Municipal Swaps: Realities and Misconceptions

Washington, D.C.
December 11, 2012
Significant segment of fixed income market
50,000 issuers, outstanding debt $3.7 trillion
2 million individual bonds

Issuers rely on external advice for transactions
‘Financial advisors’ for bonds, ‘Swap advisors’ for swaps

Industry regulated by the MSRB and the SEC
MSRB G-17 requires dealers and advisors to ‘deal fairly’
Under Dodd-Frank advisors will require certification

Largest trade association is the GFOA
Recommends ‘best practice’
Perspective: Debt Management

Advisor to corporate and municipal issuers
Analyze investment banking proposals for funding, refunding, and hedging transactions

Expert witness
Provided testimony on swapped variable rate bonds

Member of the MSRB ‘municipal advisor certification’ task force
Typical Use of Swaps: Synthetically ‘Fix’ Bond Coupon

Municipality issues variable rate bonds

Usually VRDOs*  
Bonds insured to AAA quality  
Cost of insurance credit-dependent  
Liquidity provider needed, in case remarketing fails

Simultaneously enters into ‘plain vanilla’ interest rate swap

Pay fixed, receive floating  
  Floating rate is indexed to either SIFMA or Libor  
  (SIFMA is average of high-grade VRDO rates)  
Swap notional amortizes like bond principal

Goal is to beat conventional fixed rate funding
Typical Synthetic Fixed Rate Transaction

Floating side of swap expected to offset VRDO coupon
All-in expected fixed rate is 5.00% (fixed side of swap plus insurance and ongoing expenses) versus plain vanilla fixed rate bogey of 5.50%
But Synthetic Fixed Rate Transactions Can Lead to Trouble

Credit deterioration of bond insurer may necessitate termination or restructuring

If liquidity provider’s credit fails, replacement has to be found

LIBOR rate received on swaps introduces basis risk, because of poor correlation with VRDO rate

Issuer lacks option to refund if rates decline

A major handicap since the 2008 financial crisis

In contrast, fixed coupon munis are normally callable
Swapped Variable Rate Bonds Feed Many Mouths

Bank counterparty gets lion’s share through mark-up of swap (*raison d’être* for the deal)

Others receive their substantial customary fees (see below)

<table>
<thead>
<tr>
<th>Conventional Bond Issuance Expenses</th>
<th>Additional Expenses for Synthetic Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underwriter</td>
<td>Bond Insurer</td>
</tr>
<tr>
<td>Financial Advisor</td>
<td>Remarketing Agent (ongoing)</td>
</tr>
<tr>
<td>Rating Agency</td>
<td>Liquidity Provider (ongoing)</td>
</tr>
<tr>
<td>Legal Counsel</td>
<td>Swap Advisor</td>
</tr>
<tr>
<td></td>
<td>Swap Insurer</td>
</tr>
</tbody>
</table>
How Different Are Municipal Swaps?

Usually amortizing
To match bond principal payments

No special tax treatment for swap counterparty
Same as any other swap

Valuation and hedging are straightforward
Held in the dealer’s ‘derivative warehouse’ with other swaps
... But there is a stark difference in practice: municipalities pay significantly more than other market participants for essentially the same product.

... The swap dealer obviously will charge what the market will bear. Unfortunately, the municipality’s grossly overcompensated hired guns — swap advisers, lawyers and such — provide inadequate protection and are conflicted by self-interest.
Featured Transaction: Denver Public Schools’ 2008 Refinancing

Issue: $750MM *taxable* VRDO’s

- Amortizes over 30 years
- Swapped into LIBOR with three major banks as counterparties
- Pay 4.859%, receive LIBOR flat

*Probably the only swapped taxable VRDO in history!*
Bid-Ask Spreads for LIBOR Swaps Are Extremely Tight*

<table>
<thead>
<tr>
<th>Term</th>
<th>2-Year</th>
<th>5-Year</th>
<th>10-Year</th>
<th>30-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid Rate (%)</td>
<td>0.659</td>
<td>1.830</td>
<td>3.068</td>
<td>3.895</td>
</tr>
<tr>
<td>Ask Rate (%)</td>
<td>0.665</td>
<td>1.833</td>
<td>3.070</td>
<td>3.898</td>
</tr>
<tr>
<td>Difference (%)</td>
<td>0.006</td>
<td>0.003</td>
<td>0.002</td>
<td>0.003</td>
</tr>
</tbody>
</table>

*Source: Bloomberg, July 12, 2011 4pm (YCRV <GO> S23)
### Denver Public School District No. 1
Value of $750 million 4.859% LIBOR swap as of June 30, 2010

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reported by banks*</td>
<td>$142,866,925</td>
</tr>
<tr>
<td>Kalotay Fair Value</td>
<td>$144,174,835</td>
</tr>
<tr>
<td>Difference</td>
<td>$1,307,910</td>
</tr>
<tr>
<td>Difference as percent of notional amount</td>
<td>0.17%</td>
</tr>
</tbody>
</table>

*Source: Denver School District No.1 Comprehensive Annual Financial Report 2010
But Transacted Rate In 2008 Was Far From ‘Fair’

<table>
<thead>
<tr>
<th>Perceived Value</th>
<th>0</th>
</tr>
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<tbody>
<tr>
<td>(to DPS)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Kalotay Fair Value</th>
<th>$13,583,213*</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Mark-up as percent of notional amount</th>
<th>1.81%</th>
</tr>
</thead>
</table>

*Adjusted for $550,000 paid by banks upfront to cover fees to swap advisor ($425,000), swap counsel ($100,000), and swap pricing agent ($25,000). Source: Swap confirmation documents

Estimated fair coupon was 4.73%, nearly 13 basis points lower than that of actual swap.
Hidden Tax of Municipal Swaps
On a National Scale

Estimated notional amount of swap transactions from 2005 to 2010: $1 trillion

According to MSRB report of April 2009, annual municipal derivatives volume grew to $300 billion

Mark-up to fair value: 2% of notional amount

Cost to taxpayers: $20 billion
2% of $1 trillion
“Sunlight is the best of disinfectants; electric light is the best policeman”

Louis Brandeis, Other People’s Money, 1913

Disclosure is important, but waste and mispricing can be exposed only through rigorous valuation.

Enforcement of fair dealing rules requires technical expertise.
Suggestions to Improve Swap Execution

Standardize swap advisory contract
   Require disclosure of side agreements

Keep score
   Determine mark-up at time of execution
   Calculate average for each swap advisor
   Disseminate ranking to the municipalities

Easier said than done:
   Swap confirmations not publicly available
Structural Problems in Municipal Finance

Advisors conflicted and underqualified
- Swap advisors get paid only if transaction consummated
- Financial advisors are out of their league when negotiating with banks

Guidance from GFOA inadequate
- “Best practice” punts on discounting and ignores option valuation

Management not accountable
- Not subject to Sarbanes-Oxley
- Exempt from corporate disclosure requirements
- In a state of denial (e.g. Denver Public Schools)
DPS’s State of Denial*

Answers to reporters’ questions

Board President: ‘Transaction far from exotic’

It is probably the only swapped taxable VRDO

School Superintendent: Plain vanilla fixed coupon bond in 2008 would have cost 7.25%

Gross exaggeration of the bogey

DPS Spokesman: ‘We have been nothing but thorough and forthcoming’

DPS has been completely evasive and misleading in its responses to questions regarding swap value

*In 2011 the 2008 transaction had to be restructured at a considerable cost to DPS (e.g. $330,000 paid to FA’s)
Volume of synthetic fixed coupon transactions has diminished

Primarily due to the collapse of bond insurers following the 2008 financial crisis

But the fallout is far from over: Termination cost of a failed VRDO deal is substantial

Dominant factor: cost of unwinding the swap, because LIBOR swap rates are at historic lows

Result: municipalities suing swap counterparties

Are these suits warranted?
Picking Up the Pieces After VRDO Fails

Swap is deep-in-the-money (expensive to unwind)
But is it fair to have the counterparty eat the loss?
Merit of Claim Should Be Rigorously Examined

Financial analysis requires an explicit horizon date
To keep things apples-to-apples
Municipality’s intent at origination: Lock in a fixed rate, say 5%, until stated maturity of bond
Therefore the relevant horizon date is the stated maturity of the bond
Rates have generally declined since issuance, but the horizon date is still far away.

The municipality’s current borrowing rate is much lower, say 4.25%, unless its credit has worsened.

On the downside, the swap is deep in the money.

Borrowing cost and swap value should be considered together!

Issuing variable rate bonds (index-based or possibly VRDOs) and keeping the swap alive should result in all-in cost close to original intent (basis risk aside).

Therefore unwind cost of swap should not be included with potential damages.
Parting Thoughts

The structural problems of municipal finance will not be solved overnight

The media and public advocates tend to oversimplify complex issues

Finance professionals should step up and get involved in their communities’ financial affairs
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