Variable Rate Demand Obligations - A Primer

A Short Guide to Variable Rate Demand Obligations and the S&P National AMT-Free Municipal VRDO Index

- Variable rate demand obligations (VRDO) are variable rate securities generally issued by municipalities with interest rates that reset on a periodic basis, typically weekly or daily.

- VRDOs are not Auction Rate Securities. Holders of VRDOs have the right to sell back to the issuer at Par on any of the periodic reset dates.

- VRDOs produce returns that have low correlations with stocks and bonds, thus making them good for portfolio diversification.

- VRDOs generally offer very low risk with high liquidity and a favorable tax treatment. Risk factors include credit risk, reinvestment risk, and call risk.

- The S&P National AMT-Free Municipal VRDO Index is designed to serve the investment community’s need for a benchmark representing the municipal VRDO market. The index consists of highly-rated tax exempt issues with weekly resets.
Introduction to Variable Rate Demand Obligations

What are variable rate demand obligations (VRDOs)?

VRDOs are variable rate securities that generally reset on a periodic basis, usually weekly or daily. While VRDOs generally have long final maturities, often as long as thirty years, they are considered short-term securities because they include a tender provision known as a put feature whereby the investor has the option to sell back the security at each periodic yield reset. An investor purchases a VRDO at par, and when the security is put back to the issuer, he/she receives par plus the accrued interest earned up to that point in time. VRDOs are also often referred to as variable rate demand notes (VRDNs).

Who generally issues VRDOs?

VRDOs are issued by state and local governments as general obligations or as revenue bonds tied to specific projects. Other municipal issuers including housing, industrial development, and healthcare authorities issue VRDOs on behalf of projects such as multifamily housing, hospitals, and universities.

VRDOs are generally supported by a letter of credit, and/or a stand-by bond purchase agreement.

Who generally invests in VRDOs?

Tax exempt money market funds are the largest holders of VRDOs. Other common investors include bond funds, corporations, and trust departments.

Can individual investors invest in VRDOs?

VRDOs are issued in minimum US$ 100,000 denominations. Thus, smaller investors can only invest in VRDOs indirectly, such as through money market funds.

What are the advantages of investing in VRDOs?

- **Tax Treatment** – VRDOs issued by municipalities are generally exempt from federal taxes. Many issues are also exempt from state taxes in the state of issue. The interest earned on some VRDOs is taxable, while interest earned on others may be subject to Alternative Minimum Tax.

- **Low Risk** – Most VRDOs are backed by a bank letter of credit or by bond insurance. This backing transfers the credit risk an investor has from the underlying issuer to the letter of credit or insurance provider, which generally has high investment grade credit ratings.

- **High Liquidity** – The bond tender provision or put feature of VRDOs allows investors to sell back a security at its par value plus accrued interest on any date at which the interest rate is reset, thereby ensuring liquidity. This is particularly helpful to fund managers in managing fund cash flows.
What are the risks of investing in VRDOs?

- **Credit Risk** – The vast majority of VRDOs are secured by bank letters of credit and/or a bond purchase agreement from a financial institution with high credit ratings, thus, limiting credit risk. These banks or financial institutions providing letters of credit or bond purchase agreements are known as liquidity providers, and as such, purchase bonds back from bondholders who opt to put the bonds back to the issuer. However, some credit risks remain. In particular, the investor carries credit risk in the bank or financial institutions who are the liquidity providers. An event which affects the ability or perceived ability of the bond insurer to meet its obligations (i.e. credit downgrade) could have a significant adverse affect on the value of the security. With a letter of credit, the investor runs the risk that both the issuer and the letter of credit provider will be unable to pay the principal and interest on the security.

- **Reinvestment Risk** – Income from VRDOs will decline because of falling interest rates. As VRDOs generally reset on a weekly or daily basis, the yields on the securities are continually adjusting.

- **Call Risk** – VRDO issuers can call bonds at par on any interest payment date. This act would force an investor to reinvest, potentially at lower interest rates.

- **Conversion Risk** – VRDO issuers generally have the option to convert a VRDO to a fixed rate instrument.

How do VRDOs compare to Auction Rate Securities (ARS)?

An auction rate security is a fixed income security with a variable interest rate that is reset periodically via a Dutch auction. ARS and VRDO securities are similar in that they are both long-term instruments that trade at par and are tied to short-term interest rates with periodic rate resets, generally 7, 28 or 35 days in the case of ARS. The main difference between VRDOs and ARS are the put feature of VRDOs. VRDO holders can put bonds back to the issuer at each periodic rate reset. ARS holders do not hold a put option. Rather, they are able to sell their securities at any auction provided there are willing buyers. The put feature of VRDOs gives an investor a greater degree of protection against liquidity risk. Due to this difference, VRDOs are assigned short-term ratings by the ratings agencies while ARS are assigned long-term ratings.

What is the return and volatility profile?

**Exhibit 1: Historical Risk/Return Profile for Municipal VRDO, Common Stocks, and Bonds**

<table>
<thead>
<tr>
<th></th>
<th>Bonds</th>
<th>Common Stocks</th>
<th>Muni VRDO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annualized Returns</strong></td>
<td>6.49%</td>
<td>-1.22%</td>
<td>2.31%</td>
</tr>
<tr>
<td><strong>Annualized Volatility</strong></td>
<td>4.98%</td>
<td>18.91%</td>
<td>0.18%</td>
</tr>
<tr>
<td><strong>Correlation with VRDO</strong></td>
<td>.060</td>
<td>-.059</td>
<td></td>
</tr>
</tbody>
</table>

*Sources: Standard & Poor’s, CSFB and Federal Reserve Board. Figures are from January 5, 2000 through October 30, 2009. Common stocks refer to the S&P 500®, bonds refer to the Credit Suisse USGI Bond Index and Muni VRDO refers to the S&P Weekly High Grade Index.*
What are typical yields for VRDOs?

Exhibit 2: Yield on Municipal VRDO Versus 1-Month U.S. Treasury Bill

![Graph showing yield comparison between Municipal VRDO and 1 Month Treasury Bill.](image)

Sources: Standard & Poor’s, Bloomberg. Municipal VRDO yield based on S&P Weekly High Grade Index.

How much issuance has there been in the VRDO market?

The VRDO market has grown from US$ 40 billion in issuance in 2000. In 2008, the value of issuance of VRDO securities in the United States exceeded US$ 116 billion.

Exhibit 3: Amount of Issuance in VRDO market

![Bar chart showing issuance amounts from 2000 to 2008.](image)

Source: Thomson Reuters via The Bond Buyer.
The S&P National AMT-Free Municipal VRDO Index

What is the S&P National AMT-Free Municipal VRDO Index?

The S&P National AMT-Free Municipal VRDO Index is a broad based index consisting of variable rate demand obligations issued by municipalities in the United States.

How are constituents selected for the index?

All variable rate demand obligations that meet the following eligibility criteria are included.

- The issuer must be a state (including the Commonwealth of Puerto Rico and U.S. territories such as the U.S. Virgin Islands and Guam) or local government or agency such that interest on the security is exempt from U.S. federal income taxes.

- The security must be priced at par.

- The security must have a rating of at least A-3 by Standard & Poor’s, VMIG-3 by Moody’s, or F-3 by Fitch. A security must be rated by at least one of the three rating agencies in order to qualify for the index.

- The security must have a maturity greater than or equal to one month.

- Seventy-five percent of the number of total index constituents must be a part of a deal where the deal’s original offering amount was at least US$ 100 million. The remaining twenty-five percent of index constituents have no minimum deal size criteria.

- The amount outstanding, or par amount, is used to determine the weight of the security in the index. The security must have a minimum par amount of US$ 10 million to be eligible for inclusion. To remain in the index, securities must maintain a minimum par amount greater than or equal to US$ 10 million as of the next rebalancing reference date.

- The security must have a weekly yield reset.

- The security must have a credit or liquidity support facility.

- At any time, each issuer may have a maximum of 10 issues in the index as determined by its six-digit CUSIP base. On a given monthly rebalancing date, if there are more than 10 eligible issues for a given issuer, the 10 issues with the largest par amount are chosen.

How are constituents weighted in the index?

The weight of each security is based on its outstanding market value as of each monthly rebalancing.

How many constituents are there in the index?

The index does not have a set number of constituents. Rather, the number of constituents is based on how many issues are eligible at each rebalancing. As of October 30, 2009, the index has 344 constituents.
What is the weighted-average-maturity of the index?

As of October 30, 2009, the weighted-average-maturity of the constituents is 21.32 years.

What is the current yield of the index?

As of October 30, 2009, the current yield of the index is 0.37%.

Exhibit 4: Yield on VRDOs Versus Other Asset Classes

<table>
<thead>
<tr>
<th></th>
<th>Treasury Bills</th>
<th>Money Market Mutual Funds</th>
<th>Certificates of Deposit</th>
<th>Muni VRDO</th>
<th>Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>0.01%</td>
<td>0.09%</td>
<td>0.19%</td>
<td>0.37%</td>
<td>2.22%</td>
</tr>
</tbody>
</table>

Sources: Standard & Poor’s, Credit Suisse, BankRate.com, Bloomberg. Yield for treasury bills is the one-month U.S. Treasury Bill. Yield for money market mutual funds is from the Crane 100 Money Fund Index 30-Day Yield. Yield for Certificates of Deposit is the average one-month CD rate as published by the Federal Reserve Board. Yield for VRDO is the S&P National AMT-Free Municipal VRDO Index. Yield for bonds is the CS USGI Bond Index. Data as of October 30, 2009.

How often are constituents added and removed from the index?

The index is rebalanced at the end of each month. The list of eligible issuers for the index is determined on a semi-annual basis at the end of the June and December rebalancing. The complete methodology is available on the web at www.fixedincomeindices.standardandpoors.com.

What are the ticker symbols for the index?

<table>
<thead>
<tr>
<th>Index</th>
<th>Bloomberg</th>
<th>Reuters</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P National AMT-Free Municipal VRDO Index</td>
<td>SPMUVRDO</td>
<td>.SPMUVRDO</td>
</tr>
<tr>
<td>S&amp;P National AMT-Free Municipal VRDO Index Average Yield</td>
<td>SPMUVRDY</td>
<td>.SPMUVRDY</td>
</tr>
<tr>
<td>S&amp;P National AMT-Free Municipal VRDO Index Average Maturity</td>
<td>SPMUVRDM</td>
<td>.SPMUVRDM</td>
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