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Responsibilities of Ramirez as an underwriter. As an underwriter, Ramirez is required to deal fairly at all times with both municipal issuers and investors. Ramirez must purchase securities with a view to distributing securities in an arm’s-length commercial transaction with the issuer and has financial and other interests that differ from those of the issuer. Ramirez has a duty to purchase securities from issuers at a fair and reasonable price, but must balance that duty with its duty to sell them to investors at prices that are fair and reasonable.
Table of Contents

A. What is a Municipal Bond and Why Do Issuers Sell Them?
B. The Basics of Municipal Bonds, Key Concepts and Bond Ratings
C. Bringing a Transaction to Market
D. Bond Investors, Interest Rates, Bond Documents & Ongoing Compliance

Appendix: Sample Bond Math
What Is a Municipal Bond and Why Do Issuers Sell Them?
What is a Bond?

- **Bond** is a debt instrument that allows issuers to finance capital needs. It obligates the issuer to pay to the bondholder the **principal** plus **interest**.
  - A buyer of the bond is the lender or investor
  - A seller of the bond is the borrower or issuer

- **Municipal bond** is a bond issued by a state or local government.

- When an **investor** purchases a bond, he is lending money to a government, municipality, corporation, federal agency or other entity.

- In return for buying the bond, the issuer promises to pay the investor a specified rate of interest during the life of the bond and to repay the **face value** of the bond (the principal) when it “matures,” or comes due.

- In addition to operating covenants, the loan documents require issuer to spend the bond proceeds for the specific projects.

- A bond can also be thought of as a **contract** between the issuer and investor. This contract specifies, for example, the terms of the bonds, the funds from which debt service will be paid and any operating covenants.
The Basis for Tax-Exempt Debt

- What are Tax-Exempt Bonds? **Short answer - Legal Tax Shelters**

- The key feature of municipal securities are their tax-exempt status:
  - Unlike many other securities, interest on a tax-exempt bonds is excluded from the gross income of a bondholder under federal and/or state law
  - In most states, interest income issued by governmental units within the state is also exempt from state and local taxes
  - Interest income from U.S. territories and possessions is exempt from federal, state, and local income taxes

**TAX EXEMPTION OF MUNICIPAL BONDS - A HISTORICAL PERSPECTIVE**

- **1895**
  - In *Pollock v. Farmers’ Loan and Trust Company*, the Court rules that states are immune from federal interference with their borrowing power

- **1913**
  - Congress establishes Section 103 of the Internal Revenue Code, which set forth the basic tax exemption for interest on municipal securities

- **1954**
  - The Supreme Court passes the 16th Amendment, which establishes the modern income tax system and creates the basis for municipal bonds to be tax-exempt

- **1986**
  - The Tax Reform Act is passed and imposes new restrictions on municipal securities, including limits on private activity bond, advance refundings and arbitrage-related restrictions

- **1999**
  - The IRS issues new regulations regarding arbitrage and rebate rules in connection with guaranteed investment contracts and bond defeasance escrows

- **2008**
  - The Housing and Economic Recovery Act provides AMT and volume cap relief for housing bonds. TARP passes, providing potential relief for municipal issuers

- **2009**
  - The American Recovery and Reinvestment Act (ARRA) was a stimulus packet to create new jobs and preserve existing ones which included Build America Bonds

- **2017**
  - The Tax Cuts and Job Act implemented in January 2018 - the first comprehensive tax reform legislation in over 30 years. Eliminated advance refundings

- **Taxable** municipal bonds are issued for certain uses that are not eligible for tax-exemption; and since the elimination of tax-exempt advance refundings, taxable advance refundings are growing
Why Do Issuers Sell Bonds?

- Municipal bonds are issued to finance a wide range of projects including:
  - Government and facilities buildings
  - Roads, streets, schools, transportation facilities, infrastructure, power plants, water & sewer systems, universities, airports, healthcare facilities and among other projects

- Security for municipal bonds generally fall into two categories:
  - General obligation (GO) or revenue bonds
    - GO bonds
      - “Full Faith and Credit” taxing power
      - Property tax backed
      - Require voter approval
      - Limited or Unlimited Tax GO bonds (cities vs. school districts)
      - In Texas, certain issuers may finance projects with Certificates of Obligation (CO’s) which require a pledge of revenues, or revenues plus the general obligation pledge
    - Revenue bonds
      - Payable from a specific stream or streams of revenue other than property taxes
      - Examples are water & sewer, sales tax, airports, hotel taxes, housing
The Basics of Municipal Bonds, Key Concepts and Bond Ratings
### Types of Municipal Bonds

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Obligation Bonds</strong></td>
<td>Secured by a pledge of the Issuer’s full faith and credit to repay bonds&lt;br&gt;Can be unlimited or limited, depending on whether bonds are secured by all or a portion of ad valorem taxes&lt;br&gt;“Full faith and credit” implies that all sources of revenue will be used to pay debt service on the bonds</td>
</tr>
<tr>
<td><strong>Revenue Bonds</strong></td>
<td>Secured from a specific stream of revenues, such as a user fee or dedicated tax&lt;br&gt;Used to finance specific enterprises or projects that backed by the project’s revenues (ie: utilities, housing, healthcare, etc.)</td>
</tr>
<tr>
<td><strong>Notes</strong></td>
<td>Short-term municipal securities typically in anticipation of a future revenue source&lt;br&gt;Examples include Revenue Anticipation Notes (“RANs”), Bond Anticipation Notes (“BANs”), Tax Anticipation Notes (“TANs”), and others</td>
</tr>
<tr>
<td><strong>Commercial Paper</strong></td>
<td>Short-term promissory notes issued for periods up to 270 days&lt;br&gt;Tends to be more flexibility in setting maturities and determining rates than notes</td>
</tr>
<tr>
<td><strong>Variable Rate Demand Bonds</strong></td>
<td>Shorter-term bonds with traditional, long-dated nominal maturities that have short-term put features&lt;br&gt;Bears interest a floating rate that resets daily, weekly, monthly, or quarterly&lt;br&gt;Generally used with insurance and Standby Bond Purchase Agreement or a Letter of Credit (LOC)</td>
</tr>
<tr>
<td><strong>Other Types</strong></td>
<td><strong>Special Obligation Bond:</strong> Bonds secured by a limited revenue source or promise to pay&lt;br&gt;<strong>Double-Barreled Bonds:</strong> Revenue bonds backed by a general obligation pledge&lt;br&gt;<strong>Moral Obligation Bonds:</strong> Revenue bonds backed by revenue sources and an Issuer’s moral (but not legal) pledge&lt;br&gt;<strong>Auction Rate Securities:</strong> A floating rate bond with no liquidity facility sold through the Dutch Auction Process&lt;br&gt;<strong>Certificates of Participation:</strong> Certificates that entitle investors to a share of lease payments from a particular project</td>
</tr>
</tbody>
</table>
Uses of Bond Proceeds

- **New Money**
  - Bonds issued to provide new or additional funding for a project.

- **Refunding**
  - Bonds issued to refinance certain existing bonds (proceeds used to repay old bonds). Refundings can be used to produce savings, restructure debt service or release the issuer from restrictive operating covenants.
Fixed Rate Bonds

- Fixed rate financings have historically been the most common approach for municipal Issuers
- Features serial and term bonds with established interest rates
- Tend to be priced off of MMD
- Often includes a variety of redemption features:
  - **Optional Redemptions**: Allows bonds to be redeemed prior to their maturities
  - **Mandatory Redemptions**: Requires bonds to be redeemed prior to their maturities
  - **Mandatory and/or Optional Sinking funds**: Reserves set aside to redeem term bonds over a specified period prior to the stated maturity

**ADVANTAGES**
- No interest rate risk
- Minimized future tax rate risk
- No liquidity facility needed
- Call options are relatively cheap
- Increased predictability of cash flows
- Politically popular

**DISADVANTAGES**
- Based on historical experience, interest expense tends to be higher initially
- Less flexible call features
- Difficult to convert to alternative modes
- Higher issuance costs
- Limited opportunities for advance refundings
- Possibility for negative arbitrage

**FIXED RATE DEBT**
- **Interest Rate Mode**: Locked-in for life of bond
- **Interest Payable**: Semiannually
- **Callable**: Standard 10-year call option is typical. Possibility for prepayment penalty
- **Structure**: Serial bonds, Term bonds, Capital Appreciation Bonds, and other variations
- **Denominations**: $5,000
- **Principal Repayment**: 1 - 30 years
Variable Rate Bonds

- Bonds with long-dated maturities that have short-term demand features
  - Includes Variable Rate Demand Bonds (“VRDBs”)
  - The coupon rate on the bonds resets at some interval (daily, weekly, quarterly, etc.)
- Holders of these bonds can demand that the bond be tendered for purchase at par plus accrued interest on predetermined dates
- The bonds are sometimes used in conjunction with derivatives to achieve a “synthetic fixed structure”

### ADVANTAGES

- Allows Issuers to take advantage of short-term rates for long-dated maturities
- Better matches assets with liabilities
- Provides future refinancing flexibility
- Lower issuance costs

### DISADVANTAGES

- Interest rate risk
- Need for Letter of Credit protection or other liquidity facility
- Tax risk
- Renewal Risk

### VARIABLE RATE DEBT

- **Interest Rate Mode**: Resets periodically (weekly, daily, etc.)
- **Interest Payable**: Typically monthly, but variations are possible
- **Callable**: Anytime, with no prepayment penalty
- **Structure**: Typically term bonds, although serial bonds are possible
- **Denominations**: $25,000 or $100,000
- **Principal Repayment**: 1 - 30 years
Covenants and Other Security Features

- Covenants protect investors but limit Issuer flexibility

**Debt Service Reserve Fund**
- Provides a cushion to make timely debt service payments in the event of temporary adversity. Federal law limits the amount of bond proceeds that can be used to fund the debt service reserve fund to the lesser of:
  1. 10% of principal
  2. Maximum annual debt service
  3. or 125% of average annual debt service

**Rate Covenants**
- The issuer pledges that rates will be set high enough to meet operation and maintenance expenses, renewal and replacement expenses, and debt service.
- Example: “The Board will fix, charge and collect fees so that the Revenues will at all times be sufficient in each Fiscal Year to pay Operating and Maintenance Expenses and to provide funds at least equal to 115% of (1.15 times) the Principal and Interest Requirements....”

**Additional Bonds Test**
- Protects the security or pledged revenues of existing bondholders.
- The additional bonds test must be met by the issuer in order to borrow debt secured by the same revenue source as previous bonds.
- Example: “The Net Revenues in each of the two Fiscal Years immediately preceding the date of issuance of such proposed Additional Bonds must be equal to at least 130% of the estimated Annual Debt Service for the year following the proposed issuance.”

Fewer Covenants
- Lower Credit Rating
- Increased Flexibility

More Covenants
- Higher Credit Rating
- Diminished Flexibility
### Municipal Credit Ratings

<table>
<thead>
<tr>
<th>Moody’s/S&amp;P/Fitch</th>
<th>Moody’s/S&amp;P/Fitch</th>
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</thead>
<tbody>
<tr>
<td>Aaa/AAA/AAA</td>
<td>Highest Quality</td>
</tr>
<tr>
<td>Aa1/AA+/AA+</td>
<td>Very Strong Capacity</td>
</tr>
<tr>
<td>Aa2/AA/AA</td>
<td>Very Strong Capacity</td>
</tr>
<tr>
<td>Aa3/AA-/AA-</td>
<td>Strong Capacity</td>
</tr>
<tr>
<td>A1/A+/A+</td>
<td>Strong Capacity</td>
</tr>
<tr>
<td>A2/A/A</td>
<td>Strong Capacity</td>
</tr>
<tr>
<td>A3/A-/A-</td>
<td>Strong Capacity</td>
</tr>
<tr>
<td>Baa1/BBB+/BBB+</td>
<td>Adequate</td>
</tr>
<tr>
<td>Baa2/BBB/BBB</td>
<td>Adequate</td>
</tr>
<tr>
<td>Baa3/BBB-/BBB-</td>
<td>Adequate</td>
</tr>
<tr>
<td>Ba1/BB+/BB+</td>
<td>Less Near Term</td>
</tr>
<tr>
<td>Ba2/BB/BB</td>
<td>Vulnerability to Default</td>
</tr>
<tr>
<td>Ba3/BB-BB-</td>
<td>Greater Default</td>
</tr>
<tr>
<td>B1/B+/B+</td>
<td>Vulnerability</td>
</tr>
<tr>
<td>B2/B/B</td>
<td>Vulnerability</td>
</tr>
<tr>
<td>B3/B-/B-</td>
<td>Vulnerability</td>
</tr>
<tr>
<td>CCC/CCC/CCC</td>
<td>Certain of Default</td>
</tr>
<tr>
<td>CC/CC/CC</td>
<td>Certain of Default</td>
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<tr>
<td>C/C/C</td>
<td>Certain of Default</td>
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<tr>
<td>D</td>
<td>Default</td>
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</tbody>
</table>

Most Texas Counties, Cities and ISDs have underlying ratings that range from AAA to A category.

- **KBRA** Kroll Bond Rating Agency established in 2010 with a growing share in the municipal market.
The Rating Agency Process

1. Issuer sends the rating agency all financing documents, projects, audits, etc.
2. The Issuer’s financing team meets with the Agency and presents the issue to the rating committee.
3. A lead analyst reviews documents and prepares questions.
4. The Rating Agency reviews the issue and assigns the rating, which is disclosed to the Issuer prior to public release.
The Importance of Ratings

- The search for incremental yield has helped reduce credit spreads

*bps*

30-YEAR CREDIT SPREADS (AA, A, BBB)

Source: Thomson Reuters as of close of business 10/18/2019
## Rating Factors for G.O. Bonds

<table>
<thead>
<tr>
<th>Factor</th>
<th>Discussion</th>
</tr>
</thead>
</table>
| Financing Structure and Ratios             | - **Repayment Structure**: Amortization of debt, final maturities, life of assets funded  
                                          | - **Direct and overall debt ratios**: Measures an Issuer’s own debt and overlapping debt, respectively  
                                          | - **Payout ratio**: Measures the speed at which an Issuer repays its debts  
                                          | - **Future financing plans**: Analysis of what future debt will be issued and what other expenditures taxes must support |
| Local Tax Base and Economy                | - The diversity and strength of an economy’s tax base to ensure continued tax revenues  
                                          | - Historical and future economic trends, including projected growth  
                                          | - Trends in population growth, tax base growth, building permits, personal income, tourism, retail sales, tax payer diversity, property taxes, and other governmental revenue sources |
| Historical Operating Results              | - Analysis of expenditures and revenues and the primary sources of both  
                                          | - Growth rates in both revenues and expenditures  
                                          | - Operating surpluses and deficits  
                                          | - Tax collection delinquencies and ongoing improvements |
| Balance Sheet and Fund Analysis           | - Focus on balance sheet liquidity, trends, and liabilities  
                                          | - Analysis of overall fund balance trends as well as current surpluses and deficits  
                                          | - Limitations on the Issuer’s ability to raise taxes  
                                          | - Fund reserves and other cost control measures |
| Management, Administrative, and Other Various Factors | - Policies and political factors that affect the Issuer, including: Debt policies, investment policies, property assessments, pension and health benefit funding, spending limitations, governmental structure, political changes, and other qualitative factors |
## Rating Factors for Revenue Bonds

### NET REVENUE PLEDGE

Pledged revenues used to pay debt service includes revenues after deductions have been made for any expenses.

**Example:**

\[
\text{Revenues} - \text{Expenses} \\
\rightarrow \text{Net Revenues} \rightarrow \text{Go toward debt service}
\]

### GROSS REVENUE PLEDGE

Pledged revenues used to pay debt service including all revenues prior to deductions for any expenses.

**Example:**

\[
\text{Revenues} \rightarrow \text{Go toward debt service} \\
- \text{Expenses} \\
\rightarrow \text{Net Revenues}
\]

<table>
<thead>
<tr>
<th>Factor</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainability of Revenue Source</strong></td>
<td>• Supply and demand for revenue producing service or project</td>
</tr>
<tr>
<td></td>
<td>• Service area that will use project or source</td>
</tr>
<tr>
<td></td>
<td>• Sufficiency of revenues to meet debt service requirements</td>
</tr>
<tr>
<td><strong>Financial Factors</strong></td>
<td>• Customer growth</td>
</tr>
<tr>
<td></td>
<td>• Rate increase history and trends</td>
</tr>
<tr>
<td></td>
<td>• Delinquencies and collection history</td>
</tr>
<tr>
<td></td>
<td>• Diversity of customers</td>
</tr>
<tr>
<td><strong>Legal Factors</strong></td>
<td>• Strength and legality of revenue pledge</td>
</tr>
<tr>
<td></td>
<td>• Rate covenants</td>
</tr>
<tr>
<td></td>
<td>• Type of lien structure (senior or subordinate)</td>
</tr>
<tr>
<td><strong>Fund and Ratio Analysis</strong></td>
<td>• Maximum annual debt service: Largest amount of debt service due in any one year</td>
</tr>
<tr>
<td></td>
<td>• Debt service coverage: Ratio of revenues to annual (or in some cases, average) debt service</td>
</tr>
<tr>
<td></td>
<td>• Funding of service reserve fund, rate stabilization fund, and other security features</td>
</tr>
</tbody>
</table>
Bringing A Transaction To Market
Who are the Participants in a Financing?

- Issuer/Borrower
  - Underwriter's Counsel
  - Bond Underwriter/Investment Banker
  - Financial Advisor
  - Auditor
  - Engineering/Feasibility Consultant
  - Issuer's Counsel (Attorney General)

- Issuer's Counsel
- Bond Counsel
- Rating Agencies
- Insurer/Bank
- Bond Trustee
- Trustee's Counsel
Issuer

- A state, political subdivision, municipality, or governmental agency or authority that raises funds through the sale of municipal securities.
- The Issuer receives bond proceeds at the time of issuance in exchange for a promise to repay the investors who provide these proceeds.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responsible for repayment of debt</td>
</tr>
<tr>
<td></td>
<td>- Unless Issuer is conduit Issuer</td>
</tr>
<tr>
<td></td>
<td>Supplies data and other information used in offering documents</td>
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<tr>
<td></td>
<td>Must comply with terms and/or covenants in all offering and bond documents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image 1]</td>
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<td>![Image 3]</td>
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<td>![Image 5]</td>
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<td>![Image 7]</td>
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<td>![Image 11]</td>
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<td>![Image 13]</td>
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<tr>
<td>![Image 15]</td>
</tr>
<tr>
<td>![Image 17]</td>
</tr>
</tbody>
</table>

- Raises funds through the issuance of municipal securities
- Helps determine need for debt financing
- Assembles financing team
- Approves financing terms and documentation
Financial Advisor

- A consultant who advises the Issuer on matters pertinent to the issue, such as structure, timing, marketing, fairness of pricing, terms, and bond ratings.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acts on behalf of Issuer in financing process; role complements Investment Banker</td>
<td>Protect Issuer from financial risk</td>
</tr>
<tr>
<td>Review and analyze proposed bond structure, terms, proposed spread and interest rates</td>
<td>Formulate debt financing plan</td>
</tr>
<tr>
<td>Provide historical knowledge of transactions</td>
<td>Evaluate financing structure and credit quality</td>
</tr>
<tr>
<td></td>
<td>Assist Issuer in identifying financial opportunities</td>
</tr>
</tbody>
</table>

EXAMPLES

- PFM Group
- Hilltop Securities
- RBC Capital Markets
- Specialized Public Finance Inc.
- Masterson Advisors LLC
- Estrada Hinojosa
**Bond Counsel**

- An attorney or law firm retained by the Issuer to give a legal opinion that the Issuer is authorized to issue proposed municipal securities the Issuer has met all legal requirements necessary for issuance and the tax-exempt nature of the issue.

- Typically, bond counsel may prepare, or review and advise the Issuer regarding bond documents.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renders opinion concerning the validity of the bond issue with respect to statutory authority, constitutionality, procedural conformity and, if tax-exempt, exemption of interest from Federal income taxes.</td>
<td>Prepare legal documents</td>
</tr>
<tr>
<td>Work with the Issuer and the financing team on behalf of bondholders.</td>
<td>Represent Issuer in negotiations with credit enhancers, underwriters and derivative providers</td>
</tr>
<tr>
<td></td>
<td>Assist Issuer in preparation of Official Statement</td>
</tr>
<tr>
<td></td>
<td>Draft and prepare continuing disclosure agreement (Rule 15c2-12) and closing documents</td>
</tr>
</tbody>
</table>

**EXAMPLES**

- Norton Rose Fulbright
- Bracewell
- Orrick
- Kassahn and Ortiz
- McCall
- Parkhurst & Horton
- EP Escamilla Poneck
- Hardwick
### Role of the Municipal Investment Banker

- **Public Finance Bankers are Involved in all Stages of the Capital Markets Process**

<table>
<thead>
<tr>
<th>Industry Characteristics</th>
<th>Common Investment Banking Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Highly specialized sector</td>
<td><strong>Capital Planning/Raising:</strong> Public Finance works closely with Sales &amp; Trading to structure and market:</td>
</tr>
<tr>
<td>- Requires knowledge of</td>
<td>- Fixed Rate Bonds</td>
</tr>
<tr>
<td>- Local legislation</td>
<td>- Variable Rate Demand Bonds</td>
</tr>
<tr>
<td>- Federal tax rules</td>
<td>- Notes, TANS, BANS</td>
</tr>
<tr>
<td>- Credit issues include public policy considerations</td>
<td><strong>Risk Management:</strong> Public Finance works closely with the Capital Markets Group to develop interest rate swaps and hedging strategies for clients</td>
</tr>
<tr>
<td>- Relationships are very important</td>
<td><strong>Other Services:</strong> Provide general ongoing support to our clients through:</td>
</tr>
<tr>
<td>- Distinct product with distinct buyers</td>
<td>- Debt Capacity Analyses</td>
</tr>
<tr>
<td></td>
<td>- Managing Rating Agency Process</td>
</tr>
<tr>
<td></td>
<td>- Financial Modeling</td>
</tr>
<tr>
<td></td>
<td>- Market Updates</td>
</tr>
</tbody>
</table>
Underwriter’s Counsel

- An attorney or law firm retained to represent the interests of an underwriter in connection with the purchase of a new issue of municipal securities.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
</table>
| ▪ Complete a due diligence review of the Issuer and advise on matters relating to the Offering Statement  
▪ Advises on matters relating to disclosure under SEC regulations and other standards; principal role in drafting Offering Statement  
▪ Draft the Offering Statement and related documents | ▪ Prepares underwriting documents  
▪ Documents include Blue Sky Survey, Legal Investment Memorandum, Agreement Among Underwriters, Selling Group Agreement, 10-b-5 Certificate and the Bond Purchase Agreement |

EXAMPLES

- Kassahn and Ortiz
- Haynes Boone
- Orrick
- Greenberg Traurig
- Chapman and Cutler
- Bracewell
**Trustee / Paying Agent**

- A financial institution designated by the Issuer as the custodian of funds and official representative of bondholders.
- Trustees are appointed to ensure compliance with bond documents and to represent bondholders in enforcing their contract with the Issuer.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
</table>
| - Receive interest and principal payments from Issuer/Borrower and distribute to Bondholders  
- Serve as Bond Registrar and Transfer Agent | - Holds liens and security interests and exercises remedies, for bondholders, in the event of a default  
- Manages trustee-held bond funds, reserves and construction funds.  
- Protects bondholders interests |

**EXAMPLES**

- The Bank of New York Mellon  
- US Bank  
- Bank of Texas  
- Wells Fargo
Rating Agencies

- National organizations that provide ratings on debt of public and private organizations.
  - Moody’s
  - S&P
  - Fitch
  - Kroll

- Primary analysis concerns an borrower’s ability to repay funds it borrows.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide opinions to the investing public on the creditworthiness of varying Issuers</td>
<td>Assess the Issuer’s ability and willingness to make full and timely payments of bond principal and interest over the life of the bonds</td>
</tr>
<tr>
<td>Maintains a watch on an Issuer’s ongoing credit</td>
<td>Review Issuers’ financial and operating information</td>
</tr>
<tr>
<td></td>
<td>Keep the public informed with updates on Issuer’s credit status</td>
</tr>
</tbody>
</table>

EXAMPLES

- Moody’s Investors Service
- Standard & Poor’s
- Fitch Ratings
- Kroll Bond Rating Agency
An insurance company, financial services company or bank that issues bond insurance policies to guarantee the payment of principal and interest

In the past, the presence of an insurer often allows the issue to receive higher ratings.

Since the credit crisis of 2008, the importance and role of insurers has changed drastically.

**ROLE**

Provide credit enhancement in the form of:

- Municipal Bond Insurance
- Surety Policy
- Letter of Credit

**RESPONSIBILITY**

- Strengthen the credit of the lower rated entity
- Lower potential cost of borrowing
- Guarantee payment to bondholders

**EXAMPLES (NOTE: Many bond insurance companies are no longer in the business)**

- **BAM**
- **National Public Finance Guarantee**
- **Assured Guaranty**
Auditor

- Provides most recent annual Audited Financial Statements for inclusion in the Offering Statement and authenticates and presents the Issuer’s financial condition and historical performance.

<table>
<thead>
<tr>
<th>ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitates year to year comparison of financial information</td>
<td>Present the Issuer’s financial condition</td>
</tr>
<tr>
<td>Performs key accounting functions and ensures accuracy of financial information</td>
<td>Preparés “stub period” income statement for partial year after latest annual audit</td>
</tr>
</tbody>
</table>

**EXAMPLES**

- Deloitte
- Ernst & Young
- KPMG
- PricewaterhouseCoopers
- Goodman & Company
### Credit Enhancement

- Credit Enhancement substitutes the credit of the Issuer with that of a higher rated, third party guarantor
- Credit Enhancement can:
  - Reduce interest costs to Issuer
  - Provide a higher level of security to investors
  - Improve secondary-market liquidity
- Credit enhancement is cost effective when:
  - Cost of Credit Enhancement < Expected Interest Rate Savings of Higher credit

<table>
<thead>
<tr>
<th>Letters of Credit (“LOC”) &amp; Liquidity Facilities</th>
<th>HOW IT WORKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A LOC will pay the investor principal and accrued interest if a default occurs</td>
<td>• Primarily used for variable rate issues</td>
</tr>
<tr>
<td>• A liquidity facility provides liquidity in the event variable rate bonds are “put” back to the Issuer</td>
<td>• Often used to provide liquidity for VRDBs</td>
</tr>
<tr>
<td>• Typically provided by commercial banks</td>
<td>• Fees are based on the amount of debt and are paid over the life of the bond</td>
</tr>
<tr>
<td>• Tend to be written for one to ten years</td>
<td></td>
</tr>
<tr>
<td>• Issuers with a LOC will receive the rating of the bank</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond Insurance</th>
<th>WHEN IS IT APPROPRIATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A commitment by an insurance company to make payments of principal and interest in the event that the Issuer is unable to make those payments on time</td>
<td>• Primarily used for fixed rate issues</td>
</tr>
<tr>
<td>• Value of insurance depends on insurer’s perceived credit rating</td>
<td>• Has become increasingly unpopular as insurer’s face deteriorating balance sheets and perceived credit quality</td>
</tr>
<tr>
<td>• Covers the full maturity range of the bonds</td>
<td>• Fees are based on debt service and are typically paid up-front</td>
</tr>
<tr>
<td>• Many insurers are no longer in the market since the credit crisis of 2008</td>
<td></td>
</tr>
</tbody>
</table>
Issuers purchase bond insurance in order that debt service will be paid even if there are insufficient revenues.

- In exchange for this, investors will pay a higher price (lower yield) for an insured bond.

Premium paid upfront, based on original debt service schedule; no credits for refundings or early repayment of bonds.

Payments by insurer are a “loan” or an “advance” that have to be paid back

- Not like property or health insurance
- A form of “credit enhancement”

The cost of an insurance policy needs to be compared to the observed market spread between insured and uninsured bonds. It makes sense to only insure those maturities for which the cost of the policy is less than 'cost' of issuing uninsured bonds.

The market for bond insurance has changed significantly over the last year. For example, several insurers have been downgraded or have exited the business. Also, it is unclear what the effects of Moody’s move to a Global Scale will be on bond insurance.
# Methods of Sale

## Negotiated

**HOW IT WORKS**
- Underwriter is selected prior to bond sale
- Given exclusive right to buy the bonds
- Underwriter structures and sizes the issue and assumes responsibility to market the bonds
- Usually selected through a RFP process

**CONSIDERATIONS**
- Complicated, highly structured financings
- Unusual covenants or financing structures
- Various Size issues
- Ability to time sale to minimize potential interest cost and respond rapidly to market

## Competitive

**HOW IT WORKS**
- A process whereby a notice of sale is published calling for bids from underwriters
- Underwriters submit bids alone or in a syndicate at a specific time and place
- Awarded to bidder with lowest true interest cost
- Bonds may or may not be presold

**CONSIDERATIONS**
- Reduced issuer flexibility by locking in size, structure and offering terms
- No control over the distribution of bonds
- May receive few (or no bids) during market volatility
- Discourages political lobbying from underwriters

## Private Placement

**HOW IT WORKS**
- Direct transaction between Issuer and investor
- Issuer “places” bonds with large, qualified investor
- Underwriters promise best efforts only - no firm commitment

**CONSIDERATIONS**
- Complicated credits
- Typically smaller transactions
- Complex financing structures no one is willing to underwrite
- Avoiding certain financial disclosure
New Money vs. Refunding Transactions

- Most transactions involve Issuers raising fresh funds to meet capital needs
  - This type of financing is known as a **new money transaction**
- Other transactions involve Issuers raising funds to replace higher cost debt with lower cost debt
  - **Example:** An Issuer originally sold bonds with an interest rate of 6%. Today, rates are at 3%. To achieve savings, the Issuer may choose to refund the bonds yielding 6% with bonds yielding 3%
  - This type of financing is known as a **refunding transaction**
  - Executed properly, a refunding can create debt service savings for an Issuer

### Key Types of Refundings

**Taxable Advance Refunding**

A refunding that refunds a bond issue more than 90 days in advance of the original issue’s call or maturity date.

- **2019**
  - New Money Issue
  - Standard 10-year call option
- **2025**
  - Advance Refunding Can Occur

**Current Refunding**

A refunding transaction that refunds a bond issue within 90 days of the original issue’s call or maturity date. An issue can be current refunded an unlimited number of times.

- **2019**
  - New Money Issue
  - Standard 10-year call option
- **2029**
  - Current Refunding Can Occur

---

**Tax Cuts & Jobs Act of 2017 (effective January 1, 2018)** eliminated tax-exempt advance refundings. Advance refundings allowed on taxable basis. No change to current refundings.
After deciding to issue debt, the process of structuring, marketing, & selling municipal bonds begins:

- Develop Syndicate and Financing Team
- Develop Bond Allocation, Policy & Financing Structure
- Begin Draft of POS and Rating Agency Presentation
- Establish Priority of Orders
- Pre-Pricing / Order Period
- Price Bonds and Finalize Documents
- Verbal / Written Award
- Closing
- Overview
Typical Flow of Funds

- **Issuer’s Project**
  - Project Revenue
  - Bond Proceeds (capital expenditures)

- **Issuer**
  - Bond Proceeds
  - Monthly Principal and Interest Payments

- **Underwriter**
  - Bonds
  - Bond Proceeds

- **Investors**
  - Bank Trusts
  - Investment Advisors
  - Individuals

- **Bond Trustee & Paying Agent**
  - Bond Documents
  - Semi-Annual Interest and Annual Principal
  - Bond Documents
The Role of Underwriters

Underwriters help connect sources (investors) and users (Issuers) of funds

**Net Designated Orders**
- An order placed at an offering level
- The customer designates which dealer the profits are given to

**Group Net Orders**
- An order placed at public offering price
- All members of the syndicate share the profit according to their liability

**Member Orders**
- Orders placed by a member of the syndicate for their own account
- These orders are typically given the lowest priority
- Only the firm entering the order will receive the profit

**Retail Orders**
- Orders by retail investors or bank trust departments
- These orders are typically given the highest priority

**Issuer XYZ**
General Obligation Bonds
Series 2019

**SYNDICATE POLICIES**
(based on an $80,000,000 issue)

<table>
<thead>
<tr>
<th>Underwriter</th>
<th>Liability</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underwriter A</td>
<td>40.0%</td>
<td>$32,000,000</td>
</tr>
<tr>
<td>Underwriter B</td>
<td>25.0%</td>
<td>$20,000,000</td>
</tr>
<tr>
<td>Underwriter C</td>
<td>25.0%</td>
<td>$20,000,000</td>
</tr>
<tr>
<td>Underwriter D</td>
<td>10.0%</td>
<td>$8,000,000</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td>$80,000,000</td>
</tr>
</tbody>
</table>

**PRIORITY OF ORDERS**
1. In-State Retail; National Retail
2. Net Designated Institutional
3. Member Orders

The Senior Manager and Issuer XYZ reserve the right to request account names when entering priority orders.

A Retail Order is defined as any order from an individual, bank trust department or investment advisor, with a maximum limit of $250,000 per account.
Costs of Issuance

Issuers receive bond proceeds minus all costs associated with issuing bonds

Borrower’s Costs of Issuance

- Bond Counsel
- Trustee/Paying Agent (upfront and annual)
- Ratings (upfront and in some cases annual)
- Financial Advisor Fee
- Auditors Fee (if any)
- Printing (and electronic posting)
- Bond Insurance Premium or Upfront Credit Enhancement Fee - if any
  - Letter of Credit or liquidity costs are charged annually and paid quarterly in arrears
- Remarketing/Broker-Dealer Fees
  - Only in connection with variable rate and auction rate issues
  - Charged annually and paid quarterly in arrears
- Verification Agent Fee

Components of Underwriter’s Discount

- Average Takedown ($ per 1,000 bond)
- Management Fee
- Compensation for banking services
- Expenses of Underwriters
- Underwriters’ Counsel Fees
- Blue Sky Qualification
- Federal Funds Wire/Day Loan
- Regulatory Fees (PSA)
- Wire/Syndicate Communications Costs (DALCOMP)
- Travel and Other “Out-of-Pocket” Expenses
- CUSIP
- Interest on Good Faith Check
Sources & Uses

The Sources & Uses help trace the movement of funds for a particular issue

A table set forth in the Official Statement
Identifies where funds are derived and where funds will be applied

The Sources typically include:

- Bond Proceeds
- Any Original Issue Premium
- Any Issuer contributions

The Uses differs depending on the bond’s purpose, but tends to include:

- Deposits to funds (debt service reserve funds, capitalized interest funds, etc.)
- Costs of Issuance
- Applications toward revenue generating projects

The total sources and total uses will always equal each other

EXAMPLE:

<table>
<thead>
<tr>
<th>Sources</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Par Amount</td>
<td>$311,100,000.00</td>
</tr>
<tr>
<td>Premium</td>
<td>62,394,185.95</td>
</tr>
<tr>
<td>City Contribution</td>
<td>3,289,310.94</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$376,783,496.89</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Uses:</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit with Paying Agent for Refunded Notes</td>
<td>$125,000,000.00</td>
</tr>
<tr>
<td>Deposit to Escrow Fund for Refunded Bonds (1)</td>
<td>249,581,695.63</td>
</tr>
<tr>
<td>Cost of Issuance</td>
<td>895,051.38</td>
</tr>
<tr>
<td>Underwriters’ Discount</td>
<td>1,306,749.88</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$376,783,496.89</strong></td>
</tr>
</tbody>
</table>
Prior to pricing day, the Issuer and Financing Team develop a plan to effectively market the bonds.
General Buyers of Municipal Bonds

- Typical Investors in municipal bonds include:
  - Retail or “mom-and-pop” investors
  - Vehicles for retail investment “professional retail” - mutual funds, money market funds, money managers and bank personal trust departments
  - Property and casualty insurance companies
  - Commercial banks
  - Arbitrage accounts

- Ramirez’s distribution network Tier I to Tier IV defined below:

<table>
<thead>
<tr>
<th>Ramirez’s Balanced Distribution Network</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Tier I</strong></td>
</tr>
<tr>
<td>Sales Profile:</td>
</tr>
<tr>
<td>Assets over $1 billion</td>
</tr>
<tr>
<td>Trades of $5,000,000 and greater</td>
</tr>
<tr>
<td>Extremely price sensitive</td>
</tr>
<tr>
<td>Active traders</td>
</tr>
</tbody>
</table>

Investors include:

- **Institutional Tier I**
  - Large open-end bond funds
  - Closed-end managed bond funds
  - Property and casualty insurance companies
  - Money managers
  - Large bank trust accounts
  - Small insurance companies
  - Corporations
  - Bank trust accounts
  - Money managers
  - Unit investment trusts
  - Specialty state funds
  - Small insurance companies
  - Small corporations
  - Small bank trust accounts
  - Money managers
  - Investment advisors
  - “Professional” retail
  - Individual retail

- **Institutional Tier II**
  - Small insurance companies
  - Corporations
  - Bank trust accounts
  - Money managers
  - Unit investment trusts
  - Specialty state funds

- **Institutional Tier III**
  - Small insurance companies
  - Small corporations
  - Small bank trust accounts
  - Money managers
  - Investment advisors
  - “Professional” retail

- **Retail Tier IV**
  - Small insurance companies
  - Small corporations
  - Small bank trust accounts
  - Money managers
  - Investment advisors
  - “Professional” retail
The Underwriter will target different investors depending on the maturity of the bond.

**Types of Investors on the “Yield Curve”**

- **1 to 5- year Maturities:**
  - Individuals
  - Trust Departments
  - Investment Counselors
  - Insurance Companies

- **5 to 20- year Maturities:**
  - Intermediate Mutual Funds
  - Insurance Companies
  - Investment Counselors
  - Individuals

- **20 to 30- year Maturities:**
  - Open-end Mutual Funds
  - Closed-end Mutual Funds

**Maturities of 1- year or less:**
- Tax-Exempt Money Market Funds
- Corporations
- Individuals

**Targeting Investors Throughout the Yield Curve**
Key Municipal Benchmarks for Fixed Rate Bonds

Fixed Rate Indices

**KEY INDICES**

**MMD**
- A natural, AAA state G.O. yield curve produced by Thomson Financial
- The main, fixed-rate index used to price bonds at all points on the yield curve

**Bond Buyer Indices**
- Includes two key indices
  - 20 Bond Index: Estimation of the yield offered on 20-year general obligations with a composite rating of A
  - 25 Bond Index ("Revdex"): Estimation of the yield offered on 30-year revenue bonds including a broad range of types of issuers and vary in ratings from Baa1/A to AAA/Aaa.

**Treasury Yields**
- Yields offered on obligations backed by the full faith and credit of the U.S. Government
- Typically considered a "risk free rate"
- Common benchmark maturities include 6-months, 1-year, 5-years, 10 years, and 30 years,

**Visible Supply**
- Reflects the dollar volume of bonds expected to reach the market in the next 30 days
- Based on a 30-day measure of Bond Buyer’s Competitive and Negotiated Bond Offerings calendar
- Excludes notes

- Municipal bonds are typically priced at a spread to MMD (ie: if MMD is at 4.50%, a municipal bond might price at a 100 basis point spread, yielding 5.50%)
- Historically, municipal bonds closely mirrored treasuries
  - Recently, the two have decoupled

*M Source: Bond Buyer and Thomson Reuters as of close 10/21/2019
Pricing Overview - Negotiated Sale

PRICING TIMELINE

Pre-Pricing
- Begin to gauge interest in bonds, structures, and pricing levels

Pricing Day
- Begin with call to discuss the market and planned interest rates
- Set scale for retail orders
- Regroup following retail order period to set interest rates for institutional investors
- Take orders and adjust rates and/or structure depending on investor appetite for risk, structures, etc.
- Underwrite unsold bonds
- Provide verbal award

Post Pricing
- Distribute final Official Statement
- Analyze bond pricing and overall success of transaction
- Sign final documents
- Maintain secondary market to ensure liquidity of Issuer’s debt
### Decoding an Official Statement (or POS)

<table>
<thead>
<tr>
<th>Number</th>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rating</td>
<td>Indicates the credit rating given by one of the three large rating agencies (S&amp;P, Moody’s, and/or Fitch).</td>
</tr>
<tr>
<td>2</td>
<td>Legal Opinion</td>
<td>Written opinion from bond counsel that an issue of bonds was duly authorized and issued and thus exempt from applicable taxes.</td>
</tr>
<tr>
<td>3</td>
<td>Par Amount</td>
<td>The total amount of principal that must be paid at maturity. Sometimes referred to as a par amount.</td>
</tr>
<tr>
<td>4</td>
<td>Dated Date</td>
<td>The date from which interest begins to accrue, even if the issue may have been delivered at a later date.</td>
</tr>
<tr>
<td>5</td>
<td>Series</td>
<td>Bonds of an issue sharing the same lien on revenues. It may consist of serial bonds, term bonds, or both. One issue may contain multiple series.</td>
</tr>
<tr>
<td>6</td>
<td>Due Date</td>
<td>Indicates the final maturity of the issue when the full amount of principal and interest are due.</td>
</tr>
<tr>
<td>7</td>
<td>First Interest Payment Date</td>
<td>The date which the issuer must make its first interest payment to bondholders.</td>
</tr>
<tr>
<td>8</td>
<td>Purpose of Bonds</td>
<td>Summarizes the primary use of the bond proceeds, whether it be a refunding or new money issue.</td>
</tr>
<tr>
<td>9</td>
<td>Security for Bonds</td>
<td>Indicates the security that backs the bonds. In this instance, the “full faith and credit” of the Government of Guam.</td>
</tr>
<tr>
<td>10</td>
<td>Term Bond Amounts</td>
<td>Bonds comprising a large part or all of a particular issue that come due in a single maturity. It is often accompanied by some type of sinking fund.</td>
</tr>
<tr>
<td>11</td>
<td>Coupon</td>
<td>The nominal, annual rate of interest an issuer must pay. It does not include any discount or premium in the bond’s purchase price.</td>
</tr>
<tr>
<td>12</td>
<td>Yield</td>
<td>The annual rate of return on the bond, based on i) the coupon rate, ii) price, &amp; iii) maturity. It does include any discount or premium.</td>
</tr>
<tr>
<td>13</td>
<td>Lead Manager</td>
<td>The underwriter serving as the head of the syndicate who typically takes the largest underwriting commitment.</td>
</tr>
</tbody>
</table>
Pricing Day - Retail vs. Institutional Order Periods

- Many Issuers elect to institute separate order periods for retail investors and institutional investors
- Retail investors are considered attractive because they tend to buy and hold bonds to maturity
- Retail scale is typically lower in yield
- Strong retail participation can create stronger institutional demand and result in lower coupons during the institutional order period
- Selling group members may participate in both order periods to reach additional investors

### THE TWO ORDER PERIODS

#### Retail Order Period
- Issuer and Underwriter agree on retail scale
- Retail brokers submit orders on behalf of customers
- Begin to gauge demand for bonds
- Focus on sales of serial bonds
- Review unsold balances in preparation for institutional order period

#### Institutional Order Period
- Underwriter may revise interest rates to attract institutional investors
- Issuer and Underwriter agree on institutional scale
- Underwriter runs an order period, typically beginning at 9:00 AM EST
- At end of order period, Underwriter sets final price and verbal award is given

### Retail Investors Typically Purchase
- Serial Bonds
- Short Term Maturities
- Bonds that can be held to maturity
- Less complex credits
- Higher rated bonds

### Institutional Investors Typically Purchase
- Term bonds
- Long Term Maturities
- Bonds that can be traded with other investors
- More complex credits
- Highly structured transactional credits
The Pricing Wire

RE: $ 247,770,000
CITY OF AUSTIN, TEXAS
(Travis, Williamson and Hays Counties)
Water and Wastewater System Revenue Refunding Bonds, Series 2016

WE HAVE RECEIVED THE WRITTEN AWARD.

Delivery: 06/01/2016 (Firm)
Initial trade: 05/11/2016
Date of Execution: 05/11/2016
Time of Execution: 1:30PM Eastern

MOODY’S: Aa2  S&P: AA  FITCH: AA-

DATED:06/01/2016  FIRST COUPON:11/15/2016
DUE: 11/15
INITIAL TRADE DATE: 05/11/2016 @ 1:30PM Eastern

Pricing Day

- Wires allow underwriters to communicate important information
- The pre-pricing wire sets the initial structure
- The re-pricing wire will alter the structure based on investor demand
- The final pricing wire will indicate the final structure of the deal
  - It will provide the written award announcement
- Order Period will occur for 1-3 hours
- Order Status Review will include:
  - Orders by maturity
  - Orders by type
- Ongoing Dialogue with Potential Investors
  - Issuer inquiries
  - Alternate pricing/bond structures

CALL FEATURES: Optional call in 11/15/2026 @ 100.00
# Closing & Delivery of Bonds

After the sale of the bonds, the financing team will participate in closing and pre-closing activities.

<table>
<thead>
<tr>
<th>Pre-Closing</th>
<th>Closing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute financing documents and certificates</td>
<td>Wire funds to Issuer and other applicable parties</td>
</tr>
<tr>
<td>Deliver final Official Statement 7 business days after BPA is signed</td>
<td>Fund escrow (if applicable)</td>
</tr>
<tr>
<td>Deliver rating letters/insurance commitment</td>
<td>Approve and sign all documents</td>
</tr>
<tr>
<td>Deliver legal opinions</td>
<td>Deliver bonds to DTC/investors</td>
</tr>
<tr>
<td>Deliver and review final pricing book</td>
<td></td>
</tr>
</tbody>
</table>

## POST ISSUANCE COMPLIANCE

- It is critical for Issuers to comply with their Continuing Disclosure Requirements (as outlined in OS and Closing Documents for each transaction)
- Typically, in Texas, the Issuer’s financial advisor(s) assists with managing ongoing compliance
- SEC Rule 15c2-12 defines Issuers obligations under the Code
A variety of information is used to identify and analyze municipal securities:

- Municipal bonds are interest bearing securities issued by state and local governments on their own behalves or on behalf of qualified entities.
- The bonds represent a promise to repay principal (amount of money borrowed) as well as interest anywhere from one to forty years from the date of issuance.

Sample of Key Bond Offering Information:

**Issuer:** Identifies issuing body, authority, or agency

**Cusip:** The unique identifier for this bond

**Coupon:** Identifies interest payments bondholder is entitled to

**Maturity:** The day, month, and year when investor will receive full payment of principal and interest

**Dated Date:** The date from which bondholders are entitled to receive interest

**Issue Type:** Identifies security and revenue source for the bonds (ie: GO, Revenue, etc.)

**Tax Provision:** The type of tax-exemption applicable to this issue

**Rating:** The ratings from the big three respective rating agencies
CITY OF AUSTIN, TEXAS (TRAVIS, WILLIAMSON AND HAYS COUNTIES) WATER AND WASTEWATER SYSTEM REVENUE REFUNDING BONDS, SERIES 2016 (TX)
AUSTIN TEX WTR & WASTEWATER SYS REV REF (TX)*

Dated Date: 06/01/2016
Underwriting Spread 4.501910 %
Amount:
Closing Date: 06/01/2016
Time of Formal Award: 05/11/2016 10:52 AM
Time of First Execution: 05/11/2016 01:30 PM

View the official statement, which is the most complete source of information about the securities as of the initial issue date.

Official Statement
Official statement files are large and can take several minutes to download, depending on your connection speed. Preview the cover, if available, before downloading to ensure that it is the correct document.

Download Document

Preview

Glossary of Terms
View the MSRB's industry-standard Glossary of Municipal Securities Terms.

Why read the official statement?
Appendix: Introduction to Bond Math
Key Concepts - Basic Terminology

- Principal
- Maturity
- Serial Bonds
- Term Bonds and Sinking Funds
- Coupon
- Yield
- Price
- Interest

- Debt Service
- Original Issue Discount
- Original Issue Premium
- Bond Proceeds
- Capital Appreciation Bonds
- Callable Bonds
- Bond Conventions
- Additional Debt Service
Principal and Maturity

- **Maturity** - Date on which principal payments are due
  - Typically, maturity dates are generally no longer than 30 years
  - Most bond issues have principal maturing each year until the final maturity date of the series

- **Principal** - Also known par amount, or face value, of a bond to be paid back on the maturity date
  - Typically, bonds are sold in $5,000 principal denominations, often $100,000 for variable rate bonds

<table>
<thead>
<tr>
<th>Maturity Date</th>
<th>Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1/2017</td>
<td>$ 1,500,000</td>
</tr>
<tr>
<td>1/1/2018</td>
<td>$ 2,500,000</td>
</tr>
<tr>
<td>1/1/2019</td>
<td>$ 3,500,000</td>
</tr>
<tr>
<td>1/1/2020</td>
<td>$ 4,500,000</td>
</tr>
<tr>
<td>1/1/2021</td>
<td>$ 5,500,000</td>
</tr>
<tr>
<td>1/1/2022</td>
<td>$ 6,500,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 24,000,000</strong></td>
</tr>
</tbody>
</table>
Serial and Term Bonds

- **Bonds** can either mature annually (serial bonds) or as term bonds.
- A **term bond** is a series of sequential amortizations. Payments of principal prior to the term bond’s final maturity are referred to as sinking fund payments.

<table>
<thead>
<tr>
<th>Maturity Date</th>
<th>Principal</th>
<th>Coupon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1/2017</td>
<td>$1,500,000</td>
<td>3.50%</td>
</tr>
<tr>
<td>1/1/2018</td>
<td>$2,500,000</td>
<td>3.50%</td>
</tr>
<tr>
<td>1/1/2019</td>
<td>$3,500,000</td>
<td>4.00%</td>
</tr>
<tr>
<td>1/1/2020</td>
<td>$4,500,000</td>
<td>4.25%</td>
</tr>
<tr>
<td>1/1/2021</td>
<td>$5,500,000</td>
<td>5.00%</td>
</tr>
<tr>
<td>1/1/2022</td>
<td>$6,500,000</td>
<td>5.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$24,000,000</strong></td>
<td></td>
</tr>
</tbody>
</table>
Serial vs. Term Bonds

Serial Bonds
- Bonds with maturities that come due in a range of years (typically annually)
- Principal amounts come due in over a series of years
- Helps the Issuer spread out debt service

Term Bonds
- Bonds with a maturity that occurs in a single year
- Tend to carry sinking fund requirements, which are reserves set aside by the Issuer to redeem term bonds
- Similar to traditional corporate debt
Coupon, Interest and Debt Service

- **Coupon** - Percentage rate (based on principal/par amount) of annual interest paid on outstanding bonds
  - Can be fixed or variable

- **Interest** - Cost of borrowing money for the issuer
  - Usually paid periodically
    - Semi-annually for fixed-rate bond
    - More frequently for variable-rate bonds
  - Interest is calculated by multiplying principal by coupon (adjusted for length of period between interest payments)

- **Debt Service** - Sum of all principal and interest on a bond

<table>
<thead>
<tr>
<th>Maturity Date</th>
<th>Principal</th>
<th>Coupon</th>
<th>Interest</th>
<th>Debt Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1/2017</td>
<td>$1,500,000</td>
<td>3.50%</td>
<td>$1,071,250</td>
<td>$2,571,250</td>
</tr>
<tr>
<td>1/1/2018</td>
<td>$2,500,000</td>
<td>3.50%</td>
<td>$1,018,750</td>
<td>$3,518,750</td>
</tr>
<tr>
<td>1/1/2019</td>
<td>$3,500,000</td>
<td>4.00%</td>
<td>$931,250</td>
<td>$4,431,250</td>
</tr>
<tr>
<td>1/1/2020</td>
<td>$4,500,000</td>
<td>4.25%</td>
<td>$791,250</td>
<td>$5,291,250</td>
</tr>
<tr>
<td>1/1/2021</td>
<td>$5,500,000</td>
<td>5.00%</td>
<td>$600,000</td>
<td>$6,100,000</td>
</tr>
<tr>
<td>1/1/2022</td>
<td>$6,500,000</td>
<td>5.00%</td>
<td>$325,000</td>
<td>$6,825,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$24,000,000</td>
<td></td>
<td>$4,737,500</td>
<td>$28,737,500</td>
</tr>
</tbody>
</table>
- Price and yield move in opposite directions.
Par, Discount and Premium Bonds

- **Par Bonds**
  - Coupon equals yield
  - Purchase price equals principal amount

- **Discount Bonds**
  - Coupon less than yield
  - Purchase price less than principal amount

- **Premium Bonds**
  - Coupon greater than yield
  - Purchase price greater than principal amount
Interest Rate Features

- Investors who purchase municipal bonds earn the yield, which takes into account both the coupon and price
  
  - Yield to call is the annual return an investor would earn if the bonds are redeemed at the call date

- Interest rates are sometimes quoted as basis points
  
  - 1 basis point is equal to \( 1/100 \text{th} \) of 1% of yield
  
  - Example: 1 basis point is equal to .01%, 100 basis points is equal to 1.00%

- The **true interest cost** is a measure of the cost of a bond financing that takes into account all relevant costs. It includes any original issue discount or premium, the underwriters’ discount, and cost of credit enhancement

- Bonds are “**cheaper**” when they have a higher yield (lower price) than comparable bonds and are “**richer**” when they have a lower yield (higher price) than comparable bonds

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Assumes 7/1/2026 maturity
Capital Appreciation Bonds (CABs)

- CABs pay no periodic interest until maturity. The bonds accrete in value as interest accrues.
  - Usually sold as serial bonds, but can be structured as term bonds.
- At maturity an amount equal to the initial principal invested plus the interest earned, compounded semiannually at the stated yield, is paid.
- They are sold in denominations of less than $5,000 representing their present value and pay $5,000 at maturity.
- Though CABs are often more expensive (sold at a higher yield) than current interest bonds, they are used to achieve particular debt service patterns.
  - Example: A CAB maturing in 2015 may have a par amount of $95,212 but will have a value of $100,000 when it matures. The difference between $100,000 and $95,212 represents the interest on the bond.
Callable Bonds

- Callable bonds can be redeemed by an issuer before their actual maturity on and after a specified call date (an optional redemption provision).

- Many times, fixed-rate bonds will be callable 10 years after issuance at a price of par. Historically, many municipal bonds were sold with 10-year call features where the bond was callable at 102 and declined to par by the 12th year.

- Municipal bonds are sold with embedded call features to provide restructuring flexibility and/or refinancing savings in the future.

- Investors charge the issuers for this flexibility - through a higher yield and lower price - thereby increasing the cost of the financing at the time of issuance.

  - Issuers need to weigh this increased flexibility and the possibility of savings down the road against this increased cost.
Bond Conventions

- **Basis Point**
  - Yields on bonds are usually quoted in terms of basis points, with one basis point equal to one one-hundredth of 1 percent.
    - .50% = 50 basis points

- **Day Count**
  - 30/360
    - Usually for tax-exempt fixed rate bonds
  - Actual/Actual
    - Usually for tax-exempt variable rate bonds

- **Pricing**
  - Truncate to 3 decimals
Understanding Debt Service

- The amount of principal and interest an Issuer must pay annually is known as debt service
  - Debt Service = Principal + Interest
- A debt service schedule tells an Issuer when and what amounts of principal and interest it must pay
- The most common type of principal amortization is level debt service, which structures annual debt service payments to be level or the same throughout a bond issue’s entire life

### STAND-ALONE LEVEL DEBT SERVICE

<table>
<thead>
<tr>
<th>Year</th>
<th>Series A Debt Service</th>
<th>Series B Debt Service</th>
<th>Series C Debt Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2033</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2043</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MULTIPLE STAND-ALONE LEVEL DEBT SERVICE

<table>
<thead>
<tr>
<th>Year</th>
<th>Series A Debt Service</th>
<th>Series B Debt Service</th>
<th>Series C Debt Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2023</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2033</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2043</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Principal
- Interest
Principal Amortization Options for Additional Debt

LEVEL DEBT SERVICE STRUCTURE

WRAPPED DEBT SERVICE STRUCTURE

BACK-LOADED DEBT SERVICE STRUCTURE

FRONT-LOADED DEBT SERVICE STRUCTURE
Refunding Transactions  (Taxable only due to new prohibition on tax-exempt advance refundings)

- An advance refunding transaction generates proceeds to meet the refunded bonds’ debt service payments until the refunding bonds can be retired

- **Escrow Account:** A fund established to hold moneys pledged and to be used to pay debt service on an outstanding issue in an advance refunding

- The amount that must be deposited in this account is the present value cost of the refunding bonds’ debt service payments through the call or refunding date

- In the past when a tax-exempt refunding was allowed, the yield on a refunding escrow was limited to the arbitrage yield of the refunding bonds. Taxable refundings do not have this constraint.
Savings Analysis for Refundings

- The par amount of a refunding bond issue will typically exceed the refunded par amount
- This larger par amount, however, is spread out across the life of the issue at a lower interest cost, resulting in debt service savings (assuming the refunding is done for the purpose of creating savings)
- Other reasons for refundings that may not produce savings include debt restructuring, modernization of indenture, etc.

COMMON ALLOWABLE ESCROW INVESTMENTS

<table>
<thead>
<tr>
<th>SLGS</th>
<th>State and Local Government Securities</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury</td>
<td>Bills, Bonds, Notes, and Strips</td>
</tr>
<tr>
<td>Securities</td>
<td>Securities from the GSEs</td>
</tr>
</tbody>
</table>

EXAMPLE OF DEBT SERVICE SAVINGS FOR Issuer XYZ

<table>
<thead>
<tr>
<th>REFUNDING ISSUE</th>
<th>REFUNDED ISSUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit to Escrow:</td>
<td>Refunded Par Amount: 98,000,000</td>
</tr>
<tr>
<td>Costs of Issuance:</td>
<td>Annual Debt Service: $10,000,000</td>
</tr>
<tr>
<td>Less: Original Issue Premium</td>
<td>TIC: 5.30%</td>
</tr>
<tr>
<td>Refunding Par Amount:</td>
<td></td>
</tr>
<tr>
<td>Average Annual Debt Service:</td>
<td></td>
</tr>
<tr>
<td>TIC: 4.45%</td>
<td></td>
</tr>
</tbody>
</table>