - Establishes fiduciary duty on the municipal advisor Imposes restrictions on communications between non-municipal advisor and municipal client
- **Municipalities Continuing Disclosure Cooperation (MCDC) Initiative**
 - Focus on compliance of continuing disclosure undertakings

Municipal Bondholder Composition⁽¹⁾

- TCJA, market factors, and regulatory developments have driven changes in municipal bond ownership in recent years
- Households comprise approximately 45% of municipal bondholdings
 - Decline in direct ownership and rapid growth of Separately Managed Accounts (SMAs)
- Municipal Exchange-Traded Funds (ETFs) holdings have risen, while holdings by banks and insurance companies have declined

Municipal Bondholders Q1 2024



(1) Source: Muni market grows by a hair in Q1; retail ownership ticks up driven by SMAs, Bond Buyer, June 13, 2024, and Federal Reserve, March 31, 2024.

Current Market Dynamics

Flat Yield Curve & Interest Rate Expectations

- Yield curve for much of 2024 was inverted and generally flat
- Low tax-exempt to taxable ratios (MMD Yields / US Treasury Yields)
- Positive arbitrage opportunities, subject to certain “spenddown” requirements

Forward Delivery Refundings

- Investors generally expect interest rates to decline over the near to medium term which has increased their interest to participate on forward delivery refunding's
- Forward premiums range from ~5-8 basis points per month

Build America Bond Refundings

- Many bond counsels and issuers have taken the view that the extraordinary redemption language associated with BABs issued in 2009 and 2010 has been triggered
- BABs refunding highly sensitive to the spread between tax-exempt rates and Treasuries
- Initial objections from select investors but now seem to have gained more acceptance

Tender Refundings

- Alternative to taxable advance refunding's
- Success of tenders are largely dependent on bondholder participation

2024 YTD Issuance Trends⁽¹⁾

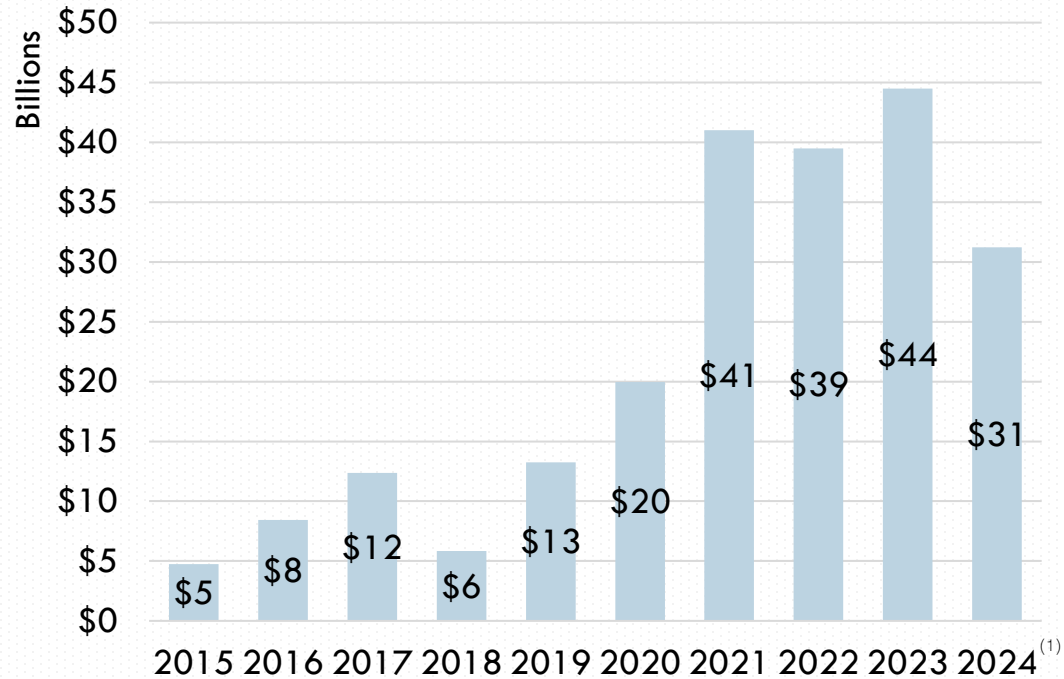
- Forward Refundings⁽²⁾: 158 series of bonds sold with a total aggregate par of \$11 billion
 - Average forward period slightly longer than 1.5 months, with the longest at 11 months by San Diego USD
- According to a July 15th article, the Bond Buyer stated that as of July 11th, there has been \$9.6 billion of BABs refunded, another six at the time had posted call notices (\$1.5 billion of BABs), and additional nine issuers at the time had announced they were considering refunding their BABs (\$6.6 billion)
 - Los Angeles Unified School District executed the largest BABs refunding in April by redeeming \$2.6 billion of outstanding BABs
- 2024YTD saw 56 municipal tender solicitations amounting to over \$33 billion in par
 - The largest tender solicitation was by the Los Angeles Community College District, in which the total par solicited was over \$2.5 billion

(1) Year-to-date through August 22, 2024.

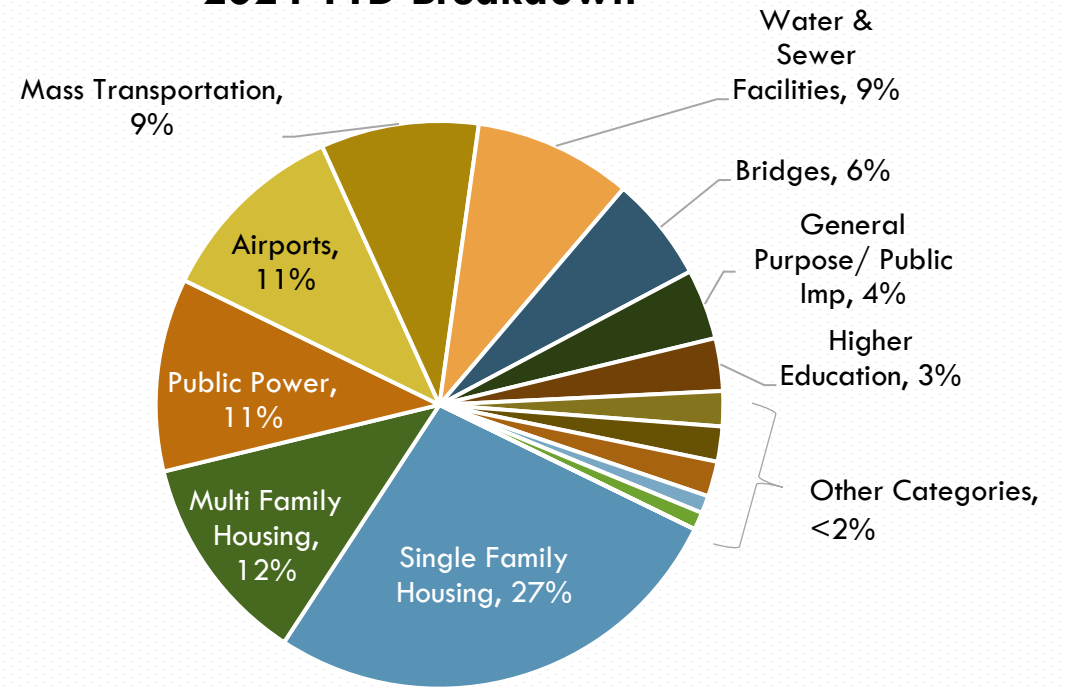
(2) +\$10 million transactions where the time frame from sale to delivery exceeds 1 month

Environmental, Social and Governance (ESG) - Labeled Bonds

Annual ESG Issuance



2024 YTD Breakdown⁽¹⁾



(1) Source; Thomson Reuters. Year-to-date through August 22, 2024.

Other Market Trends

- Municipal Finance Structures

- Public-Private Partnerships
- Cash Optimization
- Bank Direct Placements
- Interim Funding Solutions

- Technology

- iPreo Gameday
- MSRB Electronic Municipal Market Access (EMMA)
- Investor Relations Websites
- Electronic trading platforms like MarketAxess and Bloomberg's BondTrader
- Internal systems by market participants

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Risk Disclosures – Fixed Rate Bonds⁽¹⁾

Material Risk Consideration	Description of Risk	Potential Consequences
Issuer Default Risk	Possibility that the Issuer defaults under the authorizing documents	<ul style="list-style-type: none"> • Range of available remedies may be brought against Issuer (e.g., forcing Issuer to raise taxes or rates) • Credit ratings negatively impacted • Access to capital markets impaired • Possibility of receivership or bankruptcy for certain issuers
Redemption Risk	The ability to redeem the bonds prior to maturity may be limited	<ul style="list-style-type: none"> • Inability to refinance at lower interest rates
Refinancing Risk	Possibility that the bonds cannot be refinanced	<ul style="list-style-type: none"> • Inability to refinance at lower interest rates
Reinvestment Risk	Possibility that the Issuer may be unable to invest unspent proceeds at or near the interest rate on the bonds	<ul style="list-style-type: none"> • Negative arbitrage resulting in a higher cost of funds
Tax Compliance Risk	For tax-exempt bonds, possibility that failure to comply with tax-related covenants results in the bonds becoming taxable obligations	<ul style="list-style-type: none"> • Increase in debt service costs retroactively to date of issuance • Possible mandatory redemption of bonds affected • Risk of IRS audit • Difficulty in refinancing the bonds • Access to tax-exempt market impacted • Difficulty in issuing future tax-exempt debt

(1) You should consult with your financial and/or municipal, legal, accounting, tax and other advisors, as applicable, to the extent you deem appropriate concerning such risks.

Risk Disclosures – Forward Delivery Bonds⁽¹⁾

Material Risk Consideration	Description of Risk	Potential Consequences
Risk of Inability to Satisfy Conditions for Delivery of Bonds	Possibility that conditions to closing cannot be met on delivery date (e.g., intervening changes in law (resulting in either a change in tax status or any other reason that would prevent counsel from delivering an opinion), material litigation filed, adverse change in rating on the bonds or an event of default or material adverse change occurs)	<ul style="list-style-type: none"> • Transaction cannot be consummated
Underwriter Default Risk	Possibility that underwriter cannot perform on delivery date	<ul style="list-style-type: none"> • Transaction cannot be consummated
Fewer Potential Purchasers	Risk that the universe of potential investors may be limited to additional risks	<ul style="list-style-type: none"> • Pricing of the bonds and the amount of the forward delivery premium may be adversely affected
Availability of Better Alternatives	Possibility that it is more advantageous to wait and remarket or refinance outstanding bonds	<ul style="list-style-type: none"> • May not obtain the best economic result by proceeding with issuance of forward delivery bonds

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Risk Disclosures – Tender & Exchange Offers⁽¹⁾

Material Risk Consideration	Description of Risk	Potential Consequences
Uncertainty of Results	Uncertainty of results	<ul style="list-style-type: none"> • Tender offer is not successfully consummated or the amount of bonds tendered may be less than expected • May be required to increase price that is paid
Varying Impact on Bondholders	Bondholders may be impacted differently by the terms of the tender offer	<ul style="list-style-type: none"> • Holders of other bonds may be affected • May impact results of tender offer
Alternatives May Be Better	Waiting to refinance or remarket may be economically advantageous	<ul style="list-style-type: none"> • Higher costs may be incurred • May not obtain the best economic result

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QUESTIONS?



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SESSION ONE

The Issuer's Role in
Planning a Debt Issuance

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Special Advisor to the Mayor
City of San Diego





Topics

- Financial Planning
 - Multi-Year Financial (O&M) Planning
 - Multi-Year Capital Planning
- Preparing a Debt Policy
 - <https://www.sandiego.gov/sites/default/files/cosd-debt-policy.pdf>
- Capital Planning Policies
 - https://docs.sandiego.gov/councilpolicies/cpd_800-14.pdf
- Is Issuing Debt the Right Move
- Your Role as the Government's Representative
- Selecting Your Team and Understanding Their Roles

Even Before You Decide To Go To Market

Or What I Call.....

Setting the Stage

Financial Planning



Multi-Year Financial Planning

- Development of a Comprehensive Financial Plan
 - Governments **SHOULD** develop a viable overall multi-year financing plan covering known operating revenues and expenses and anticipated revenues and expenses.
 - Build into your Financial Plan your approved and proposed capital plan and how you propose to pay for it to ensure that the proposed capital plan is achievable within expected available resources.
 - Include O&M related to your capital project.
 - Prepare a separate Plan for each of your significant funds.



Debt Issuance Integration with Capital Improvement Plan

- Governments should develop and adopt capital planning policies
 - Policy serves as a framework for stakeholders to know their roles and responsibilities and process expectations. A plan should:
 - Promote sound, long term operational and capital financing strategies
 - Describe approach to capital planning
 - Determine what is a capital improvement project
 - Identify how decisions and prioritizations of projects occur
 - Require assessment of entity's fiscal capacity
 - Link funding strategies with useful life of asset
 - Require multi-year CIP that includes long term financing considerations and strategies
 - Develop a process to ensure compliance with legal requirements for capital project funding
 - Include significant capital maintenance projects
 - Have a process for monitoring and oversight of the CIP program



Capital Improvement Plan

- *Best Practice – Multi-Year Capital Planning*
 - GFOA recommends that governments adopt comprehensive, fiscally sustainable, multi-year capital improvement plans (CIP) to ensure effective management of capital assets
 - CIP should cover five years or more
 - Reviewed/updated annually



Capital Improvement Plan – (cont. 2 of 7)

- Prudent Capital Improvement Plans do the following:
 - Identify needs
 - Determine financial impacts
 - Prioritize capital requests
 - Integrate into your comprehensive long range financial plan



Capital Improvement Plan – (cont. 3 of 7)

■ Identify Needs:

- Using information such as development projections, strategic plans, comprehensive plans, facility master plans, and regional plans
- Governments should identify present and future service needs that require capital infrastructure or equipment
- Develop a capital asset life cycle for major capital assets
- Break out by fund (general, enterprise, etc.)



Capital Improvement Plan – (cont. 4 of 7)

- Determine Financial Impacts
 - Capital asset life cycle should include costs to operate, maintain, administer and renew or replace the capital asset
 - A clear estimate of all major components required to implement a project should be outlined, including land acquisition needs, design, construction, contingency, and post-construction costs
 - The impact on operating budget impacts resulting from capital projects

Capital Improvement Plan – (cont. 5 of 7)

■ Prioritize Capital projects:

- Prioritize expected needs based on a strategic plan
- The scope and timing of a planned project should be well defined in the early stages of the planning process
- When evaluating capital requests, governments should first prioritize based on:
 - Health and Safety - Priority should be given to high-risk safety issues that require a capital project to correct
 - Asset Preservation - Capital assets that require renewal or replacement based on capital asset life cycle
 - Service/Asset Expansion/Addition - Infrastructure improvements needed to support government's policies, plans, and studies



Capital Improvement Plan – (cont. 6 of 7)

- Prioritize Capital Projects (continued)
 - In this prioritization process, attention should be given to:
 - Coordination with related entities
 - Allow submitting dept. to provide an initial prioritization
 - Incorporate input and participation from major stakeholders and the general public
 - Apply analytical techniques, as appropriate, for evaluating potential projects (e.g., net present value, payback period, cost-benefit analysis, life cycle costing, cash flow modeling)
 - Use a rating system to facilitate objective decision-making



Capital Improvement Plan – (cont. 7 of 7)

- **Governments Undertaking a Capital Financing Plan Should:**
 - Anticipate expected revenue and expenditure trends including their relationship to multi-year financial plans and ongoing impacts to the operating budget due to the capital plan
 - Prepare cash flow projections of the amount and timing of the capital financing
 - Specify funding sources (PAYGO, debt, mix, etc.)
 - Continue compliance with all established financial policies
 - Recognize appropriate legal constraints

Developing and Maintaining a Debt Policy



Debt Policy

■ Having a Debt Policy is Vital

- Guides the debt issuance practices of state or local governments
- Improves the quality of decisions
- Articulates policy goals to internal and external parties
- Provides guidelines for the structure of debt issuance
- Demonstrates a commitment to long-term capital and financial planning and enhances intergenerational equity
- Displays commitment to adhere to local, state, and federal laws
- Provides information and guidance to staff and elected officials



Importance of a Debt Policy

- Enhances Internal Management Practices
- External Recognition and Transparency
 - Credit rating agencies
 - Investors and the public know the entity's parameters
- Regulators Asking For Evidence Of Policies And Procedures
 - IRS Form 8038
 - IRS in audits
 - SEC investigations
- Establishes a Road Map of Procedures to Stay Out of Trouble



Components of a Debt Policy

- Authority to Issue Debt
- Entity's Debt Limits
 - Legal restrictions (e.g., state constitution, bond referenda)
 - Public policies (purposes, tied to CIP, economic development)
 - Financial restrictions (debt limits and debt capacity)
 - Debt per capita
 - Debt to personal income
 - Debt to personal property
 - Debt service payments as % of general fund revenues/expenditures



Components of a Debt Policy – (cont. 2 of 3)

■ Debt Structuring

- Types of Debt Allowed to be Issued
 - General Obligation and parameters of that pledge
 - Revenue
 - Taxable (including tax-credit and subsidy)
 - Fixed or Variable Rate
 - Direct Purchase (bank loan or private placement)
 - Refundings
 - Other Products: Pension bonds, OPEB, Swaps, and Derivatives
- Debt Structuring
 - Maximum term
 - Average maturity
 - Debt repayment structure
 - Use of optional redemption features
 - Other features such as bond insurance and reserve accounts



Components of a Debt Policy – (cont. 3 of 3)

■ Debt Issuance Practices

- Selection of external professionals
- Criteria for determining method of sale
- Evaluating bond pricing
- Use of credit rating agencies
- Primary disclosure practices and procedures

■ Debt Management Practices

- Investment of bond proceeds
- Budgeting for and making debt service payments
- Continuing disclosure practices
- Federal tax law compliance (arbitrage private use)
- Monitoring refunding opportunities
- Investor relations



Implementing the Policy

- Development By Team (With A Leader!)
- Internal Staff Sign Off
- Approval From Governing Body
- Disseminating to Team (Internal And External)
- Compliance Procedures for the Policy
 - Are we doing what we said we would do?
 - Developing checklists to ensure compliance
- Periodically Reviewing and Amending Debt Policy in Response to Changing Market and Regulatory Requirements (review at least annually)



Other Observations

- If Starting From Scratch, Review Policies From Peer Governments
- Develop Section By Section
- Have Separate Policies Where Needed – e.g., Disclosure And Investment of Proceeds
- Stay Alert for Changing State and Federal Laws and Regulations
- Debt Policy Provides Cover in Certain Situations
 - Outside Professionals
 - "Have I got an idea for you!" "Sorry, we can't!"
 - Elected Officials
 - "Let's do a swap!" "Sorry, we can't!"
 - The Media

Issuing Debt for Capital Projects



Confirm Debt is the Right Path for Your Project

- What is the Project ?

- Expected lifetime of asset (capital vs operating costs)

- What Are Your Financing Strategies?

- Cash flow projections
- Consider all funding alternatives, including cash funding or “Pay-as-you-go”
- Reliability and stability of funding sources
- Affordability of strategies
- What financing tools are available in the current market at reasonable cost?
- What is permissible by state and local laws?
- What is allowable per your debt management policy?



Understanding Debt Limits

■ Legal Limits – Debt Capacity

- Most states impose legal limits on how much debt can be issued
- Typically based on market value of property within jurisdiction
- Most often applicable only to general obligation debt

■ Financial Limits – Based on Revenue Sources

- Revenue bond capacity may depend on ability and willingness to raise rates and to maintain debt service coverage factors over time

■ Internal Policy Limits – Debt Affordability

- Internal debt policies may provide additional limitations on how much debt may be issued



Assessing Debt Capacity

- Future principal and interest payments
- How much debt are you legally allowed to issue?
- Debt covenant restrictions
- Overlapping debt

Structure debt to fit within available capacity



Debt Affordability Ratios

- Determining “Affordability” is an Art, Not a Science
- Ratios to Assess Affordability of General Obligation Debt
 - Debt per capita
 - Debt service as % of revenues or expenditures
 - Debt Coverage Ratio
 - Net operating income/debt service
- Affordability Ratios Should Also Consider Any Future Borrowing Plans



Debt Affordability Considerations

- Excessive debt service as a percentage of operating expenses can serve to constrain future opportunities
 - Maximum Annual Debt Service (MADS) as % of projected revenues/expenditures
- However, debt issued for projects also grows strategic programs, increases the organizations revenue and operating expense base, and provides additional prudent borrowing capacity in future years
- Be mindful of rating agency analysis

**So, Now You Are Ready To
Proceed**

You Are The Quarterback



Understanding Your Responsibilities

- Debt Issuance is **NOT** a Casual Assignment
- This Is Your Agency's Transaction
- You Are the Agency's Representative, But Not the Only One With Responsibilities
- When the Bonds Are Closed and Documents Executed, Your Organization May Have To Live with the Obligations and Commitments for the Next 20 to 30 Years
- If Anything Goes Wrong (i.e., default, audit, etc.), the Regulators/Enforcers Will Come Knocking On Your Door
- Potential For Personal Liability and Reputational Damage



Role of the Finance Officer

- Your role extends past administration of debt program
- Understand your responsibilities as they relate to:
 - Federal Securities Law
 - Federal Tax Law
 - State Law
 - Your Entity Ordinances, etc.
- Have documented policies and procedures related to elected officials' responsibilities and do's/don'ts
- Be aware of your roles and responsibilities PRIOR to starting the debt issuance process, not after
- Finance officer's responsibility is to taxpayers and ratepayers to ensure costs of debt repayment are most favorable in short and long-term



Role of the Finance Officer – (cont. 2 of 4)

- Be an active participant
 - Attend every meeting
 - Read all the documents
 - Don't be afraid to ask questions
 - Be prepared to present the deal to your governing board
 - If you don't understand the transaction, do not present it to the governing body
- Make sure your internal team understands their responsibilities
 - Offer bond training courses



Role of the Finance Officer – (cont. 3 of 4)

- Coordinate internal team members (finance staff, city/county/special district attorneys, project managers, etc.)
- Work with “partner” departments/agencies/bureaus by providing direction, leadership, oversight, and guidance
- Select and assign duties to outside finance team participants and manage performance
- Manage the financing project and timeline
- Structure financing within parameters of state and local law and legislatively adopted policy



Role of the Finance Officer – (cont. 4 of 4)

- Select The Method Of Sale In Consultation With Municipal Advisor and be Consistent with Debt Policy
- Negotiate Business Points and Structure of the Transaction
- Ensure Consistent, Accurate, and Complete Disclosure to the Marketplace
- Ensure Continuing Disclosure, Monitoring, and Compliance
- Oversee Disbursement of Project Funds
- Oversee Debt Service Payment Process
- Ensure Tax And Disclosure Compliance
- Your Job Doesn't End When The Bonds Are Issued
 - **Now Comes the Real Work!**

The Supporting Cast

(Know the Players & Their Roles)



The External Team

- Municipal Advisor
- Bond Counsel
 - Disclosure Counsel
 - Special Tax Counsel
- Underwriter (if negotiated sale)
- Underwriter's Counsel (if negotiated sale)
- Placement Agent (if direct placement)
- Paying Agent/Trustee
- Verification Agent (if refunding)
- Bidding Agent (if open market escrow refunding)
- Feasibility Consultant (revenue bonds)
- Others



Selecting the Financing Method and Financing Team

- Selecting Municipal Advisors
- Selecting Bond/Legal Counsel
- Selecting and Managing the Method of Sale of State and Local Government Bonds
- Selecting Underwriters for Negotiated Bond Sales
- Selecting Underwriters Counsel
- **KNOW YOUR ENTITY'S PROCUREMENT POLICIES!**



Who Should I Hire First?

- Unless the issuer has sufficient in-house expertise and access to market information, it should hire a municipal advisor prior to undertaking a debt financing”
- MA has a federal fiduciary responsibility to represent the issuer, and only the issuer, in debt financings
- Select MA through an RFP process
- Issuer establishes MA scope of services
- **MAKE SURE MA FIRM AND INDIVIDUAL MA ARE REGISTERED WITH THE MSRB**
 - <http://msrb.org/MARegistrants.aspx>



Role of the Municipal Advisor

- Municipal Advisor Should Assist With:
 - Assessing the objectives of the project
 - Identifying financing strategies and priorities
 - Selecting the method of sale that best fits the financing
 - Evaluating other members of the external financing team
 - Assist selecting (through RFP) the underwriting team
 - Ratings presentations
 - Credit enhancement assessment
 - Providing expert advice regarding the bond sale
 - Other services



Role of the Municipal Advisor: Competitive Sale

- Helps determine timing of offering
- Assists in structuring the bond issue
- May assist in preparing the preliminary official statement (POS)
- May assist with obtaining ratings and preparing rating presentation
- Ensures bidders/UW are aware of upcoming sale



Role of the Municipal Advisor: Competitive Sale – (cont. 2 of 2)

- Supports general marketing to the investor community
- Puts out Notice of Sale
- Verifies accuracy of all bids received
- Makes a recommendation to issuer to accept or reject the bid



Role of the *Municipal Advisor:* *Negotiated Sale*

- Assists with Underwriter RFP and Selection Process
- Assists Issuer In Structuring the Bond Issue
- Assists In Preparing the Preliminary Official Statement (POS)
- May Assist In Publicizing Upcoming Bond Sale to Investor Community



Role of the Municipal Advisor: Negotiated Sale – (cont. 2 of 2)

- Advises Issuer with Redemption Provisions and Other Terms with Respect to Negotiation Of Coupon Yields. MA Should Provide Independent Pricing Views.
- Advises Issuer On Day Of Pricing With Respect To Final Negotiation Of Terms (Pricing Changes, Call Features, Discounts, Premiums, Etc.)



Managing Your Municipal Advisor Relationship

- Ongoing Communication of Priorities, Objectives, And Expectations
 - Match to specific issuer project/financing needs
 - For example, swap advisor
 - Active vs. Passive
 - Continuity of MA staff
 - Written scope of services from issuer assists with this
- Use of Multiple MAs
 - Project or task-specific
 - Pricing and/or post-pricing specialists



Selecting and Managing MAs

- Hire MA prior to undertaking a debt financing
- Select MA through an RFP process, based on merit
- Determine if MA is for a specific transaction or a period of time
 - Pool of MAs
- Issuer sets scope of work, be specific
- Determine basis for compensation (e.g., bond proceeds)
- Make sure MA is registered with SEC and MSRB
- Develop selection criteria
 - Experience
 - Knowledge of market
 - Knowledge of issuer



MSRB Rules For MAs to Protect Issuers/Overview

- Rule G-42
 - Fiduciary Duty
 - Scope of Services in Writing
 - Method of Payment in Writing
 - Disclosure of Conflicts
 - Have the Basis to Provide Advice/Recommendations
 - Suitability and Know Your Client Standards
- Rule G-10
 - Information About How to File a Complaint
- Rule G-37
 - Restricts Political Contributions/Pay to Play Practices for Underwriters and MAs



Types of Legal Counsel in Bond Transactions

Not all types of counsel are needed on every transaction. Will depend on type of bonds, method of selling bonds, and issuer preferences

- **Issuer Counsel:** Issuers own internal counsel that focuses on ensuring compliance with local ordinances, codes, and policies
- **Bond Counsel:** Provides legal opinion that 1) bonds are legally issued; and 2) meet IRS tax-exemption standards. Bond counsel is a part of all public transactions and most bank loans



Types of Legal Counsel in Bond Transactions – (cont. 2 of 2)

- **Underwriter's Counsel:** represents underwriter in a negotiated bond sale
- **Disclosure Counsel:** law firm that assists issuers in meeting its primary disclosure obligations. Use of disclosure counsel by issuers is growing.
- **Special Tax Counsel:** provides special tax related opinions on certain complex transactions
- **Bank Counsel:** similar to underwriter's counsel, bank counsel represents banks direct purchases, bank loans, etc.



Selecting Bond Counsel

- Provides opinion that (1) the bonds are legally authorized and issued and (2) if applicable, interest is excluded from gross income (Federal/State/Local)
- Often handles disclosure related items (drafting or reviewing documents) and may also assist with due diligence process leading up to issuance of the bonds
- Selection of bond counsel should be based on merit and generally done through a Request for Proposals (RFP) process
- RFP should address scope of services, term of contract, evaluation criteria, and the selection process
 - May be managed by Finance Office and/or City Attorney



Selecting Bond Counsel – (cont. 2 of 3)

- Key qualifications of Bond Counsel include:
 - Experience with similar financings: type, size, structure, and state law
 - Specialized tax advice beyond normal bond counsel services
 - Expertise in federal securities laws and regulations
 - Be aware of relationships that might pose conflict of interest
- Determine if other ‘specialty counsel’ is needed, due to nature of transaction or potential conflict of interest.
 - Disclosure Counsel
 - Special Tax Counsel



Selecting Bond Counsel – (cont. 3 of 3)

- Determine if other ‘specialty counsel’ is needed, due to nature of transaction or potential conflict of interest.
 - Disclosure Counsel
 - Special Tax Counsel
- Same firm as Bond Counsel?
- Seeking Counsel’s Advice When Issuers Receive an IRS Letter/Audit Inquiry



Underwriter's Counsel

- May prepare the investor disclosure document (official statement), bond purchase agreement, agreement among underwriters, and related documents
- Conducts due diligence on behalf of the Underwriter
- Selected by the Underwriter, cannot be same firm as Bond Counsel



Issuer's Role in Selecting Underwriter's Counsel

- Issuers should minimize their involvement with underwriter's counsel selection
- If desired, develop list of general criteria and qualifications
- If warranted, prepare list of acceptable firms
- Review Underwriter Counsel's scope of services
- You are paying for underwriter's counsel, set appropriate fee arrangement – “not to exceed”.
- Have policies and procedures in place to minimize conflicts of interest



The Role of the Underwriter in Competitive vs. Negotiated Sale

- **Competitive Sale**: sale in which multiple underwriters submit bids to purchase the bonds at a specified date and time. The Underwriter that submits the lowest purchase price (true interest cost or TIC) is awarded the bonds for sale to investors.
- **Negotiated Sale**: sale in which the Underwriter is selected before the sale, optimally through a competitive RFP process. Underwriter assists MA and Issuer in structuring the bonds and preparing the bonds to be sold.



Selecting Underwriters

- If a negotiated sale is deemed appropriate:
 - Select Underwriters through an RFP that rewards firms with demonstrated experience underwriting the types of bonds the issuer proposes to sell. RFP promotes fairness, objectivity and transparency.
 - Recognize that the role of the Underwriter and the MA are separate roles and **cannot be provided by same party**. The underwriter is not your municipal advisor.
 - Look at past transactions and their performance vs. competitive sales.



Selecting Underwriters – (cont. 2 of 3)

- Key Underwriter selection criteria may include:
 - **Relevant experience** with type of bonds being proposed. Experience should include both the firm's investment bankers and underwriters (“the desk.”)
 - The firm's **distribution capabilities**. Can the Underwriter access institutional and retail buyers?
 - **Understanding of the Issuer's financial situation** and how to approach financing issues such as bond structure, rating strategies and investor marketing



Selecting Underwriters – (cont. 3 of 3)

- Key Underwriter selection criteria may include:
 - **Documentation of the Underwriter's participation** in the issuer's recent competitive sales or the competitive sales of other issuers in the same state
 - The proposed “**spread**”, or **underwriter's discount**, should be requested in the RFP, but should rarely be the primary decision criterion. Proposed spread is most useful in pricing negotiations, but not as a basis for selecting the Underwriter.



MSRB Underwriter Rules to Protect Issuers Overview

■ MSRB Rule G-17

- Underwriters must disclose their role in a transaction to Issuer
- Underwriter **does not** have a fiduciary duty to Issuer
- Underwriter must disclose general and special risks of transaction
- Underwriter must disclose any conflicts they have within the transaction
- Must not suggest that issuer not use an MA
- Must seek Issuer acknowledgement of the above

■ Rule G-10

- Information about how to file a complaint

■ MSRB Rule G-37

- Restricts Political Contributions/Pay to Play Practices for Underwriters and MAs



Placement Agent

- Placement agent finds investor(s) for direct placement
 - Registered broker/dealer
- MA can not serve as placement agent
- MA can help Issuer review RFPs and bids from placement agents but can not solicit to find investors
- Know what you need to know



Trustee or Paying Agent

- Typically, a commercial bank
- Purpose to hold/administer funds for benefit of bondholders
- Monitors compliance with the terms of the authorizing ordinance or bond indenture
- Often acts as paying agent and registrar
- May act as dissemination agent for continuing disclosure
- Consider customer service history from references as well as costs
- Selection based on “lowest bid” not always best criteria; look for services provided, such as on-line access and ease of use



Other Financing Team Participants

- Bond Insurer or Credit Enhancement Provider
- Surety Bond
- Liquidity or Credit Providers (variable rate debt)
- Investment Advisor
- Escrow Verification Agent (in case of refunding)
- Bidding Agent (in case of refunding with open market escrow)
- Independent ESG Verifier (in case of ESG/Green bonds)

QUESTIONS?

JAY GOLDSTONE

Special Advisor to the Mayor
City of San Diego





15-MINUTE

BREAK



SESSION TWO

Debt Structuring and Method of Sale



DARREN HODGE
Managing Director
PFM Financial Advisors

NIKOLAI SKLAROFF
Capital Finance Director
San Francisco Public
Utilities Commission





Financing Structuring Considerations

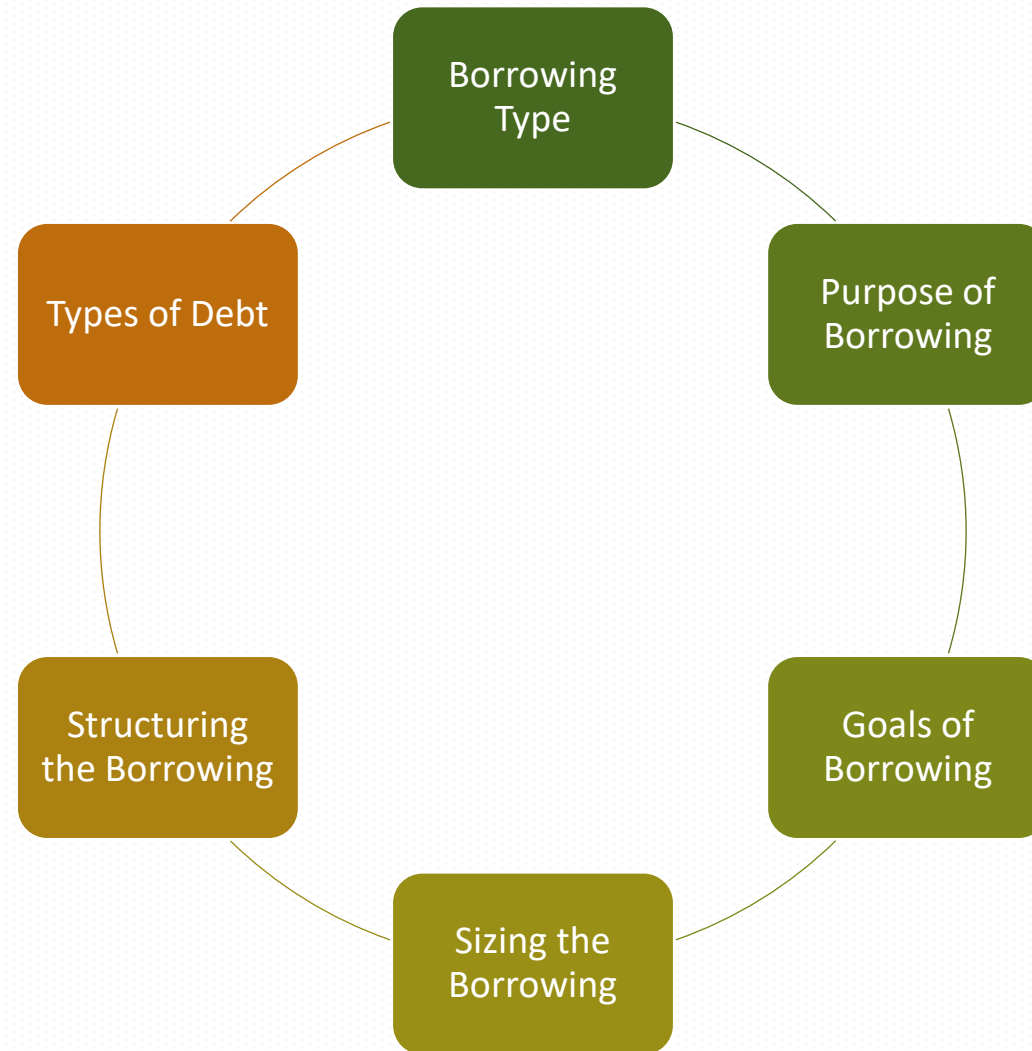
- Purpose and necessity of debt
- Organizational type (Governmental, Enterprise or Other)
- Long-term strategic goals of organization
- Debt policy (SB 1029)
- Current debt burden and debt capacity
- Long-term financial planning
- Intergenerational equity considerations
- Fluid market conditions

Purpose of Debt

- Many municipal entities are responsible for funding public projects
- Characteristics of the project often dictate the appropriate type of funding
- Long-lived infrastructure capital assets have different financing suitability vs. assets with shorter lives

Type of Funding	Advantages	Disadvantages
PAYGO <i>Pay for capital projects as revenue is saved or received from existing sources</i>	<ul style="list-style-type: none"> • Future funds not subject to debt service payments and the payment of interest 	<ul style="list-style-type: none"> • Subject to limitations of available revenue • Rate considerations • Long wait time for new infrastructure
Grant Funding <i>Apply for State and Federal grants</i>	<ul style="list-style-type: none"> • Does not take away from any funding source 	<ul style="list-style-type: none"> • Inconsistent and unreliable • May not cover full project costs • Funds often received on reimbursement basis • May “federalize” project
Borrow <i>Issue Debt</i>	<ul style="list-style-type: none"> • Spreads cost over the useful life of the asset; reduces need for large, regular increases in rates • Funds received when needed • Intergenerational equity 	<ul style="list-style-type: none"> • Repayment includes interest costs • Various forms of borrowing may have specific terms/conditions • Ongoing obligations to lender(s)

Considerations in Structuring a Financing



Borrowing Type

	Public Sale	Private Placement	Federal/State Loan
	Public offering of bonds through either a negotiated or competitive sale	Financing provided by bank	Loan financing provided by Federal or State agency
Benefits	<ul style="list-style-type: none"> • Mature market • Predictable schedule • Proceeds available immediately • Borrowing terms may be customized 	<ul style="list-style-type: none"> • Time efficient execution • Proceeds available immediately • Borrowing terms may be customized • Disclosure documents not required • Ratings often not required 	<ul style="list-style-type: none"> • Low interest rates (typically) • Interest rate not as sensitive to ratings • State loans may have grants or principal forgiveness
Considerations	<ul style="list-style-type: none"> • Market conditions • Disclosure and ratings process adds time to schedule 	<ul style="list-style-type: none"> • Market conditions • Borrowing terms may not be as flexible as other options 	<ul style="list-style-type: none"> • Competitive application process • May not finance 100% of needs • Borrowing terms may not be as flexible as other options • Legal covenants may be more restrictive • Funds received as reimbursement • Application process



Public Offering

- Underwriter purchases bonds from Issuer, then sells those bonds to investors
 - Can be accomplished through either a negotiated or competitive sale process
- Preliminary Official Statement is produced and distributed to investors
 - Primary marketing document that investors use to make their investment decision
 - Underwriter and Issuer are responsible for all due diligence
- Bonds are typically rated by a rating agency
 - Ratings provide a third-party determination of the likelihood of timely repayment of debt service
 - Ratings lower the interest rate
- Legal terms and covenants can be tailored – with careful consideration of the marketing and rating implications
- Repayment can be structured to meet the needs of the Issuer – with careful consideration of the marketing, rating and interest rate implications



Private Placement

- Financing provided by a bank not through a public offering
- Offering Statement not required
- Ratings are typically not required, however, banks will perform their own review of Issuer's credit and set their interest rate and loans terms based on this review
- Legal terms and covenants can be tailored but are subject to negotiation with the bank
- Repayment can be structured to meet the needs of the Issuer but are subject to negotiation with the bank

Method of Sale

	COMPETITIVE SALE	NEGOTIATED SALE	PRIVATE PLACEMENT
Mechanics	<ul style="list-style-type: none"> ▪ Issuer, MA and legal counsel structure transaction and prepare/review transaction documents ▪ A date and time are set on which underwriters submit bids for the bonds ▪ Bonds awarded to underwriter submitting the bid with the lowest true interest cost 	<ul style="list-style-type: none"> ▪ Underwriter selected prior to the pricing of the bonds (typically near the outset of the transaction) ▪ Issuer, MA, underwriter and legal counsel structure transaction and prepare/review transaction documents ▪ Underwriter markets bonds ▪ At pricing, interest rates are set based on comparable sales and level of investor interest 	<ul style="list-style-type: none"> ▪ Bank is selected based on rate and borrowing terms ▪ May utilize placement agent ▪ Loan terms negotiated directly with bank
Time to Complete Transaction	<ul style="list-style-type: none"> ▪ 3-4 months 	<ul style="list-style-type: none"> ▪ 3-4 months 	<ul style="list-style-type: none"> ▪ 2-3 months
Offering Statement Required	<ul style="list-style-type: none"> ▪ Yes 	<ul style="list-style-type: none"> ▪ Yes 	<ul style="list-style-type: none"> ▪ No
Ratings Required / Utilized	<ul style="list-style-type: none"> ▪ Yes (typically) 	<ul style="list-style-type: none"> ▪ Yes (typically) 	<ul style="list-style-type: none"> ▪ Not usually
Structuring	<ul style="list-style-type: none"> ▪ Flexible 	<ul style="list-style-type: none"> ▪ Flexible 	<ul style="list-style-type: none"> ▪ Flexible, with potentially limits on the final maturity of the loan
Issuance Expenses	<ul style="list-style-type: none"> ▪ Higher costs of issuance 	<ul style="list-style-type: none"> ▪ Higher costs of issuance 	<ul style="list-style-type: none"> ▪ Lower costs of issuance
When Most Appropriate (Generally – Situations May Vary)	<ul style="list-style-type: none"> ▪ Well known issuer ▪ Conventional bond structure ▪ High credit quality ▪ Favorable market conditions 	<ul style="list-style-type: none"> ▪ Unknown issuer ▪ Complicated structure or large size ▪ Complicated credit ▪ Weak, volatile or challenging market 	<ul style="list-style-type: none"> ▪ Smaller borrowings ▪ Shorter term (~10-15 years) ▪ “Story” borrowings



Federal/State Loans

- Financing provided by Federal or State agency (SRF, IEDB, USDA, WIFIA, CWIFP, TIFIA)
- Disclosure through a Preliminary Official Statement typically not required
- Some loans may require a rating
- Legal terms and covenants may be flexible, certain loan programs have standard terms and covenants which may differ from those available under other methods of borrowing
- Repayment structure may be flexible, certain loan programs have greater flexibility than others
- Loan proceeds may be disbursed on a reimbursement basis making cashflow during construction an important consideration

New Money and Refunding

New Money

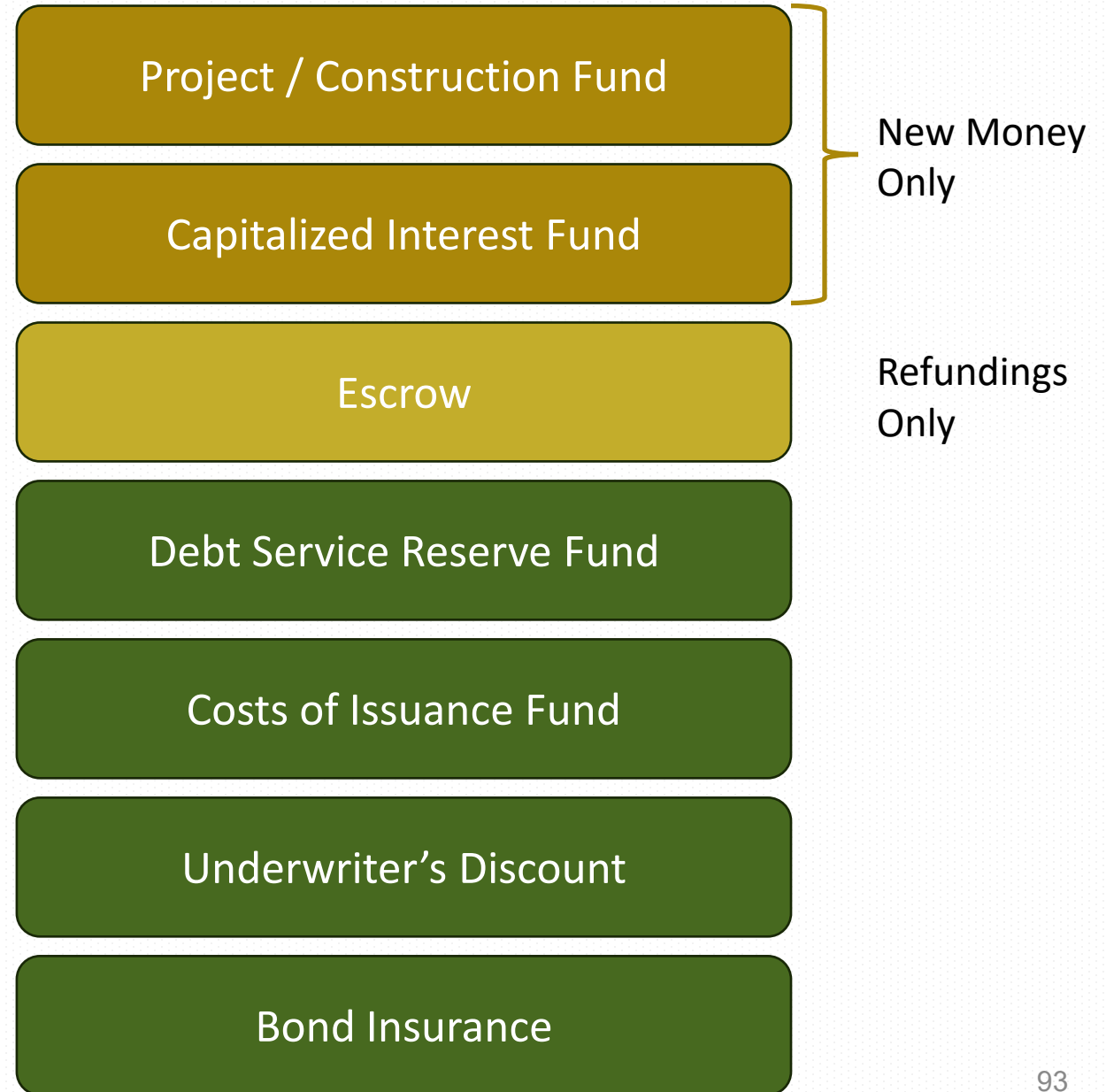
- Bond proceeds are issued to generate “new” funds
- Typically for the construction, rehab or improvements to infrastructure

Refunding

- Refinancing of existing debt
- Typically to reduce future debt service costs
- Also can be used to restructure debt payments for strategic purposes

Sizing a Financing

- The elements of financing may differ by:
 - Type of borrowing (GO, revenue bond, etc)
 - Project type
 - Issuer financing plan
 - Ratings
 - Use of Proceeds (new money vs. refunding)
- Not all elements will be applicable to various financings





Project / Construction Fund

- Proceeds to fund project acquisition and/or construction
- Based on actual costs or detailed estimates
- Can include contingency funds
- Two methods of funding
 - Gross funded – exact project amount
 - Net funded – less than project amount, interest earnings during construction period used to meet project amount



Capitalized Interest Fund

- Proceeds to pay interest during project construction and / or revenue ramp-up / stabilization period
- May provide necessary cashflow relief during construction or ramp-up period
- Capitalized interest increases overall debt / loan payments over the repayment life (it is not “free money”)



Escrow Fund

- Proceeds to fund the principal and interest costs of refunded debt to its redemption date
- Funded at closing
- Typically invested – permitted investments highly restricted (i.e., SLGS and US Treasuries)
- Escrow fund held by the Escrow Agent
- Typically net funded (interest earned during the escrow period helps pay principal and interest of refunded debt)



Debt Service Reserve Fund

- Funds debt service payments in an event of a payment default
- Provides additional security for investors
- Issuers with high-grade ratings have been able to forgo a debt service reserve fund for certain project types
- Debt service reserve fund requirement typically the lesser of:
 - Maximum annual debt service
 - 125% of average annual debt service
 - 10% of par amount
- If “cash funded”, interest earnings on debt service reserve fund can help pay debt service
- Debt service reserve fund requirement may be met with a surety policy in certain situations



Costs of Issuance

- Funds eligible issuance costs
 - Financing team fees (bond counsel, disclosure counsel, municipal advisor)
 - Trustee / paying agent
 - Rating agency fees
 - Special tax consultant
 - Title insurance
 - State fees
 - Appraisal, feasibility study, engineer's report
 - Verification Agent
 - Other costs associated with the issuance of obligations

Underwriter's Discount

- Underwriter's discount is the compensation the underwriter receives
 - Average takedown
 - Management fee
 - Expenses
- Average takedown is a dollar per bond amount (par amount / \$1,000)
- Underwriter's discount is typically funded with bond proceeds

Par amount of issuance	\$25,000,000
Takedown	\$2.50 per bond
Total takedown	$(\$25,000,000 / \$1,000) * \$2.50 = \$62,500$



Bond Insurance

- Bond insurance guarantees the payment of principal and interest to bondholders
- Insured bonds are assigned the credit rating of the bond insurer
- Can improve bond pricing and lessen the costs of borrowing

Premium, Discount and Par Bonds

- Individual maturities can be sold as premium, discount or par bonds

	Original Issue Discount (OID)	Par Bond	Original Issue Premium (OIP)
General Rule	Coupon < Yield Price < 100	Coupon = Yield Price = 100	Coupon > Yield Price > 100

Maturity	Principal	Coupon	Yield	Price	
2026	\$1,000,000	4.000%	2.590%	113.444%	← Premium Bond
2027	\$1,100,000	3.000%	3.000%	100.000%	← Par Bond
2028	\$1,200,000	3.000%	3.044%	99.500%	← Discount Bond

- Price x Principal == Amount Investor Pays and Amount the Municipality Receives

Maturity	Principal	Price	Dollar Price
2026	\$1,000,000	113.444%	\$1,134,440
2027	\$1,100,000	100.000%	\$1,100,000
2028	\$1,200,000	99.500%	\$1,194,000

Bond Sizing Example

<u>Sources:</u>	
Bond Proceeds:	
Par Amount	9,000,000.00
Premium	887,784.50
	<hr/>
	9,887,784.50
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<u>Uses:</u>	
Project Fund Deposits:	
Project Fund	9,000,000.00
Other Fund Deposits:	
Capitalized Interest Fund	444,786.00
Series A Debt Service Fund Deposit	223,998.50
	<hr/>
	668,784.50
Delivery Date Expenses:	
Cost of Issuance	165,000.00
Underwriter's Discount	54,000.00
	<hr/>
	219,000.00
	<hr/>
	9,887,784.50
	<hr/>

Serial and Term Bonds

- Serial Bonds
 - Principal repayment is made on the stated maturity date
 - Serial bonds are typically structured with maturity dates over regular intervals allowing an issuer to take advantage of different pricing levels across the yield curve
- Term Bonds
 - A bond which matures on a single date with sinking fund redemptions made prior to final maturity
 - Term bonds may be structured to increase the par amount of the maturity to attract additional investor interest

Maturity (7/1)	Par	Coupon	Yield	Type
2025	660,000	5.00%	2.30%	Serial Bond
2026	695,000	5.00%	2.34%	Serial Bond
2027	730,000	5.00%	2.38%	Serial Bond
2028	765,000	5.00%	2.42%	Serial Bond
2029	800,000	5.00%	2.46%	Serial Bond
2030	840,000	5.00%	2.50%	Serial Bond
2031	885,000	5.00%	2.55%	Serial Bond
2032	930,000	5.00%	2.61%	Serial Bond
2033	975,000	5.00%	2.62%	Serial Bond
2034	1,025,000	5.00%	2.64%	Serial Bond
2035	1,075,000	5.00%	2.67%	Serial Bond
2036	1,130,000	5.00%	2.72%	Serial Bond
2037	1,185,000	5.00%	2.75%	Serial Bond
2038	1,245,000	5.00%	2.80%	Serial Bond
2039	1,305,000	5.00%	2.86%	Serial Bond
2040	1,370,000	5.00%	2.97%	Serial Bond
2041	1,440,000	5.00%	3.07%	Serial Bond
2042	1,510,000	5.00%	3.13%	Serial Bond
2043	1,590,000	5.00%	3.20%	Serial Bond
2044	1,665,000	5.00%	3.27%	Serial Bond
2045	1,750,000	5.00%	3.48%	Sinking Fund
2046	1,840,000	5.00%	3.48%	Sinking Fund
2047	1,930,000	5.00%	3.48%	Sinking Fund
2048	2,025,000	5.00%	3.48%	Sinking Fund
2049	2,130,000	5.00%	3.48%	Term Bond Maturity
2050	2,235,000	5.00%	3.56%	Sinking Fund
2051	2,345,000	5.00%	3.56%	Sinking Fund
2052	2,465,000	5.00%	3.56%	Sinking Fund
2053	2,585,000	5.00%	3.56%	Sinking Fund
2054	2,715,000	5.00%	3.56%	Term Bond Maturity

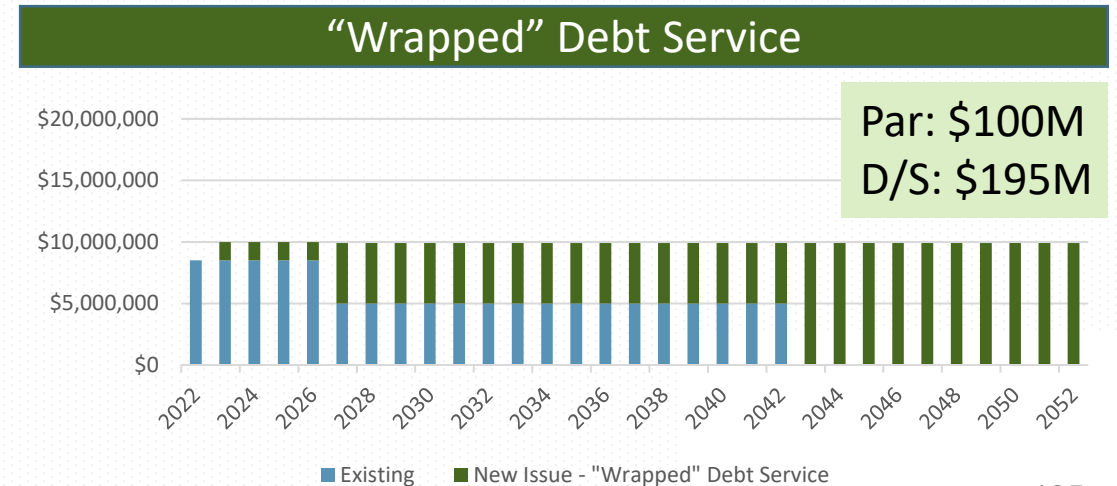
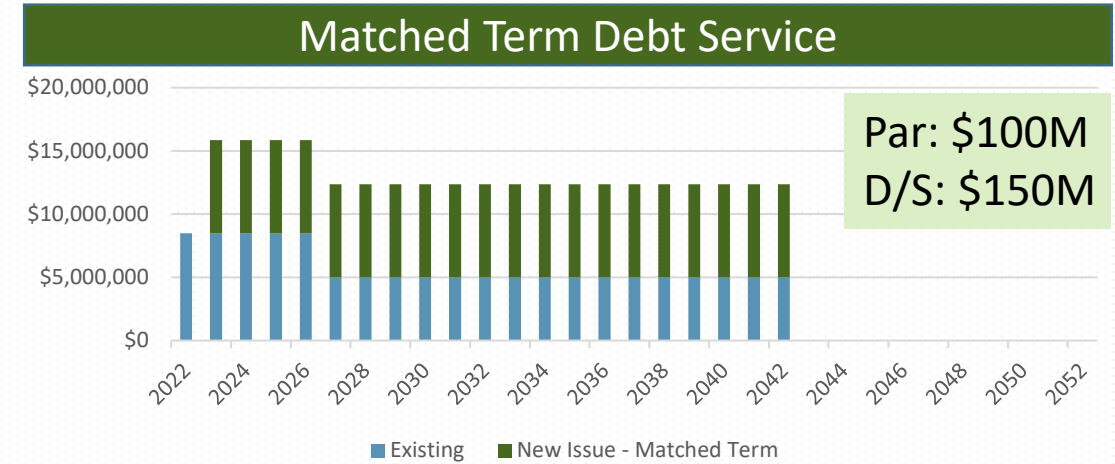
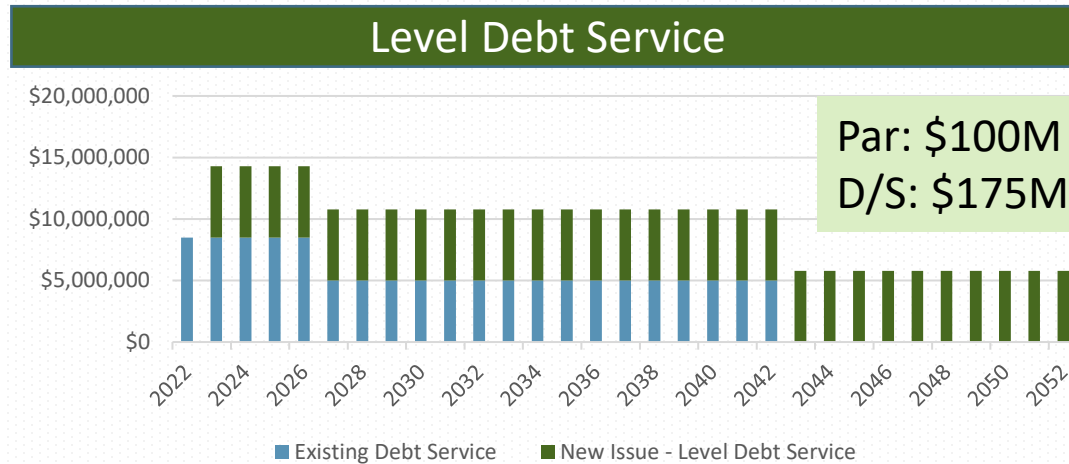


Redemption Features

- Optional Redemption
 - Call is exercised only at the option of the issuer, not the investor
 - Call typically exercised to achieve savings or restructure debt
 - Issuers typically issue Bonds with a 10-year call option
- Mandatory Redemption
 - Call must be exercised on specified date/during specified timeline
 - May be required by law
 - May be required by legal structure of transaction
- Extraordinary Redemption
 - Call exercised upon occurrence of certain events
 - May be optional
- Redemption Prices for Call Vary
 - Par
 - Premium
 - Make-Whole

Debt Service Structures – New Money

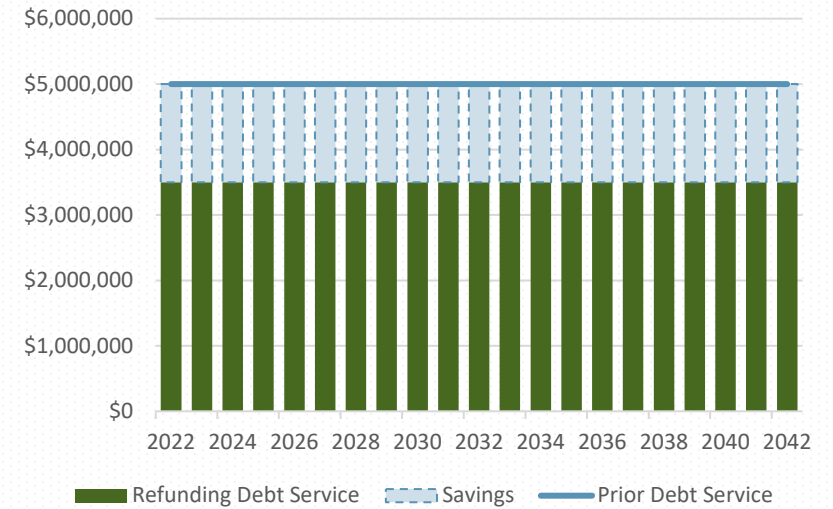
- Debt structuring decisions are driven by a number of variables
 - Existing debt service shape and structure
 - Assets being financed
 - Anticipated revenue profile
 - Future debt issuance plans



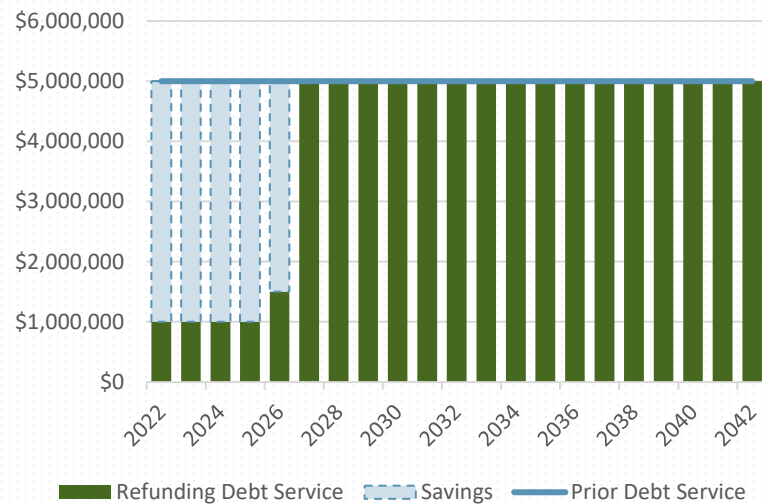
Debt Service Structures – Refundings

- Most common refundings are to refinance debt for interest rate savings
- Debt is also refunded for structuring and / or to eliminate restrictive covenants
- When refunding, one decision will be how to “shape” savings to the debt being refinanced

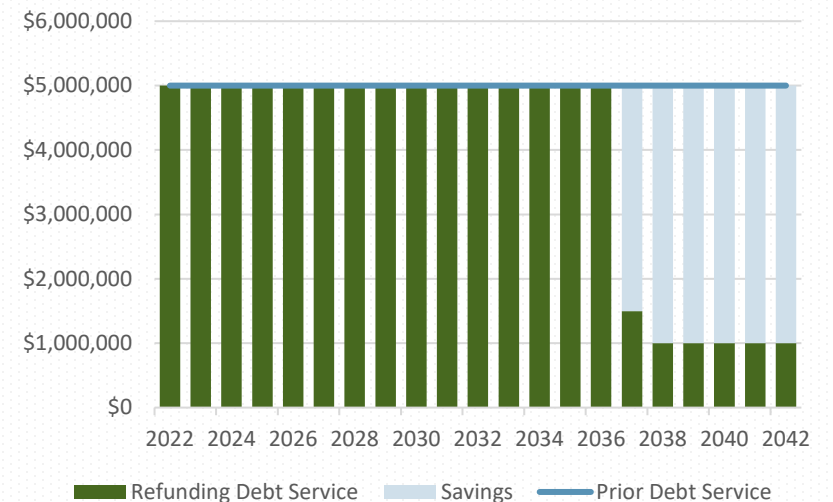
Uniform/Level Savings



Accelerated Savings



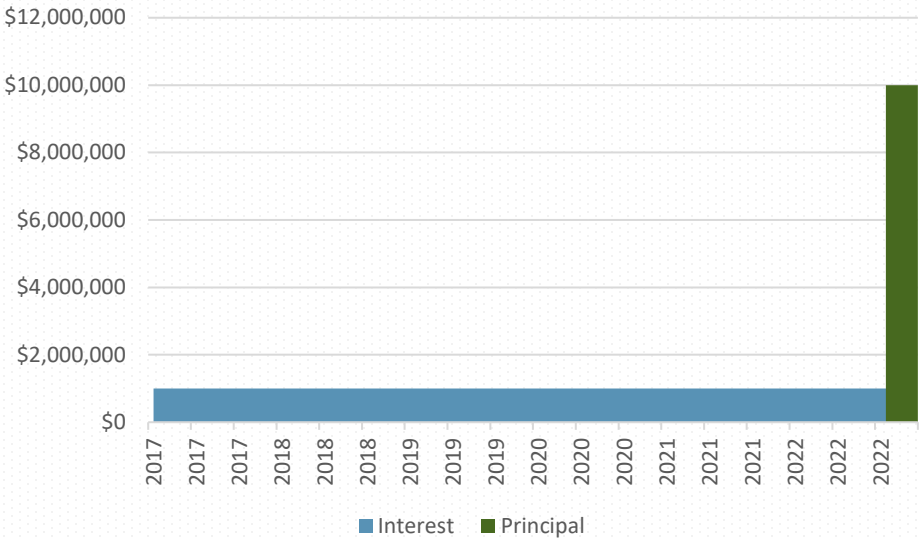
Deferred / Backloaded Savings



Fixed vs. Variable Rate Debt

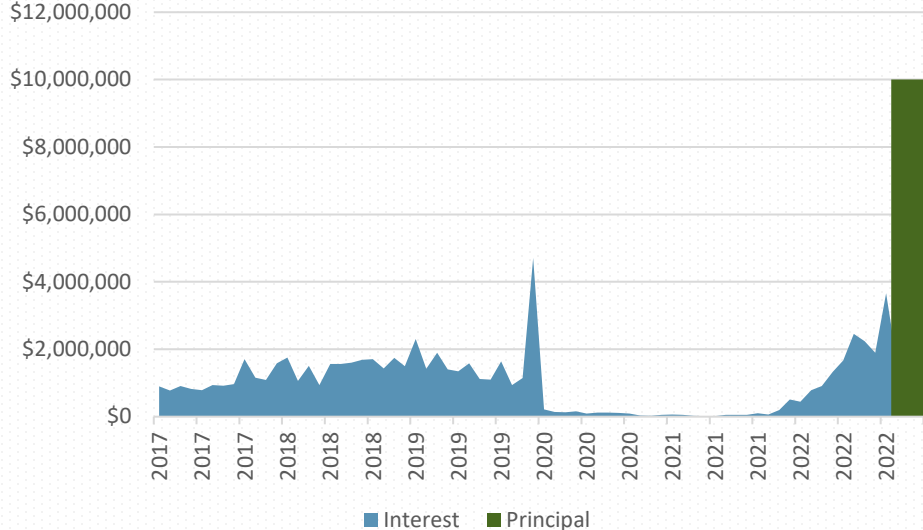
Fixed Rate Debt

- The rates (coupons) are set on the day of the pricing and do not change
- The issuer will pay scheduled interest (usually twice a year) for as long as the bonds are outstanding



Variable Rate Debt

- The rates are reset to different coupons at predetermined points throughout the year
- The issuer's interest payments will vary for the life of the bonds based on market conditions or changes in an index (typically SIFMA)



Considerations for Fixed vs. Variable Rate Debt

- What is the optimal mix between fixed and variable rate debt
- When should issuers consider variable rate debt vs. fixed rate debt?
- What are some of the benefits and considerations for fixed and variable rate debt?

Benefits of Fixed Rate Debt

- Allows for budgetary certainty and administration
- No ongoing credit support needed
- Legal documents are simpler

Considerations of Fixed Rate Debt

- Historically, higher interest rates than variable rate debt, on average
- Less flexible call feature than variable rate bonds

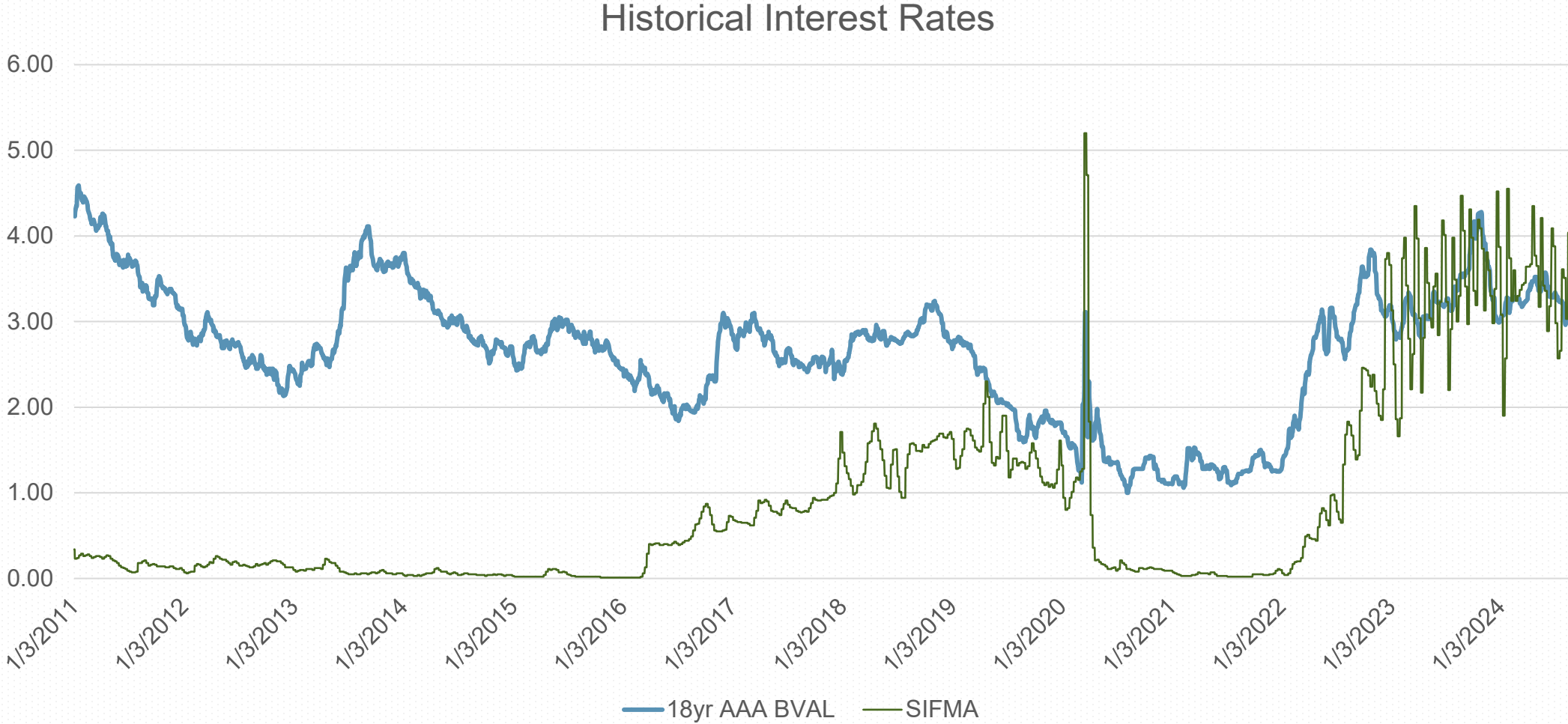
Benefits of Variable Rate Debt

- Creates a natural hedge between short-term assets and liabilities
- Often, more flexible prepayment provisions
- Used to diversify debt portfolio

Considerations of Variable Rate Debt

- Interest rate risk and bank credit risk
- Budgetary uncertainty
- Unpredictable pricing of support costs; typically new LOC/SBPA or mandatory tender required every 1-5 years
- Additional administrative involvement

Historical Interest Rates





Conclusions

- Every municipal entity is unique with their own considerations related to borrowing needs
- There are many different ways of borrowing, each of which may be beneficial in their own ways to a specific municipal entity or in a specific market
- It is important that each borrower carefully analyze what is best for them
- While the future is unpredictable, make borrowing decisions that take into account both near- and long-term considerations
- Debt is a long-term obligation and the decisions made today may govern certain financial decisions down the road
- Make sure you have a team of trusted advisors

QUESTIONS?



DARREN HODGE
Managing Director
PFM Financial Advisors

NIKOLAI SKLAROFF
Capital Finance Director
San Francisco Public
Utilities Commission





LUNCH



SESSION THREE

Ratings and Credit Enhancement



ALEXANDRA CIMMIYOTTI
*Vice President and
Senior Credit Officer
Moody's Ratings*

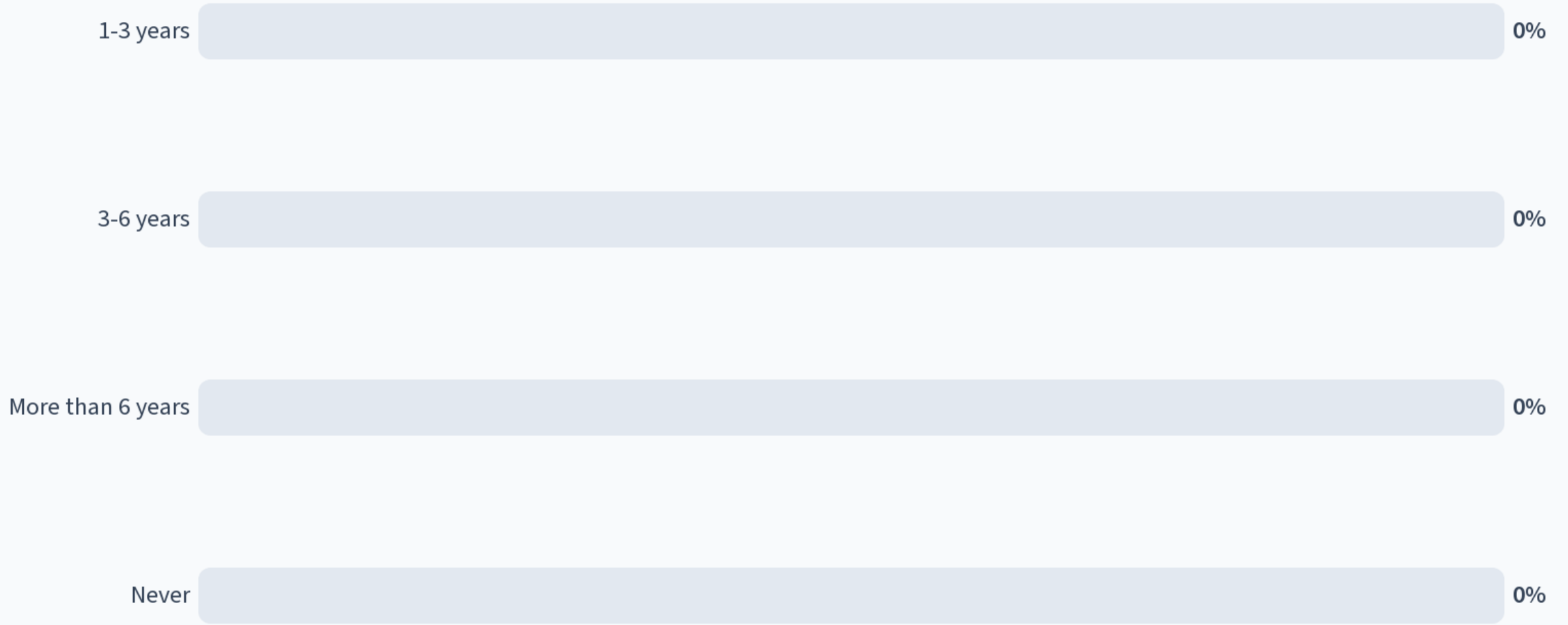


DEBRA WAGNER SAUNDERS
*Consultant, BondLink
Consultant, U.S. Department
of Energy*



GRAHAM SCHNAARS
*Director, U.S. Public Finance
Fitch Ratings*

When was YOUR last rating agency interaction (new rating or review)?



Which statement best describes your experience:

Excellent, our finance team prepared us well and we knew exactly what to expect.

0%

Good, we've been through the process before but there were some surprises.

0%

Fair, a little choppy but the rating agency analyst helped us through.

0%

Poor, we were blindsided by the approach.

0%

N/A, but we have a rating meeting coming up and we are nervous; we only issue insured or unrated bonds; and/or ratings are arbitrary and unreliable.

0%

Ratings and their Role in Bond Issuance

FACTORS THAT INFORM PRICING:

- Sector and security
 - Other transaction in the market
 - Demand for munis in general
 - Structure/maturity
 - Secondary market liquidity
 - Credit enhancement
 - BOND RATINGS

TYPES OF SALE/THE RATING PROCESS:

- Negotiated sales:
 - MA, underwriter or issuer manages the process
- Competitive:
 - MA or Issuer

BOND RATINGS ARE...

- An analysis as of a point in time
- An opinion (subject to change) based on verifiable facts presented to the rating agencies
- Subject to revision based on
 - Changes in criteria
 - Changes in circumstances
 - Changes within your control/changes outside your control

BOND RATINGS ARE NOT...

- A confirmation of management's skills
- A political endorsement
- Negotiable
- A guaranty of repayment or liquidity



Questions for Rating Agencies

- **REGULATORY OVERSIGHT**

- How has the regulatory climate changed for rating agencies?
- How have rating agencies addressed regulations?
 - What information can a rating agency rely on (e.g., third party verifiable information)?
 - Are periodic reviews required?
 - What is the purpose of providing separate issuer and security ratings?
- Metrics and subfactors (the nuts and bolts of ratings) - how are they used in ultimate rating?

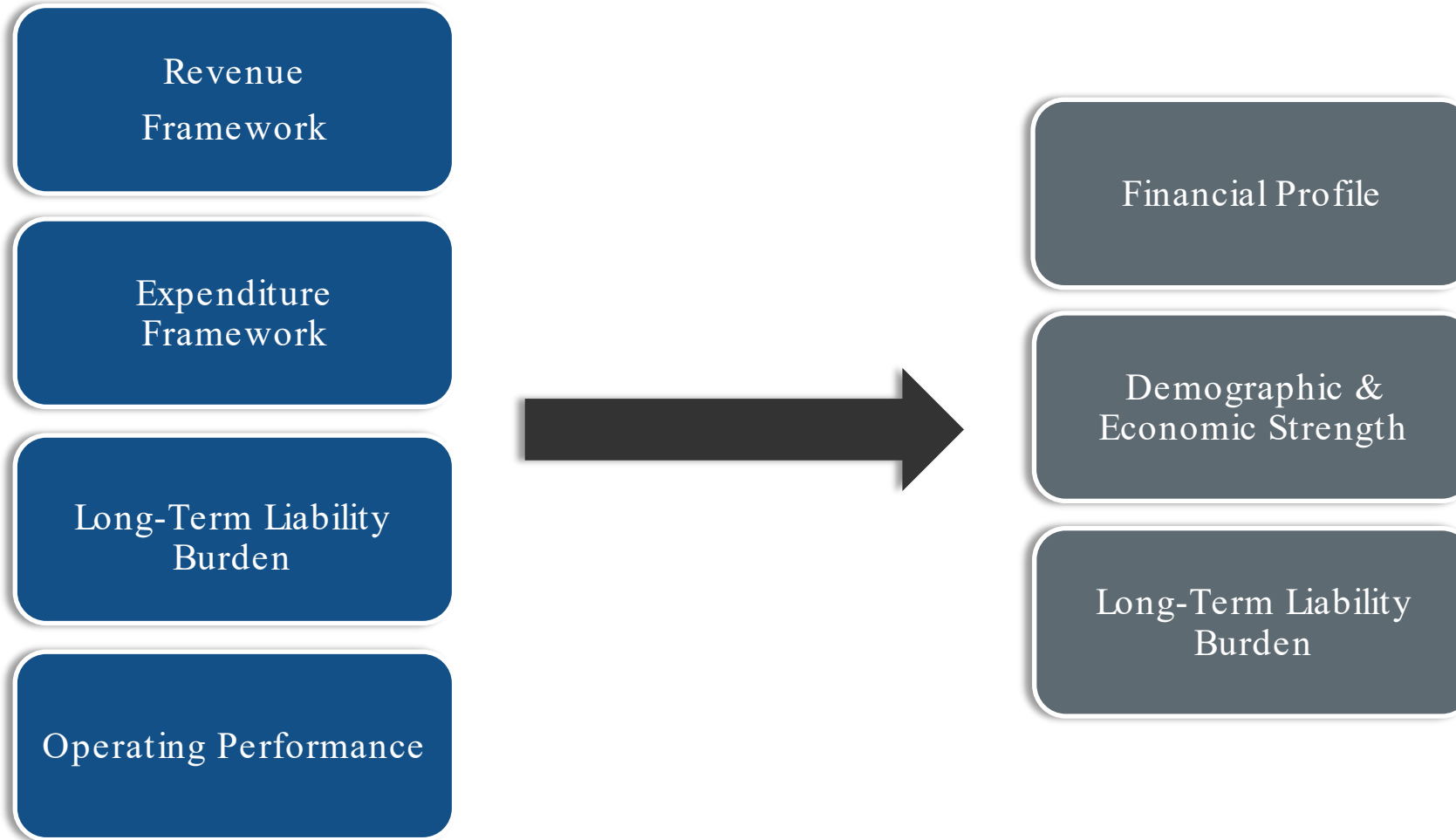
- **IF IT'S BEEN FIVE YEARS SINCE OUR LAST RATING...**

- Will there be different areas of focus? YES

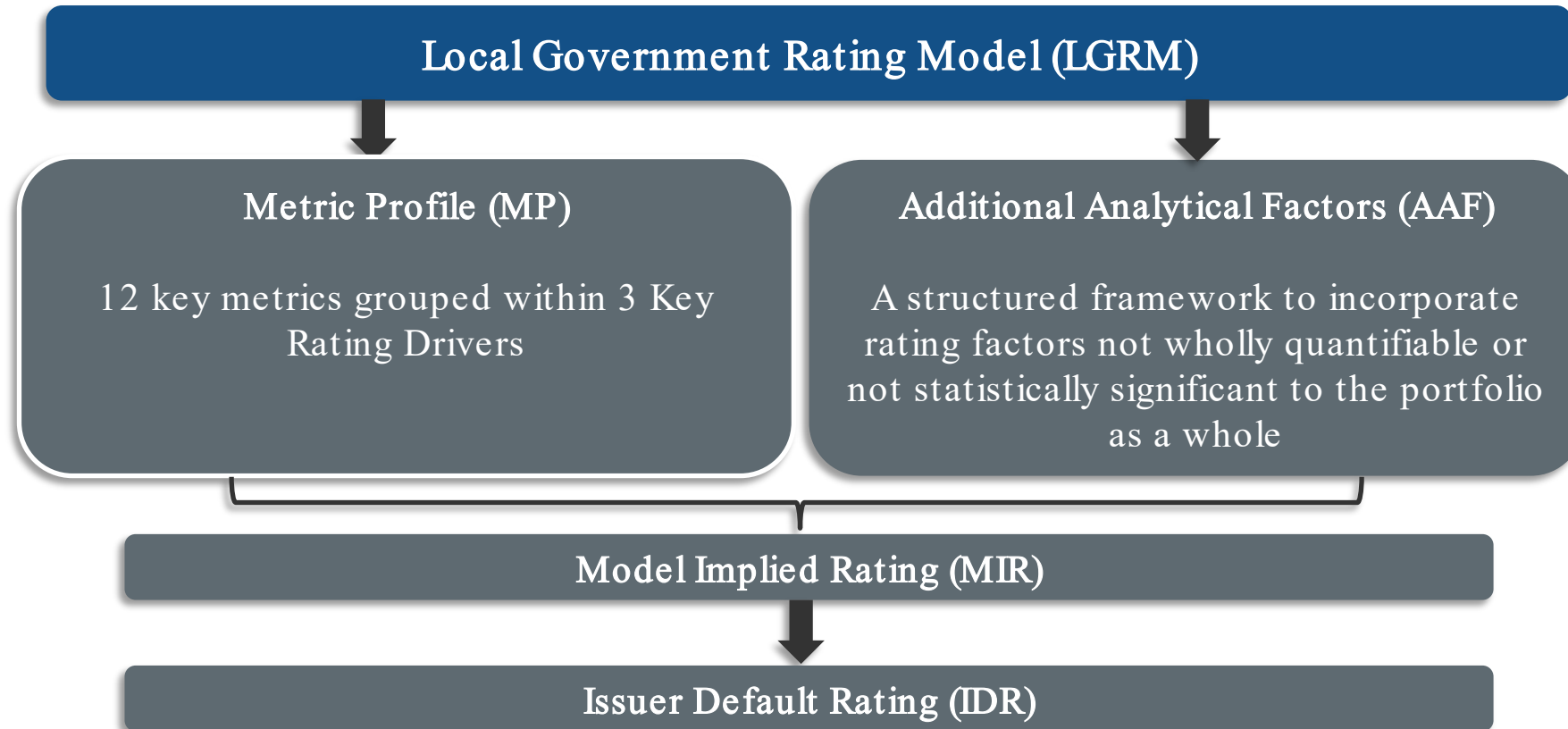
- **ONLINE RESOURCES AND TOOLS TO SELF-EDUCATE**

U.S. Public Finance Local Government Rating Criteria

Previous Criteria → Current Criteria Key Rating Drivers (KRDs)



Local Government Criteria Rating Framework



Main Enhancements From The New Criteria

- Fixed metric weightings provide greater rating clarity
- Creates a ranking of the credit quality of each individual issuer in the Fitch local government rating portfolio
 - All Fitch’s local government ratings are ranked together
- Notch-specific ratings communicated numerically supporting analysis of “headroom” to the next higher or lower rating

Metric Profile and Model Implied Rating Correspondence Table

IDR	Numerical Value
AAA	10
AA+	9
AA	8
AA-	7
A+	6
A	5
A-	4
BBB+	3
BBB	2
BBB- and Below	1

Source: Fitch Ratings

Issuer Position Within AA Rating



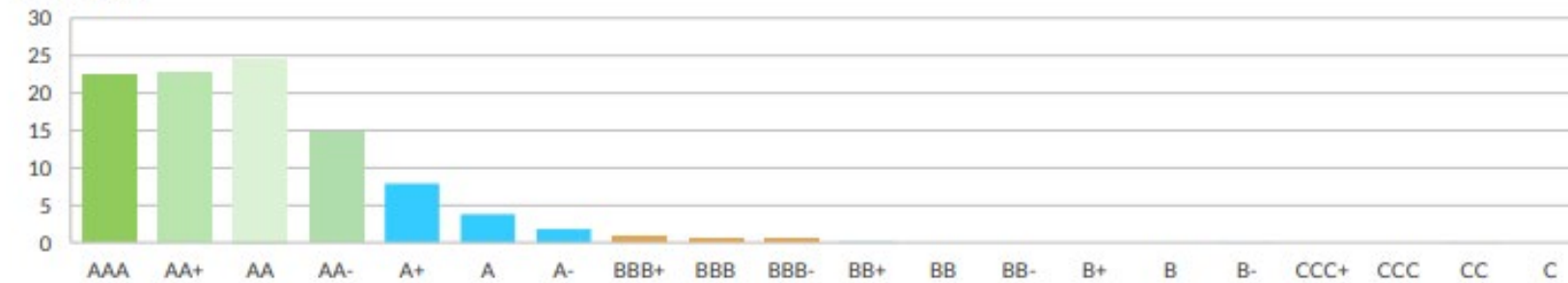
Fitch's U.S. Public Finance Tax Supported Rating Distribution

Tax-Supported Distribution

Rating Distribution (%)

As of July 1, 2024

(Issuer ratings)



Source: Fitch Ratings

Why The Change In Criteria?

- Quantify the relationship between credit metrics and ratings
- Leverage technology to provide a more quantitative, objective and consistent rating approach
- Allowing market participants to model financial inputs and observe potential rating impact
- Improve the ability to evaluate the portfolio through different economic cycles
- Enhance rating transparency and consistency
- Differentiate credits within a compressed rating portfolio
- Explicitly communicate rating headroom and sensitivity analysis
- Improve the ability to triage and screen the portfolio

3 Key Rating Drivers (KRDs) with 11 Metrics

Key Rating Driver (Implied KRD Weight %)	Metrics	Implied Metric Weight (%)
Financial Profile (35%)	Financial Resilience	35
	Revenue Volatility	-
Demographic and Economic Strength (44%)	Population Trend	8
	Unemployment Rate	9
	% of Population w. Bachelor's Degree and Higher	9
	MHI as a % of Portfolio Median	9
	Population Size	4.5
	Economic Concentration	4.5
Long-Term Liability Burden (20%)	Liabilities (Overall)/ Personal Income	7
	Liabilities (Direct)/ Governmental Revenues	5
	Carrying Costs/ Governmental Expenditures	8

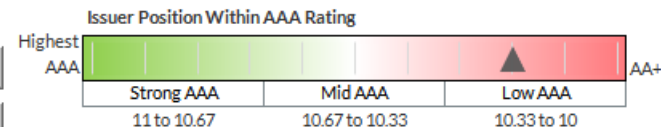
- The sum of the implied composite weights does not add up to 100% due to rounding
- The weights shown are indicative only to provide context as to relative factor importance, but are inputs into a regression analysis
- The weights for the individual subfactors are combined into composites for purposes of the model

LGRM External Model

Issuer	Sample City	Financial Profile	-1
Fiscal Year	2022	Demographic & Economic Stre	1
		Long-Term Liability Burden	1
		AAF Notching Total	1
Metric Profile	9.20	Model Implied Rating	10.20
Metric Profile Mapping	AA+	Model Implied Rating Mapping	AAA

Run Model

Clear Input



Metric	Level / CAGR ⁽¹⁾	Percentile	Weight	Percentile / Value	Assessment	Weight	Metric Profile
Financial Profile							
Financial Resilience Components							
Available Reserves (FB/Expenditures: 5-Year Low) (%)	25.9						
Revenue Control Assessment	Low			5	aaa	38%	
Expenditure Control Assessment	Midrange						
Budgetary Flexibility	Limited						
Financial Resilience	aaa	N/A	100%				
Lowest Cumulative 3 Year Revenue Performance (+/-) since 2008 (%)							
Revenue Volatility ⁽¹⁾	-10.0			10	Weak	N/A	
Demographic & Economic Strength							
Trend							
Population (CAGR) ⁽²⁾ (%)	-0.2	8%	60%	9%	Weakest	10%	AA+
Employment (CAGR) (%)	-0.7	9%	40%				
Level							
Unemployment Rate (Annual) ⁽³⁾ (%)	3.5	84%	33%	83%	Strongest	24%	
% Population w/ Bachelor's Degree and Higher ⁽²⁾	60.0	95%	33%				
MHI as a % of the Portfolio Median	120.7	71%	33%				
Concentration & Size							
Population Size ⁽²⁾⁽³⁾	58,000	100%	50%	100%	Strongest	7%	
Economic Concentration ⁽³⁾ (%)	33.8	100%	50%				
Long-Term Liability Burden							
Liabilities (Overall)/Personal Income (%)	6.8	66%	40%				
Liabilities (Direct)/Governmental Revenues (%)	338	5%	20%	32%	Weak	20%	
Carrying Costs/Governmental Expenditures (%)	21.9	12%	40%				

Analytical Judgment and Expertise

- Importance of analytical judgment remains vital within the proposed criteria and model
- There are opportunities at every step for the analyst and rating committee to incorporate issuer specific considerations
- Some examples of analytical adjustments include:
 - Historical data anomalies
 - Forward-looking performance shifts
 - Nonrecurring events
 - Scenario analysis
- Additional Analytical Factors (AAF)

Additional Analytical Factors (AAF)

- Additional Analytical Factors (AAF) draw upon analytical expertise and experience to incorporate rating factors that **are not wholly quantifiable**, such as management and governance, or *are measurable* but not statistically significant to the portfolio as a whole
- Common risk assessment metrics chosen for the model do not fully capture all relevant influences on credit quality
- Additional Analytical Factors (AAF) are grouped by Key Rating Driver (KRD), similar to the model metrics
- Maximum of +2/-2 AAF per KRD and total of +3/-3 overall

Key Rating Driver (KRD)	Additional Analytical Factors (AAF)
Financial Profile	Fiscal Oversight Revenue Capacity Contingent Risk Nonrecurring Support or Spending Deferrals Political Risk Management Practices
Demographic and Economic Strength	Economic and Institutional Strength Concentration Risk School District Enrollment
Long-Term Liability Burden	Pension Assumptions Pension Contributions OPEB Contributions Debt Structure Capital Demands

ESG Factors for Non-Tax-Supported U.S. Public Finance

Sector-Specific ESG Factors for Major U.S. Public Finance Sectors (Non-Tax-Supported)

Environmental Factors	Public Power	Water & Sewer	Hospitals	Higher Education	Housing (Master Revenue, HFA GO, Other) ^a
GHG Emissions and Air Quality	Emissions from operations				N.A.
Energy Management	Fuel used to generate energy	Energy use in operations			N.A.
Water and Wastewater Management	Water use by hydroelectric or other generating plants; effluent management	Water use in operations		Water use, consumption, resource availability	N.A.
Waste and Hazardous Materials Management; Ecological Impacts	Waste from operations	Impact of waste including pollution; discharge compliance	Management of medical waste	Land planning and development; construction	Environmental site risk; remediation and liability; sustainable building
Exposure to Environmental Impacts	Plant and network exposure to extreme weather events	Exposure to extreme weather events	Business disruption from climate change; impacts that change human health needs	Exposure to extreme weather events that disrupt operations	Asset, operations and/or cash flow exposure to extreme weather events and other catastrophe risk
Social Factors					
Human Rights, Community Relations, Access and Affordability	Product affordability and access		Low-income patient access	Relationships with local communities; access and affordability	Low-income resident access; housing affordability
Customer Welfare – Fair Messaging, Privacy and Data Security	Quality and safety of products and services; data security		Data privacy; care quality and safety outcomes; controlled substance management; pricing transparency	Data security and privacy; fair marketing of costs and educational outcomes	Quality and safety of products and services; data security
Labor Relations and Practices	Impact of labor negotiations and employee (dis)satisfaction		Impact of labor negotiations and employee (dis)satisfaction; recruitment and retention of skilled healthcare workers	Impact of labor negotiations and employee (dis)satisfaction; employee recruitment and retention; workforce diversity	Impact of labor negotiations and employee (dis)satisfaction; recruitment and retention of skilled workers
Employee Wellbeing					
Exposure to Social Impacts	Social resistance to major projects that leads to delays and cost increases	Social resistance to major projects that leads to delays and cost increases and/or unfavorable regulatory regimes	Social pressure to contain healthcare spending growth; sensitive political environment with impactful legislative changes	Social or consumer-driven changes impacting demand and/or public support	Macroeconomic factors and a sustained structural shift in secular preferences affecting consumer behavior and underlying mortgages and/or mortgage availability
Governance Factors					
Management Strategy	Strategy development and implementation			Management effectiveness in executing strategy and mission components; ability to manage through an economic cycle	Strategy development and implementation
Governance Structure	Governing body independence and effectiveness; degree of political or external influence	Board independence and effectiveness; ownership concentration		Board independence and effectiveness in fiduciary and strategic efforts; ownership concentration; span of control	Governing body independence and effectiveness; degree of political or external influence
Group Structure	Complexity, transparency and related-party transactions				Complexity, transparency and related counterparty risk
Financial Transparency	Quality and timing of financial disclosure			Quality, timing, frequency, reliability, level of detail and scope of financial disclosure	Quality and timing of financial disclosure

^aThe CDSL group maintains three ESG Housing Navigators: Master Revenue, HFA GO and Other; Military Housing and Affordable Housing; and HFA Loan Program Master.
HFA – Housing finance agency. N.A. – Not applicable.
Source: Fitch Ratings.

ESG Factors for State and Local Governments

Sector-Specific ESG Factors for U.S. Public Finance Tax-Supported Issuers (State and Local Governments)

Environmental Factors	
GHG Emissions and Air Quality	Emissions and air pollution as constraints on economy and revenue growth; enforcement/compliance with governmental/regulatory standards
Energy Management	Impact of energy resources management on economy and governmental operations, including enforcement/compliance with governmental/regulatory standards
Water Resources Management	Water resource availability impacts on economy and governmental operations, including enforcement of governmental/regulatory standards
Biodiversity and Natural Resources Management	Impact of natural resources management on economy and governmental operations
Natural Disasters and Climate Change	Impact of extreme weather events and climate change on economy, governmental operations and policy related to natural disasters treatment
Social Factors	
Human Rights and Political Freedoms	Policy framework on social stability and human rights protection
Human Development, Health and Education	Impact of health and education on economic resources and governmental operations
Labor Relations and Practices	Impact of labor negotiations and employee (dis)satisfaction
Public Safety and Security	Impact of public safety and security (including cybersecurity) on business environment and/or economic performance
Demographic Trends	Impact on economic strength and stability (labor force supply, household income, population and aging, etc.)
Governance Factors	
Political Stability and Rights	Impact of political pressure or instability on operations; tendency toward unpredictable policy shifts
Rule of Law, Institutional and Regulatory Quality, Control of Corruption	Governmental effectiveness; control of corruption; regulatory quality; management practices and their effectiveness; respect for property rights
International Relations and Trade	Trade agreements and impact on economy and revenue growth
Creditor Rights	Willingness to service and repay debt; exposure to outstanding or pending litigation
Data Quality and Transparency	Limitations on quality and timeliness of financial data, including transparency of public debt and contingent liabilities

Source: Fitch Ratings.

MOODY'S

RATINGS

Ratings and Research - San Francisco, CA

- Alexandra Cimmiyotti, VP- Senior Credit Officer

- Public Finance Group

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Who we are and what we do

FACTS & FIGURES

Full Year 2023

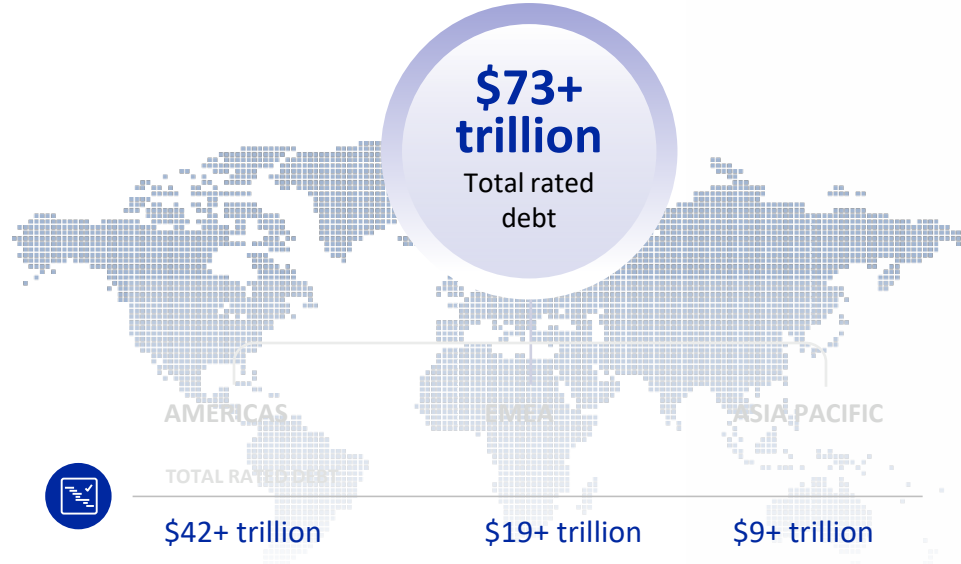
33,200+

Rated Organizations and Structured Deals

4,800+ Non-Financial Corporates  2,300+ Financial Institutions  980+ Insurance Organizations 

14,700+ US Public Finance Issuers  8,900+ Structured Finance Deals  1,000+ Infrastructure & Project Finance Issuers 

370+ Sub-Sovereigns  144 Sovereigns*  47 Supranational Institutions* 



TOTAL RATED DEBT

\$42+ trillion \$19+ trillion \$9+ trillion



RATED ORGANIZATIONS AND STRUCTURED DEALS

26,600+ 4,500+ 2,100+



PUBLICATIONS

13,900+ 4,700+ 6,100+



26,400+ Publications globally

19,300+ Issuer Research

2,200+ Sector Research

4,800+ Other Reports

190+ Rating Methodologies

Source: Moody's Investors Service as of 02 January 2024
Research and Events data covers the period 01 January 2023 to 31 December 2023
For the 'Total Rated Debt' section, the regional breakdown displayed excludes figures related to Supranational Institutions
All numbers are rounded other than those marked *



PEOPLE

13,500+
MCO employees

1,700+
Analysts

40+
Countries/Regions



EVENTS

540+
Global events

≈58,000
Global participants



AWARDS & RECOGNITION

Award-winning expertise in credit ratings, research and risk analysis. For more information, visit awards.moody.io

What is a Moody's Credit Rating?

Provide investors with a simple system of gradation by which future relative creditworthiness of securities may be gauged

Rating	Description
Aaa	Highest quality, with lowest level of credit risk
Aa	High quality and subject to very low credit risk
A	Upper-medium grade and subject to low credit risk
Baa	Medium grade, moderate credit risk, and may possess certain speculative characteristics
Ba	Speculative and subject to substantial credit risk
B	Speculative and subject to high credit risk
Caa	Speculative of poor standing and subject to very high credit risk
Ca	Highly speculative and likely in, or very near, default, with some prospect of recovery of principal and interest
C	Typically in default, with little prospect for recovery of principal or interest

Moody's Rating Methodology



Published rating methodologies ensure **a consistent approach**

Methodologies include **a rating grid**: a summary of the main qualitative and quantitative factors considered



Methodology grids provide **transparency for issuers and investors** to understand the rating outcome



It is **not an exhaustive treatment** of all factors reflected in Moody's ratings: the indicated outcome from the grid can and does often differ from the actual rating assigned

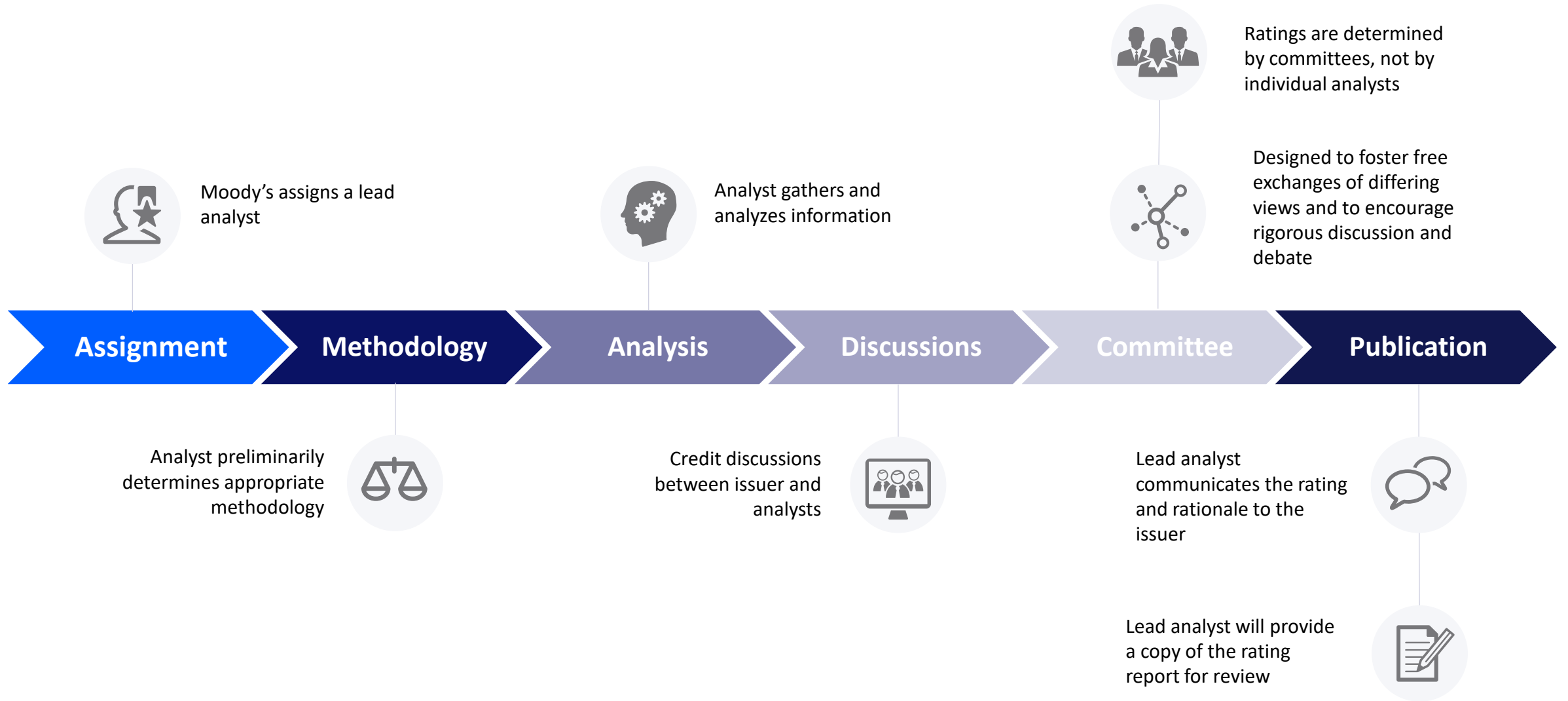


All financial ratios are adjusted using **Moody's Global Standard Adjustments**

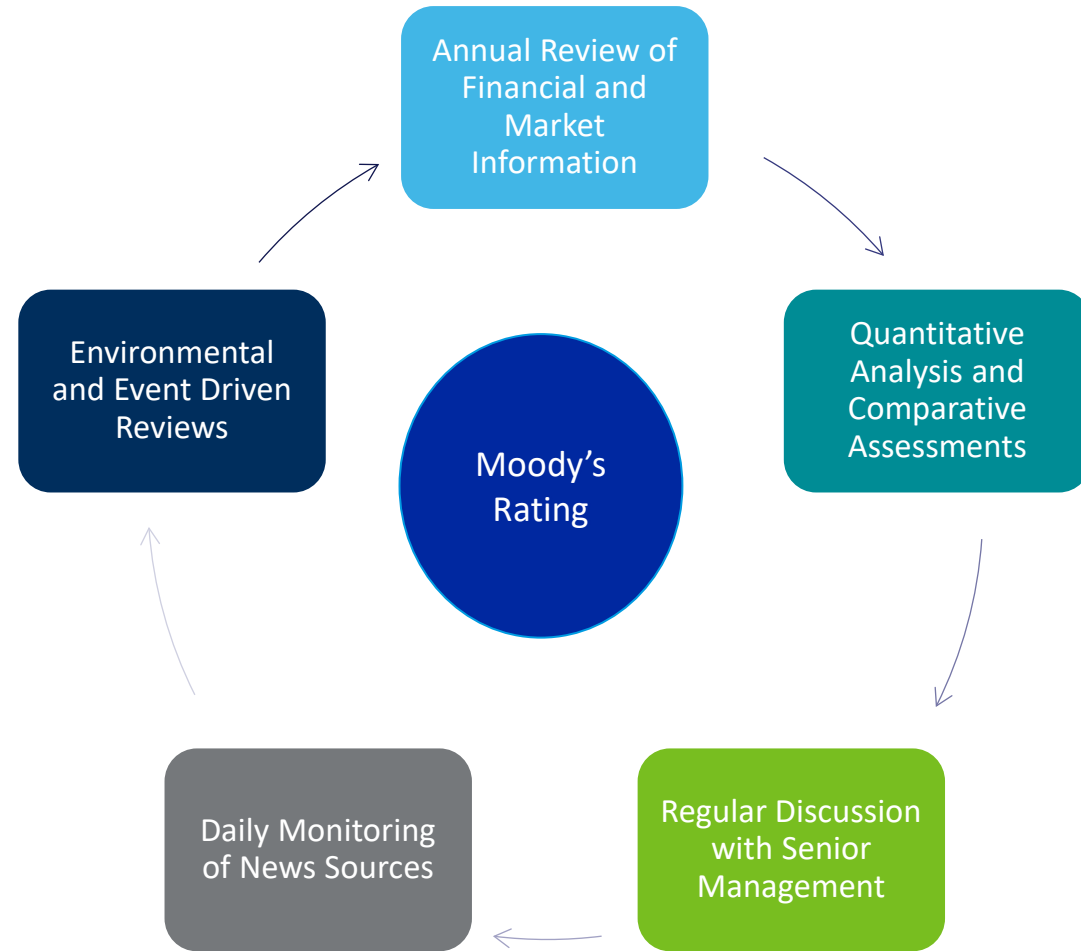


Rating assignments/changes are made by rating committees, taking into account a wide range of factors, which are not restricted to credit metrics or the methodology

The Rating Process – Six Steps



Long-term rating relationship with regular monitoring



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Cities and Counties

Cities and Counties Methodology

Transition of cities and counties from security-based to sector-based approach

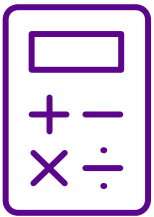


Arriving at the issuer rating

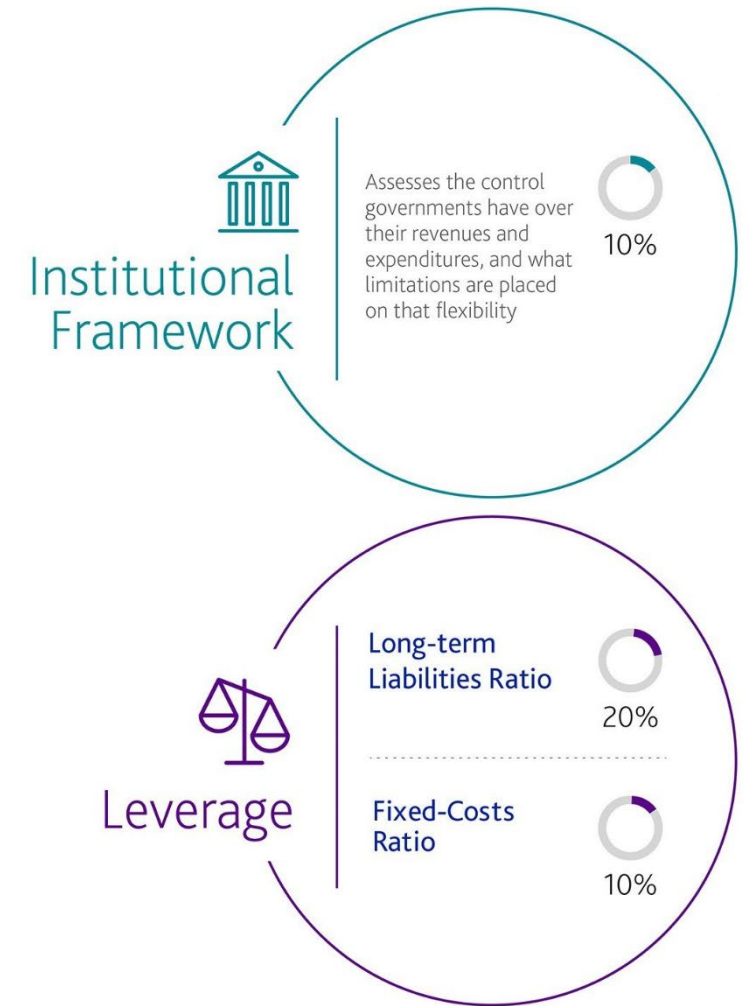


Arriving at the issuer rating – Step 1

Scorecard Factors



Step 1



City & County Methodology (City of ABC)

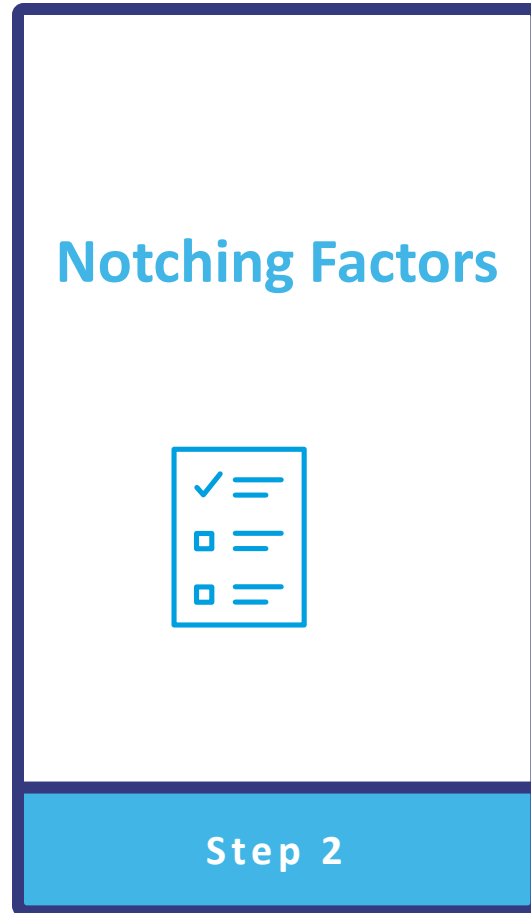
	WEIGHTS	INPUT	SCORE	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Economy											
Resident Income (MHI Adjusted for RPP / US MHI)	10.0%	81.0%	0.74	>=120%	100 - 120%	80 - 100%	65 - 80%	50 - 65%	35 - 50%	20 - 35%	<20%
Full value per capita (full valuation of the tax base / population)	10.0%	\$38,692	0.77	>=\$180,000	\$100,000 - \$180,000	\$60,000 - \$100,000	\$40,000 - \$60,000	\$25,000 - \$40,000	\$15,000 - \$25,000	\$9,000 - \$15,000	<\$9,000
Economic Growth (5-year CAGR real GDP - 5-year CAGR US real GDP)	10.0%	0.5%	0.13	>=0%	(1) - 0%	(2.5) - (1.5)%	(4.5) - (2.5)%	(7) - (4.5)%	(10) - (7)%	(15) - (10)%	<(15)%
Financial Performance											
Available Fund Balance Ratio (Available Fund Balance + Net Current Assets / Revenue)	20.0%	33.5%	0.39	>=35%	25 - 35%	15 - 25%	5 - 15%	0 - 5%	(5) - 0%	(10) - (5)%	<(10)%
Liquidity Ratio (Unrestricted Cash / Revenue)	10.0%	31.5%	0.40	>=40%	30 - 40%	20 - 30%	12.5 - 20%	5 - 12.5%	0 - 5%	(5) - 0%	<(5)%
Institutional Framework											
Institutional Framework	10.0%	Aa	0.30	Aaa	Aa	A	Baa	Ba	B	Not applicable.	Not applicable.
Leverage											
Long-term Liabilities Ratio ((Debt + ANPL + Adjusted Net OPES + Other Long-Term Liabilities) / Revenue)	20.0%	480.4%	2.02	<=100%	100 - 200%	200 - 350%	350 - 500%	500 - 700%	700 - 900%	900 - 1100%	>1100%
Fixed-Costs Ratio (Adjusted Fixed Costs / Revenue)	10.0%	18.4%	0.66	<=10%	10 - 15%	15 - 20%	20 - 25%	25 - 35%	35 - 45%	45 - 55%	>55%
Notching factors											
Additional strength in local resources		0.0	0 to +2								
Limited Scale of Operations		0.0	-1 to 0								
Financial Disclosures		0.0	-2 to 0								
Potential Cost Shift to or from the State		0.0	-1 to +1								
Potential for Significant Change in Leverage		0.0	-2 to +1.5								
Total Factor Notching		0.0									

Scorecard Indicated Outcome: **A1**

Sources: US Census Bureau,

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

Arriving at the issuer rating – Step 2



1. Additional strength in local resources
2. Limited scale of operations
3. Financial disclosures
4. Potential cost shift to or from the state
5. Potential for significant change in leverage

Notching Factors

Notching factors are quantitative

Notching Factor	Notching Range
Additional Strength in Local Resources	0 to +2
Limited Scale of Operations	-1 to 0
Financial Disclosures	-2 to 0
Potential Cost Shift to or from the State	-1 to +1
Potential for Significant Change in Leverage	-2 to +1.5

Source: Moody's Investors Service

Arriving at the issuer rating – Step 3

Other Considerations



Step 3

Examples of qualitative Other Considerations:



Environmental, Social and Governance

Exposure to natural disaster risk may influence credit strength. The risk of teacher strikes are an example of a social consideration. Weak or opaque governance can negatively affect school performance.



Competitive Considerations

Academic performance measures may result in competitive strength. The risk of future enrollment losses to charter schools or other open-enrollment public schools may not already be reflected in the scorecard.




Extraordinary State Support

State may provide meaningful financial or managerial support, bolstering a weak fundamental credit profile.

Arriving at the issuer rating – Step 3

**Other
Considerations**



Step 3

Examples of qualitative other considerations (not an exhaustive list):

- Fund-specific financial considerations
- Competitive enterprise risk in governmental or business-type activities
- Likelihood of receiving extraordinary or ongoing support
- Strengths or weaknesses related to economic concentration
- Unusual risk or benefit posed by long-term liabilities

Other Considerations

These considerations are qualitative and only relevant to certain issuers

- Environmental, Social and Governance Considerations
- Event risk
- Strengths or weaknesses related to economic concentration
- Unusual strengths or weaknesses related to budgets or liquidity
- Fund specific financial considerations
- Competitive enterprise risk in governmental or business-type activities
- Strengths or weakness associated with component units or other related entities
- Related local governments
- Likelihood of receiving extraordinary or ongoing support
- Financial controls
- Unusual Risk or Benefit Posed by Long-Term Liabilities
- History or likelihood of impaired liquidity or market access or missed debt service payments
- Expected decline or improvement in instrument-level credit quality
- Considerations specific to US Native American Tribal Nations
- Additional metrics

Moody's Investors Service ESG Scores Explained

Our scores are **NOT** an opinion about an issuer's sustainability performance or ESG disclosures

Credit Impact Score (CIS)

Reflects the impact of ESG on the credit rating
NOT a combination of E, S and G-IPS

Example of Score:

CIS-4

Highly Negative



- Indicates the extent to which the credit rating would have been different in the absence of ESG issues
- Places ESG in the context of other rating considerations
- CIS-1 (Positive) assigned only if the credit rating is better because of ESG factors

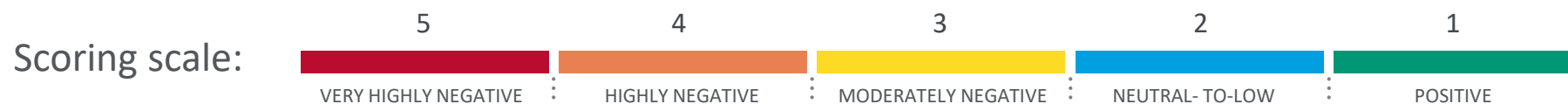
Issuer Profile Scores (IPS)

IPS is our assessment of the issuer's exposure to Environmental (E), Social (S) or Governance (G) risks / benefits material to credit risk including relevant mitigants

Example of Scores:



- Scores are global and comparable across sectors
- Incorporate management's action/mitigants
- E-1, S-1 or G-1 (Positive) assigned only when considerations have material credit benefits



ESG Classification System Incorporates Credit Relevant Considerations



Environmental

Physical climate risks
Carbon transition
Water management
Waste and pollution
Natural capital



Social

Private sector	Public sector
Customer relations	Access to basic services
Demographic and societal trends	Demographics
Human capital	Education
Health and safety	Health and safety
Responsible production	Housing
	Labor and income



Governance

Private sector	Public sector
Financial strategy & risk management	Institutional structure
Management credibility & track record	Policy credibility and effectiveness
Organizational structure	Budget management
Board structure, policies & procedures	Transparency and disclosure
Compliance & reporting	

ESG Integration into Credit Analysis

Our rating analysis considers all material credit considerations, including ESG

SECTOR-SPECIFIC METHODOLOGIES

Methodology Scorecard / Model

Other Considerations

ESG CROSS-SECTOR METHODOLOGY

CREDIT RATING

ESG CREDIT IMPACT SCORE*

CIS-1 Positive

CIS-2 Neutral-to-low

CIS-3 Moderately Negative

CIS-4 Highly Negative

CIS-5 Very Highly Negative

Environmental IPS



- Carbon transition
- Physical climate risks
- Water management
- Waste and pollution
- Natural capital

ISSUER PROFILE SCORES

Social IPS



- Customer relations
- Human capital
- Demographic and societal trends
- Health and safety
- Responsible production

Governance IPS



- Financial strategy & risk management
- Management credibility & track record
- Organizational structure
- Compliance & reporting
- Board structure, policies & procedures

The ESG credit impact score (CIS) is an output of the rating process that more transparently communicates the impact of ESG considerations on the credit rating of an issuer or transaction.

ESG Credit Impact Score

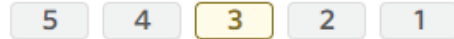
ENVIRONMENTAL

E-3

Moderately Negative

Risk Categories

Physical Climate Risks



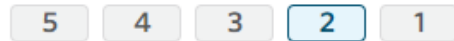
Carbon Transition



Water Management



Natural Capital



Waste and Pollution



SOCIAL

S-3

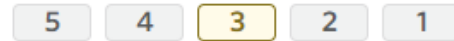
Moderately Negative

Risk Categories

Demographics



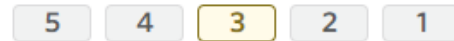
Labor and Income



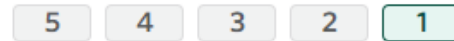
Education



Housing



Health and Safety



Access to Basic Services



GOVERNANCE

G-2

Neutral-to-Low

Risk Categories

Institutional Structure



Policy Credibility & Effectiveness



Budget Management



Transparency and Disclosure



CIS-2

Neutral-to-Low

Analyst Commentary

Los Angeles' ESG Credit Impact Score is neutral-to-low (CIS-2), reflecting moderately negative environmental risks, strong governance, and moderately negative exposure to social risks.

Physical Climate Risks

Climate Hazard Risk: from Moody's ESG Solutions			
Hazard	Risk Level		Score
Floods	LOW		16
Heat Stress	MEDIUM		48
Hurricanes & Typhoons	NONE		0
Sea Level Rise	LOW		10
Water Stress	HIGH		78
Wildfires	HIGH		82

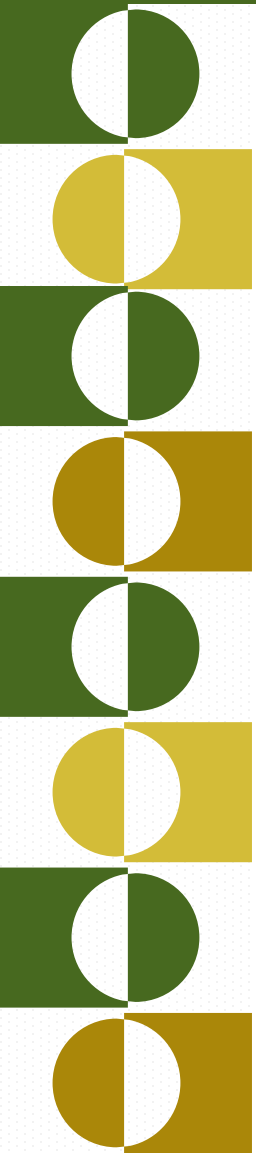
Los Angeles, California



Source: Moody's ESG Solutions

[Methodology](#)

THE RATING PRESENTATION

- 
- Information
 - Presentation
 - Advisors and Bankers – use their experience
 - In Person
 - Virtual
 - Site Visits

FRAME THE DISCUSSION

- Factor/subfactor as guidance
- Outliers/special factors to consider
- Consistency vs. TMI
- Historic and forecasts
- ESG?
- Making the Case

QUESTIONS?



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SESSION FOUR: PART ONE

Market Dynamics & Pricing Concepts



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Capital Finance Director
San Francisco Public
Utilities Commission





- Bond Pricing Basics
- Financing Team Dynamics
- Week of Pricing
- Issuer Participation in Pricing Negotiations
- Market Factors Affecting Bond Pricing
- Structural, Credit, and State/Industry Specific Factors Affecting Bond Pricing



Bond Pricing Basics



Bond Pricing – Desk Speak Vocab

Bump	Lower yield, higher dollar price.	↔	Cut	Higher yield, lower dollar price.
Cheap	Yields higher (dollar price lower) than reasonable for specific credit.	↔	Rich	Opposite of cheap. Yields lower (dollar price higher) than reasonable for specific credit.
Rally	Decreasing yields in market.	↔	Selling Off	Opposite of rally. Increasing yields in market.
Benchmark	A tool used by issuers, investors and other financial professionals to describe the market, and to compare performance.	↔	Spreads	Delta between the benchmark and a specific bond yield. For example, quoted as spread to “AAA” BVAL index.
Tightening	Delta of spreads diminishing between the benchmark and credit categories	↔	Widening	Opposite of tightening. Delta of spreads increasing between the benchmark and credit categories.
Over-Subscribed	Number of orders exceeds the bonds available for a certain maturity	↔	Underwriting /Inventory	Underwriter takes in unsold bonds



What is a Benchmark





- ◆ A method of measuring the value of a section of the bond market
- ◆ A tool used by issuers, investors and other financial professionals to describe the market, and to compare the rate of return on specific securities
- ◆ A tool that allows performance to be compared relative to a point in the market, accounting for differences in couponing, call feature, and credit.
- ◆ A metric that should track the same spot in the market, so that performance can be measured across time and different market environments



Taxable Benchmark

- Taxable Municipal Bonds, and Corporate Bonds use US Treasuries as a Benchmark

09:14		Outright	Switch	Bfly															
4	Actives	5	Bills	6	Notes	7	TIPS	8	Strips	9	Sprds	10	Curves	11	FRN	12	Bfly	13	WI
Bills								Notes & Bonds											
31)	09/10/24		5.260 / 5.253		5.354 / 5.347	53)	4 ¹ / ₄ 254		101-08+ / 09+		4.175 / 4.173								
32)	10/08/24		5.175 / 5.170		5.289 / 5.284	54)	4 ⁵ / ₈ 554		107-25 / 26		4.166 / 4.164								
33)	11/14/24		5.052 / 5.050		5.190 / 5.187	55)	4 ¹ / ₄ 854 30YR		101-15 / 16		4.164 / 4.162								
34)	12/10/24		4.988 / 4.983		5.141 / 5.136	TIPS													
35)	02/13/25		4.770 / 4.760		4.956 / 4.945	56)	2 ¹ / ₈ 429		101-24 / 101-25 ¹ / ₄		1.733 / 1.724								
36)	08/07/25		4.243 / 4.233		4.443 / 4.432	57)	1 ⁷ / ₈ 734		101-02 / 101-03 ¹ / ₄		1.758 / 1.753								
Notes & Bonds								58)	2 ¹ / ₈ 254		101-31 ³ / ₄ / 102-03		2.035 / 2.030						
37)	4 ⁷ / ₈ 526		101-13 ⁷ / ₈ / 14 ¹ / ₄		4.036 / 4.029	Curve Trades													
38)	4 ⁵ / ₈ 626		101-03 ⁵ / ₈ / 04		4.001 / 3.995	59)	2yr vs 5yr		-27.292 / -26.704		+0.060								
39)	4 ³ / ₈ 726 2YR		100-24 ³ / ₈ / 24 ⁵ / ₈		3.967 / 3.963	60)	2yr vs 10yr		-10.700 / -10.094		+0.880								
40)	4 ⁵ / ₈ 627		102-07 ³ / ₄ / 08 ¹ / ₄		3.782 / 3.776	61)	5yr vs 10yr		16.420 / 16.782		+0.821								
41)	4 ³ / ₈ 727		101-19 ³ / ₄ / 20 ¹ / ₄		3.783 / 3.778	62)	10yr vs 30yr		30.028 / 30.400		+0.736								
42)	3 ³ / ₄ 827 3YR		99-29 ³ / ₄ / 30		3.775 / 3.772	Other Markets													
43)	4 ¹ / ₂ 529		103-16 ³ / ₄ / 17+		3.690 / 3.685	63)	US Long(CBT)	09:04 d	123-22		+0-12								
44)	4 ¹ / ₄ 629		102-13 / 13 ³ / ₄		3.705 / 3.700	64)	10yr Fut (CBT)	09:04 d	113-15+		+0-08								
45)	4 729 5YR		101-11 ³ / ₄ / 12		3.696 / 3.694	65)	5Yr Fut(CBT)	09:04 d	109-03 ³ / ₄		+0-05+								
46)	4 ¹ / ₄ 631		103-01+ / 02		3.743 / 3.740	66)	Dow Jones Ind	08/12	39357.012		-140.527								
47)	4 ¹ / ₈ 731 7YR		102-09+ / 10		3.747 / 3.744	67)	S&P 500 Ind	08/12 d	5344.390		+0.230								
48)	4 234		101-03 / 04		3.861 / 3.857	68)	NYM WTI Crd	09:04 d	79.620		-0.440								
49)	4 ³ / ₈ 534		104-04 / 05		3.863 / 3.859	69)	Gold	09:14	2470.885		-2.015								
50)	3 ⁷ / ₈ 834 10YR		100-03+ / 04		3.862 / 3.860	70)	Global Agg	08/12	474.769		-0.074								
51)	4 ¹ / ₂ 244		103-07 / 08		4.255 / 4.253	71)	US Agg	08/12	2217.634		+4.612								
52)	4 ⁵ / ₈ 544 20YR		104-29+ / 30+		4.254 / 4.251	72)	US Treasury	08/12	2331.687		+5.134								



Tax Exempt Benchmarks

- The Tax-Exempt Municipal Market does not have a tradeable benchmark such as US Treasuries, however there are several benchmarks publicly available on the MSRB Emma website.

The screenshot displays the EMMA (Electronic Municipal Market Access) website interface. At the top, the EMMA logo is accompanied by the text "Electronic Municipal Market Access" and "A service of the MSRB". To the right, there are links for "EMMA Help" and "Contact Us", and a search bar with the placeholder text "Search by CUSIP, Description, State, etc." and a green search button. Below the search bar is a navigation menu with tabs for "Browse Issuers", "Tools and Resources", "Market Activity", "MyEMMA", "EMMA Dataport", and a zoom control "A- 100% A+".

The main content area is titled "Municipal Yield Curves and Indices" and includes a sub-header "View daily and historical yield curves and indices from third-party providers, and additional information, including the methodology used by each provider. For more information on yield curves and indices, visit EMMA Help." Below this, there is a list of seven providers, each with a logo, name, and description, and buttons for "Daily Yield Curves" and "Historical Yield Data":

Provider	Product	Available Data
Bloomberg	BVAL® AAA Municipal Curves	Daily Yield Curves, Historical Yield Data
bondwave	BondWave AA QCurve	Daily Yield Curves, Historical Yield Data
ICE	ICE US Municipal AAA Curve	Daily Yield Curves, Historical Yield Data
IHS Markit	IHS Markit Municipal Bond AAA Curve	Daily Yield Curves, Historical Yield Data
MBIS	MBIS Municipal Benchmark Curve	Daily Yield Curves, Historical Yield Data
S&P Dow Jones Indices	S&P Municipal Bond Index	Historical Index Data
Tradeweb	Tradeweb AAA Municipal Yield Curve	Daily Yield Curves, Historical Yield Data



◆ **The “MMD Curve” historically has been most widely used benchmark in the municipal market.**

- MMD Curve refers to the AAA-rated G.O. Curve
- Municipal market’s “risk-free” rate proxy
- MMD represents the current market rate for various maturities, assuming a 5% coupon and a 10-year par call
- MMD is produced by Refinitiv (TM3), an independent third-party market observer

◆ **The BVAL AAA Callable Curve offers an alternative benchmark that continues to gain interest from municipal market participants**

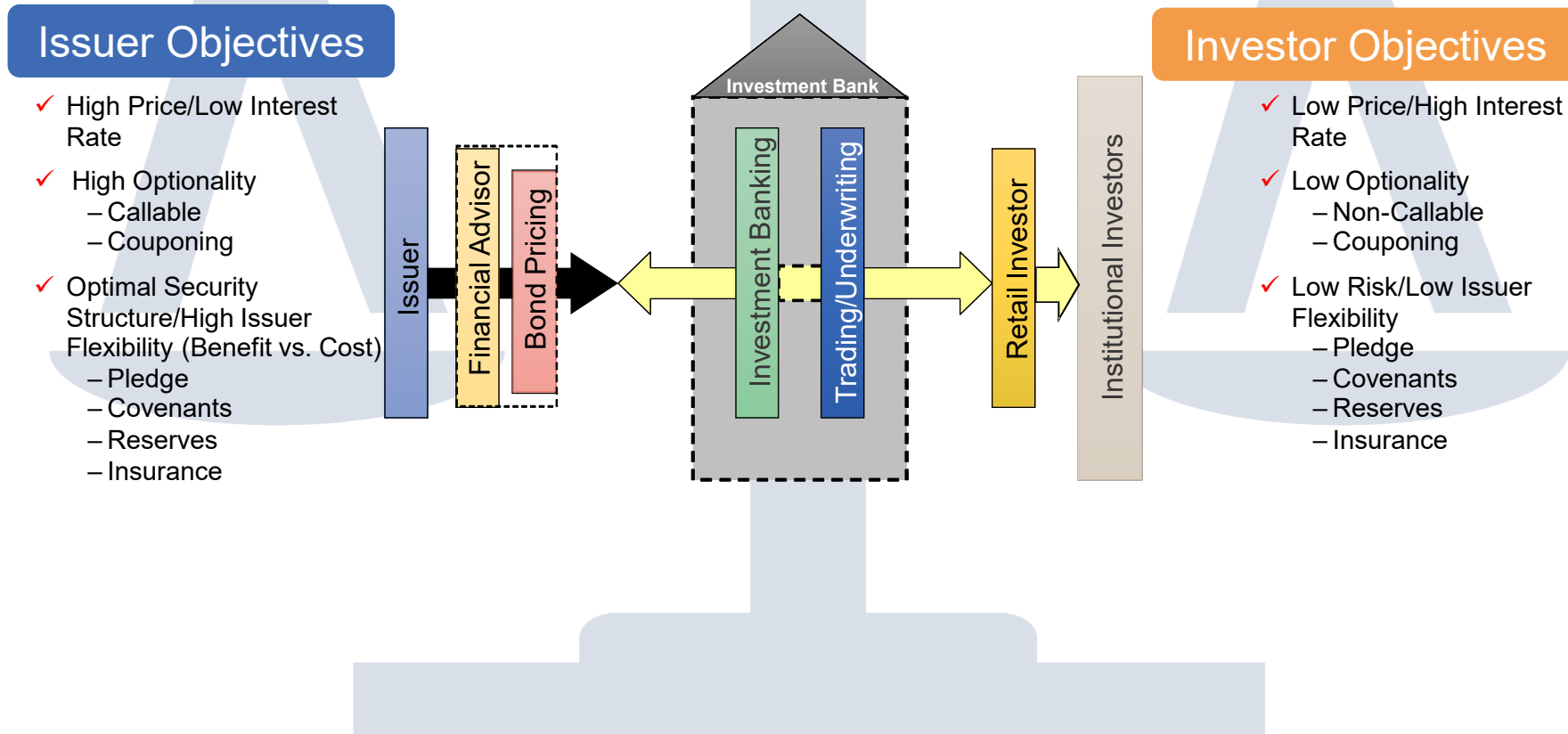
- BVAL AAA Callable Curve refers to the AAA-rated G.O. Curve
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- BVAL AAA Callable Curve represents the current market rate for various maturities, assuming a 5% coupon and a 10-year par call
- BVAL AAA Callable Curve is produced by Bloomberg, an independent third-party market observer



Financing Team Dynamics



MSRB Rule G-17 excerpt: “The Underwriters have a duty to purchase the Bonds from the Issuer at a fair and reasonable price, but must balance that duty with their duty to sell the Bonds to Investors at prices that are fair and reasonable.”

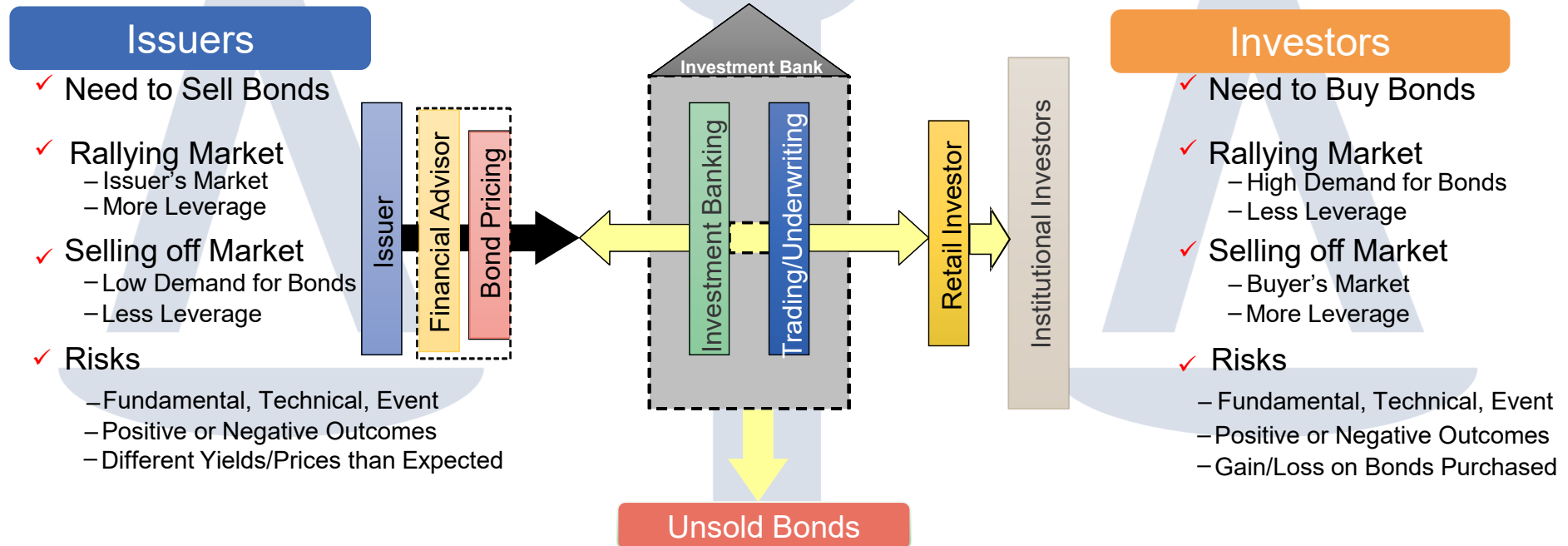


Source: Interpretive Notice Concerning the Application of MSRF Rule G-17;
<https://www.msrb.org>



Navigating Risk In the Markets

Managing the duty to purchase and sell bonds at a fair and reasonable price is inherently more difficult when greater market risk is present.



- Bonds may be put into underwriter's inventory if an appropriate price is not readily available/determinable
- At this point, the Underwriter becomes the initial buyer and is subject to investor risks
- Underwriter's appetite and ability to purchase the bonds into inventory depends on the type of market and risks present.
- Adjustments to initial price/yields may be needed in order to protect against various risks, for example:
 - Interest Rate Risk that may affect the ability to sell bonds at the price put into inventory
 - Inventory levels: unsold par underwritten at acceptable total both within the current transaction and across transactions



Week of Pricing Overview



Typical Pricing Schedule

- The process begins weeks ahead of the sale date with discussions of general market conditions, potential couponing strategies, and the identification of comparable sales
- In a negotiated sale, the week following the POS posting provides the underwriting firm the opportunity to pre-market the bonds to investors

Example Schedule				
Monday	Tuesday	Wednesday	Thursday	Friday
1	2	3	4	5
8	9	10	11	12
				Post POS
15	16	17	18	19
Assess market conditions Possible investor calls				
22	23	24	25	26
Pre-Pricing with MA Pre-Pricing with underwriter	Pricing			
29	30	31		



Financial Advisor's Independent scale

- FA presents to the client a technical pricing analysis that includes an independent target scale

Underwriter's Market Update

- Underwriter provides market updates, comparative bond sales, and their proposed scale

Pre-Marketing Period

- Issuer and FA negotiate scale Pre-Marketing scale with underwriter
- Issuer signs off on pre-marketing scale for underwriter to talk to investors about specific levels



Pre-Pricing Period

- Early morning (typically 6am-7am) call to review scale
- FA and UW take the tone of the market
- Issuer signs off on any agreed upon changes

Order Period

- Underwriter takes orders from investors
- Financing team monitors market conditions

Post-Order Period

- Issuer & FA look to negotiate lower yields where possible
- Issuer, FA, and underwriter decide on final adjusted yields as needed
- Issuer signs Bond Purchase Agreement



What is a Retail Order Period?

- An order period designated and open to orders only “Retail” investor accounts
- Typically occurs 1 day prior to Institutional Order Period

What is a Retail Account?

- Individuals – True “Mom and Pop” retail
- Professional Retail - Separately Managed Accounts (SMA's)

When Can a Retail Order Period Make Sense?

- State with a strong retail presence with the ability to drive price
- Larger transaction
- Retail friendly structure
- Retail friendly credit

Considerations During a Retail Order Period?

- Ensure Bonds are available for Institutional Investors (50% Rule and/or hold back maturities)
- Maintain flexibility to accelerate transaction
- Strong Reception can help drive Institutional Pricing; Weak Reception can detract

Alternatives to a Specific Retail Order Period?

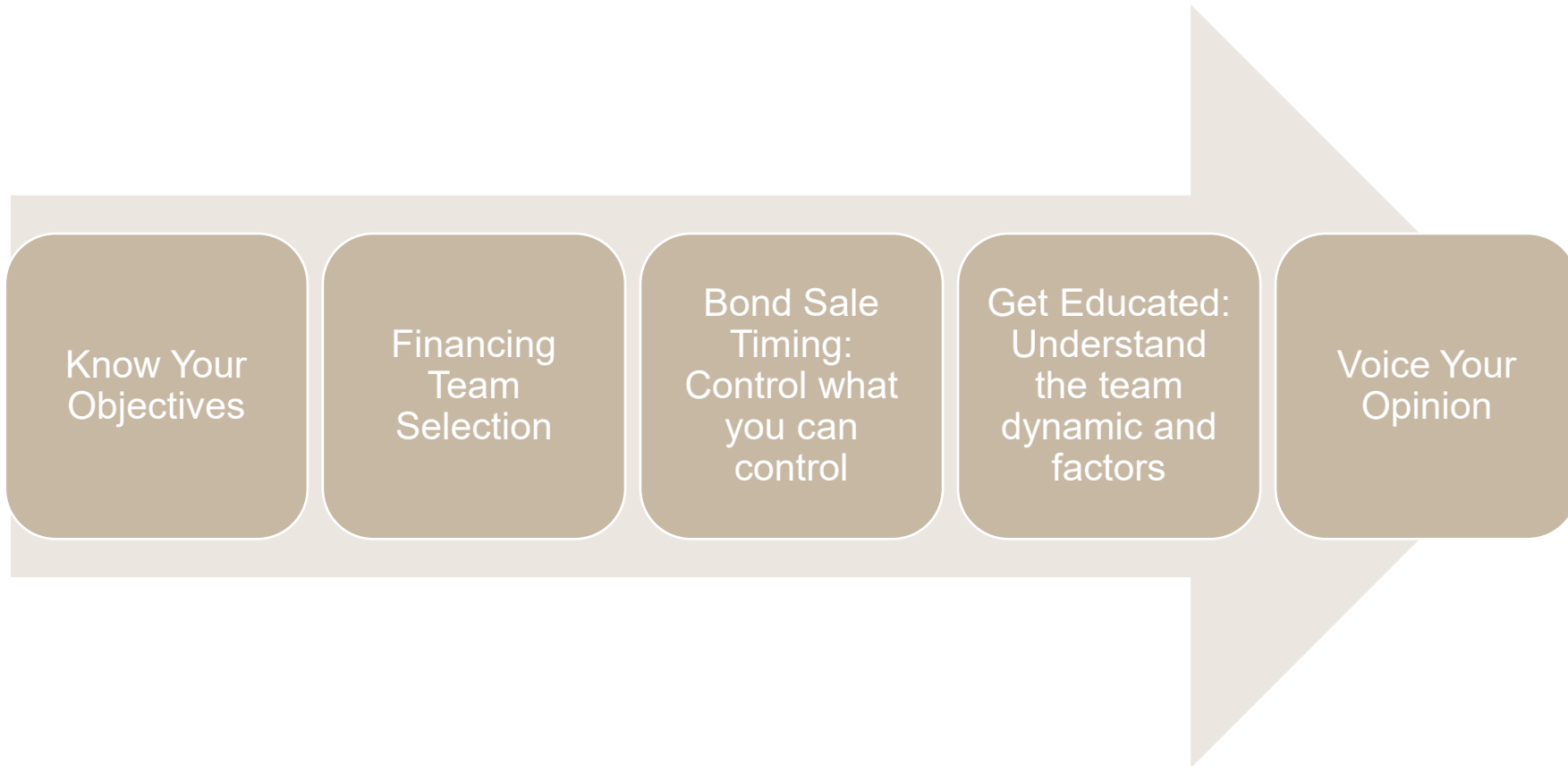
- During the normal Institutional Order Period:
 - Give “Individual” Retail First Priority
 - Maintain equal priority for Professional Retail and Institutional Accounts



Issuer Participation in Negotiated Transactions



Issuer Perspective: Pricing Takeaways





Market Factors Affecting Bond Pricing



Day of Pricing Market Dynamics

Equity Indices – Risk On/Off

Index	RMI	2Day	Value	Net Chg	%Chg	Δ AVAT	Time	Adv/Dcl	%Ytd	%YtdCur
Americas										
DOW JONES			39730.67	+9.31	+0.02%	+3.44%	15:41	18 / 12	+5.42%	+5.42%
S&P 500			5589.11	-44.80	-0.80%					
NASDAQ			18324.26	-323.19	-1.73%					

Economic Data

Date	Time	A	M	R	Event	Period	Surv(M)	Actual	Prior	Revised
07/11	08:30				CPI MoM	Jun	0.1%	-0.1%	0.0%	--
07/11	08:30				CPI Ex Food and Energy MoM	Jun	0.2%	0.1%	0.2%	--
07/11	08:30				CPI YoY	Jun	3.1%	3.0%	3.3%	--
07/11	08:30				CPI Ex Food and Energy YoY	Jun	3.4%	3.3%	3.4%	--
07/11	08:30				CPI Index NSA	Jun	314.614	314.175	314.069	--
07/11	08:30				CPI Core Index SA	Jun	318.780	318.346	318.140	--
07/11	08:30				Real Avg Hourly Earnings YoY	Jun	--	0.8%	0.8%	0.7%
07/11	08:30				Real Avg Weekly Earnings YoY	Jun	--	0.6%	0.5%	--
07/11	08:30				Initial Jobless Claims	Jul 6	235k	222k	238k	239k
07/11	08:30				Continuing Claims	Jul 6	1858k	1858k	1858k	1856k
07/11	14:00				Monthly Budget Statement	Jun	-\$76.1b	-\$66.0b	-\$347.1b	--
07/12	08:30				PPI Final Demand MoM	Jun	0.1%	--	-0.2%	--

Fund Flows

- Muni-Bond Funds See \$775 Million Weekly Inflow: LSEG Lipper
- Muni-Bond Funds See \$498 Million Weekly Outflow: LSEG Lipper
- Muni-Bond Funds See \$16 Million Weekly Inflow: LSEG Lipper
- Muni-Bond Funds See \$154 Million Weekly Inflow: LSEG Lipper
- Muni-Bond Funds See \$549 Million Weekly Inflow: LSEG Lipper

Ratios

Index	Last Price (L1)
MUNSMT05 Index	68.657
MUNSMT10 Index	67.235
MUNSMT30 Index	84.784

Muni Bonds out for Bid

Term	Description	Treasury Bid Yld	Ask Yld	Bid Chg	Swap Spnd	Bid Swap	Ask Swap	Bid Chg
1 mo	B 0 08/06/24	5.330	5.322	-0.006	-3	5.327	5.327	-0.018
3 mo	B 0 10/10/24	5.349	5.339	-0.027	-6.6	5.283	5.283	-0.018
6 mo	B 0 09/23/25	5.214	5.204	-0.075	-6.1	5.153	5.153	-0.055
1 yr	B 0 07/10/25	4.903	4.895	-0.101	-5.7	4.847	4.853	-0.101
1 yr	T 4 5/8 06/30/26	4.513	4.511	-0.109	-18.8	4.325	4.330	-0.126
2 yr	T 4 5/8 07/15/27	4.277	4.274	-0.112	-21.5	4.062	4.066	-0.124
3 yr	(Interpolated)	4.206	4.204	-0.107	-29.0	3.917	3.921	-0.113
4 yr	T 4 5/8 06/30/29	4.137	4.136	-0.102	-29.9	3.838	3.841	-0.113
5 yr	(Interpolated)	4.144	4.142	-0.098	-34.9	3.796	3.799	-0.110
6 yr	T 4 5/8 06/30/31	4.151	4.148	-0.094	-34.8	3.775	3.776	-0.107
7 yr	(Interpolated)	4.170	4.168	-0.089	-40.8	3.762	3.763	-0.101
8 yr	(Interpolated)	4.189	4.186	-0.085	-43.0	3.758	3.763	-0.101
10 yr	T 4 5/8 05/15/34	4.204	4.202	-0.082	-46.2	3.742	3.742	-0.083
15 yr	(Interpolated)	4.362	4.361	-0.077	-50.9	3.698	3.698	-0.083
20 yr	T 4 5/8 05/15/44	4.511	4.509	-0.073	-76.1	3.698	3.703	-0.083
25 yr	(Interpolated)	4.460	4.459	-0.070	-80.0	3.611	3.616	-0.080
30 yr	T 4 5/8 05/15/54	4.412	4.411	-0.067				

Treasury Tone

Municipal Bond Monitor

Region	Outstanding	Armt Called	Armt Maturing Avail	Reinve...	Pct (%)	Total Supply	Net Supply1
10 Total	3,961,737.32	4,714.78	21,793.37	26,508.15	0.67	23,908.17	-12,527.98
11 California	641,628.39	915.59	5,959.89	6,875.48	1.07	2,053.39	-4,822.09
12 New York	459,970.47	997.33	4,063.11	5,060.44	1.10	2,063.87	-2,996.56
13 Maryland	63,087.74	1.25	999.48	1,000.74	1.59	0.00	-1,000.74
14 New Jersey	112,689.48	85.59	1,101.42	1,187.02	1.05	187.28	-999.73
15 Massachusetts	114,730.51	91.09	896.08	987.17	0.86	50.86	-936.31
16 Connecticut	56,800.59	303.61	533.33	836.94	1.47	83.22	-753.72
17 Indiana	50,876.66	36.11	754.37	790.48	1.55	221.46	-569.02
18 Virginia	79,210.08	9.38	806.74	816.12	1.02	289.00	-527.12
19 Minnesota	59,184.47	56.72	585.80	642.52	1.09	130.89	-411.63
20 Washington	92,805.28	302.01	541.20	843.21	0.91	338.04	-505.17
21 Pennsylvania	138,953.02	66.26	404.71	470.97	0.34	21.34	-449.63
22 Puerto Rico	69,177.17	16.18	350.97	367.15	0.53	0.00	-367.15
23 Ohio	102,323.23	30.24	287.37	317.61	0.31	18.77	-298.84
24 New Mexico	15,001.51	14.90	275.02	290.92	1.94	11.96	-175.81
25 Kentucky	39,279.20	10.95	176.81	187.77	0.49	11.96	-175.81
26 Michigan	86,633.16	132.16	100.12	232.27	0.27	104.23	-128.04
27 Alabama	54,550.22	50.93	100.51	151.44	0.28	27.99	-123.45
28 Kansas	23,889.99	5.48	148.40	153.88	0.64	38.46	-115.42
29 Oklahoma	27,941.11	0.93	93.19	94.12	0.34	9.39	-84.73
30 South Dakota	7,292.13	1.38	69.72	71.10	0.98	0.00	-71.10
31 Rhode Island	13,235.16	10.54	113.56	124.10	0.94	45.14	-68.42
32 Iowa	24,995.00	0.19	79.13	79.32	0.32	16.80	-62.52

Net Issuance

Municipal Tone

Term	Current	Change	Prior
3 Month	3.11	-0.08	3.18
6 Month	3.08	-0.08	3.15
2025	3.01	-0.08	3.09
2026	2.95	-0.07	3.02
2027	2.87	-0.07	2.94
2028	2.84	-0.07	2.91
2029	2.81	-0.07	2.89
2030	2.80	-0.07	2.87
2031	2.79	-0.07	2.86
2032	2.78	-0.06	2.84
2033	2.79	-0.06	2.85
2034	2.80	-0.06	2.86
2035	2.82	-0.05	2.87
2036	2.85	-0.04	2.88
2037	2.87	-0.03	2.90
2038	2.92	-0.03	2.95
2039	2.98	-0.02	2.99
2040	3.09	-0.03	3.11
2041	3.18	-0.04	3.22

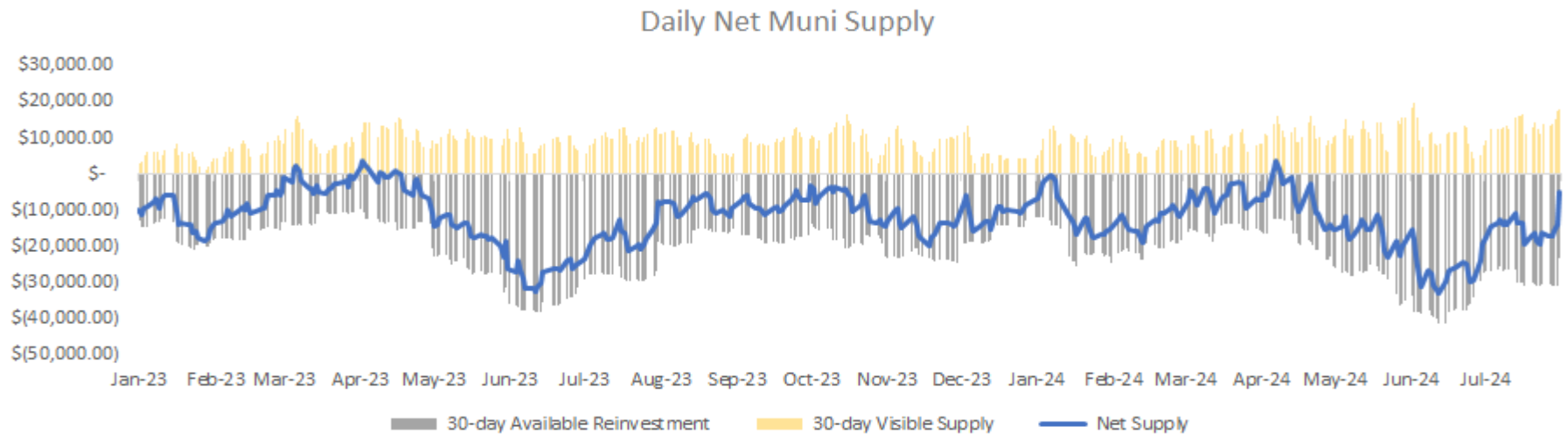
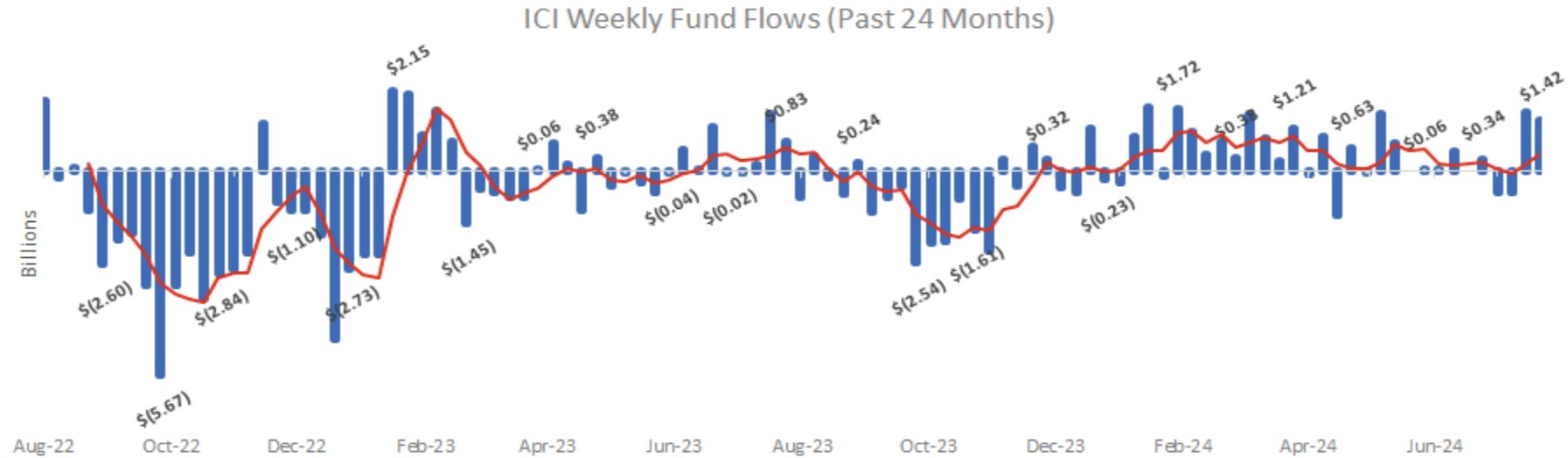
Yield to Worst (%)

Maturity in Years



Municipal Fund Flows and Net Supply

➤ Supply and Demand Dynamics can heavily affect credit spreads





Supply Calendar

- Total Primary Market Supply on a given week can affect Investor demand
- State and Industry supply are also factors

Week of 8/12/2024 National Supply Calendar									
Par (\$000s)	Issuer	State	Sector	Security Type	Ratings (M/S/F)	Sale Type	Tax Status	Lead Manager	
643,110	CHICAGO-A	IL	General Obligation	G.O. Unlimited Bonds	/BBB+/A-	Negotiated	Tax-Exempt	HUNTINGTON SECURITIES INC	
445,000	TRIBOROUGH BRIDGE -A-2	NY			//	Negotiated	Tax-Exempt	SAMUEL A RAMIREZ & CO INC	
330,000	ALLEGHENY CO SAN AUTH-REF	PA	Water & Sewer	Revenue Bonds	Aa3/AA-/	Negotiated	Tax-Exempt	PNC CAPITAL MARKETS LLC	
322,565	CHATTANOOGA HLTH EDUCTNL	TN	Hospital	Revenue Bonds	/A/A-	Negotiated	Tax-Exempt	MORGAN STANLEY & CO LLC	
300,000	TRIBOROUGH BRIDGE -A-1	NY			/AA-/	Negotiated	Tax-Exempt	SAMUEL A RAMIREZ & CO INC	
285,895	IL FIN AUTH -A-REF-REV	IL	Hospital	Revenue Bonds	Aa3/AA-/	Negotiated	Tax-Exempt	BANK OF AMERICA MERRILL	
246,190	JACKSONVILLE -REV-REF	FL	Appropriation (Self)	Revenue Bonds	/-/AA+	Negotiated	Tax-Exempt	STIFEL NICOLAUS & CO INC	
216,000	UNIV HOUSTON BRD RGTS-B	TX	Higher Education	Revenue Bonds	Aa2/AA/	Negotiated	Taxable	JP MORGAN SECURITIES LLC	
205,540	ND PUB FIN AUTH-A-REF	ND	Water & Sewer	Revenue Bonds	Aaa/AAA/	Competitive	Tax-Exempt		
204,630	CABARRUS CO DEV CORP	NC			//	Negotiated	Tax-Exempt	BANK OF AMERICA MERRILL	
187,420	EL PASO CO HOSP DIST-REF	TX	Hospital/Health District	G.O. Limited Bonds	//A-	Negotiated	Tax-Exempt	JP MORGAN SECURITIES LLC	
185,655	MIAMI-DADE CO-A-REMK	FL	Hospital/Health District	G.O. Unlimited Bonds	Aa2/AA/	Competitive	Tax-Exempt		
160,000	ALLEGHENY CO-C-80	PA	General Obligation	G.O. Unlimited Bonds	Aa3/AA-/	Negotiated	Tax-Exempt	PNC CAPITAL MARKETS LLC	
156,915	RENO-TAHOE ARPT-A-AMT	NV	Airport	Revenue Bonds	A3/A/	Negotiated	AMT	BANK OF AMERICA MERRILL	
150,000	VIA MET TRANSIT ADVANCED	TX	Sales & Excise Tax	Revenue Bonds	/AAA/	Negotiated	Tax-Exempt	RBC CAPITAL MARKETS LLC	
135,000	PROVIDENCE PUB BLDG-A	RI	Appropriation	Revenue Bonds	Baa1/BBB/	Negotiated	Tax-Exempt	RAYMOND JAMES & ASSOCS	
121,695	OHIO ST#1	OH			//	Negotiated	Tax-Exempt	WELLS FARGO BANK NA	
120,000	MAINE ST HSG AUTH-E	ME	State Multi-Family Housing	Revenue Bonds	-/-/	Negotiated	Tax-Exempt	BANK OF AMERICA MERRILL	
101,060	JOSHUA ISD	TX	School District	G.O. Unlimited Bonds	/AAA/	Negotiated	Tax-Exempt	BOK FINANCIAL SECURITIES	
100,000	DELAWARE VLY REG FIN-A-RE	PA	Loan Pool	Revenue Bonds	A1/A+/	Negotiated	Tax-Exempt	RBC CAPITAL MARKETS LLC	
100,000	MD DEPT HSG & CMNTY DEV-D	MD	State Multi-Family Housing	Revenue Bonds	Aa1//AA+	Negotiated	Taxable	MORGAN STANLEY & CO LLC	

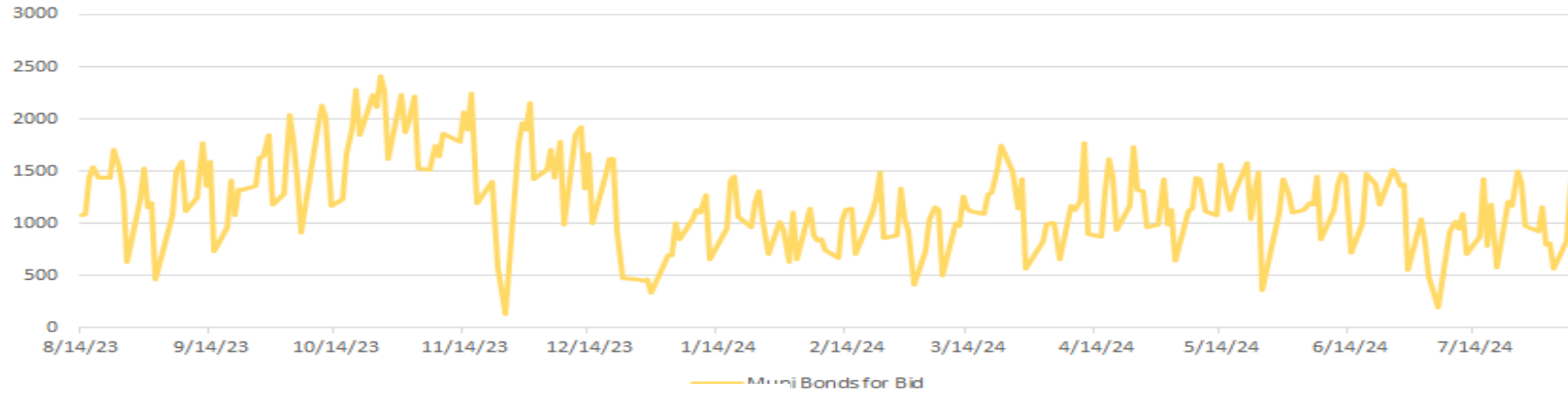
Week of 8/12/2024 California Supply Calendar									
Par (\$000s)	Issuer	State	Sector	Security Type	Ratings (M/S/F)	Sale Type	Tax Status	Lead Manager	
80,000	SANTA UNIF SD#2-C	CA	School District	G.O. Unlimited Bonds	Aa1//	Negotiated	Tax-Exempt	ROBERT W BAIRD & CO INC	
60,000	FRESNO UNIFIED SD-C	CA	School District	G.O. Unlimited Bonds	--//	Negotiated	Tax-Exempt	PIPER SANDLER & CO	
33,000	POMONA UNIF SD-REF	CA	School District	G.O. Unlimited Bonds	Aa3//	Negotiated	Tax-Exempt	STIFEL NICOLAUS & CO INC	
31,000	CA HSG FIN AGY	CA	Housing	Single Family Housing	//	Negotiated	Tax-Exempt	STIFEL NICOLAUS & CO INC	
27,035	CA SCH FIN AUTH-A	CA	Charter School	Revenue Bonds	/-/	Negotiated	Tax-Exempt	BC ZIEGLER & CO	



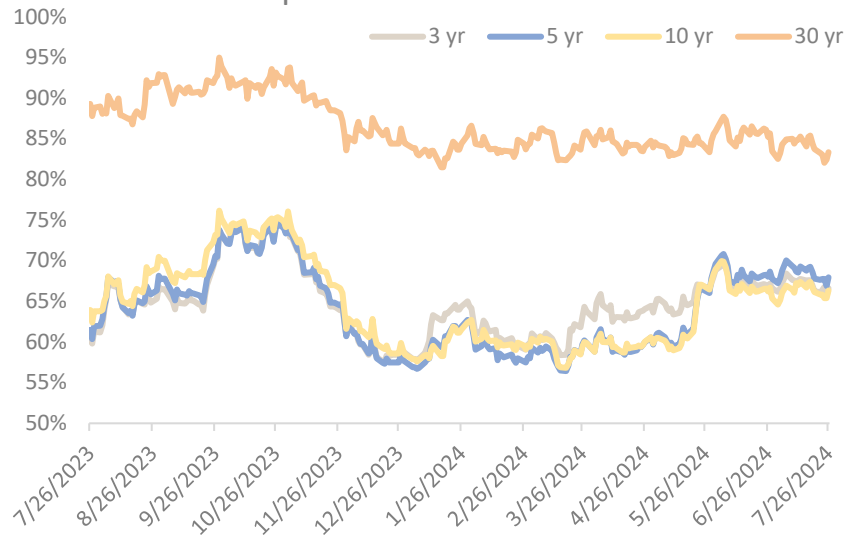
Bonds out for Bid and Municipal/Treasury Ratios

- Secondary Market Supply during times of heavy selling can pressure primary issuance
- The Relative Value of Tax-Exempt Bonds compared to their Taxable Counterparts is a consistent driver of demand

Muni Bond Bid Wanted (000's)



AAA Municipal Yields as % of US Treasuries



Treasury Ratio (Cheap/Rich) Past 12 Months					
		30 yr	10 yr	5 yr	3 yr
Current		83.3%	66.3%	68.0%	66.6%
High		95.0%	76.2%	75.4%	75.6%
Average		86.6%	64.6%	64.0%	64.8%
Low		81.5%	56.8%	56.4%	57.6%

Treasury Ratio (Cheap/Rich) Past 5 Years					
		30 yr	10 yr	5 yr	3 yr
Current		83.3%	66.3%	68.0%	66.6%
High		251.7%	365.0%	649.9%	818.8%
Average		94.9%	82.4%	77.8%	79.3%
Low		67.2%	53.9%	37.3%	32.8%

Source: Bloomberg & treasury.gov 8/9/2024

PFM Pricing Group



- Economic Data can move Bond Market Yields
- Certain Economic Events can cause greater volatility (Positive or Negative)

SEPTEMBER ECONOMIC CALENDAR				
MON Sep 2	TUES Sep 3	WED Sep 4	THU Sep 5	FRI Sep 6
12:00 AM Labor Day	9:45 AM S&P Global US Manufacturing PMI 10:00 AM Construction Spending 10:00 AM ISM Indicators	7:00 AM MBA Mortgage Applications 8:30 AM Trade Balance 10:00 AM Factory Orders 10:00 AM JOLTS Job Openings 10:00 AM Durable Goods 10:00 AM Capital Goods 2:00 PM Wards Total Vehicle Sales	7:30 AM Challenger Job Cuts YoY 8:15 AM ADP Employment Change 8:30 AM Nonfarm Productivity 8:30 AM Unit Labor Costs 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 9:45 AM S&P Global US Services PMI 9:45 AM S&P Global US Composite PMI 10:00 AM ISM Indicators 10:00 AM ISM Services Prices Paid 10:00 AM ISM Services Employment 10:00 AM ISM Services New Orders	8:30 AM Payrolls 8:30 AM Unemployment Rate 8:30 AM Avg Hourly Earnings 8:30 AM Avg Weekly Hours All Employees 8:30 AM Labor Force Participation Rate 8:30 AM Underemployment Rate
Sep 9	Sep 10	Sep 11	Sep 12	Sep 13
10:00 AM Wholesale Trade Sales MoM 10:00 AM Wholesale Inventories MoM 11:00 AM NY Fed 1-Yr Inflation Expectations 3:00 PM Consumer Credit	6:00 AM NFIB Small Business Optimism	7:00 AM MBA Mortgage Applications 8:30 AM Consumer Price Index 8:30 AM Real Avg Earnings	8:30 AM Producer Price Index 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 12:00 PM Household Change in Net Worth 2:00 PM Monthly Budget Statement	8:30 AM Import Index 8:30 AM Export Index 10:00 AM Michigan Sentiment
Sep 16	Sep 17	Sep 18	Sep 19	Sep 20
8:30 AM Empire Manufacturing	8:30 AM NY Fed Services Business Activity 8:30 AM Retail Sales 9:15 AM Industrial Production 9:15 AM Manufacturing (SIC) Production 9:15 AM Capacity Utilization 10:00 AM Business Inventories 10:00 AM NAHB Housing Market Index	7:00 AM MBA Mortgage Applications 8:30 AM Housing Starts 8:30 AM Building Permits 2:00 PM FOMC Rate Decision 4:00 PM Total Net TIC Flows 4:00 PM Net Long-term TIC Flows	8:30 AM Current Account Balance 8:30 AM Philly Fed Busi. Outlook 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 10:00 AM Leading Index 10:00 AM Existing Home Sales	
Sep 23	Sep 24	Sep 25	Sep 26	Sep 27
8:30 AM Chicago Fed Nat Activity Index 9:45 AM S&P Global US Manufacturing PMI 9:45 AM S&P Global US Services PMI 9:45 AM S&P Global US Composite PMI	8:30 AM Phil. Fed Non-Mfg Activity 9:00 AM FHFA House Price Index 9:00 AM S&P CoreLogic 10:00 AM GDP Indicators 10:00 AM Richmond Fed Manufact. Index 10:00 AM Richmond Fed Business Conditions	7:00 AM MBA Mortgage Applications 10:00 AM New Home Sales	8:30 AM GDP Indicators 8:30 AM Personal Consumption 8:30 AM Core PCE Price Index QoQ 8:30 AM Initial Jobless Claims 8:30 AM Continuing Claims 8:30 AM Durable Goods 8:30 AM Capital Goods 10:00 AM Pending Home Sales 11:00 AM Kansas City Fed Manf. Activity	8:30 AM Personal Income 8:30 AM Advance Goods Trade Balance 8:30 AM Personal Spending 8:30 AM Wholesale Inventories MoM 8:30 AM Real Personal Spending 8:30 AM Retail Sales 8:30 AM PCE Price Index MoM 8:30 AM PCE Price Index YoY 8:30 AM Core PCE Price Index MoM 8:30 AM Core PCE Price Index YoY 10:00 AM Michigan Sentiment 11:00 AM Kansas City Fed Services Activity



Treasury and Equity Tone

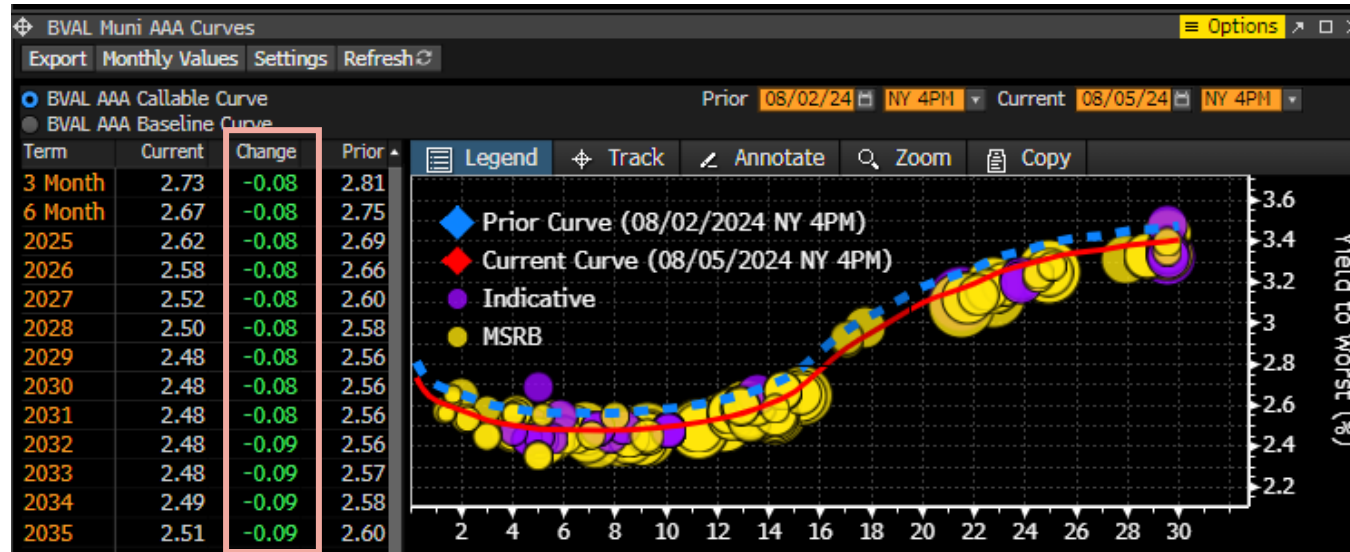
- Where is Investor Cash being put to work, and what does it say about Market Sentiment? – Stocks (risk on) or Bonds (risk off)
- Treasury Market – “Green on the Screen” = Positive Tone in Broader Fixed Income Markets

Index	RMI	2Day	Value	Net Chg	%Chg	Δ AVAT	Time	Adv/Dcl	%Ytd	%YtdCur
1) Americas										
1) DOW JONES			39464.80	-32.74	-0.08%	-38.23%	11:59	7/22	+4.71%	+4.71%
12) S&P 500			5343.71	-0.45	-0.01%	-25.54%	11:44	192/310	+12.03%	+12.03%
13) NASDAQ			16852.45	+107.15	+0.64%	-7.16%	11:59	1117/1807	+12.26%	+12.26%

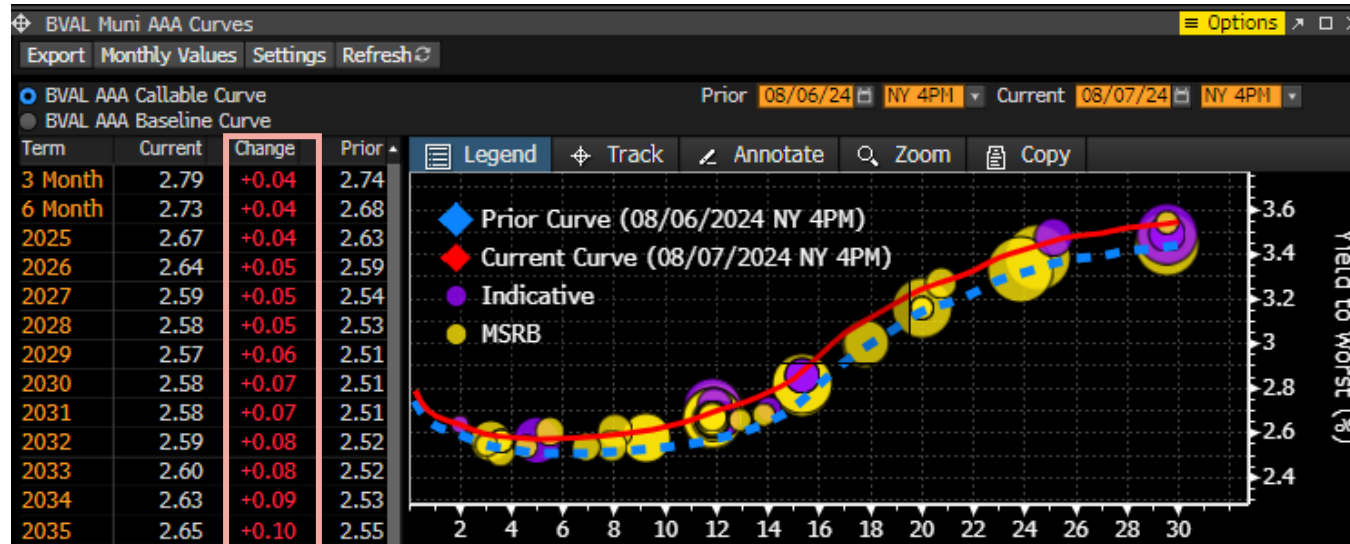
Term	Description	Treasury			Swap Sprd	Swap		
		Bid Yld	Ask Yld	Bid Chg		Bid Swap	Ask Swap	Bid Chg
1 mo	B 0 09/10/24	5.370	5.365	.009	-3.2	5.338	5.338	-.0028
3 mo	B 0 11/07/24	5.216	5.209	-.006	-8.6	5.131	5.131	-.0038
6 mo	B 0 02/06/25	4.995	4.984	.010	-16.6	4.828	4.828	-.0024
1 yr	B 0 08/07/25	4.489	4.475	.000	-12.4	4.365	4.371	-.010
2 yr	T 4 ³ / ₈ 07/31/26	4.038	4.034	-.019	-20.4	3.834	3.839	-.023
3 yr	T 3 ³ / ₄ 08/15/27	3.853	3.850	-.025	-23.7	3.616	3.621	-.029
4 yr	(Interpolated)	3.810	3.808	-.027	-29.6	3.514	3.518	-.028
5 yr	T 4 07/31/29	3.768	3.767	-.030	-29.9	3.469	3.473	-.027
6 yr	(Interpolated)	3.793	3.791	-.028	-34.0	3.453	3.456	-.026
7 yr	T 4 ¹ / ₈ 07/31/31	3.816	3.813	-.026	-36.8	3.448	3.451	-.023
8 yr	(Interpolated)	3.851	3.849	-.024	-39.9	3.452	3.455	-.022
9 yr	(Interpolated)	3.886	3.884	-.023	-42.5	3.461	3.464	-.021
10 yr	T 3 ⁷ / ₈ 08/15/34	3.921	3.919	-.021	-45.0	3.471	3.474	-.019
15 yr	(Interpolated)	4.115	4.112	-.016	-58.3	3.532	3.536	-.012
20 yr	T 4 ⁵ / ₈ 05/15/44	4.300	4.296	-.012	-76.8	3.532	3.536	-.008
25 yr	(Interpolated)	4.253	4.251	-.011	-78.9	3.464	3.468	-.005
30 yr	T 4 ¹ / ₄ 08/15/54	4.209	4.209	-.011	-82.5	3.385	3.389	-.003



Municipal Tone



- In a **Rallying** Market, Benchmark Yields are decreasing.
- Tone is Positive
- Spreads to the Benchmark can **Tighten**



- In a Market that is **Selling Off**, Benchmark Yields are increasing
- Tone is Negative
- Spreads to Benchmark can **Widen**



Structural, Credit, and State/Industry Specific Factors Affecting Bond Pricing



Spreads – The Basis of Negotiation

California Water District (Aa1/AAA) - Series 2024A Pricing Worksheet												
					PFM 5% CPN / 10. yr PC Scale					Spread to 4/19/2024 Interpolated BVAL AAA	Benchmark 4/19/2024 Interpolated BVAL AAA	
Year	Term	Avg Life	Principal	Coupon	Re-Offer Yield	Yield to Call	Yield to Maturity	Price				
4/1/2025	0.9		\$ 3,380,000	5.000%	3.22%			101.558		-19 bps	3.41%	
4/1/2026	1.9		\$ 3,020,000	5.000%	2.96%			103.733		-23 bps	3.19%	
4/1/2027	2.9		\$ 3,170,000	5.000%	2.81%			106.049		-20 bps	3.01%	
4/1/2028	3.9		\$ 3,330,000	5.000%	2.65%			108.644		-18 bps	2.83%	
4/1/2029	4.9		\$ 7,930,000	5.000%	2.57%			111.112		-15 bps	2.72%	
4/1/2030	5.9		\$ 8,335,000	5.000%	2.54%			113.391		-16 bps	2.70%	
4/1/2031	6.9		\$ 8,345,000	5.000%	2.57%			115.266		-11 bps	2.68%	
4/1/2032	7.9		\$ 8,350,000	5.000%	2.59%			117.109		-11 bps	2.70%	
4/1/2033	8.9		\$ 8,900,000	5.000%	2.59%			119.039		-12 bps	2.71%	
4/1/2034	9.9		\$ 8,925,000	5.000%	2.60%			120.822		-12 bps	2.72%	
4/1/2035	10.9		\$ 9,000,000	5.000%	2.71%		2.87%	119.760		-8 bps	2.79%	
4/1/2036	11.9		\$ 7,500,000	5.000%	2.87%		3.15%	118.235		-5 bps	2.92%	
4/1/2037	12.9		\$ 5,155,000	5.000%	2.99%		3.35%	117.107		-3 bps	3.02%	
4/1/2038	13.9		\$ 5,415,000	5.000%	3.12%		3.54%	115.899		-2 bps	3.14%	
4/1/2039	14.9		\$ 5,685,000	5.000%	3.21%		3.68%	115.071		-1 bps	3.22%	
4/1/2040	15.9		\$ 5,975,000	5.000%	3.34%		3.83%	113.888		2 bps	3.32%	
4/1/2041	16.9		\$ 6,270,000	5.000%	3.44%		3.94%	112.988		4 bps	3.40%	
4/1/2042	17.9		\$ 6,585,000	5.000%	3.53%		4.04%	112.186		6 bps	3.47%	
4/1/2043	18.9		\$ 6,915,000	5.000%	3.60%		4.11%	111.566		8 bps	3.52%	
4/1/2044	19.9		\$ 7,260,000	5.000%	3.72%		4.21%	110.513		10 bps	3.62%	

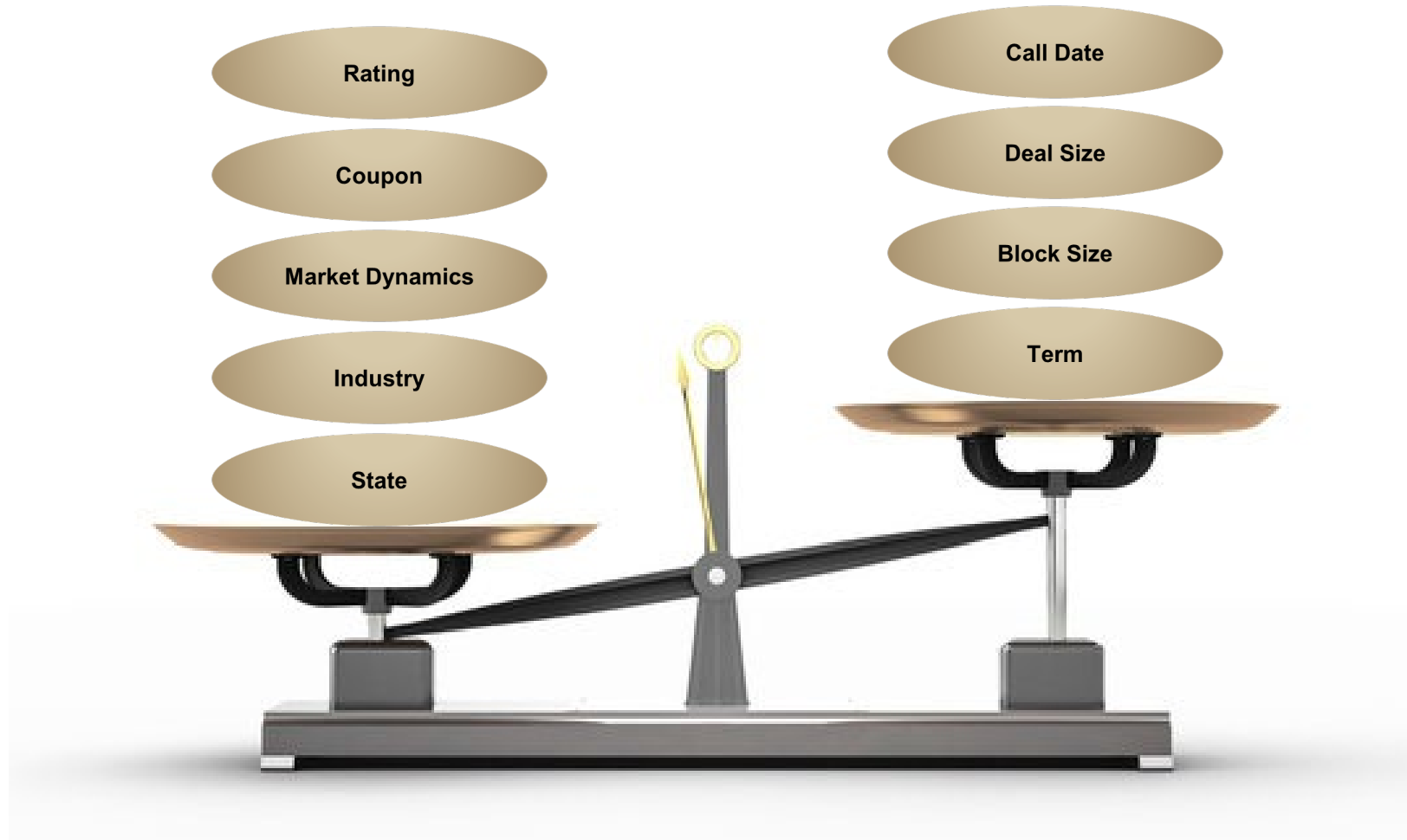
Total Par	\$	129,445,000	
Avg Life		11.0 years	
PV01	\$	100,074	

Call Date: 4/1/2034

- Pricing Negotiations begin with determining the Spread to the Benchmark for each Maturity
- The Market Standard base case is a 5% CPN, 10 Year Par Call Scale
- Spread + Benchmark Yield = Re-Offer Yield
- Yield on pricing wires is quoted as the Yield to Worst to the Investor
- Premium Bonds are quoted as a Yield to Call Date
- Discount Bonds are quoted as a Yield to Maturity
- Focus of the exercise in Part II will be on a 5% Premium Bond Scale



Factors Effecting Credit Spreads





Rating Impact to Credit Spreads

Issuer:	Transportation Issuer - Senior Lien					Transportation Issuer - Subordinate Lien				
Series:	Revenue Refunding Bonds, Series 2024-A					Revenue Refunding Bonds, Series 2024-C				
Security:	Toll Roads/Highways/Streets/Revenue					Toll Roads/Highways/Streets/Revenue				
Sale Type:	Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Par Amount:	\$386,210,000					\$1,022,495,000				
Sale Date:	7/23/2024					7/23/2024				
Last Call Date:	8/15/2034 @ 100 (10.2 Yrs)					8/15/2034 @ 100 (10.2 Yrs)				
Underlying Ratings:	A2/A/A+					A3/A/A-				
Insured Ratings:	-/-					-/-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1										
1										
2										
3										
4										
5										
6										
7						108,855	\$110.38	5.000%	3.330%	56 bps
8	40,000	\$112.50	5.000%	3.220%	45 bps	80,555	\$111.52	5.000%	3.350%	58 bps
9						133,010	\$112.51	5.000%	3.380%	61 bps
10						144,545	\$113.31	5.000%	3.420%	64 bps
11	68,375	\$113.86	5.000%	3.360%	56 bps	84,035	\$112.86	5.000%	3.470%	67 bps
12	97,105	\$113.40	5.000%	3.410%	59 bps	69,560	\$112.41	5.000%	3.520%	70 bps
13	96,230	\$112.86	5.000%	3.470%	62 bps	85,445	\$111.87	5.000%	3.580%	73 bps
14	84,500	\$112.59	5.000%	3.500%	60 bps	110,800	\$111.51	5.000%	3.620%	72 bps
15						49,395	\$111.25	5.000%	3.650%	70 bps
16						51,865	\$110.71	5.000%	3.710%	65 bps
17						54,455	\$110.27	5.000%	3.760%	60 bps
18						49,975	\$109.49	5.000%	3.850%	62 bps

- Different Ratings result in a greater perceived level of Credit Risk
- Credit Spreads will be different depending on the rating.
- Lower Ratings = Higher Credit Spread
- Higher Ratings = Lower Credit Spread

U.S. Tax-Exempt Municipal Credit Spreads to AAA (30 year Spot)





Coupons Impact to Credit Spreads

Issuer:	California School District				
Series:	Election of 2020, General Obligation Bonds, Series C				
Security:	Primary & Secondary Education/Ult G.O.				
Sale Type:	Tax Exempt (Negotiated)				
Par Amount:	\$74,000,000				
Sale Date:	7/24/2024				
Last Call Date:	9/1/2034 @ 100 (10.3 Yrs)				
Underlying Ratings:	-AAA-				
Insured Ratings:	-I-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1					
1	2,930	\$102.39	5.000%	2.710%	-22 bps
2	3,080	\$104.69	5.000%	2.650%	-23 bps
3	310	\$106.91	5.000%	2.640%	-18 bps
4	630	\$109.00	5.000%	2.650%	-17 bps
5	970	\$111.32	5.000%	2.600%	-20 bps
6	1,140	\$113.21	5.000%	2.630%	-15 bps
7	505	\$114.91	5.000%	2.670%	-10 bps
8	805	\$116.73	5.000%	2.680%	-9 bps
9	2,410	\$118.92	5.000%	2.640%	-14 bps
10	2,725	\$120.45	5.000%	2.670%	-12 bps
11	3,070	\$119.96	5.000%	2.720%	-9 bps
12	3,440	\$119.47	5.000%	2.770%	-6 bps
13	3,835	\$118.89	5.000%	2.830%	-3 bps
14	4,260	\$118.79	5.000%	2.840%	-7 bps
15	4,715	\$118.03	5.000%	2.920%	-5 bps
16	5,210	\$117.17	5.000%	3.010%	-7 bps
17	5,740	\$103.52	4.000%	3.580%	40 bps
18	6,240	\$102.92	4.000%	3.650%	40 bps
19	6,775	\$102.25	4.000%	3.730%	42 bps
20	7,330	\$101.83	4.000%	3.780%	40 bps
21	7,880	\$101.32	4.000%	3.840%	42 bps

- Different Coupons will result in different spreads
- The Lower the Coupon, the Lower the cash flow an Investor receives, and the higher spread/yield the investor will require
- The Higher the Coupon, the higher the cash flow an Investor receives, and the lower the spread/yield the investor will require
- Issuers will need to evaluate with their Financial Advisor the various tradeoffs as they are presented with different coupon options.

Cal Coupon University					
Year	Term	5% Coupon	Spread to Benchmark	Lower Coupon	Spread to Benchmark
2038	14.7	5.000%	13 bps	4.000%	43 bps
2043	19.7	5.000%	18 bps	4.000%	58 bps
2053	29.7	5.000%	30 bps	4.125%	75 bps

Lower Coupon vs 5% Coupon					
Maturity	Call	Coupon	YTC	YTM	Price
2038	10yr	5.000%	3.180%	3.664%	115.072
	10yr	4.000%	3.480%	3.625%	104.242
			30 bps	-4 bps	\$10.83
2043	10yr	5.000%	3.450%	4.059%	112.671
	10yr	4.000%	3.850%	3.912%	101.199
			40 bps	-15 bps	\$11.47
2053	10yr	5.000%	3.780%	4.404%	109.817
	10yr	4.125%	4.350%	4.230%	98.228
			57 bps	-17 bps	\$11.59



Call Date Effects on Credit Spreads

Issuer:	High Grade Issuer - 10 Year Par Call						High Grade Issuer - 2 Year Par Call					
	Revenue Bonds, Series 2023A-1						Revenue Bonds, Series 2023A-2					
Series:	Gen Purpose/Pub Impt/Revenue Tax Exempt (Negotiated)						Gen Purpose/Pub Impt/Revenue Tax Exempt (Negotiated)					
Security:	Tax Exempt (Negotiated)						Tax Exempt (Negotiated)					
Sale Type:	\$36,655,000						\$39,120,000					
Par Amount:	5/16/2023						5/16/2023					
Sale Date:	6/1/2033 @ 100 (10.2 Yrs)						6/1/2025 @ 100 (2.1 Yrs)					
Last Call Date:	Aa1/AAA/-						Aa1/AAA/-					
Underlying Ratings:	-/-						-/-					
Insured Ratings:	Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	
	<1											
	1	5,475	\$101.86	5.000%	3.100%	25 bps						
	2	3,615	\$104.17	5.000%	2.840%	13 bps						
	3	2,730	\$106.70	5.000%	2.660%	12 bps						
	4	2,875	\$109.30	5.000%	2.540%	12 bps						
	5	1,965	\$111.78	5.000%	2.480%	12 bps	2,700	\$104.09	5.000%	2.880%	52 bps	
	6	1,465	\$113.97	5.000%	2.480%	15 bps						
	7	1,560	\$116.45	5.000%	2.430%	13 bps						
	8	1,625	\$118.42	5.000%	2.450%	15 bps						
	9	1,435	\$120.04	5.000%	2.500%	20 bps						
	10	1,515	\$121.80	5.000%	2.520%	18 bps	4,210	\$103.93	5.000%	2.960%	62 bps	
	11	1,550	\$121.01	5.000%	2.600%	17 bps						
	12	1,965	\$119.65	5.000%	2.740%	17 bps						
	13	1,715	\$118.02	5.000%	2.910%	18 bps						
	14	1,240	\$116.51	5.000%	3.070%	21 bps						
	15	1,155	\$115.58	5.000%	3.170%	23 bps	5,370	\$103.03	5.000%	3.420%	48 bps	
	16	1,200	\$114.93	5.000%	3.240%	27 bps						
	17	1,250	\$114.11	5.000%	3.330%	31 bps						
	18	1,305	\$113.83	5.000%	3.360%	30 bps						
	19	1,015	\$113.56	5.000%	3.390%	28 bps						
	20						6,860	\$102.48	5.000%	3.700%	56 bps	

- Different Call Dates may have different spreads
- Depending on the rate environment, the spread on a shorter call may be higher or lower than the spread on a standard 10 Year par Call redemption.
- Current Rate Environment – Shorter call dates tend to have wider spreads
- Low-Rate Environment (2020/2021) – Shorter call dates tended to have tighter spreads



Industry Effect on Spreads

- Different Industries may require different credit spreads to gain investor attention.
- Perceived Credit risk within an industry, scarcity/surplus of supply in an industry, and will determine the appropriate credit spread.

Issuer:	California Essential Service Issuer					California Higher Ed Issuer					California School District Issuer - Special Tax				
Series:	Electric Revenue Bonds, 2024 Series					General Obligation Bonds Election of 2014, Series 2024B					Special Tax Revenue Bonds, Series 2024A				
Security:	Electric & Public Power/Revenue					Higher Education					Primary & Secondary Education/Special Tax Obligation				
Sale Type:	Tax Exempt (Competitive)					Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Par Amount:	\$166,890,000					\$35,000,000					\$50,620,000				
Sale Date:	2/15/2024					2/14/2024					2/14/2024				
Last Call Date:	2/1/2034 @ 100 (10.1 Yrs)					8/1/2034 @ 100 (10.6 Yrs)					9/1/2033 @ 100 (9.7 Yrs)				
Underlying Ratings:	-JA+/A+					Aa3/AA-/					-A+/-				
Insured Ratings:	-/-					-/- (Insured)					-/- (Insured)				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1						5,225	\$100.78	5.000%	3.030%	1 bps	2,665	\$100.92	5.000%	3.160%	*15 bps
1	2,330	\$102.02	5.000%	2.760%	-17 bps	5,250	\$102.93	5.000%	2.850%	-3 bps	1,615	\$103.04	5.000%	2.920%	*5 bps
2	2,640	\$104.55	5.000%	2.560%	-23 bps	1,695	\$105.36	5.000%	2.680%	-4 bps	1,755	\$105.26	5.000%	2.810%	*10 bps
3	2,775	\$107.32	5.000%	2.390%	-22 bps	965	\$108.17	5.000%	2.480%	-10 bps	1,915	\$107.71	5.000%	2.680%	*11 bps
4	2,910	\$110.15	5.000%	2.280%	-22 bps	715	\$110.54	5.000%	2.460%	-3 bps	2,080	\$109.83	5.000%	2.670%	*18 bps
5	3,055	\$112.69	5.000%	2.260%	-18 bps	810	\$112.94	5.000%	2.430%	-3 bps	2,255	\$111.86	5.000%	2.670%	*21 bps
6	3,210	\$115.11	5.000%	2.260%	-17 bps	880	\$115.34	5.000%	2.400%	*-5 bps	2,440	\$113.70	5.000%	2.690%	*24 bps
7	3,370	\$117.46	5.000%	2.260%	-16 bps	950	\$117.39	5.000%	2.420%	*-3 bps	2,635	\$115.46	5.000%	2.710%	*26 bps
8	3,540	\$119.69	5.000%	2.270%	-17 bps	1,040	\$119.51	5.000%	2.420%	*-5 bps	2,845	\$117.21	5.000%	2.720%	*25 bps
9	3,715	\$121.85	5.000%	2.280%	-17 bps	1,120	\$121.58	5.000%	2.420%	*-9 bps	3,060	\$118.89	5.000%	2.730%	*22 bps
10	3,900	\$124.03	5.000%	2.280%	-23 bps	1,210	\$123.60	5.000%	2.420%	*-16 bps	3,295	\$118.89	5.000%	2.730%	*14 bps
11	4,095	\$123.13	5.000%	2.370%	-22 bps	1,305	\$122.16	5.000%	2.560%	*-13 bps	3,540	\$117.97	5.000%	2.830%	*13 bps
12	4,300	\$122.24	5.000%	2.460%	-27 bps	1,405	\$121.24	5.000%	2.650%	*-18 bps	3,795	\$117.16	5.000%	2.920%	*8 bps
13	4,515	\$121.26	5.000%	2.560%	-32 bps	1,505	\$120.13	5.000%	2.760%	*-21 bps	4,075	\$115.81	5.000%	3.070%	*9 bps
14	4,740	\$119.52	5.000%	2.740%	-27 bps	1,615	\$119.33	5.000%	2.840%	*-24 bps	4,360	\$115.18	5.000%	3.140%	*6 bps
15	4,980	\$118.47	5.000%	2.850%	-24 bps	1,640	\$118.34	5.000%	2.940%	*-21 bps	4,000	\$114.48	5.000%	3.220%	*7 bps
16	5,230	\$117.24	5.000%	2.980%	-17 bps	1,755	\$116.98	5.000%	3.080%	*-12 bps	4,290	\$113.34	5.000%	3.350%	*15 bps



State Specific Effects on Credit Spreads

Issuer:	California AAA School District					Texas AAA School District				
Series:	Election of 2020, General Obligation Bonds, Series C					School Building Bonds, Series 2024 (Permanent School Fund Guarantee Program)				
Security:	Primary & Secondary Education/Ult G.O. Tax Exempt (Negotiated)					Primary & Secondary Education/Ult G.O. Tax Exempt (Negotiated)				
Sale Type:	\$74,000,000					\$52,040,000				
Par Amount:	7/24/2024					7/24/2024				
Sale Date:	9/1/2034 @ 100 (10.3 Yrs)					2/15/2034 @ 100 (9.7 Yrs)				
Last Call Date:	-AAA/-					Aa2/-AA+				
Underlying Ratings:	-/-					Aaa/-AAA (PSF)				
Insured Ratings:										
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1										
1	2,930	\$102.39	5.000%	2.710%	-22 bps	8,340	\$100.95	5.000%	3.020%	*2 bps
2	3,080	\$104.69	5.000%	2.650%	-23 bps	5,275	\$102.91	5.000%	2.980%	*7 bps
3	310	\$106.91	5.000%	2.640%	-18 bps	5,490	\$104.88	5.000%	2.950%	*10 bps
4	630	\$109.00	5.000%	2.650%	-17 bps	7,495	\$106.78	5.000%	2.940%	*12 bps
5	970	\$111.32	5.000%	2.600%	-20 bps	8,805	\$108.64	5.000%	2.930%	*12 bps
6	1,140	\$113.21	5.000%	2.630%	-15 bps	1,325	\$110.21	5.000%	2.970%	*18 bps
7	505	\$114.91	5.000%	2.670%	-10 bps	1,285	\$111.71	5.000%	3.000%	*22 bps
8	805	\$116.73	5.000%	2.680%	-9 bps	1,245	\$113.03	5.000%	3.040%	*27 bps
9	2,410	\$118.92	5.000%	2.640%	-14 bps	750	\$114.24	5.000%	3.080%	*31 bps
10	2,725	\$120.45	5.000%	2.670%	-12 bps	785	\$115.51	5.000%	3.100%	*32 bps
11	3,070	\$119.96	5.000%	2.720%	-9 bps	820	\$115.33	5.000%	3.120%	*33 bps
12	3,440	\$119.47	5.000%	2.770%	-6 bps	875	\$115.07	5.000%	3.150%	*33 bps
13	3,835	\$118.89	5.000%	2.830%	-3 bps	920	\$114.71	5.000%	3.190%	*35 bps
14	4,260	\$118.79	5.000%	2.840%	-7 bps	965	\$114.10	5.000%	3.260%	*38 bps
15	4,715	\$118.03	5.000%	2.920%	-5 bps	2,225	\$113.40	5.000%	3.340%	*41 bps
16	5,210	\$117.17	5.000%	3.010%	-7 bps					
17	5,740	\$103.52	4.000%	3.580%	40 bps					
18	6,240	\$102.92	4.000%	3.650%	40 bps					
19	6,775	\$102.25	4.000%	3.730%	42 bps					
20	7,330	\$101.83	4.000%	3.780%	40 bps	2,280	\$110.32	5.000%	3.700%	*36 bps
21	7,880	\$101.32	4.000%	3.840%	42 bps					
22										
23										
24										
25						3,160	\$96.51	4.000%	4.230%	*66 bps

- State specific factors will cause credit spreads to differ across states
- State Income Tax Rates derive a different relative value of the tax exemption, depending on the state
- Supply/Demand dynamics in various states will additionally affect credit spreads



Deal Size, Block Size, and Term

Issuer:	California School District						California School District					
Series:	2024 General Obligation Refunding Bonds						General Obligation Bonds 2020 Election, 2024 Series C					
Security:	Primary & Secondary Education/Ult G.O.						Primary & Secondary Education/Ult G.O.					
Sale Type:	Tax Exempt (Negotiated)						Tax Exempt (Negotiated)					
Par Amount:	\$9,570,000						\$38,000,000					
Sale Date:	7/18/2024						7/17/2024					
Last Call Date:	8/1/2034 @ 100 (10.2 Yrs)						8/1/2032 @ 100 (8.2 Yrs)					
Underlying Ratings:	Aa3/+-						Aa3/+-					
Insured Ratings:	-/-						-/-					
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd		
<1												
1	290	\$102.13	5.000%	2.820%	-12 bps	545	\$102.15	5.000%	2.770%	-18 bps		
2												
3	320	\$106.44	5.000%	2.750%	-7 bps							
4												
5	405	\$110.54	5.000%	2.730%	-7 bps							
6	475	\$112.43	5.000%	2.740%	-4 bps	335	\$112.69	5.000%	2.690%	-9 bps		
7	540	\$114.24	5.000%	2.750%	-2 bps	515	\$114.55	5.000%	2.700%	-7 bps		
8	620	\$115.98	5.000%	2.760%	-1 bps	705	\$116.34	5.000%	2.710%	-6 bps		
9	700	\$117.57	5.000%	2.780%	1 bps	920	\$116.18	5.000%	2.730%	-4 bps		
10	785	\$119.27	5.000%	2.780%	0 bps	1,145	\$116.18	5.000%	2.730%	-5 bps		
11	885	\$118.69	5.000%	2.840%	4 bps	635	\$115.72	5.000%	2.790%	-1 bps		
12	980	\$118.12	5.000%	2.900%	8 bps	750	\$115.25	5.000%	2.850%	3 bps		
13	1,080	\$117.64	5.000%	2.950%	10 bps	875	\$114.87	5.000%	2.900%	5 bps		
14	1,185	\$117.45	5.000%	2.970%	8 bps	1,005	\$114.72	5.000%	2.920%	2 bps		
15	1,305	\$116.98	5.000%	3.020%	7 bps	1,155	\$114.33	5.000%	2.970%	2 bps		
16						1,310	\$113.27	5.000%	3.110%	5 bps		
17						1,480	\$112.44	5.000%	3.220%	6 bps		
18						1,660	\$111.70	5.000%	3.320%	9 bps		
19						1,850	\$111.40	5.000%	3.360%	6 bps		
20						2,060	\$111.10	5.000%	3.400%	3 bps		
21												
22												
23												
24						10,500	\$98.78	4.000%	4.080%	53 bps		
25												
26												
27						10,555	\$98.38	4.000%	4.100%	48 bps		

- Deal Size and Maturity Block size can affect the liquidity of Municipal Bonds
- Larger transactions will generally command greater attention from investors; however at a certain level there can also be a size concession.
- Institutional size maturities can result in a lower credit spread;
- Longer Maturities generally will have a greater credit risk, and thus a greater spread/yield, than shorter maturities
- Different Types of Investors may also focus on different maturity terms.

QUESTIONS?



MATT RUDROFF, CFA, CPA
Director
PFM Financial Advisors LLC



NIKOLAI SKLAROFF
Capital Finance Director
San Francisco Public
Utilities Commission



15-MINUTE

BREAK



SESSION FOUR: PART TWO

Group Exercise: Bond Pricing



MATT RUDROFF, CFA, CPA
Director
PFM Financial Advisors LLC

NIKOLAI SKLAROFF
Capital Finance Director
San Francisco Public
Utilities Commission





- Exercise Overview
- Issuer Historical Pricing Results
- Recent Comparable Pricing Results
- Secondary Trading
- Pre-Marketing
- Market Data/Tone Impact on Spreads on Day of Pricing
- Release Pricing Wire and Take Orders
- Reprice and Verbal Award



Exercise Overview



Exercise Overview

Cal City Joint Powers Financing Authority (AA) - Series 2023A (Lease Revenue Bonds) Pricing Worksheet

pfm Year	Term	Avg Life	Principal	PFM 5% CPN / 10.1 yr PC Scale				Spread to 8/11/2023 Interpolated BVAL	Benchmark 8/11/2023 BVAL AAA
				Coupon	ROY	YTC	YTM		
10/1/2024	1.1		\$ 765,000	5.000%	3.16%			101.946	3.16%
10/1/2025	2.1		\$ 805,000	5.000%	3.05%			103.911	3.05%
10/1/2026	3.1		\$ 845,000	5.000%	2.91%			106.134	2.91%
10/1/2027	4.1		\$ 890,000	5.000%	2.80%			108.442	2.80%
10/1/2028	5.1		\$ 935,000	5.000%	2.74%			110.672	2.74%
10/1/2029	6.1		\$ 980,000	5.000%	2.70%			112.819	2.70%
10/1/2030	7.1		\$ 1,030,000	5.000%	2.67%			114.940	2.67%
10/1/2031	8.1		\$ 1,080,000	5.000%	2.67%			116.857	2.67%
10/1/2032	9.1		\$ 1,135,000	5.000%	2.67%			118.705	2.67%
10/1/2033	10.1		\$ 1,190,000	5.000%	2.70%			120.188	2.70%
10/1/2034	11.1		\$ 1,250,000	5.000%	2.78%		2.934%	119.434	2.78%
10/1/2035	12.1		\$ 1,315,000	5.000%	2.91%		3.175%	118.194	2.91%
10/1/2036	13.1		\$ 1,380,000	5.000%	3.05%		3.398%	116.811	3.05%
10/1/2037	14.1		\$ 1,445,000	5.000%	3.17%		3.572%	115.701	3.17%
10/1/2038	15.1		\$ 1,520,000	5.000%	3.23%		3.687%	115.091	3.23%
10/1/2039	16.1		\$ 1,595,000	5.000%	3.28%		3.773%	114.698	3.28%
10/1/2040	17.1		\$ 1,675,000	5.000%	3.33%		3.855%	114.224	3.33%
10/1/2041	18.1		\$ 1,760,000	5.000%	3.38%		3.928%	113.777	3.38%
10/1/2042	19.1		\$ 1,845,000	5.000%	3.43%		3.995%	113.325	3.43%
10/1/2043	20.1		\$ 1,940,000	5.000%	3.46%		4.047%	113.019	3.46%
10/1/2044	21.1	1	\$ 2,035,000						3.50%
10/1/2045	22.1	1	\$ 2,145,000						3.54%
10/1/2046	23.1	1	\$ 2,255,000						3.58%
10/1/2047	24.1	1	\$ 2,375,000						3.60%
10/1/2048	25.1	1	23.2 yrs \$ 2,500,000	5.000%	3.63%		4.252%	111.473	3.63%
10/1/2049	26.1	2	\$ 2,630,000						3.65%
10/1/2050	27.1	2	\$ 2,770,000						3.67%
10/1/2051	28.1	2	\$ 2,915,000						3.68%
10/1/2052	29.1	2	\$ 3,065,000						3.69%
10/1/2053	30.1	2	28.2 yrs \$ 3,230,000	5.000%	3.69%		4.344%	110.951	3.69%

Total Par \$ 51,300,000
 Avg Life 19.2 years
 PV01 \$ 45,551

Call Date: 10/1/2033

- California City Lease Revenue Bond
- AA Rated
- \$51.3 Million Issuance Size
- Maturity Size \$765k to \$3.32mm
- 5% Coupon,
- 10 Year Par Call Scale
- Term Bonds in 2048 and 2053

The case studies provided in this proposal are for informational purposes only. They do not represent an endorsement or testimonial by clients of PFM's financial advisory services.



Exercise Overview

➤ Based Supporting Data, credit spreads will be developed and evolve up until Morning of Pricing

Cal City Joint Powers Financing Authority (AA) - Series 2023A (Lease Revenue Bonds) Pricing Worksheet										
pfm	Year	Term	Avg Life	Principal	PFM 5% CPN / 10.1 yr PC Scale				Benchmark 8/11/2023 BVAL AAA	
					Coupon	ROY	YTC	YTM	Price	
	10/1/2024	1.1		\$ 765,000	5.000%	3.16%			101.946	3.16%
	10/1/2025	2.1		\$ 805,000	5.000%	3.05%			103.911	3.05%
	10/1/2026	3.1		\$ 845,000	5.000%	2.91%			106.134	2.91%
	10/1/2027	4.1		\$ 890,000	5.000%	2.80%			108.442	2.80%
	10/1/2028	5.1		\$ 935,000	5.000%	2.74%			110.672	2.74%
	10/1/2029	6.1		\$ 980,000	5.000%	2.70%			112.819	2.70%
	10/1/2030	7.1		\$ 1,030,000	5.000%	2.67%			114.940	2.67%
	10/1/2031	8.1		\$ 1,080,000	5.000%	2.67%			116.857	2.67%
	10/1/2032	9.1		\$ 1,135,000	5.000%	2.67%			118.705	2.67%
	10/1/2033	10.1		\$ 1,190,000	5.000%	2.70%			120.188	2.70%
	10/1/2034	11.1		\$ 1,250,000	5.000%	2.78%		2.934%	119.434	2.78%
	10/1/2035	12.1		\$ 1,315,000	5.000%	2.91%		3.175%	118.194	2.91%
	10/1/2036	13.1		\$ 1,380,000	5.000%	3.05%		3.398%	116.811	3.05%
	10/1/2037	14.1		\$ 1,445,000	5.000%	3.17%		3.572%	115.701	3.17%
	10/1/2038	15.1		\$ 1,520,000	5.000%	3.23%		3.687%	115.091	3.23%
	10/1/2039	16.1		\$ 1,595,000	5.000%	3.28%		3.773%	114.698	3.28%
	10/1/2040	17.1		\$ 1,675,000	5.000%	3.33%		3.855%	114.224	3.33%
	10/1/2041	18.1		\$ 1,760,000	5.000%	3.38%		3.928%	113.777	3.38%
	10/1/2042	19.1		\$ 1,845,000	5.000%	3.43%		3.995%	113.325	3.43%
	10/1/2043	20.1		\$ 1,940,000	5.000%	3.46%		4.047%	113.019	3.46%
	10/1/2044	21.1	1	\$ 2,035,000						3.50%
	10/1/2045	22.1	1	\$ 2,145,000						3.54%
	10/1/2046	23.1	1	\$ 2,255,000						3.58%
	10/1/2047	24.1	1	\$ 2,375,000						3.60%
	10/1/2048	25.1	1	23.2 yrs \$ 2,500,000	5.000%	3.63%		4.252%	111.473	3.63%
	10/1/2049	26.1	2	\$ 2,630,000						3.65%
	10/1/2050	27.1	2	\$ 2,770,000						3.67%
	10/1/2051	28.1	2	\$ 2,915,000						3.68%
	10/1/2052	29.1	2	\$ 3,065,000						3.69%
	10/1/2053	30.1	2	28.2 yrs \$ 3,230,000	5.000%	3.69%		4.344%	110.951	3.69%

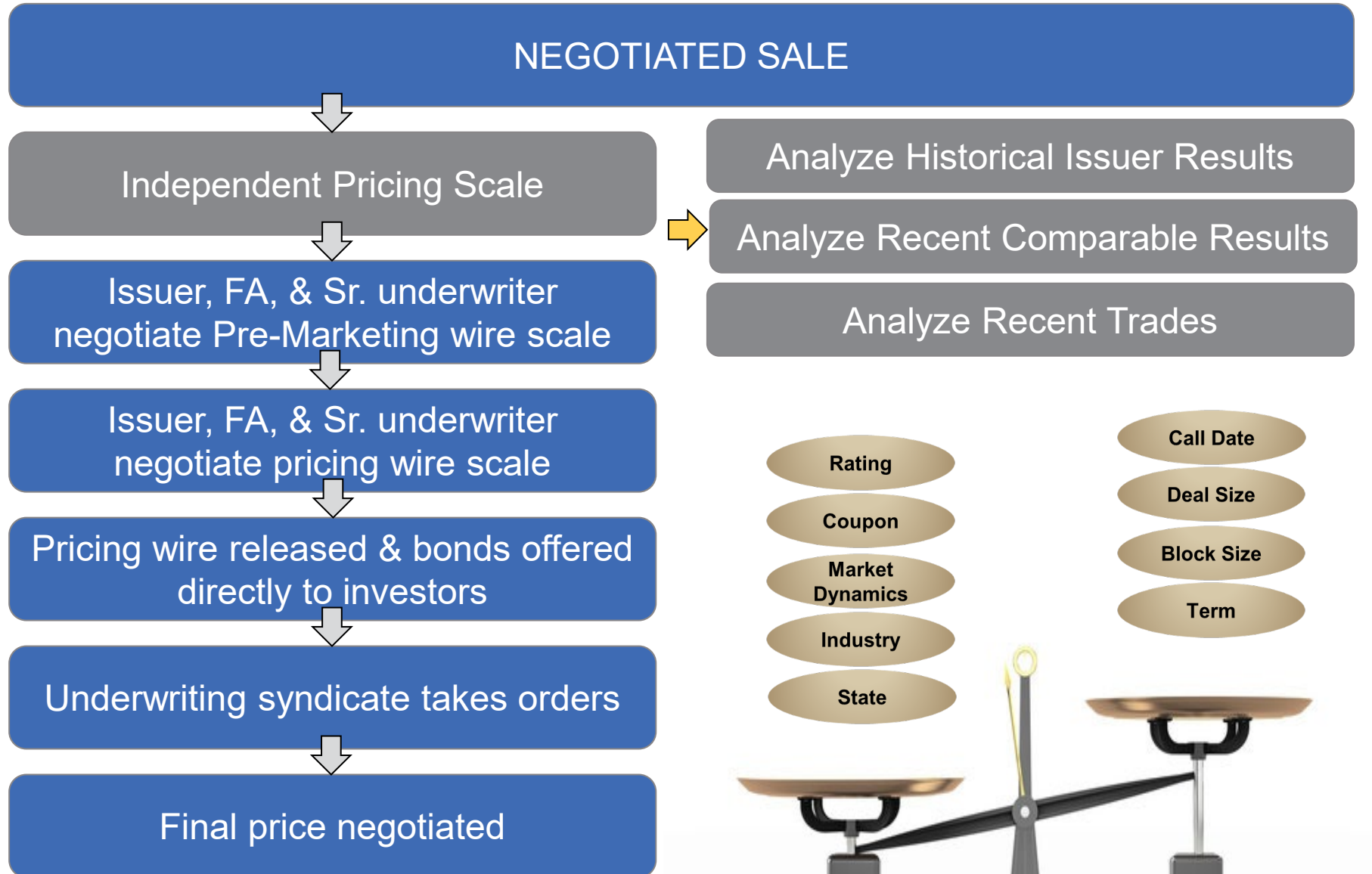
Total Par \$ 51,300,000
 Avg Life 19.2 years
 PV01 \$ 45,108

Call Date:
10/1/2033

Year	Issuer Historical Pricing Results	Recent Comparable Pricing Results	Secondary Trade Activity	Morning Market Tone
	Spread	Spread	Spread	Spread
1				
5				
10				
15				
20				
30				



Negotiated Sale Process





Issuer Historical Pricing Results



Issuer Historical Pricing Results - Exercise

- ❖ Historical Issuer Results can give a trading range for where an Issuer has priced in the Primary Market
- ❖ However, market dynamics at the time of the prior issuance need to be considered

Issuer:	Joint Powers Financing Authority (CA)					Joint Powers Financing Authority (CA)					Joint Powers Financing Authority (CA)				
Series:	Lease Revenue Bonds, Series 2023					Lease Revenue Bonds, Series 2022					Lease Revenue Bonds, Series 2021				
Security:	Gen Purpose/Pub Impt/Revenue					Gen Purpose/Pub Impt/Revenue					Gen Purpose/Pub Impt/Revenue				
Sale Type:	Tax Exempt (Negotiated)					Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Underwriter:	Underwriter A					Underwriter B					Underwriter C				
Financial Advisor:	Fin Advisors					Fin Advisors					Fin Advisors				
Par Amount:	\$38.320					\$69.315.000					\$18.565.000				
Sale Date:	4/10/2023					5/18/2022					9/30/2021				
Last Call Date:	4/1/2033 @ 100 (10.1 Yrs)					12/1/2032 @ 103 (10.7 Yrs)					6/1/2029 @ 100 (7.8 Yrs)				
Underlying Ratings:	-AAA-					-AAA-					-AAA+/-				
Insured Ratings:	-J-					-J-					-J-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1															
1	745	\$102.86	5.000%	2.320%	0 bps	945	\$101.54	5.000%	1.900%	42 bps	505	\$102.41	4.000%	0.170%	2 bps
2	785	\$105.63	5.000%	2.220%	0 bps	995	\$104.02	5.000%	2.260%	7 bps	655	\$106.13	4.000%	0.230%	7 bps
3	820	\$108.53	5.000%	2.130%	2 bps	1,045	\$105.95	5.000%	2.530%	13 bps	680	\$109.71	4.000%	0.290%	7 bps
4	860	\$111.38	5.000%	2.080%	6 bps	1,095	\$107.42	5.000%	2.760%	24 bps	710	\$113.00	4.000%	0.390%	5 bps
5	900	\$114.13	5.000%	2.060%	10 bps	1,155	\$108.98	5.000%	2.860%	24 bps	735	\$115.75	4.000%	0.550%	6 bps
6	940	\$116.80	5.000%	2.050%	14 bps	1,215	\$110.07	5.000%	3.000%	31 bps	765	\$118.01	4.000%	0.730%	9 bps
7	985	\$119.36	5.000%	2.050%	18 bps	1,275	\$110.74	5.000%	3.160%	40 bps	795	\$119.91	4.000%	0.900%	12 bps
8	1,030	\$121.88	5.000%	2.050%	22 bps	1,340	\$111.07	5.000%	3.320%	50 bps	830	\$121.49	4.000%	1.060%	15 bps
9	1,080	\$124.15	5.000%	2.070%	26 bps	1,410	\$111.73	5.000%	3.400%	53 bps	860	\$120.36	4.000%	1.200%	18 bps
10	1,130	\$125.82	5.000%	2.140%	30 bps	1,480	\$112.12	5.000%	3.490%	56 bps	895	\$119.39	4.000%	1.320%	22 bps
11	1,185	\$124.69	5.000%	2.250%	30 bps	1,555	\$111.64	5.000%	3.570%	59 bps	930	\$118.51	4.000%	1.430%	27 bps
12	1,245	\$123.07	5.000%	2.410%	30 bps	1,635	\$110.45	5.000%	3.740%	74 bps	970	\$117.72	4.000%	1.530%	32 bps
13	1,305	\$121.57	5.000%	2.560%	30 bps	1,720	\$109.82	5.000%	3.830%	81 bps	1,005	\$116.86	4.000%	1.640%	40 bps
14	1,365	\$120.48	5.000%	2.670%	30 bps	1,810	\$109.11	5.000%	3.930%	88 bps	1,045	\$116.24	4.000%	1.720%	44 bps
15	1,435	\$119.89	5.000%	2.730%	30 bps	1,900	\$108.59	5.000%	3.990%	92 bps	1,090	\$115.77	4.000%	1.780%	47 bps
16	1,505	\$119.50	5.000%	2.770%	40 bps	2,000	\$108.33	5.000%	4.020%	93 bps	1,130	\$115.54	4.000%	1.810%	47 bps
17	1,580	\$119.02	5.000%	2.820%	43 bps						1,180	\$115.39	4.000%	1.830%	46 bps
18	1,660	\$118.63	5.000%	2.860%	45 bps						1,225	\$105.59	3.000%	2.200%	80 bps
19	1,695	\$118.25	5.000%	2.900%	45 bps						1,260	\$105.30	3.000%	2.240%	81 bps
20	1,640	\$117.86	5.000%	2.940%	45 bps						1,300	\$98.47	2.500%	2.600%	114 bps
21															
22															
23															
24															
25	9,310	\$116.16	5.000%	3.120%	48 bps	11,725	\$108.66	5.250%	4.220%	103 bps					
26															
27															
28															
29															
30	11,610	\$115.60	5.000%	3.180%	50 bps	15,340	\$110.35	5.500%	4.220%	94 bps					
						19,675	\$95.22	4.500%	4.800%	149 bps					



Issuer Historical Pricing Results - Exercise

Cal City Joint Powers Financing Authority (AA) - Series 2023A (Lease Revenue Bonds) Pricing Worksheet

pfm Year	Term	Avg Life	Principal	PFM 5% CPN / 10.1 yr PC Scale					Benchmark 8/11/2023 BVAL AAA
				Coupon	ROY	YTC	YTM	Price	
10/1/2024	1.1		\$ 765,000	5.000%	3.16%			101.946	3.16%
10/1/2025	2.1		\$ 805,000	5.000%	3.05%			103.911	3.05%
10/1/2026	3.1		\$ 845,000	5.000%	2.91%			106.134	2.91%
10/1/2027	4.1		\$ 890,000	5.000%	2.80%			108.442	2.80%
10/1/2028	5.1		\$ 935,000	5.000%	2.74%			110.672	2.74%
10/1/2029	6.1		\$ 980,000	5.000%	2.70%			112.819	2.70%
10/1/2030	7.1		\$ 1,030,000	5.000%	2.67%			114.940	2.67%
10/1/2031	8.1		\$ 1,080,000	5.000%	2.67%			116.857	2.67%
10/1/2032	9.1		\$ 1,135,000	5.000%	2.67%			118.705	2.67%
10/1/2033	10.1		\$ 1,190,000	5.000%	2.70%			120.188	2.70%
10/1/2034	11.1		\$ 1,250,000	5.000%	2.78%		2.934%	119.434	2.78%
10/1/2035	12.1		\$ 1,315,000	5.000%	2.91%		3.175%	118.194	2.91%
10/1/2036	13.1		\$ 1,380,000	5.000%	3.05%		3.398%	116.811	3.05%
10/1/2037	14.1		\$ 1,445,000	5.000%	3.17%		3.572%	115.701	3.17%
10/1/2038	15.1		\$ 1,520,000	5.000%	3.23%		3.687%	115.091	3.23%
10/1/2039	16.1		\$ 1,595,000	5.000%	3.28%		3.773%	114.698	3.28%
10/1/2040	17.1		\$ 1,675,000	5.000%	3.33%		3.855%	114.224	3.33%
10/1/2041	18.1		\$ 1,760,000	5.000%	3.38%		3.928%	113.777	3.38%
10/1/2042	19.1		\$ 1,845,000	5.000%	3.43%		3.995%	113.325	3.43%
10/1/2043	20.1		\$ 1,940,000	5.000%	3.46%		4.047%	113.019	3.46%
10/1/2044	21.1	1	\$ 2,035,000						3.50%
10/1/2045	22.1	1	\$ 2,145,000						3.54%
10/1/2046	23.1	1	\$ 2,255,000						3.58%
10/1/2047	24.1	1	\$ 2,375,000						3.60%
10/1/2048	25.1	1	23.2 yrs \$ 2,500,000	5.000%	3.63%		4.252%	111.473	3.63%
10/1/2049	26.1	2	\$ 2,630,000						3.65%
10/1/2050	27.1	2	\$ 2,770,000						3.67%
10/1/2051	28.1	2	\$ 2,915,000						3.68%
10/1/2052	29.1	2	\$ 3,065,000						3.69%
10/1/2053	30.1	2	28.2 yrs \$ 3,230,000	5.000%	3.69%		4.344%	110.951	3.69%

Total Par \$ 51,300,000
 Avg Life 19.2 years
 PV01 \$ 45,108

Call Date:
 10/1/2033

Year	Issuer Historical Pricing Results Spread
1	
5	
10	
15	
20	
30	

- Based on Issuer Historical Pricing Results.
- Enter in the Spreads that you think our Primary Issue Example should clear the market.
- Start with Spots on the Curve (ie 1, 5, 10, 15, 20, 30 Year Tenors)



Recent Comparable Pricing Results



Recent Comparable Pricing Results - Example

Issuer:		California City Public Facilities Financing Authority (CA)					California County Capital Financing Authority (CA)					California County Capital Financing Authority (CA)				
Series:		Lease Revenue and Lease Revenue Refunding Bonds, Series 2024A					Lease Revenue Bonds, 2024 Series A-2					Lease Revenue Bonds, 2024 Series A-1				
Security:		Other Housing/Revenue Tax Exempt (Negotiated)					Gen Purpose/Pub Impt/Revenue Tax Exempt (Negotiated)					Gen Purpose/Pub Impt/Revenue Tax Exempt (Negotiated)				
Sale Type:																
Underwriter:		Underwriter B					Underwriter C					Underwriter D				
Financial Advisor:		Fin Advisors					Fin Advisors					Fin Advisors				
Par Amount:		\$213,130,000					\$11,260,000					\$35,000,000				
Sale Date:		7/10/2024					6/4/2024					6/4/2024				
Last Call Date:		10/15/2034 @ 100 (10.4 Yrs)					Non-Call					6/1/2029 @ 100 (5.1 Yrs)				
Underlying Ratings:		-JAA-/AA					-JAA+/-					-JAA+/-				
Insured Ratings:		-/-					-/-					-/-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	
<1	2,145	\$100.38	5.000%	3.250%	7 bps											
1	4,420	\$102.38	5.000%	3.000%	-7 bps	1,045	\$101.63	5.000%	3.240%	-11 bps						
2	4,645	\$104.33	5.000%	2.970%	-3 bps	1,370	\$103.39	5.000%	3.190%	-9 bps						
3	4,895	\$106.41	5.000%	2.900%	-3 bps	1,435	\$105.43	5.000%	3.060%	-9 bps						
4	5,135	\$108.28	5.000%	2.900%	0 bps	1,505	\$107.20	5.000%	3.050%	-4 bps						
5	5,410	\$110.21	5.000%	2.880%	0 bps	1,590	\$108.84	5.000%	3.060%	1 bps	2,590	\$100.22	4.000%	3.950%	90 bps	
6	5,685	\$111.93	5.000%	2.890%	3 bps	635	\$110.13	5.000%	3.120%	10 bps	2,695	\$100.18	4.000%	3.960%	94 bps	
7	5,990	\$113.38	5.000%	2.930%	8 bps	665	\$111.59	5.000%	3.130%	11 bps	2,805	\$100.18	4.000%	3.960%	94 bps	
8	4,910	\$114.94	5.000%	2.940%	10 bps	700	\$112.84	5.000%	3.160%	15 bps	2,915	\$100.04	4.000%	3.990%	98 bps	
9	5,165	\$116.27	5.000%	2.970%	12 bps	735	\$114.07	5.000%	3.180%	17 bps	3,030	\$100.00	4.000%	4.000%	99 bps	
10	5,435	\$117.78	5.000%	2.970%	11 bps	775	\$115.41	5.000%	3.180%	17 bps	3,155	\$99.67	4.000%	4.040%	103 bps	
11	5,705	\$117.20	5.000%	3.030%	16 bps	805	\$115.71	5.000%	3.280%	27 bps						
12	6,000	\$116.82	5.000%	3.070%	18 bps											
13	6,305	\$116.06	5.000%	3.150%	24 bps											
14	6,635	\$116.06	5.000%	3.150%	19 bps											
15	6,970	\$115.30	5.000%	3.230%	21 bps						17,810	\$99.61	4.125%	4.160%	93 bps	
16	7,330	\$114.55	5.000%	3.310%	17 bps											
17	7,705	\$113.53	5.000%	3.420%	18 bps											
18	8,100	\$112.98	5.000%	3.480%	17 bps											
19	6,520	\$112.43	5.000%	3.540%	17 bps											
20	6,855	\$112.06	5.000%	3.580%	15 bps											
21																
22																
23																
24																
25	39,915	\$109.90	5.000%	3.820%	17 bps											
26																
27																
28																
29																
30	51,255	\$109.19	5.000%	3.900%	17 bps											



Recent Comparable Pricing Results - Exercise

Issuer:	California Lease Revenue Comparable 1					California Lease Revenue Comparable 2					California Lease Revenue Comparable 3					California Lease Revenue Comparable 4				
Series:	Lease Revenue Bonds, Series 2023A (Public Safety Center Project)					Lease Revenue Bonds, Series 2023					2023 Certificates of Participation (Central Valley Support Services Joint Power Agency)					Lease Revenue Bonds, Series 2023A (Gateway Preserve Land Acquisition Project)				
Security:	Gen Purpose/Pub Impt/Revenue					Gen Purpose/Pub Impt/COP/Lease					Primary & Secondary Education/COP/Lease					Gen Purpose/Pub Impt/Revenue				
Sale Type:	Tax Exempt (Negotiated)					Tax Exempt (Negotiated)					Tax Exempt (Negotiated)					Tax Exempt (Negotiated)				
Underwriter:	Underwriter A					Underwriter B					Underwriter C					Underwriter D				
Financial Advisor:	Financial Advisor A					Financial Advisor B					Financial Advisor C					Financial Advisor D				
Par Amount:	\$9,190,000					\$5,385,000					\$54,090,000					\$326,280,000				
Sale Date:	8/2/2024					7/12/2024					6/22/2024					6/1/2024				
Last Call Date:	10/1/2033 @ 100 (10.3 Yrs)					5/1/2031 @ 100 (7.9 Yrs)					6/1/2033 @ 100 (10.1 Yrs)					5/1/2026 @ 100 (3 Yrs)				
Underlying Ratings:	-AA-					-AA-					-AA-					-AA+				
Insured Ratings:	-/-					-/-					-/-					-/-				
Maturity Year (TSY)	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd	Par (M)	Price	Coupon	Yield	BVAL Sprd
<1																				
1						50	\$101.25	5.000%	3.320%	29 bps	655	\$101.69	5.000%	3.060%	6 bps					
2						165	\$102.94	5.000%	3.270%	33 bps	875	\$103.70	5.000%	2.970%	7 bps					
3						170	\$104.75	5.000%	3.190%	39 bps	920	\$105.83	5.000%	2.880%	12 bps					
4						180	\$106.66	5.000%	3.110%	42 bps	970	\$108.09	5.000%	2.790%	14 bps	5,925	\$105.56	5.000%	2.970%	26 bps
5						190	\$108.49	5.000%	3.070%	44 bps	1,020	\$110.13	5.000%	2.770%	18 bps	6,220	\$105.50	5.000%	2.990%	34 bps
6						200	\$110.12	5.000%	3.070%	47 bps	1,070	\$112.15	5.000%	2.750%	19 bps	6,530	\$105.42	5.000%	3.020%	42 bps
7						210	\$111.70	5.000%	3.070%	51 bps	1,120	\$114.23	5.000%	2.720%	20 bps	6,860	\$105.42	5.000%	3.020%	46 bps
8						215	\$113.24	5.000%	3.070%	52 bps	1,175	\$116.09	5.000%	2.720%	21 bps	7,200	\$105.39	5.000%	3.030%	48 bps
9						230	\$113.16	5.000%	3.080%	53 bps	1,235	\$117.81	5.000%	2.730%	23 bps	7,560	\$105.36	5.000%	3.040%	50 bps
10	1,750	\$117.15	5.000%	3.020%	38 bps	240	\$112.80	5.000%	3.130%	56 bps	1,295	\$119.08	5.000%	2.780%	25 bps	7,940	\$105.25	5.000%	3.080%	52 bps
11						285	\$112.28	5.000%	3.200%	56 bps	1,360	\$118.51	5.000%	2.840%	23 bps	8,335	\$105.08	5.000%	3.140%	51 bps
12						300	\$111.55	5.000%	3.300%	54 bps	1,430	\$117.47	5.000%	2.950%	22 bps	8,755	\$104.86	5.000%	3.220%	47 bps
13						315	\$110.19	5.000%	3.490%	59 bps	1,505	\$116.26	5.000%	3.080%	20 bps	9,190	\$104.49	5.000%	3.350%	45 bps
14						330	\$109.05	5.000%	3.650%	62 bps	1,580	\$114.88	5.000%	3.230%	23 bps	9,650	\$104.10	5.000%	3.490%	46 bps
15	1,265	\$111.87	5.000%	3.590%	42 bps	345	\$108.56	5.000%	3.720%	61 bps	1,655	\$113.79	5.000%	3.350%	28 bps	10,135	\$103.85	5.000%	3.580%	48 bps
16											1,740	\$112.80	5.000%	3.460%	35 bps					
17											1,820	\$111.73	5.000%	3.580%	42 bps					
18											1,915	\$110.68	5.000%	3.700%	50 bps					
19											2,010	\$110.24	5.000%	3.750%	50 bps					
20	1,615	\$109.39	5.000%	3.870%	48 bps	1,960	\$97.94	4.130%	4.280%	96 bps	2,110	\$109.98	5.000%	3.780%	50 bps	59,085	\$103.97	5.250%	3.780%	47 bps
21																				
22																				
23																				
24																				
25	2,040	\$97.14	4.250%	4.440%	88 bps						12,000	\$97.38	4.000%	4.170%	72 bps	76,300	\$103.45	5.250%	3.970%	49 bps
26																				
27																				
28																				
29																				
30	2,520	\$96.05	4.250%	4.490%	87 bps						14,630	\$97.40	4.130%	4.280%	77 bps	96,595	\$97.68	4.250%	4.390%	85 bps



Recent Comparable Pricing Results - Exercise



Cal City Joint Powers Financing Authority (AA) - Series 2023A (Lease Revenue Bonds) Pricing Worksheet

pfm Year	Term	Avg Life	Principal	PFM 5% CPN / 10.1 yr PC Scale					Benchmark 8/11/2023 BVAL AAA
				Coupon	ROY	YTC	YTM	Price	
10/1/2024	1.1		\$ 765,000	5.000%	3.16%			101.946	3.16%
10/1/2025	2.1		\$ 805,000	5.000%	3.05%			103.911	3.05%
10/1/2026	3.1		\$ 845,000	5.000%	2.91%			106.134	2.91%
10/1/2027	4.1		\$ 890,000	5.000%	2.80%			108.442	2.80%
10/1/2028	5.1		\$ 935,000	5.000%	2.74%			110.672	2.74%
10/1/2029	6.1		\$ 980,000	5.000%	2.70%			112.819	2.70%
10/1/2030	7.1		\$ 1,030,000	5.000%	2.67%			114.940	2.67%
10/1/2031	8.1		\$ 1,080,000	5.000%	2.67%			116.857	2.67%
10/1/2032	9.1		\$ 1,135,000	5.000%	2.67%			118.705	2.67%
10/1/2033	10.1		\$ 1,190,000	5.000%	2.70%			120.188	2.70%
10/1/2034	11.1		\$ 1,250,000	5.000%	2.78%		2.934%	119.434	2.78%
10/1/2035	12.1		\$ 1,315,000	5.000%	2.91%		3.175%	118.194	2.91%
10/1/2036	13.1		\$ 1,380,000	5.000%	3.05%		3.398%	116.811	3.05%
10/1/2037	14.1		\$ 1,445,000	5.000%	3.17%		3.572%	115.701	3.17%
10/1/2038	15.1		\$ 1,520,000	5.000%	3.23%		3.687%	115.091	3.23%
10/1/2039	16.1		\$ 1,595,000	5.000%	3.28%		3.773%	114.698	3.28%
10/1/2040	17.1		\$ 1,675,000	5.000%	3.33%		3.855%	114.224	3.33%
10/1/2041	18.1		\$ 1,760,000	5.000%	3.38%		3.928%	113.777	3.38%
10/1/2042	19.1		\$ 1,845,000	5.000%	3.43%		3.995%	113.325	3.43%
10/1/2043	20.1		\$ 1,940,000	5.000%	3.46%		4.047%	113.019	3.46%
10/1/2044	21.1	1	\$ 2,035,000						3.50%
10/1/2045	22.1	1	\$ 2,145,000						3.54%
10/1/2046	23.1	1	\$ 2,255,000						3.58%
10/1/2047	24.1	1	\$ 2,375,000						3.60%
10/1/2048	25.1	1	23.2 yrs \$ 2,500,000	5.000%	3.63%		4.252%	111.473	3.63%
10/1/2049	26.1	2	\$ 2,630,000						3.65%
10/1/2050	27.1	2	\$ 2,770,000						3.67%
10/1/2051	28.1	2	\$ 2,915,000						3.68%
10/1/2052	29.1	2	\$ 3,065,000						3.69%
10/1/2053	30.1	2	28.2 yrs \$ 3,230,000	5.000%	3.69%		4.344%	110.951	3.69%

Total Par \$ 51,300,000
 Avg Life 19.2 years
 PV01 \$ 45,108

Call Date:
 10/1/2033

Year	Recent Comparable Pricing Results Spread
1	
5	
10	
15	
20	
30	

- Based Recent Comparable Pricing Results.
- Enter in the Spreads that you think our Primary Issue Example should clear the market.
- Start with Spots on the Curve (ie 1, 5, 10, 15, 20, 30 Year Tenors)
- Does the recent Primary Market activity change your initial spread thoughts?



Secondary Trade Activity



Secondary Trade Activity - Example

Recent California Lease Revenue Trades														
Maturity	Issuer	State	Sector	Underlying	Insurer	Tax Status	Trade Date	Par Amount	Price	Coupon	Yield	BVAL Spread to Trade Tin	Call Tenor	
2025	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/12/24	\$4,655,000	102.44	5.00%	2.63%	-5 bps	Non-Call	
2025	San Diego Regional Building Authority	CA	Govt/Pub Buildings	Aa2/AA+/AA+		Tax Exempt	8/08/24	\$1,000,000	102.75	5.00%	2.62%	-7 bps	Non-Call	
2025	Municipal Improvement Corporation of	CA	Gen Purpose/Pub Impt	Aa3/AA-/		Tax Exempt	8/08/24	\$250,000	102.89	5.00%	2.59%	-9 bps	Non-Call	
2026	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/05/24	\$1,520,000	105.48	5.00%	2.55%	-9 bps	Non-Call	
2027	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/05/24	\$1,125,000	107.59	5.00%	2.54%	-6 bps	Non-Call	
2028	Municipal Improvement Corporation of	CA	Gen Purpose/Pub Impt	-/AA-/		Tax Exempt	8/08/24	\$320,000	110.26	5.00%	2.43%	-16 bps	Non-Call	
2028	State Public Works Board of the State	CA	Govt/Pub Buildings	Aa3/A+/AA-		Tax Exempt	8/12/24	\$1,190,000	111.80	5.50%	2.53%	-7 bps	Non-Call	
2029	Fremont Public Financing Authority (C	CA	Gen Purpose/Pub Impt	-/AA-/		Tax Exempt	8/06/24	\$300,000	106.76	5.00%	2.75%	24 bps	3.2Yrs	
2029	Fremont Public Financing Authority (C	CA	Gen Purpose/Pub Impt	-/AA-/		Tax Exempt	8/07/24	\$300,000	107.80	5.00%	2.41%	-16 bps	3.2Yrs	
2031	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/06/24	\$1,070,000	116.07	5.00%	2.48%	0 bps	Non-Call	
2035	South Tahoe Joint Powers Financing A	CA	Electric & Public Power	-/AA-/		Tax Exempt	8/09/24	\$375,000	117.01	5.00%	2.87%	18 bps	9.3Yrs	
2035	South Tahoe Joint Powers Financing A	CA	Electric & Public Power	-/AA-/		Tax Exempt	8/09/24	\$375,000	116.40	5.00%	2.94%	24 bps	9.3Yrs	
2036	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/08/24	\$250,000	115.26	5.00%	2.60%	-13 bps	7.1Yrs	
2037	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/13/24	\$1,350,000	117.68	5.00%	2.88%	13 bps	9.8Yrs	
2041	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/05/24	\$1,000,000	117.03	5.00%	3.04%	6 bps	10.3Yrs	
2041	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/06/24	\$1,000,000	117.15	5.00%	3.03%	11 bps	10.3Yrs	
2041	State Public Works Board of the State	CA	Govt/Pub Buildings	Aa3/A+/AA-		Tax Exempt	8/12/24	\$1,170,000	115.21	5.00%	3.09%	-2 bps	9.4Yrs	
2042	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/05/24	\$1,000,000	116.97	5.00%	3.05%	7 bps	10.3Yrs	
2042	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/05/24	\$1,000,000	116.84	5.00%	3.06%	8 bps	10.3Yrs	
2046	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/13/24	\$3,000,000	99.38	4.00%	4.04%	69 bps	6.8Yrs	
2046	State Public Works Board of the State	CA	Gen Purpose/Pub Impt	Aa3/A+/AA-		Tax Exempt	8/07/24	\$1,550,000	109.64	5.00%	3.48%	21 bps	7.3Yrs	
2047	South Orange County Public Financing	CA	Gen Purpose/Pub Impt	-/AA/AA+		Tax Exempt	8/13/24	\$520,000	109.77	5.00%	3.55%	15 bps	7.9Yrs	
2049	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/05/24	\$2,900,000	113.39	5.00%	3.43%	10 bps	10.3Yrs	
2049	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/06/24	\$1,805,000	112.44	5.00%	3.54%	18 bps	10.3Yrs	
2052	North Lake Tahoe Public Financing Au	CA	Hospitals	-/AA-/		Tax Exempt	8/08/24	\$1,900,000	103.19	4.50%	4.04%	49 bps	8.4Yrs	
2054	Los Angeles County Facilities 2 Inc. (C	CA	Gen Purpose/Pub Impt	-/AA+/AA+		Tax Exempt	8/08/24	\$1,000,000	111.91	5.25%	3.78%	20 bps	10.0Yrs	
2054	Los Angeles County Facilities 2 Inc. (C	CA	Gen Purpose/Pub Impt	-/AA+/AA+		Tax Exempt	8/13/24	\$2,000,000	111.74	5.25%	3.80%	23 bps	9.9Yrs	
2054	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/13/24	\$2,000,000	111.38	5.00%	3.65%	8 bps	10.3Yrs	
2054	San Diego City Public Facilities Financ	CA	Other Housing	-/AA-/AA		Tax Exempt	8/13/24	\$2,000,000	111.32	5.00%	3.66%	9 bps	10.3Yrs	
2054	California Enterprise Development Aut	CA	Gen Purpose/Pub Impt	Aa3/AA-/		Tax Exempt	8/07/24	\$500,000	115.28	5.25%	3.46%	-8 bps	10.4Yrs	
2054	California Enterprise Development Aut	CA	Gen Purpose/Pub Impt	Aa3/AA-/		Tax Exempt	8/07/24	\$500,000	113.28	5.25%	3.68%	13 bps	10.4Yrs	



Secondary Trade Activity - Exercise

Recent California Lease Rev Trades													
Maturity	Issuer	State	Sector	Underlying	Insurer	Tax Status	Trade Date	Par Amount	Price	Coupon	Yield	Spread to BVA	Call Tenor
2024	City and County of San Francisco (CA)	CA	Civic & Convention Centers	Aa2/AA+/AA		Tax Exempt	5/23/23	\$1,325,000	101.33	5.00%	3.39%	23 bps	Non-Call
2024	City and County of San Francisco (CA)	CA	Civic & Convention Centers	Aa2/AA+/AA		Tax Exempt	5/23/23	\$1,325,000	101.33	5.00%	3.40%	24 bps	Non-Call
2025	Davis Joint Unified School District (CA)	CA	Primary & Secondary Educat	-/A+/-	AGM	Tax Exempt	6/01/23	\$1,000,000	103.97	5.00%	3.08%	15 bps	Non-Call
2025	Davis Joint Unified School District (CA)	CA	Primary & Secondary Educat	-/A+/-	AGM	Tax Exempt	6/06/23	\$825,000	104.21	5.00%	2.96%	6 bps	Non-Call
2027	City and County of San Francisco (CA)	CA	Govt/Pub Buildings	Aa1/AA+/AA		Tax Exempt	6/30/23	\$1,385,000	99.83	3.00%	3.05%	38 bps	Non-Call
2029	Chula Vista Elementary School District (CA)	CA	Primary & Secondary Educat	-/A+/-	AGM	Tax Exempt	7/24/23	\$760,000	107.06	4.00%	2.73%	27 bps	Non-Call
2029	Chula Vista Elementary School District (CA)	CA	Primary & Secondary Educat	-/A+/-	AGM	Tax Exempt	7/28/23	\$510,000	107.25	4.00%	2.70%	18 bps	Non-Call
2030	South Orange County Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA/AA+		Tax Exempt	7/20/23	\$855,000	115.45	5.00%	2.53%	9 bps	Non-Call
2030	South Orange County Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA/AA+		Tax Exempt	7/20/23	\$855,000	115.02	5.00%	2.59%	15 bps	Non-Call
2032	El Centro Financing Authority (CA)	CA	Police Station & Equipment	-/A/-		Tax Exempt	6/13/23	\$1,395,000	117.00	5.00%	2.90%	35 bps	Non-Call
2036	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	7/10/23	\$620,000	112.36	5.00%	3.00%	6 bps	7.0Yrs
2036	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	7/10/23	\$620,000	111.91	5.00%	3.07%	13 bps	7.0Yrs
2037	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	6/13/23	\$750,000	111.88	5.00%	3.09%	5 bps	7.1Yrs
2037	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	6/13/23	\$750,000	111.88	5.00%	3.09%	5 bps	7.1Yrs
2037	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	6/13/23	\$750,000	111.78	5.00%	3.11%	7 bps	7.1Yrs
2040	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/10/23	\$625,000	113.07	5.00%	3.45%	22 bps	10.2Yrs
2040	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/10/23	\$625,000	113.03	5.00%	3.45%	22 bps	10.2Yrs
2042	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	5/25/23	\$1,000,000	98.43	4.00%	4.12%	72 bps	7.1Yrs
2042	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	6/12/23	\$1,000,000	100.00	4.00%	4.00%	72 bps	7.1Yrs
2042	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	6/12/23	\$1,000,000	100.00	4.00%	4.00%	72 bps	7.1Yrs
2042	City of South San Francisco Public Finance Authority (CA)	CA	Parks, Zoos & Beaches	-/AA+/-		Tax Exempt	6/12/23	\$1,000,000	100.00	4.00%	4.00%	72 bps	7.1Yrs
2043	South Orange County Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA/AA+		Tax Exempt	7/11/23	\$1,790,000	110.16	5.00%	3.65%	31 bps	9.0Yrs
2043	South Orange County Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA/AA+		Tax Exempt	7/11/23	\$1,790,000	109.76	5.00%	3.70%	36 bps	9.0Yrs
2051	Santa Monica Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA+/AA+		Tax Exempt	6/01/23	\$500,000	67.75	2.25%	4.22%	69 bps	8.2Yrs
2051	Santa Monica Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA+/AA+		Tax Exempt	6/01/23	\$500,000	66.15	2.25%	4.35%	82 bps	8.2Yrs
2051	Santa Monica Public Financing Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA+/AA+		Tax Exempt	6/01/23	\$500,000	66.09	2.25%	4.36%	82 bps	8.2Yrs
2053	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/19/23	\$1,355,000	100.25	4.00%	3.97%	52 bps	10.2Yrs
2053	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/19/23	\$655,000	99.00	4.00%	4.06%	61 bps	10.2Yrs
2053	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/19/23	\$1,355,000	99.00	4.00%	4.06%	61 bps	10.2Yrs
2053	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/19/23	\$500,000	98.75	4.00%	4.07%	63 bps	10.2Yrs
2053	Long Beach Bond Finance Authority (CA)	CA	Gen Purpose/Pub Impt	-/AA-/AA-		Tax Exempt	7/19/23	\$2,000,000	98.75	4.00%	4.07%	63 bps	10.2Yrs



Secondary Trade Activity - Exercise

Cal City Joint Powers Financing Authority (AA) - Series 2023A (Lease Revenue Bonds) Pricing Worksheet

pfm Year	Term	Avg Life	Principal	PFM 5% CPN / 10.1 yr PC Scale					Benchmark 8/11/2023 BVAL AAA
				Coupon	ROY	YTC	YTM	Price	
10/1/2024	1.1		\$ 765,000	5.000%	3.16%			101.946	3.16%
10/1/2025	2.1		\$ 805,000	5.000%	3.05%			103.911	3.05%
10/1/2026	3.1		\$ 845,000	5.000%	2.91%			106.134	2.91%
10/1/2027	4.1		\$ 890,000	5.000%	2.80%			108.442	2.80%
10/1/2028	5.1		\$ 935,000	5.000%	2.74%			110.672	2.74%
10/1/2029	6.1		\$ 980,000	5.000%	2.70%			112.819	2.70%
10/1/2030	7.1		\$ 1,030,000	5.000%	2.67%			114.940	2.67%
10/1/2031	8.1		\$ 1,080,000	5.000%	2.67%			116.857	2.67%
10/1/2032	9.1		\$ 1,135,000	5.000%	2.67%			118.705	2.67%
10/1/2033	10.1		\$ 1,190,000	5.000%	2.70%			120.188	2.70%
10/1/2034	11.1		\$ 1,250,000	5.000%	2.78%		2.934%	119.434	2.78%
10/1/2035	12.1		\$ 1,315,000	5.000%	2.91%		3.175%	118.194	2.91%
10/1/2036	13.1		\$ 1,380,000	5.000%	3.05%		3.398%	116.811	3.05%
10/1/2037	14.1		\$ 1,445,000	5.000%	3.17%		3.572%	115.701	3.17%
10/1/2038	15.1		\$ 1,520,000	5.000%	3.23%		3.687%	115.091	3.23%
10/1/2039	16.1		\$ 1,595,000	5.000%	3.28%		3.773%	114.698	3.28%
10/1/2040	17.1		\$ 1,675,000	5.000%	3.33%		3.855%	114.224	3.33%
10/1/2041	18.1		\$ 1,760,000	5.000%	3.38%		3.928%	113.777	3.38%
10/1/2042	19.1		\$ 1,845,000	5.000%	3.43%		3.995%	113.325	3.43%
10/1/2043	20.1		\$ 1,940,000	5.000%	3.46%		4.047%	113.019	3.46%
10/1/2044	21.1	1	\$ 2,035,000						3.50%
10/1/2045	22.1	1	\$ 2,145,000						3.54%
10/1/2046	23.1	1	\$ 2,255,000						3.58%
10/1/2047	24.1	1	\$ 2,375,000						3.60%
10/1/2048	25.1	1	23.2 yrs \$ 2,500,000	5.000%	3.63%		4.252%	111.473	3.63%
10/1/2049	26.1	2	\$ 2,630,000						3.65%
10/1/2050	27.1	2	\$ 2,770,000						3.67%
10/1/2051	28.1	2	\$ 2,915,000						3.68%
10/1/2052	29.1	2	\$ 3,065,000						3.69%
10/1/2053	30.1	2	28.2 yrs \$ 3,230,000	5.000%	3.69%		4.344%	110.951	3.69%

Total Par \$ 51,300,000
 Avg Life 19.2 years
 PV01 \$ 45,108

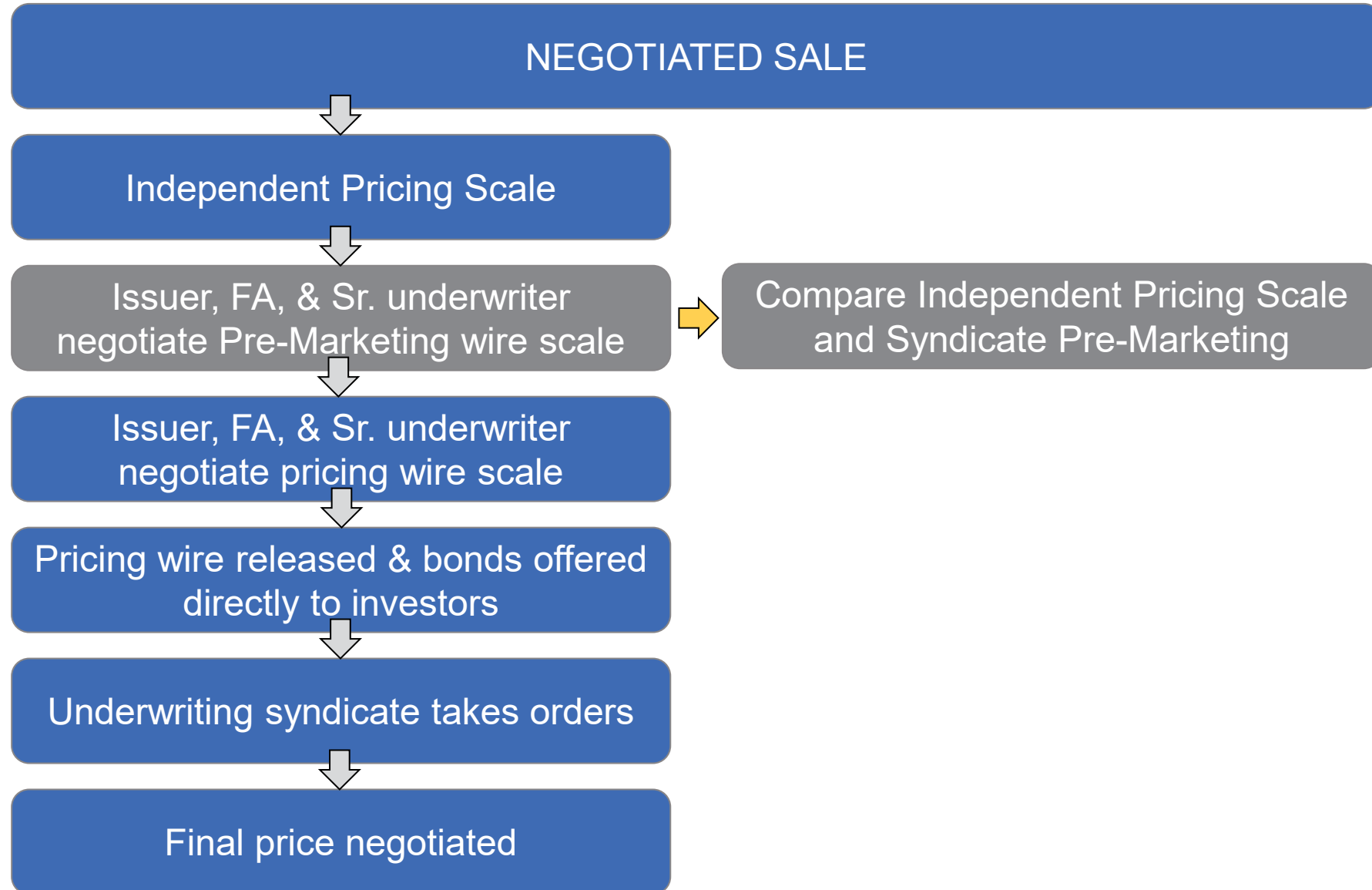
Call Date:
 10/1/2033

Year	Secondary Trade Activity Spread
1	
5	
10	
15	
20	
30	

- Based Recent Secondary Trade Activity
- Enter in the Spreads that you think our Primary Issue Example should clear the market.
- Start with Spots on the Curve (ie 1, 5, 10, 15, 20, 30 Year Tenors)
- Does the recent Secondary Trade activity change your initial spread thoughts?



Pre-Marketing





Maturity	Consensus	Lead Underwriter	Co Senior Underwriter	Co Senior Underwriter	Co Managing Underwriter	Co Managing Underwriter	Co Managing Underwriter
10/1/2024	15 bps	9 bps	9 bps	12 bps	20 bps	20 bps	19 bps
10/1/2025	16 bps	10 bps	10 bps	13 bps	21 bps	21 bps	20 bps
10/1/2026	18 bps	12 bps	12 bps	15 bps	23 bps	23 bps	22 bps
10/1/2027	21 bps	15 bps	15 bps	18 bps	26 bps	26 bps	25 bps
10/1/2028	24 bps	18 bps	18 bps	21 bps	29 bps	29 bps	28 bps
10/1/2029	27 bps	21 bps	21 bps	24 bps	32 bps	32 bps	31 bps
10/1/2030	23 bps	22 bps	20 bps	21 bps	27 bps	25 bps	22 bps
10/1/2031	25 bps	24 bps	22 bps	23 bps	29 bps	27 bps	24 bps
10/1/2032	34 bps	28 bps	28 bps	31 bps	39 bps	39 bps	38 bps
10/1/2033	36 bps	30 bps	30 bps	33 bps	41 bps	40 bps	39 bps
10/1/2034	40 bps	34 bps	34 bps	37 bps	45 bps	44 bps	43 bps
10/1/2035	38 bps	32 bps	32 bps	35 bps	43 bps	42 bps	41 bps
10/1/2036	34 bps	32 bps	30 bps	30 bps	38 bps	37 bps	36 bps
10/1/2037	34 bps	32 bps	30 bps	30 bps	38 bps	37 bps	36 bps
10/1/2038	34 bps	32 bps	30 bps	30 bps	38 bps	37 bps	36 bps
10/1/2039	46 bps	40 bps	40 bps	43 bps	51 bps	50 bps	49 bps
10/1/2040	46 bps	40 bps	40 bps	43 bps	51 bps	50 bps	49 bps
10/1/2041	50 bps	44 bps	44 bps	47 bps	55 bps	54 bps	53 bps
10/1/2042	53 bps	47 bps	47 bps	50 bps	58 bps	57 bps	56 bps
10/1/2043	53 bps	47 bps	47 bps	50 bps	58 bps	57 bps	56 bps
10/1/2048	55 bps	53 bps	52 bps	55 bps	60 bps	55 bps	54 bps
10/1/2053	57 bps	57 bps	54 bps	58 bps	62 bps	57 bps	55 bps



Maturity	Consensus	Lead Underwriter	FA/Issuer Independent Price Thoughts	Difference	Negotiation Points
10/1/2024	15 bps	9 bps	2 bps	-7 bps	+
10/1/2025	16 bps	10 bps	3 bps	-7 bps	+
10/1/2026	18 bps	12 bps	6 bps	-6 bps	+
10/1/2027	21 bps	15 bps	10 bps	-5 bps	
10/1/2028	24 bps	18 bps	13 bps	-5 bps	
10/1/2029	27 bps	21 bps	15 bps	-6 bps	+
10/1/2030	23 bps	22 bps	17 bps	-5 bps	
10/1/2031	25 bps	24 bps	17 bps	-7 bps	+
10/1/2032	34 bps	28 bps	20 bps	-8 bps	+
10/1/2033	36 bps	30 bps	25 bps	-5 bps	
10/1/2034	40 bps	34 bps	30 bps	-4 bps	
10/1/2035	38 bps	32 bps	25 bps	-7 bps	+
10/1/2036	34 bps	32 bps	22 bps	-10 bps	+
10/1/2037	34 bps	32 bps	22 bps	-10 bps	+
10/1/2038	34 bps	32 bps	26 bps	-6 bps	+
10/1/2039	46 bps	40 bps	34 bps	-6 bps	+
10/1/2040	46 bps	40 bps	37 bps	-3 bps	
10/1/2041	50 bps	44 bps	40 bps	-4 bps	
10/1/2042	53 bps	47 bps	42 bps	-5 bps	
10/1/2043	53 bps	47 bps	42 bps	-5 bps	
10/1/2048	55 bps	53 bps	47 bps	-6 bps	+
10/1/2053	57 bps	57 bps	50 bps	-7 bps	+

- Negotiation of Pre-Marketing Levels begins by comparing Independently developed price thoughts to the Syndicate Price views
- Identify areas where there is a moderate to large difference in viewpoint as starting negotiation points to focus.



Pre-Marketing Negotiation

Maturity	Consensus	Lead Underwriter	FA/Issuer Independent Price Thoughts	Difference	Negotiated Pre-Marketing	Difference to Negotiated Pre-Marketing
10/1/2024	15 bps	9 bps	2 bps	-7 bps	7 bps	-5 bps
10/1/2025	16 bps	10 bps	3 bps	-7 bps	8 bps	-5 bps
10/1/2026	18 bps	12 bps	6 bps	-6 bps	11 bps	-5 bps
10/1/2027	21 bps	15 bps	10 bps	-5 bps	15 bps	-5 bps
10/1/2028	24 bps	18 bps	13 bps	-5 bps	18 bps	-5 bps
10/1/2029	27 bps	21 bps	15 bps	-6 bps	20 bps	-5 bps
10/1/2030	23 bps	22 bps	17 bps	-5 bps	22 bps	-5 bps
10/1/2031	25 bps	24 bps	17 bps	-7 bps	22 bps	-5 bps
10/1/2032	34 bps	28 bps	20 bps	-8 bps	25 bps	-5 bps
10/1/2033	36 bps	30 bps	25 bps	-5 bps	30 bps	-5 bps
10/1/2034	40 bps	34 bps	30 bps	-4 bps	34 bps	-4 bps
10/1/2035	38 bps	32 bps	25 bps	-7 bps	30 bps	-5 bps
10/1/2036	34 bps	32 bps	22 bps	-10 bps	25 bps	-3 bps
10/1/2037	34 bps	32 bps	22 bps	-10 bps	26 bps	-4 bps
10/1/2038	34 bps	32 bps	26 bps	-6 bps	31 bps	-5 bps
10/1/2039	46 bps	40 bps	34 bps	-6 bps	39 bps	-5 bps
10/1/2040	46 bps	40 bps	37 bps	-3 bps	39 bps	-2 bps
10/1/2041	50 bps	44 bps	40 bps	-4 bps	43 bps	-3 bps
10/1/2042	53 bps	47 bps	42 bps	-5 bps	46 bps	-4 bps
10/1/2043	53 bps	47 bps	42 bps	-5 bps	46 bps	-4 bps
10/1/2048	55 bps	53 bps	47 bps	-6 bps	51 bps	-4 bps
10/1/2053	57 bps	57 bps	50 bps	-7 bps	55 bps	-5 bps

- Use the Data you reviewed earlier in the exercise to support the negotiation of Pre-Marketing levels
- How does the Issuers Historical results, recent comparables, and secondary trading activity support your viewpoint?
- Negotiation can be a give and a take process, with the goal of establishing the right starting point for Pre-Marketing that participants are comfortable with.
- Pricing is both an Art and a Science, especially with market volatility.



Market Data/Tone Impact on Spreads on Day of Pricing





Day of Pricing Market Dynamics

WEI World Equity Indices

Index	RMI	2Day	Value	Net Chg	%Chg	Δ AVAT	Time	Adv/Dcl	%Ytd	%YtdCur
Americas										
DOW JONES			39730.67	+9.31	+0.02%	+3.44%	15:41	18 / 12	+5.42%	+5.42%
S&P 500			5589.11	-44.80	-0.80%					
NASDAQ			18324.26	-323.19	-1.73%					

Equity Indices – Risk On/Off

ECO Economic Calendars

United States

07/11/24

Economic Releases

Date	Time	A	M	R	Event	Period	Surv(M)	Actual	Prior	Revised
07/11	08:30				CPI MoM	Jun	0.1%	-0.1%	0.0%	--
07/11	08:30				CPI Ex Food and Energy MoM	Jun	0.2%	0.1%	0.2%	--
07/11	08:30				CPI YoY	Jun	3.1%	3.0%	3.3%	--
07/11	08:30				CPI Ex Food and Energy YoY	Jun	3.4%	3.3%	3.4%	--
07/11	08:30				CPI Index NSA	Jun	314.614	314.175	314.069	--
07/11	08:30				CPI Core Index SA	Jun	318.780	318.346	318.140	--
07/11	08:30				Real Avg Hourly Earnings YoY	Jun	--	0.8%	0.8%	0.7%
07/11	08:30				Real Avg Weekly Earnings YoY	Jun	--	0.6%	0.5%	--
07/11	08:30				Initial Jobless Claims	Jul 6	235k	222k	238k	239k
07/11	08:30				Continuing Claims	Jul 6			1858k	1856k
07/11	14:00				Monthly Budget Statement	Jun	-\$76.1b	-\$66.0b	-\$347.1b	--
07/12	08:30				PPI Final Demand MoM	Jun	0.1%	--	-0.2%	--

Economic Data

Muni Bonds out for Bid

Municipal Bond Monitor [1]

Region	State	Outstanding	Amt Called	Amt Maturing Avail	Reinve.	Pct (%)	Total Supply	Net Supply
10	Total	3,961,737.32	4,714.78	21,793.37	26,508.15	0.67	13,998.17	-12,527.98
11	California	641,628.39	915.59	5,959.89	6,875.48	1.07	2,053.39	-4,822.09
12	New York	459,970.47	997.33	4,063.11	5,060.44	1.10	2,063.87	-2,996.56
13	Maryland	63,087.74	1.25	999.48	1,000.74	1.59	0.00	-1,000.74
14	New Jersey	112,689.48	85.59	1,101.42	1,187.02	1.05	187.28	-999.73
15	Massachusetts	114,730.51	91.09	896.08	987.17	0.86	50.86	-936.31
16	Connecticut	56,800.59	303.61	533.33	836.94	1.47	83.22	-753.72
17	Indiana	50,876.66	36.11	754.37	790.48	1.55	221.46	-569.02
18	Virginia	79,210.08	9.38	896.74	816.12	1.02	289.00	-527.12
19	Minnesota	59,184.47	56.72	585.80	642.52	1.09	130.89	-511.63
20	Washington	92,805.28	302.01	541.20	843.21	0.91	338.04	-505.17
21	Pennsylvania	138,953.02	66.26	404.71	470.97	0.34	21.34	-449.63
22	Puerto Rico	69,177.17	16.18	350.97	367.15	0.53	0.00	-367.15
23	Ohio	102,323.23	30.24	287.37	317.61	0.31	31.10	-286.51
24	New Mexico	15,001.51	14.99	275.02	290.01	1.93	11.96	-178.05
25	Kentucky	39,279.20	10.95	176.81	187.77	0.49	11.96	-175.81
26	Michigan	86,633.16	132.16	100.12	232.27	0.27	104.23	-128.04
27	Alabama	54,550.22	50.93	100.51	151.44	0.28	27.99	-123.45
28	Kansas	23,889.99	5.48	148.40	153.88	0.64	38.46	-115.42
29	Oklahoma	27,941.11	0.93	93.19	94.12	0.34	9.39	-84.73
30	South Dakota	7,292.13	1.38	69.72	71.10	0.98	0.00	-71.10
31	Rhode Island	12,235.16	10.54	112.56	123.10	0.84	45.14	-78.42
32	Iowa	24,995.00	0.19	79.13	79.32	0.32	16.80	-62.52

Net Issuance

Municipal Bond Monitor

Term	Description	Treasury Bid Yld	Ask Yld	Bid Chg	Swap Spdr	Bid Swap	Ask Swap	Bid Chg
1 mo	B 0 08/06/24	5.330	5.322	-0.006	-3.3	5.327	5.327	-0.018
3 mo	B 0 10/10/24	5.349	5.339	-0.027	-6.6	5.283	5.283	-0.015
6 mo	B 0 09/23/24	5.214	5.204	-0.075	-6.1	5.153	5.153	-0.055
1 yr	B 0 07/10/25	4.903	4.895	-0.101	-5.7	4.847	4.853	-0.101
1 yr	T 4 5/8 06/30/26	4.513	4.511	-0.109	-18.8	4.325	4.330	-0.126
2 yr	T 4 5/8 07/15/27	4.277	4.274	-0.112	-21.5	4.062	4.066	-0.124
3 yr	(Interpolated)	4.206	4.204	-0.107	-23.0	3.917	3.921	-0.113
4 yr	T 4 5/8 06/30/29	4.137	4.136	-0.102	-29.9	3.838	3.841	-0.113
5 yr	(Interpolated)	4.144	4.142	-0.098	-34.9	3.796	3.799	-0.110
6 yr	T 4 5/8 06/30/31	4.151	4.148	-0.094	-34.8	3.775	3.776	-0.107
7 yr	(Interpolated)	4.170	4.168	-0.089	-34.8	3.762	3.763	-0.101
8 yr	(Interpolated)	4.189	4.186	-0.085	-34.8	3.758	3.763	-0.101
10 yr	T 4 5/8 05/15/34	4.204	4.202	-0.082	-40.0	3.698	3.703	-0.083
15 yr	(Interpolated)	4.342	4.341	-0.077	-80.0	3.611	3.616	-0.080
20 yr	T 4 5/8 05/15/44	4.511	4.509	-0.073				
25 yr	(Interpolated)	4.460	4.459	-0.070				
30 yr	T 4 5/8 05/15/54	4.412	4.411	-0.067				

Treasury Tone

BVAL Muni AAA Curves

Term	Current	Change	Prior
3 Month	3.11	-0.08	3.18
6 Month	3.08	-0.08	3.15
2025	3.01	-0.08	3.09
2026	2.95	-0.07	3.02
2027	2.87	-0.07	2.94
2028	2.84	-0.07	2.91
2029	2.84	-0.07	2.89
2030	2.80	-0.07	2.87
2031	2.79	-0.07	2.86
2032	2.78	-0.06	2.84
2033	2.79	-0.06	2.85
2034	2.80	-0.06	2.86
2035	2.82	-0.05	2.87
2036	2.85	-0.04	2.88
2037	2.87	-0.03	2.90
2038	2.92	-0.03	2.95
2039	2.98	-0.02	2.99
2040	3.09	-0.03	3.11
2041	3.18	-0.04	3.22

Municipal Tone

BVAL Expected Redemption Date (BERD) in Years

© PFM

Source: Bloomberg as of 7/11/2024

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Market Tone - Exercise

Cal City Joint Powers Financing Authority (AA) - Series 2023A (Lease Revenue Bonds) Pricing Worksheet

pfm Year	Term	Avg Life	Principal	PFM 5% CPN / 10.1 yr PC Scale					Benchmark 8/11/2023 BVAL AAA
				Coupon	ROY	YTC	YTM	Price	
10/1/2024	1.1		\$ 765,000	5.000%	3.16%			101.946	3.16%
10/1/2025	2.1		\$ 805,000	5.000%	3.05%			103.911	3.05%
10/1/2026	3.1		\$ 845,000	5.000%	2.91%			106.134	2.91%
10/1/2027	4.1		\$ 890,000	5.000%	2.80%			108.442	2.80%
10/1/2028	5.1		\$ 935,000	5.000%	2.74%			110.672	2.74%
10/1/2029	6.1		\$ 980,000	5.000%	2.70%			112.819	2.70%
10/1/2030	7.1		\$ 1,030,000	5.000%	2.67%			114.940	2.67%
10/1/2031	8.1		\$ 1,080,000	5.000%	2.67%			116.857	2.67%
10/1/2032	9.1		\$ 1,135,000	5.000%	2.67%			118.705	2.67%
10/1/2033	10.1		\$ 1,190,000	5.000%	2.70%			120.188	2.70%
10/1/2034	11.1		\$ 1,250,000	5.000%	2.78%		2.934%	119.434	2.78%
10/1/2035	12.1		\$ 1,315,000	5.000%	2.91%		3.175%	118.194	2.91%
10/1/2036	13.1		\$ 1,380,000	5.000%	3.05%		3.398%	116.811	3.05%
10/1/2037	14.1		\$ 1,445,000	5.000%	3.17%		3.572%	115.701	3.17%
10/1/2038	15.1		\$ 1,520,000	5.000%	3.23%		3.687%	115.091	3.23%
10/1/2039	16.1		\$ 1,595,000	5.000%	3.28%		3.773%	114.698	3.28%
10/1/2040	17.1		\$ 1,675,000	5.000%	3.33%		3.855%	114.224	3.33%
10/1/2041	18.1		\$ 1,760,000	5.000%	3.38%		3.928%	113.777	3.38%
10/1/2042	19.1		\$ 1,845,000	5.000%	3.43%		3.995%	113.325	3.43%
10/1/2043	20.1		\$ 1,940,000	5.000%	3.46%		4.047%	113.019	3.46%
10/1/2044	21.1	1	\$ 2,035,000						3.50%
10/1/2045	22.1	1	\$ 2,145,000						3.54%
10/1/2046	23.1	1	\$ 2,255,000						3.58%
10/1/2047	24.1	1	\$ 2,375,000						3.60%
10/1/2048	25.1	1	23.2 yrs \$ 2,500,000	5.000%	3.63%		4.252%	111.473	3.63%
10/1/2049	26.1	2	\$ 2,630,000						3.65%
10/1/2050	27.1	2	\$ 2,770,000						3.67%
10/1/2051	28.1	2	\$ 2,915,000						3.68%
10/1/2052	29.1	2	\$ 3,065,000						3.69%
10/1/2053	30.1	2	28.2 yrs \$ 3,230,000	5.000%	3.69%		4.344%	110.951	3.69%

Total Par \$ 51,300,000
 Avg Life 19.2 years
 PV01 \$ 45,108

Call Date: 10/1/2033

Year	Morning Market Tone
	Spread
1	
5	
10	
15	
20	
30	

- Based Market Data and Tone the morning of pricing.
- Enter in the Spreads that you think our Primary Issue Example should clear the market.
- Start with Spots on the Curve (ie 1, 5, 10, 15, 20, 30 Year Tenors)
- Does the change your initial spread thoughts?



Pricing Wire Negotiation

Maturity	Consensus	Lead Underwriter	FA/Issuer Independent Price Thoughts	Difference	Negotiated Pre-Marketing	Difference to Negotiated Pre-Marketing	Release Levels	Difference to Release
10/1/2024	15 bps	9 bps	2 bps	-7 bps	7 bps	-5 bps	5 bps	-3 bps
10/1/2025	16 bps	10 bps	3 bps	-7 bps	8 bps	-5 bps	6 bps	-3 bps
10/1/2026	18 bps	12 bps	6 bps	-6 bps	11 bps	-5 bps	9 bps	-3 bps
10/1/2027	21 bps	15 bps	10 bps	-5 bps	15 bps	-5 bps	13 bps	-3 bps
10/1/2028	24 bps	18 bps	13 bps	-5 bps	18 bps	-5 bps	16 bps	-3 bps
10/1/2029	27 bps	21 bps	15 bps	-6 bps	20 bps	-5 bps	18 bps	-3 bps
10/1/2030	23 bps	22 bps	17 bps	-5 bps	22 bps	-5 bps	20 bps	-3 bps
10/1/2031	25 bps	24 bps	17 bps	-7 bps	22 bps	-5 bps	20 bps	-3 bps
10/1/2032	34 bps	28 bps	20 bps	-8 bps	25 bps	-5 bps	23 bps	-3 bps
10/1/2033	36 bps	30 bps	25 bps	-5 bps	30 bps	-5 bps	28 bps	-3 bps
10/1/2034	40 bps	34 bps	30 bps	-4 bps	34 bps	-4 bps	32 bps	-2 bps
10/1/2035	38 bps	32 bps	25 bps	-7 bps	30 bps	-5 bps	28 bps	-3 bps
10/1/2036	34 bps	32 bps	22 bps	-10 bps	25 bps	-3 bps	23 bps	-1 bps
10/1/2037	34 bps	32 bps	22 bps	-10 bps	26 bps	-4 bps	24 bps	-2 bps
10/1/2038	34 bps	32 bps	26 bps	-6 bps	31 bps	-5 bps	29 bps	-3 bps
10/1/2039	46 bps	40 bps	34 bps	-6 bps	39 bps	-5 bps	37 bps	-3 bps
10/1/2040	46 bps	40 bps	37 bps	-3 bps	39 bps	-2 bps	37 bps	0 bps
10/1/2041	50 bps	44 bps	40 bps	-4 bps	43 bps	-3 bps	41 bps	-1 bps
10/1/2042	53 bps	47 bps	42 bps	-5 bps	46 bps	-4 bps	44 bps	-2 bps
10/1/2043	53 bps	47 bps	42 bps	-5 bps	46 bps	-4 bps	44 bps	-2 bps
10/1/2048	55 bps	53 bps	47 bps	-6 bps	51 bps	-4 bps	49 bps	-2 bps
10/1/2053	57 bps	57 bps	50 bps	-7 bps	55 bps	-5 bps	53 bps	-3 bps



Release Pricing Wire and Take Orders





Initial Pricing Wire

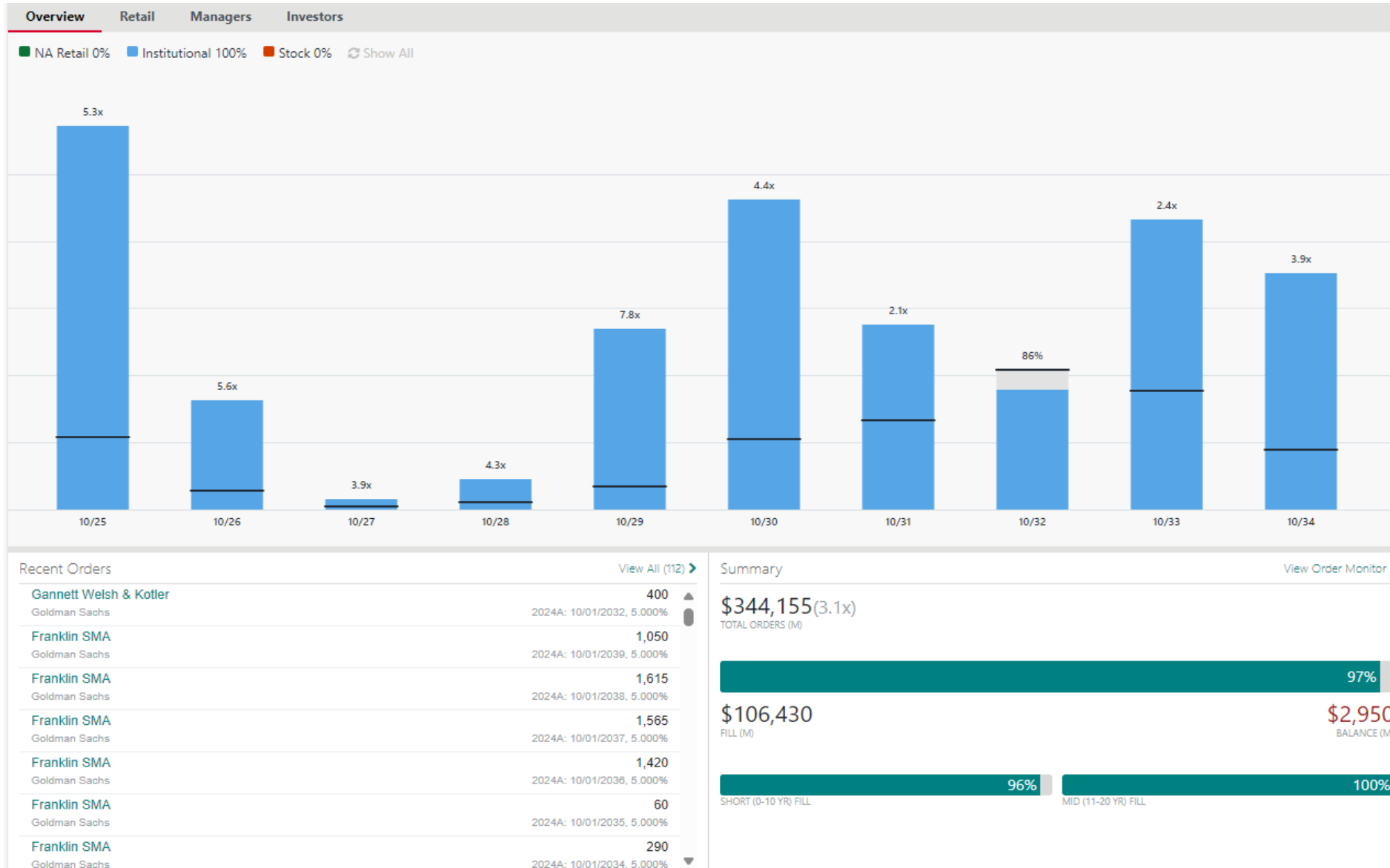
MATURITY	AMOUNT*	COUPON	PRICE (Pts)	SPR TO 10/1	
10/01/2024	765M	5.00%	3.22	1/2 +0	
			(Approx. \$ Price 101.882)		
10/01/2025	805M	5.00%	3.13	1/2 +5	
			(Approx. \$ Price 103.745)		
10/01/2026	845M	5.00%	3.02	1/2 +10	
			(Approx. \$ Price 105.790)		
10/01/2027	890M	5.00%	2.95	1/2 +13	
			(Approx. \$ Price 107.834)		
10/01/2028	935M	5.00%	2.92	1/2 +15	
			(Approx. \$ Price 109.762)		
10/01/2029	980M	5.00%	2.91	1/2 +18	
			(Approx. \$ Price 111.577)		
10/01/2030	1,030M	5.00%	2.90	1/2 +20	
			(Approx. \$ Price 113.361)		
10/01/2031	1,080M	5.00%	2.90	1/2 +23	
			(Approx. \$ Price 115.037)		
10/01/2032	1,135M	5.00%	2.93	1/2 +25	
			(Approx. \$ Price 116.405)		
10/01/2033	1,190M	5.00%	3.01	1/2 +25	
			(Approx. \$ Price 117.197)		
10/01/2034	1,250M	5.00%	3.13	1/2 +30	
			(Approx. \$ Price PTC 10/01/2033 116.064	Approx. YTM 3.261)	
10/01/2035	1,315M	5.00%	3.22	1/2 +30	
			(Approx. \$ Price PTC 10/01/2033 115.223	Approx. YTM 3.449)	
10/01/2036	1,380M	5.00%	3.31	1/2 +30	
			(Approx. \$ Price PTC 10/01/2033 114.389	Approx. YTM 3.610)	
10/01/2037	1,445M	5.00%	3.44	1/2 +30	
			(Approx. \$ Price PTC 10/01/2033 113.197	Approx. YTM 3.783)	
10/01/2038	1,520M	5.00%	3.55	1/2 +30	
			(Approx. \$ Price PTC 10/01/2033 112.200	Approx. YTM 3.921)	
10/01/2039	1,595M	5.00%	3.67	0.425 +38	
			(Approx. \$ Price PTC 10/01/2033 111.124	Approx. YTM 4.052)	
10/01/2040	1,675M	5.00%	3.73	0.425 +40	
			(Approx. \$ Price PTC 10/01/2033 110.591	Approx. YTM 4.130)	
10/01/2041	1,760M	5.00%	3.81	0.425 +43	
			(Approx. \$ Price PTC 10/01/2033 109.885	Approx. YTM 4.213)	
10/01/2042	1,845M	5.00%	3.89	0.425 +45	
			(Approx. \$ Price PTC 10/01/2033 109.184	Approx. YTM 4.290)	
10/01/2043	1,940M	5.00%	3.93	0.425 +45	
			(Approx. \$ Price PTC 10/01/2033 108.835	Approx. YTM 4.336)	
10/01/2048	11,310M	5.00%	4.15	3/8 +49	
			(Approx. \$ Price PTC 10/01/2033 109.418	Approx. YTM 4.612)	
10/01/2053	14,610M	5.00%	4.24	3/8 +53	
			(Approx. \$ Price PTC 10/01/2033 108.643	Approx. YTM 4.710)	

CALL FEATURES: Optional call in 10/01/2033 @ 100.00

- Pricing wire is sent out to investors in order to announce the order period is open
- At this point, focus is on yields.
- Yields investors can purchase the bonds are posted to the wire.
- Spreads are generally removed from the wire.



Order Monitor





- The Order Book should be analyzed on both as a whole, and on an individual maturity basis
- The Depth of the book consists of how many accounts are invested in a particular maturity
- The Breadth of a book consists of how many accounts are invested across maturities (strip orders)

Cal City Joint PFA Series 2023A, Tax-Exempt Order Detail Analysis																							
Series	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	2023A	Totals	
Maturity	10/1/2024	10/1/2025	10/1/2026	10/1/2027	10/1/2028	10/1/2029	10/1/2030	10/1/2031	10/1/2032	10/1/2033	10/1/2034	10/1/2035	10/1/2036	10/1/2037	10/1/2038	10/1/2039	10/1/2040	10/1/2041	10/1/2042	10/1/2043	10/1/2048	10/1/2053	
Coupon	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Par	765	805	845	890	935	980	1,030	1,080	1,135	1,190	1,250	1,315	1,380	1,445	1,520	1,595	1,675	1,760	1,845	1,940	11,310	14,610	
Orders	7,375	6,505	7,185	4,450	4,675	5,025	4,120	2,160	2,385	2,695	6,945	5,550	7,785	11,635	7,380	3,840	2,075	1,200	1,845	1,200	33,820	60,045	
Subscription	964%	808%	850%	500%	500%	513%	400%	200%	210%	226%	556%	422%	564%	805%	486%	241%	124%	68%	100%	62%	299%	411%	370%
PUTNAM ADVISORY COMPANY LLC																					11310	14610	25920
Merrill Lynch Derivatives																					11310	14610	25920
JP MORGAN	765	805	845	890		980				1190	1250	1315	1380	660	750	1595	1675						14100
Bluefin Trading																					6000	6000	12000
Boston Company Trust		805	845	890	935	980	1030						1380	1445	1520							1000	10830
Tower Bay Asset Management LP																						10000	10000
Breckinridge Capital Advisors, Inc.	765	805	845	890	935	980	1030		1135					1445									8830
Individuals	2020	2385	400								1250										2400	325	8780
Franklin High Net Worth		95	845	890	935	125	1030		65	20	45	40	135	1445	1520								7190
American Century																						7000	7000
RNC Capital Management											1250	1315	1380	1445	1520								6910
Eagle Asset Management, Inc.												1315	1380	1445				1200		1200			6540
Blackrock Financial Management						980	1030	1080	1135	1190	500												5915
Invesco Advisors/Oppenheimer Rochester																						5000	5000
PIMCO	765	805	845																		2500		4915
Rockefeller and Company	765	805	845											1445									3860
Chilton Investment Company, Inc.			845	890	935	980																	3650
Dimensional Fund Advisors Inc.													1380	1445									2825
Fiduciary Trust											1250				1520								2770
Belle Haven Investments											1250	1315											2565
Segall Bryant & Hamill Investments	765															1595							2360
Wells Fargo Asset Management											100		400	300	400	650	400						2250
Hazoor Partners, LLC																					1845		1845
AGP Global																						1500	1500
NORTHWESTERN MUTUAL WEALTH	765														500								1265
Columbia SMA			25							50	295	50	250	350	60	150							1230
Allspring Funds Management LLC								1080															1080
Clark Capital Management Group Inc					935																		935
Capfinancial Partners			845																				845
Bel Air Investment Advisors LLC	765																						765
KeyBank NA																					300		300
Grand Total	7375	6505	7185	4450	4675	5025	4120	2160	2385	2695	6945	5550	7785	11635	7380	3840	2075	1200	1845	1200	33820	60045	189895



Order Summary - Exercise

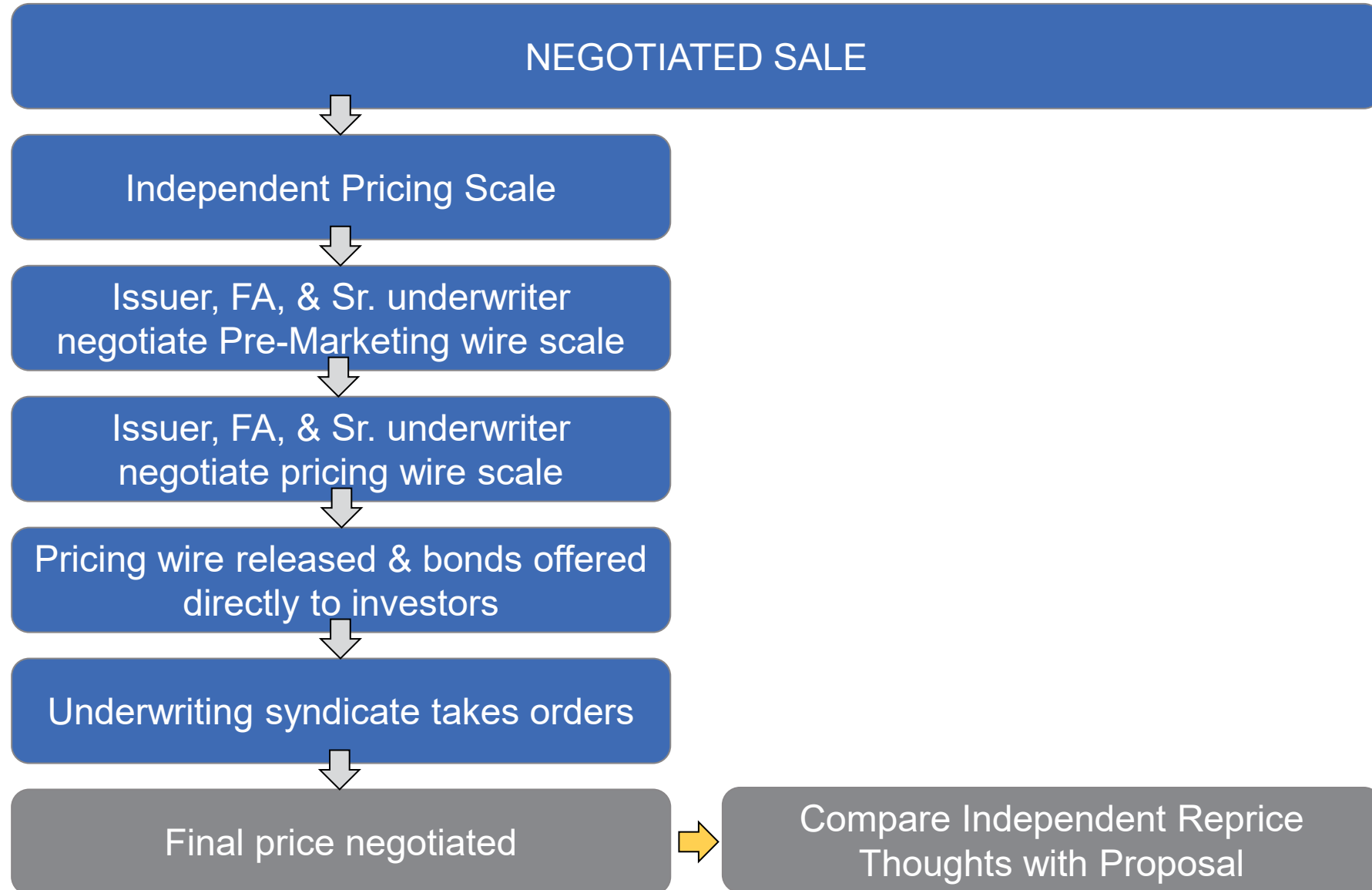
- Independent Reprice thoughts should be developed based on analysis of the book
- Market Factors may also contribute to reprice levels

Cal City Joint PFA Series 2023A, Tax-Exempt Order Summary Update													
Maturity	Series	Coupon	ROY	BVAL Spread	Amount	Retail	Institutional	Stock	Priority Orders	#Priority	Priority Balance	Priority Subscription	Reprice Thoughts
10/1/2024	2023A	5.00%	3.22%	5 bps	765	2,020	5,355	0	7,375	8	(6,610)	964%	
10/1/2025	2023A	5.00%	3.13%	6 bps	805	2,385	4,120	0	6,505	7	(5,700)	808%	
10/1/2026	2023A	5.00%	3.02%	9 bps	845	400	6,785	0	7,185	10	(6,340)	850%	
10/1/2027	2023A	5.00%	2.95%	13 bps	890	0	4,450	0	4,450	5	(3,560)	500%	
10/1/2028	2023A	5.00%	2.92%	16 bps	935	0	4,675	0	4,675	5	(3,740)	500%	
10/1/2029	2023A	5.00%	2.91%	18 bps	980	0	5,025	0	5,025	6	(4,045)	513%	
10/1/2030	2023A	5.00%	2.90%	20 bps	1,030	0	4,120	0	4,120	4	(3,090)	400%	
10/1/2031	2023A	5.00%	2.90%	20 bps	1,080	0	2,160	0	2,160	2	(1,080)	200%	
10/1/2032	2023A	5.00%	2.93%	23 bps	1,135	0	2,385	0	2,385	4	(1,250)	210%	
10/1/2033	2023A	5.00%	3.01%	28 bps	1,190	0	2,695	0	2,695	4	(1,505)	226%	
10/1/2034	2023A	5.00%	3.13%	32 bps	1,250	1,250	5,695	0	6,945	9	(5,695)	556%	
10/1/2035	2023A	5.00%	3.22%	28 bps	1,315	0	5,550	0	5,550	6	(4,235)	422%	
10/1/2036	2023A	5.00%	3.31%	23 bps	1,380	0	7,785	0	7,785	8	(6,405)	564%	
10/1/2037	2023A	5.00%	3.44%	24 bps	1,445	0	11,635	0	11,635	11	(10,190)	805%	
10/1/2038	2023A	5.00%	3.55%	29 bps	1,520	0	7,380	0	7,380	7	(5,860)	486%	
10/1/2039	2023A	5.00%	3.67%	37 bps	1,595	0	3,840	0	3,840	4	(2,245)	241%	
10/1/2040	2023A	5.00%	3.73%	37 bps	1,675	0	2,075	0	2,075	2	(400)	124%	
10/1/2041	2023A	5.00%	3.81%	41 bps	1,760	0	1,200	0	1,200	1	560	68%	
10/1/2042	2023A	5.00%	3.89%	44 bps	1,845	0	1,845	0	1,845	1	0	100%	
10/1/2043	2023A	5.00%	3.93%	44 bps	1,940	0	1,200	0	1,200	1	740	62%	
10/1/2048	2023A	5.00%	4.15%	49 bps	11,310	2,400	31,420	0	33,820	6	(22,510)	299%	
10/1/2053	2023A	5.00%	4.24%	53 bps	14,610	325	59,720	0	60,045	9	(45,435)	411%	-4
Totals:					51,300	8,780	181,115	0	189,895	120	1,300	370%	

Term	Change
2) 6 Month	-0.08
3) 2025	-0.08
4) 2026	-0.07
5) 2027	-0.07
6) 2028	-0.07
7) 2029	-0.07
8) 2030	-0.07
9) 2031	-0.07
10) 2032	-0.06
11) 2033	-0.06
12) 2034	-0.06
13) 2035	-0.05
14) 2036	-0.04
15) 2037	-0.03
16) 2038	-0.03
17) 2039	-0.02
18) 2040	-0.03
19) 2041	-0.04
20) 2042	-0.04
21) 2043	-0.04
22) 2044	-0.04
23) 2045	-0.04
24) 2046	-0.04
25) 2047	-0.04
26) 2048	-0.04
27) 2049	-0.04
28) 2050	-0.04
29) 2051	-0.04
30) 2052	-0.04
31) 2053	-0.04



Reprice and Verbal Award





Order Summary

- Independent Reprice thoughts should be compared with the re-price offer obtained from the Underwriter
- Differences in viewpoint should be the negotiation points
- Use the Order Period data to support your negotiation of re-price levels

Cal City Joint PFA Series 2023A, Tax-Exempt Order Summary Update															
Maturity	Series	Coupon	ROY	BVAL Spread	Amount	Retail	Institutional	Stock	Priority Orders	#Priority	Priority Balance	Priority Subscription	PFM Reprice	UW Reprice	Difference
10/1/2024	2023A	5.00%	3.22%	5 bps	765	2,020	5,355	0	7,375	8	(6,610)	964%	-10	-8	(2)
10/1/2025	2023A	5.00%	3.13%	6 bps	805	2,385	4,120	0	6,505	7	(5,700)	808%	-10	-8	(2)
10/1/2026	2023A	5.00%	3.02%	9 bps	845	400	6,785	0	7,185	10	(6,340)	850%	-10	-8	(2)
10/1/2027	2023A	5.00%	2.95%	13 bps	890	0	4,450	0	4,450	5	(3,560)	500%	-5	-5	0
10/1/2028	2023A	5.00%	2.92%	16 bps	935	0	4,675	0	4,675	5	(3,740)	500%	-5	-5	0
10/1/2029	2023A	5.00%	2.91%	18 bps	980	0	5,025	0	5,025	6	(4,045)	513%	-5	-5	0
10/1/2030	2023A	5.00%	2.90%	20 bps	1,030	0	4,120	0	4,120	4	(3,090)	400%	-5	-4	(1)
10/1/2031	2023A	5.00%	2.90%	20 bps	1,080	0	2,160	0	2,160	2	(1,080)	200%	-1	0	(1)
10/1/2032	2023A	5.00%	2.93%	23 bps	1,135	0	2,385	0	2,385	4	(1,250)	210%	-1	0	(1)
10/1/2033	2023A	5.00%	3.01%	28 bps	1,190	0	2,695	0	2,695	4	(1,505)	226%	-1	0	(1)
10/1/2034	2023A	5.00%	3.13%	32 bps	1,250	1,250	5,695	0	6,945	9	(5,695)	556%	-6	-5	(1)
10/1/2035	2023A	5.00%	3.22%	28 bps	1,315	0	5,550	0	5,550	6	(4,235)	422%	-6	-4	(2)
10/1/2036	2023A	5.00%	3.31%	23 bps	1,380	0	7,785	0	7,785	8	(6,405)	564%	-6	-5	(1)
10/1/2037	2023A	5.00%	3.44%	24 bps	1,445	0	11,635	0	11,635	11	(10,190)	805%	-8	-8	0
10/1/2038	2023A	5.00%	3.55%	29 bps	1,520	0	7,380	0	7,380	7	(5,860)	486%	-5	-6	1
10/1/2039	2023A	5.00%	3.67%	37 bps	1,595	0	3,840	0	3,840	4	(2,245)	241%	-3	-2	(1)
10/1/2040	2023A	5.00%	3.73%	37 bps	1,675	0	2,075	0	2,075	2	(400)	124%	0	0	0
10/1/2041	2023A	5.00%	3.81%	41 bps	1,760	0	1,200	0	1,200	1	560	68%	0	0	0
10/1/2042	2023A	5.00%	3.89%	44 bps	1,845	0	1,845	0	1,845	1	0	100%	0	0	0
10/1/2043	2023A	5.00%	3.93%	44 bps	1,940	0	1,200	0	1,200	1	740	62%	0	0	0
10/1/2048	2023A	5.00%	4.15%	49 bps	11,310	2,400	31,420	0	33,820	6	(22,510)	299%	-3	-2	(1)
10/1/2053	2023A	5.00%	4.24%	53 bps	14,610	325	59,720	0	60,045	9	(45,435)	411%	-4	-3	(1)
Totals:					51,300	8,780	181,115	0	189,895	120	1,300	370%			



Repricing Wire

Initial Pricing Wire					Repricing Wire					Adjustments
MATURITY	AMOUNT*	COUPON	PRICE	(Pts)	MATURITY	AMOUNT*	COUPON	PRICE	(Pts)	
10/01/2024	765M	5.00%	3.22	1/2	10/01/2024	765M	5.00%	3.12	1/2	-10
			(Approx. \$ Price 101.882)					(Approx. \$ Price 101.882)		
10/01/2025	805M	5.00%	3.13	1/2	10/01/2025	805M	5.00%	3.03	1/2	-10
			(Approx. \$ Price 103.745)					(Approx. \$ Price 103.745)		
10/01/2026	845M	5.00%	3.02	1/2	10/01/2026	845M	5.00%	2.92	1/2	-10
			(Approx. \$ Price 105.790)					(Approx. \$ Price 105.790)		
10/01/2027	890M	5.00%	2.95	1/2	10/01/2027	890M	5.00%	2.90	1/2	-5
			(Approx. \$ Price 107.834)					(Approx. \$ Price 107.834)		
10/01/2028	935M	5.00%	2.92	1/2	10/01/2028	935M	5.00%	2.87	1/2	-5
			(Approx. \$ Price 109.762)					(Approx. \$ Price 109.762)		
10/01/2029	980M	5.00%	2.91	1/2	10/01/2029	980M	5.00%	2.86	1/2	-5
			(Approx. \$ Price 111.577)					(Approx. \$ Price 111.577)		
10/01/2030	1,030M	5.00%	2.90	1/2	10/01/2030	1,030M	5.00%	2.85	1/2	-5
			(Approx. \$ Price 113.361)					(Approx. \$ Price 113.361)		
10/01/2031	1,080M	5.00%	2.90	1/2	10/01/2031	1,080M	5.00%	2.90	1/2	0
			(Approx. \$ Price 115.037)					(Approx. \$ Price 115.037)		
10/01/2032	1,135M	5.00%	2.93	1/2	10/01/2032	1,135M	5.00%	2.93	1/2	0
			(Approx. \$ Price 116.405)					(Approx. \$ Price 116.405)		
10/01/2033	1,190M	5.00%	3.01	1/2	10/01/2033	1,190M	5.00%	3.01	1/2	0
			(Approx. \$ Price 117.197)					(Approx. \$ Price 117.197)		
10/01/2034	1,250M	5.00%	3.13	1/2	10/01/2034	1,250M	5.00%	3.07	1/2	-6
			(Approx. \$ Price PTC 10/01/2033 116.064 Approx. YTM 3.261)					(Approx. \$ Price PTC 10/01/2033 116.064 Approx. YTM 3.261)		
10/01/2035	1,315M	5.00%	3.22	1/2	10/01/2035	1,315M	5.00%	3.16	1/2	-6
			(Approx. \$ Price PTC 10/01/2033 115.223 Approx. YTM 3.449)					(Approx. \$ Price PTC 10/01/2033 115.223 Approx. YTM 3.449)		
10/01/2036	1,380M	5.00%	3.31	1/2	10/01/2036	1,380M	5.00%	3.25	1/2	-6
			(Approx. \$ Price PTC 10/01/2033 114.389 Approx. YTM 3.610)					(Approx. \$ Price PTC 10/01/2033 114.389 Approx. YTM 3.610)		
10/01/2037	1,445M	5.00%	3.44	1/2	10/01/2037	1,445M	5.00%	3.36	1/2	-9
			(Approx. \$ Price PTC 10/01/2033 113.197 Approx. YTM 3.783)					(Approx. \$ Price PTC 10/01/2033 113.197 Approx. YTM 3.783)		
10/01/2038	1,520M	5.00%	3.55	1/2	10/01/2038	1,520M	5.00%	3.49	1/2	-6
			(Approx. \$ Price PTC 10/01/2033 112.200 Approx. YTM 3.921)					(Approx. \$ Price PTC 10/01/2033 112.200 Approx. YTM 3.921)		
10/01/2039	1,595M	5.00%	3.67	0.425	10/01/2039	1,595M	5.00%	3.64	0.425	-3
			(Approx. \$ Price PTC 10/01/2033 111.124 Approx. YTM 4.052)					(Approx. \$ Price PTC 10/01/2033 111.124 Approx. YTM 4.052)		
10/01/2040	1,675M	5.00%	3.73	0.425	10/01/2040	1,675M	5.00%	3.73	0.425	0
			(Approx. \$ Price PTC 10/01/2033 110.591 Approx. YTM 4.130)					(Approx. \$ Price PTC 10/01/2033 110.591 Approx. YTM 4.130)		
10/01/2041	1,760M	5.00%	3.81	0.425	10/01/2041	1,760M	5.00%	3.81	0.425	0
			(Approx. \$ Price PTC 10/01/2033 109.885 Approx. YTM 4.213)					(Approx. \$ Price PTC 10/01/2033 109.885 Approx. YTM 4.213)		
10/01/2042	1,845M	5.00%	3.89	0.425	10/01/2042	1,845M	5.00%	3.89	0.425	0
			(Approx. \$ Price PTC 10/01/2033 109.184 Approx. YTM 4.290)					(Approx. \$ Price PTC 10/01/2033 109.184 Approx. YTM 4.290)		
10/01/2043	1,940M	5.00%	3.93	0.425	10/01/2043	1,940M	5.00%	3.93	0.425	0
			(Approx. \$ Price PTC 10/01/2033 108.835 Approx. YTM 4.336)					(Approx. \$ Price PTC 10/01/2033 108.835 Approx. YTM 4.336)		
10/01/2048	11,310M	5.00%	4.15	3/8	10/01/2048	11,310M	5.00%	4.12	3/8	-3
			(Approx. \$ Price PTC 10/01/2033 109.418 Approx. YTM 4.612)					(Approx. \$ Price PTC 10/01/2033 109.418 Approx. YTM 4.612)		
10/01/2053	14,610M	5.00%	4.24	3/8	10/01/2053	14,610M	5.00%	4.20	3/8	-4
			(Approx. \$ Price PTC 10/01/2033 108.643 Approx. YTM 4.710)					(Approx. \$ Price PTC 10/01/2033 108.643 Approx. YTM 4.710)		

CALL FEATURES: Optional call in 10/01/2033 @ 100.00

CALL FEATURES: Optional call in 10/01/2033 @ 100.00



After finalizing the structure for the bonds and making any necessary adjustment to the yields after the order period, the underwriters will provide the final interest rate scale

Upon approval of the final scale, the underwriter will offer to buy the bonds, and ask for the **verbal award**

The underwriter will circulate a **re-pricing wire** with the final scale

Final numbers based on the final interest rate scale will be circulated followed by a **Bond Purchase Agreement (BPA)** with the terms of the bonds. Execution of the BPA by the issuer and underwriter is the formal award

QUESTIONS?



MATT RUDROFF, CFA, CPA
Director
PFM Financial Advisors LLC



NIKOLAI SKLAROFF
Capital Finance Director
San Francisco Public
Utilities Commission



THANK YOU

Please complete the seminar evaluation and leave it on your table.

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October 15, 2024 | Webinar

23rd Annual CDIAC Pre-conference to *The Bond Buyer's* California Public Finance Conference

October 23, 2024 | San Francisco, CA

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November 19, 2024 | Webinar

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