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## Swaps And The Municipal Market: The Impact Of Swaps And FASB 133 On Municipal Credit Quality

### Summary Opinion:

In the municipal market, issuers are increasingly using interest rate swaps, with other derivatives, as part of their debt strategy and asset-liability management. In general, Moody's believes that the prudent use of derivatives - including interest rate swaps - can be an effective tool in meeting funding needs and managing a balance sheet while limiting risk.

Nonetheless, Moody's believes that interest rate swaps may introduce additional risks to an issuer's credit profile. We assess the materiality of an issuer's derivative activity relative to its resources and the issuer's potential vulnerability to interest rate volatility, to determine the extent of potential credit exposure from swap transactions. We also examine swap transactions to determine the credit implications on the issuer of any terms and conditions in the swap documentation, such as termination events and collateral requirements. The risks related to interest rate swaps do not apply equally to all issuers. Rather, the analysis of the impact of swaps on the municipal issuer's credit profile is driven in part by the type of issuer (e.g. a well-endowed private university, a not-for-profit hospital with poor liquidity and of lower credit quality, or an issuer generating highly predictable cash flows, like a water and sewer district), with the result that each issuer is assessed differently by Moody's.

Regarding the impact of the FASB Statement 133, which establishes accounting and reporting standards for derivative instruments, Moody's looks beyond the mandated accounting and reporting changes to determine the underlying economic reality of the transaction and the cash flow impact on the municipal issuer. In general, Moody's anticipates that the reporting changes in and of themselves will have no impact on the credit quality of municipal issuers that engage in swap or other derivative transactions.



## **MOODY'S BELIEVES SWAPS SERVE AS USEFUL TOOLS IN MANAGING ISSUERS' DEBT AND ASSET RISKS**

Prior to the 1990's, a municipal issuer typically had few choices when developing its debt or asset-liability management strategy. If facing an asset-liability mismatch because it held variable rate investments against its long-term fixed-rate liabilities, the issuer would not have many tools to resolve the mismatch other than selling their variable rate investments and reinvesting the proceeds into longer-term, fixed-rate investments. Debt strategy was typically restricted to issuing debt as either fixed rate or variable rate with a variety of maturities. In considering variable rate debt, the municipal issuer would decide if it wished to assume liquidity risk. If so, it could obtain third party liquidity support (e.g., standby bond purchase agreement (SBPA) or a letter of credit) or establish sufficient internal liquidity in the event bondholders exercise the tender feature of the variable rate debt and put back bonds that could not be remarketed.

### **Swaps Serve As A Way to Hedge Interest Rate Risk**

Swaps emerged in the municipal market over the last decade as a tool to manage asset or liability risk by hedging that risk - i.e. taking a position (in the form of a cash flow, an asset, or a contract) that rises and falls in value to offset the increase or decrease in value of the existing asset or debt (underlying). The issuer can use interest rate swaps to hedge an existing position and reduce or eliminate the potential loss.

According to the International Swaps and Derivatives Association (ISDA), a global trade association with over 550 members that include dealers and end users in the derivatives industry, total interest rate and currency derivative transactions (i.e. financial contracts "derived" from some underlying asset, index or reference rate) at June 30, 2002 totaled over \$82 trillion in notional (or "principal") amounts. These figures include interest rate swaps, one of the most frequently used derivative contracts. Although firm figures are not tracked, U.S. municipal activity is estimated at as much as \$200-\$400 billion in total notional amounts outstanding. Although it represents a small segment of global derivative activity, the municipal market is increasingly embracing derivatives and, more specifically, swaps as an effective and economic component of its financial management program.

By entering into an interest rate swap, an issuer can economically alter the existing terms of investments held or of newly issued or existing debt without impacting the debt itself (see sidebar of *What is an interest rate swap?*). For example, an issuer may want to issue variable rate debt but wants neither to assume the liquidity risk of the tender features of variable rate debt, nor to issue other debt structures (e.g. auction products) that can avoid put risk. To achieve a variable rate obligation, it elects to issue fixed rate debt (to eliminate the liquidity risk) and enter into a synthetic floating swap where the issuer receives a fixed rate payment from the counterparty and pays a variable rate to the counterparty/swap dealer (see Appendix II for *Examples of Typical Swap Structures*). An issuer could also choose to structure a transaction in this way if it is one of a lesser-rated credit quality and could have a lower all-in interest rate expense by avoiding the fees for a letter of credit (if an available option to enhance its credit quality).

### **Flexibility of Swaps Enhance Their Attractiveness to Issuers**

Generally, swaps can be an attractive means by which municipal issuers can accomplish their hedging goals. As opposed to bonds, swaps have lower issuance costs. In addition, swaps are relatively easy to unwind in the event the issuer chooses to terminate the swap early (including to realize a market gain on the swap contract). Swap documentation can be negotiated and executed before any swap contract is transacted, thus permitting a swift execution of the swap when the issuer opts to do the transaction. If creating a synthetic floating structure in lieu of issuing variable rate debt, the issuer avoids program costs, the need to use internal liquidity or obtain a bank facility to cover liquidity (thereby avoiding facility rollover risk, as well as eliminating the put risk of the liquidity exposure).

## What is an Interest Rate Swap?

An interest rate swap is a contractual agreement between two parties (e.g. the issuer and the counterparty) in which one set of cash flows is exchanged or "swapped" for another set during an agreed-to period of time. It is designed to change the interest rate cash flows related with an asset or liability (the "underlying") without impacting the principal. In the interest rate swap, both parties agree to the rates they will pay one another and the notional (or "principal") amount that will be used as the basis to calculate the amounts due. Although the components of each swap can vary, the typical interest rate swap is one where one party's payments are calculated using a fixed rate while the other party's are calculated using a variable, or floating, rate. Although the cash payments are calculated on the notional amount, there is no actual principal payment paid at any time during the swap period. The fixed rate is fixed for the life of the swap, and the variable rate "floats" with the rate used. The floating rate can be based on any index, with the usual including treasury bills, LIBOR (London Interbank Offer Rate), which is the most frequently used index for taxable transactions and the BMA (Bond Market Association) Municipal Swap Index, usually the benchmark in the municipal market. The counterparty, normally a swap dealer that is typically a commercial bank or subsidiary of an investment bank, recoups its fees for arranging and carrying the swap by adjusting the fixed rate it either pays to or receives from the issuer. Regarding the frequency of swap payments, the cash flows can occur during any predetermined time period (e.g. three, six or twelve month intervals). If both parties' payments are due on the same date, the actual cash payment is settled on a net payment basis - i.e. both cash payments are calculated and netted into a single payment, paid by the party owing the larger amount due to the other swap party. Although an interest rate swap is a contractual obligation, it is not debt.

Swaps are often transacted in conjunction with a bond issuance; however, swaps are not bonds themselves but, rather, a separate contract. The legal documents for the bonds still controls the bondholders' payments, rights and remedies. Therefore, bondholders of "swapped" debt are only indirectly impacted by any interest rate swaps - i.e. impact on credit quality of the issuer by the swap transactions.

## MOODY'S ASSESSMENT OF SWAPS AND THE IMPACT ON ISSUERS

Prior to FASB 133 (a new accounting standard recently implemented for issuers reporting according to FASB and discussed in Appendix III), an issuer's swap transaction and its exposure to interest rate risk was inconsistently disclosed, most often through the long-term debt footnote. Municipal issuers reporting by GASB standards currently continue to have no mandated reporting requirements. However, those issuers following FASB 133 are required to disclose information on the transactions within their financial statements. The disclosure in the notes varies by issuer. The issuer will generally disclose that it has implemented FASB 133 in its discussion of Significant Accounting Policies in the notes to the financial statements. Information on the swap(s) will be disclosed in another note - either in one specifically addressing the derivative activity or within another note (e.g. Long-Term Debt). Disclosure is inconsistent across issuers, ranging from minimal (merely notional amount, maturity date, the amount of any gain or loss reported for the year, as well as the location within the financial statements where the gain or loss is reported) to lengthier notes.

In general, however, financial statement disclosure remains minimal and generally serves as an alert that the issuer has engaged in a swap transaction, as well as if the purpose was to hedge existing or anticipated debt or an investment. Moody's review of swap arrangements, with the assessment of the effect of interest rate swaps on a municipal issuer's credit strength, first begins with determining the materiality of the derivative activity to the issuer's financial resources. The depth of the intensity of the review varies by sector, credit quality of the issuer, and the security for a specific debt (if relevant). Situations where the swap arrangements and transaction details are reviewed include, but are not limited to, housing transactions; structured deals where payments rely specifically on the swap for funding; and credits of lower credit quality, where the availability of sufficient funds to meet payment obligations may be limited.

Probably the most significant determinant of materiality of any swap transactions on the credit quality of the issuer is the exposure of that issuer to the effects of interest rate volatility of variable rate interest. When considering an issuer's vulnerability to the risks of variable rate debt, Moody's considers not only swap transactions, but also all variable rate obligations, in determining materiality. Moody's will look at an issuer's variable debt exposure to determine the impact that large interest rate moves (e.g. a 500 basis point rise) can have on the issuer. While there is no threshold that serves as the trigger to determine materiality of the swap transaction, we focus on the potential increase in cash interest expenses relative to the issuer's total cash flow. The exposure to variable rates also depends upon the issuer's overall financial strength, composition of assets, including cash and investment levels for liquidity coverage, and hedging strategies.

If the swap transactions are considered material, Moody's will review the details of the swap arrangements, including conducting a discussion with the issuer's management to determine what, if any, current or potential credit implications of derivative transactions may exist.

Issues addressed include:

- Management's philosophy regarding risk management and the use of derivatives as part of that strategy, including its exit strategy
- The purpose of the derivative transactions - hedging (either a particular investment or debt ("micro" hedging) or a portfolio ("macro" hedging)) or speculation
- The nature of the derivative transactions, including the structure and terms
- Number of swap transactions and notional values
- Any related debt or asset linked to the transaction
- Interest rates / payment frequencies
- Termination events / Events of Default
- Conditions and thresholds for posting of collateral, if appropriate
- Frequency and source of "mark-to-market" values for its swap transactions
- Determination and monitoring of creditworthiness of the counterparty

The review of an issuer's risk management strategy and the use of derivatives can raise "red flags" requiring further analysis. If the derivative activity is not driven for hedging purposes - whether on a micro or macro basis - Moody's will seek to understand the purpose of the transactions and the impact of the transactions at the time of execution as well as into future reporting periods. An alert is raised if an issuer has little or no understanding as to the purpose of the swap transactions, or if swaps are used for taking advantage of lower short-term interest rates (e.g. entering into a synthetic floating swap) without consideration of the risks inherent in the transaction. Unusual swap structures are scrutinized to determine the effect on the financial results of the issuer, as well as potential risk. An example of one such structure is a swap in which the issuer receives a single, up-front, lump-sum swap payment from the counterparty, then makes regular swaps payments to the counterparty during the term of the swap - effectively a loan that is not recorded as long-term debt on the balance sheet of the issuer. Moody's analyzes such transactions to determine materiality and any potential credit implications on the financial strength of the issuer, and will factor those transactions into the rating of the issuer if considered material.

## **ISDA SWAP DOCUMENTATION SETS MARKET STANDARDS FOR TRANSACTIONS: EXECUTION OF TRANSACTIONS SIMPLIFIED**

Most swap transactions are traded under standard documentation created by ISDA. In the early days of the swap market, the documentation varied across transactions and countries. ISDA developed documentation to set out the terms and conditions for both parties in the contractual agreement, in part to facilitate liquidity in the swap market as well as permit the development of new derivative products that could be documented under the umbrella of the standard agreement. An important driver for a municipal issuer to use ISDA documents is that, once executed, it can immediately execute with the same counterparty additional interest rate swaps or derivative transactions when desired.

The swap documentation sets forth the general terms and conditions that govern the swap transaction, as well as any that are specific to the trade. The documents are:

- *ISDA Master Agreement* (ISDA Agreement) is the primary document for the terms and conditions governing the swaps market. The ISDA Agreement contains the terms for Events of Default, Termination Events, representations and covenants, early termination provisions and payment calculations.
- *Schedule to the ISDA Master Agreement* (ISDA Schedule) specifies what options for the various terms in the Master Agreement have been selected and, therefore, govern the derivative transactions executed under the agreement.
- *Credit Support Annex* (Annex) provides the provisions regarding the mutual posting of collateral, if required under the ISDA Schedule, that is based on the net market values of the cash flows in the swap.
- The *Confirmation* is executed for an individual derivative transaction, detailing the specific terms and conditions applicable to that transaction.

The use of ISDA documentation adequately specifies the terms and conditions of the swap transactions. Further, swap documents can be useful in mitigating risks that issuers face when engaged in swap transactions (see below). Moody's reviews a municipal issuer's ISDA documents for the swap terms, Events of Default and Termination Events that apply to the issuer, as well as any provisions for collateral. In its review, Moody's considers the potential credit implications of the terms agreed to, including the events requiring a collateral call and the cash flow impact if the posting of collateral occurs.

## SWAPS MAY INTRODUCE ADDITIONAL CREDIT RISKS TO MUNICIPAL ISSUERS

Moody's recognizes a number of risks to which municipal issuers are exposed when it enters into a swap. These risks include:

### Termination risk:

*Termination risk* is the risk that a swap will be terminated by the counterparty before maturity. The *issuer* can terminate a swap for a number of reasons, but often does so to take advantage of interest rate changes and monetize the unrealized market value of the swap. Moody's generally assumes that an issuer will not voluntarily terminate a swap unless it makes economic sense and that the issuer has considered the termination payment risk from taking such an action. A swap can only be terminated by the *counterparty* for specified reasons, such as the trigger of a default or termination event. Regardless of why the swap is terminated, a cash payment to settle that swap is calculated based on the assumption that the non-canceling party will immediately seek a replacement swap that mirrors the original swap's economic terms, whether or not it actually will. The cash settlement paid is the market, or termination, value and is determined as the present value of the difference in the fixed cash flows between the original swap and that of the replacement swap for the remaining period of the existing swap.

As the swap termination is often due to the trigger of an Event of Default or termination event, the causes for automatic termination are critical to assessing the potential impact on the issuer. These events can include:

- *Non-payment*
- *Rating trigger from downgrade of counterparty*
- *Bankruptcy*
- *Cross default*
- *Credit event upon merger*
- *Failure to transfer collateral as required*
- *Merger without assumption*
- *Breach of agreement*
- *Illegality*

The responsible party obligated to pay the termination payment depends upon the current interest rates. For example, the City of GH is currently a party to a swap where it pays fixed and receives floating. Due to a recently implemented investment policy, the City no longer is interested in maintaining its synthetic fixed position. If interest rates are lower than the fixed swap rate, GH will make the termination payment to the dealer, essentially to make the counterparty "whole" by compensating the counterparty for the shortfall of future interest rate payments it will not receive with a replacement swap. If interest rates are higher than the fixed rate GH is currently paying in the swap, the City will receive a cash payment for termination settlement.

The issuer is legally bound to honor the terms of the Master Agreement, including the payment of the termination payment even if the swap termination is driven by a counterparty default. In the event the issuer must make a termination payment, Moody's is concerned about the resulting impact on the issuer. Issuers with higher ratings will generally have more liquid balance sheets and, therefore, the ability to absorb any cash payments it would need to make in the event their swaps are terminated and are "out of the money".

Another aspect of risk is if the swap termination is due to the bankruptcy of the counterparty. If the counterparty is the party obligated under the terms of the ISDA Agreement to make the termination payment to the issuer, the termination payment is generally not on parity with debt service payments. Therefore, if a swap counterparty were bankrupt, the issuer would generally stand with the other unsecured creditors when attempting to collect the amount due to it.

When assessing the potential credit impact of a swap on the issuer, Moody's looks to the terms and conditions of the swap documents to determine the materiality of the terms on the cashflow and financial position of the issuer. If material, Moody's considers termination risk and potential losses to the issuer resulting in either a termination payment that would be owed to the counterparty, or the probable loss that would occur if the counterparty was bankrupt and unable to pay the issuer the termination payment owed under the terms of the ISDA Agreement.

### **Counterparty risk:**

*Counterparty risk* is the risk that the swap counterparty (usually a dealer) will be unable to meet its obligations as specified in the ISDA Agreement. The counterparty's creditworthiness can be indicated by any number of Moody's ratings - issuer rating, long-term or underlying debt rating, insurance financial strength rating, or bank deposit rating. In examining the credit risk of a swap transaction, Moody's looks to the rating of the municipal issuer's counterparty to determine the likelihood of default. Generally speaking, most dealers (the usual counterparties in the swap market for municipal issuers) are rated Aa or higher. The risk of a defaulting counterparty is that the issuer will need to obtain a replacement swap issuer. In addition, another concern is for any potential cash payment that the issuer may have to pay to the counterparty to terminate the swap. One mitigant is that payments are netted, thereby reducing the impact of this risk.

An accepted way of limiting credit exposure from a deteriorating counterparty is requiring the counterparty to post collateral in the event of a rating downgrade or if its "out of the money" position (negative fair value of the swap) exceeds some predetermined threshold. Collateral requirements, if a part of the swap agreement, are detailed in the Credit Support Annex, a standardized document by ISDA. During its analysis, Moody's examines the terms of the Annex to determine the potential impact on the issuer of any posting of collateral - both if it is required to post the collateral or in the event the counterparty fails to meet its obligation under the collateral call.

### **Rollover risk:**

As related to swaps, if the swap maturity does not match the maturity of the hedged debt or asset, the issuer is exposed to potential *rollover risk*. If the issuer chooses to enter into another swap transaction to hedge the related debt or asset, the issuer may not be able to have the same counterparty or achieve the same economic benefit with the next swap transaction. If the swap is an integral part of the financing, or the potential impact of the rollover is significant, the potential credit implications on the issuer of rollover risk are assessed by Moody's. An example of rollover risk would be if a municipal entity has issued variable rate debt and entered into a synthetic fixed interest rate swap for a period of time less than the life of the bonds. If at the swap's maturity the issuer elects to maintain a swap to hedge its variable rate risk, it will need to enter into a new swap. If interest rates have risen significantly, the swap will be more expensive and increase the effective interest expense paid.

### **Amortization risk:**

*Amortization risk* is the risk that there are mismatches in the debt and swap amortization schedules, resulting in either the outstanding debt or the swap notional amount not matching. This is particularly an issue in swaps used in housing deals, where either slow or rapid prepayments can create the mismatch. In either situation - i.e. if the issuer has more bonded debt outstanding than covered by the swap or that the bonds outstanding are less than the notional swap amount - the mismatch can create cash flows from the swap that do not meet projections. As appropriate, Moody's will examine the terms of the swap to determine the potential of amortization risk and the impact on the issuer.

### **Basis risk:**

Found generally in a synthetic fixed swap, *basis risk* refers to a potential for a mismatch between the interest cost of the variable rate bonds and the variable rate received from the counterparty under the terms of the swap. The most frequent situation is where there is a structural mismatch between the rate on the outstanding bonds and the indexed rate in the swap transaction (usually the BMA Index). The mismatch in the two variable rates often occurs because of market reasons (the supply of tax-exempt debt) or due to a change in credit quality of the issuer. The result is a net cash differential in the two variable rates either in or against the favor of the issuer, resulting in either a cash receipt or cash payment. The net cash differential (i.e. basis risk) can also occur in a basis swap, which is a swap in which both sides of the swap are priced off of floating rate indices (e.g. BMA vs. 3 month T-bills). In either case, if considered material, Moody's will analyze possible interest rate scenarios to assess the implications of basis risk on the issuer's profile. For example, the rate on the index used by the issuer to determine its swap payments may be rising at a faster rate than the rate paid by the counterparty, causing the issuer to make increasingly larger cash interest payments.

### **Tax event risk:**

*Tax event risk* is the risk that tax laws will change, resulting in a change in the marginal tax rates on swaps and their underlying assets or, in a more extreme situation, remove the tax-exempt status of the issuer and, therefore, its contractual obligations priced as tax-exempt facilities. Although tax event risk is discussed in this report as relating to interest rate swaps, actually all issuers of tax-exempt debt have exposure to this risk. The bond pricing includes a premium for the tax risk that bondholders assume. In a swap, the issuer can choose to either accept or avoid tax risk, with the swap pricing reflecting the issuer's choice. Moody's considers this risk in the course of its credit analysis of tax-exempt issuers and their access to the capital markets if relevant to the credit profile of the issuer or to the security's structure. The stress scenarios used assume a drop in the marginal tax rate from the current rate to a marginal rate of 25% within five years. With the lower marginal tax rate, the relationship between BMA and LIBOR changes - from a historical relationship where BMA is approximately 65% of LIBOR, moving to 75% of LIBOR within five years. The result would be a mismatch in the two payment indices that had existed previously, resulting in basis risk. One item to note is that an issuer with a floating-to-fixed swap with the BMA Index as the floating index will have a hedge against the underlying debt's interest payments, assuming the debt uses the BMA Index for its floating rate, thus eliminating the tax risk for that debt.

## MOODY'S ANTICIPATES NO IMPACT ON CREDIT QUALITY FROM FINANCIAL REPORTING AND ACCOUNTING CHANGES MANDATED BY FASB STATEMENT NO. 133

In 1998, the Financial Accounting Standards Board (FASB) adopted FASB Statement No.133 (FASB 133) - *Accounting for Derivative Instruments and Hedging Activities* - for implementation in calendar year 2001. FASB 133 establishes accounting and reporting standards for entities reporting under FASB guidelines (e.g. not-for-profit hospitals) regarding derivative instruments, with its intent to improve financial reporting transparency of derivatives. Entities reporting under the guidance of the Government Accounting Standards Board (GASB) currently have no such standards. Until FASB 133, swaps (and other derivatives) were purely off-balance-sheet transactions, with no impact on either the balance sheet or the income statement and with minimal, if any, disclosure within the notes of the reporting entity.

Under FASB 133, all derivatives must be recorded on the balance sheet either as an asset or as a liability at fair value or mark-to-market value (depending upon if the derivative is in a gain or loss position). Cash payments both received and paid during the year are netted against and reported with interest expense for the year. Additionally, any unrealized gains or losses in the market value of the derivative must flow through earnings during that period, potentially producing large swings in gains or losses reported on the income statement from one period to the next.

FASB has established criteria to determine if a derivative qualifies as a hedge and therefore can benefit from hedge accounting, a special accounting treatment that eliminates at least in part the earnings impact from unrealized gains and losses in the swap's fair market value. Generally under hedge accounting, an issuer offsets the change in value of a hedge (e.g. a swap) with the change in the value of the underlying debt or investment. The net difference between the two values impact earnings in any one accounting period, resulting in a much smaller gain or loss reported on the income statement and, consequently, less earnings volatility. Appendix III provides a more detailed discussion of the hedges permitted under FASB 133 and the resulting accounting treatment of derivatives.

The repercussions of FASB 133 and its impact on the financial statements of municipal issuers reporting under FASB standards are already being felt in the municipal market with fiscal year 2001 financial results. Many tax-exempt issuers had entered into swap transactions in their attempts to hedge variable or fixed rate debt as a part of their overall debt structure. However, due to the strict criteria imposed by FASB, any municipal swap using the BMA Index as its variable rate index cannot employ the shortcut accounting method that nets the change in market value of the swap against the unrealized gain or loss in the value of the underlying hedged debt. The result is that generally tax-exempt issuers will face significant swings in earnings impact from its swap transactions. For example, two issuers enter into swap transactions that are identically structured. However, Issuer A uses LIBOR as its floating rate index and Issuer B has the BMA Index as its floating rate. Under FASB 133, Issuer A will qualify for the shortcut accounting treatment because LIBOR is an approved index and will report changes in the swap's market value on the income statement net of changes in the value of the underlying debt or investment. Because it used the BMA Index, Issuer B will not qualify and will be required to report the full change in the swap's market value on its income statement. Also, a municipal issuer that used a swap transaction to hedge its overall investment portfolio rather than a specific bond is disqualified from the benefit of the special accounting treatment.

Moody's recognizes that as most municipal issuer's swaps will not qualify for the special accounting treatment, there will be earnings volatility attributable to the new reporting standards. Believing that the fundamental economics of issuers have not changed, Moody's will look beyond the reported financial results to the economic intent of the swap transaction. In the course of our credit analysis of municipal issuers, we may adjust the margin and other relevant ratios, as appropriate, so as to not distort the fundamental operating results of the municipal issuer. As noted previously, Moody's will also assess the swap's impact on the issuer's cash flow to determine the magnitude, materiality, and implications of the transaction.

### CONCLUDING REMARKS

The credit implications of the swap transactions in which municipal issuers engage are incorporated into Moody's rating assessments of the issuers. In general, entering into a swap transaction in and of itself is unlikely to either have a material impact on the credit strength of the issuer or to result in a rating change. Nor will recently implemented accounting standards produce any general rating changes. Rather, the swap transaction, with its underlying economic fundamentals and the credit implications on the issuer, is examined to determine both the materiality to and the impact on the issuer's financial strength. Moody's will continue to monitor the developments in the swap market, including documentation and accounting changes, to determine what, if any, implications such developments might have on municipal issuers.

## APPENDIX I

### GLOSSARY

- Basis risk - movement in the underlying variable rate indices may not be perfectly in tandem, creating a cost differential that could result in a net cash outflow from the issuer. Also, the mismatch that can occur in a swap with both sides using floating, but different, rates.
- BMA Index - The Bond Market Association Municipal Swap Index, the principal benchmark for the floating rate payments for tax-exempt issuers. The index is a national rate based on a market basket of high-grade, seven-day tax-exempt variable rate bond issues.
- Cash flow hedge - a hedge to the variable cash flows of an existing recognized asset or liability or forecasted transaction (generally a synthetic fixed swap).
- Counterparty risk - the risk that the other party in the derivative transaction fails to meet its obligations under the contract.
- Fair value hedge - a swap or other derivative that hedges exposure to changes in the fair value of existing recognized asset or liability or a firm commitment (generally synthetic floating swap).
- FASB Statement 133 - issued by the Financial Accounting Standards Board (FASB), Statement 133 requires companies that report according to GAAP to include the fair value (i.e. mark-to-market) of their derivative positions on their balance sheet.
- Hedge - a transaction entered into to reduce exposure to market fluctuations.
- Interest rate swap - a transaction in which two parties agree to exchange future net cash flows based on predetermined interest rate indices calculated on an agreed notional amount. The swap is not a debt instrument between the issuer and the counterparty, and there is no exchange of principal.
- ISDA - International Swap Dealers Association, the global trade association with over 550 members that include dealers in the derivatives industry.
- ISDA Master Agreement - the standardized master agreement for all swaps between the Issuer and the dealer, that identifies the definitions and terms governing the swap transaction.
- Long-dated swap - a swap with a term of more than ten years. Often used in the municipal market, as issuers often prefer to use a hedge that matches the maturity of the underlying debt or investment.
- LIBOR - the principal benchmark for floating rate payments for taxable issuers. The London Inter Bank Offer Rate (LIBOR) is calculated as the average interest rate on Eurodollars traded between banks in London and can vary depending upon the maturity (e.g. one month or six months).
- Mark-to-market - calculation of the value of a financial instrument (like an interest rate swap) based on the current market rates or prices of the underlying (i.e. the variable on which the derivative is based).
- Termination risk - the risk that a swap will be terminated by the counterparty before maturity that could require the issuer to make a cash termination payment to the counterparty.

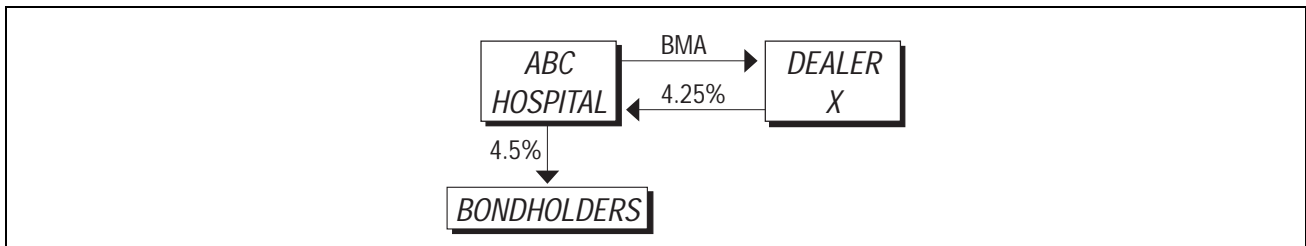
## APPENDIX II

### Examples of Typical Swap Structures

#### Synthetic floating (fixed to floating) swap:

ABC Hospital is issuing \$20 million of 20 year fixed rate bonds at 4.5% interest payable semi-annually; however, it sees an opportunity for potential interest cost savings with the current low short-term rates in the municipal market. The Hospital is not comfortable with the "put" risk of the tender bonds and dealing with the remarketing of the bonds. However, it neither wishes to pay for a bank liquidity facility nor wants to dedicate any of its internal liquidity to meet the tender features of the variable rate demand obligations. Instead, ABC Hospital believes that with an interest rate swap in which it receives a fixed rate payment and pays a variable rate payment it will pay a comparable interest rate versus that incurred if it had issued variable rate debt directly, while also avoiding its liquidity concerns. In addition, the Hospital will gain the flexibility to unwind the swap in the future if it no longer wants to have variable rate debt or wishes to realize any cash market gains that might result from a change in interest rates.

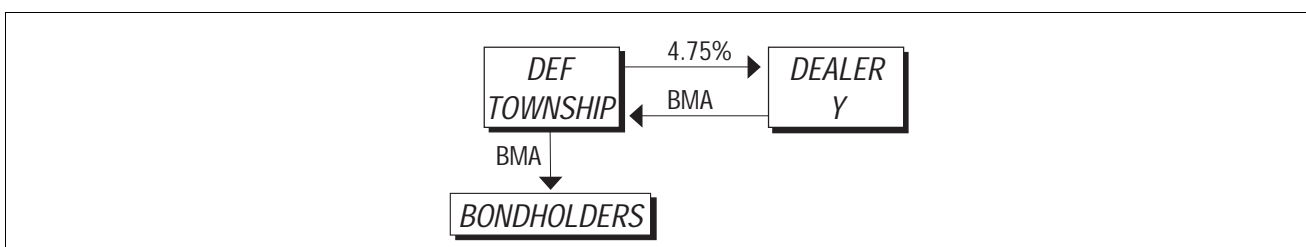
The Hospital decides to enter into an \$20,000,000 notional interest rate swap with Dealer X. The swap is for 20 years and during that time ABC agrees to pay the BMA Index to Dealer X and in return will receive 4.25% from the dealer. All payments are made semi-annually on the same dates. (The rate paid to ABC by Dealer X has been derived from fixed rates in the BMA Index swap market, adjusted for bid/offer dealer spread). The two payments are separately calculated, then netted to determine the cash payment that must be made. For example, if on December 1 (the date of the swap payment) the BMA Index is 1.75%, a semi-annual net payment of \$250,000 (\$20,000,000 swap notional times the difference in the interest rates for six months  $((4.25\% - 1.75\%)/2)$ ) is due **from Dealer X to ABC Hospital**. ABC is still legally obligated to make the 4.5% fixed rate interest payment to bondholders. However, with the interest rate swap, the Hospital has lowered its effective annual interest rate to 2% (i.e.  $4.5\% + 1.75\% - 4.25\%$ ) over the period, while accepting the risk that interest rates may rise in the future.



#### Synthetic fixed (floating to fixed) swap:

Last year, DEF Township issued \$20 million of 20-year variable rate demand obligations that are expected to closely match the BMA Index for the variable rate. However, the Township would like to be able to budget for its interest rate expense for the short term, and expects interest rates to rise within the next 18 - 24 months, thus increasing its interest expense. The Township could refund its variable rate debt by issuing fixed rate debt. However, DEF has sufficient internal liquidity to meet the put risk of its debt, and is willing to bear the risk inherent with its variable rate debt. Analyzing its options, DEF believes that under the current and expected interest rate environments, it can achieve greater overall interest savings by entering into an interest rate swap effectively converting its debt from variable rate to fixed rate.

The Township enters into a \$20 million notional two-year swap with Dealer Y in which DEF receives the BMA Index and commits to paying 4.75% to Dealer Y. Payments by both parties are made semi-annually on the same dates. If on December 1 (the date of the swap payment) the BMA Index is 1.75%, the semi-annual net payment due **from DEF Township to Dealer Y** under the swap term is \$300,000 (\$20,000,000 swap notional times the difference in the interest rate for six months  $((4.75\% - 1.75\%)/2)$ ). As with ABC, the Township remains legally obligated to pay its interest payments to bondholders of the BMA Index (for December 1, \$175,000). With the swap, DEF is incurring an effective interest rate of 4.75% for fixed rate funding ( $1.75\% + 4.75\% - 1.75\%$ ). Although higher than what it might pay if it opted to issue fixed rate debt to refund its variable rate debt, DEF is satisfied that it has locked in a fixed rate of interest for the time period it desires without the hassle or expense of issuing debt. In addition, DEF retains the flexibility to unwind the swap easily and inexpensively in the future if it desires.



## APPENDIX III

### ACCOUNTING TREATMENT FOR HEDGES USED BY MUNICIPAL ISSUERS AS OUTLINED IN FASB 133

Under the required reporting and accounting treatment, swaps will now impact the income statement and the balance sheet. However, Moody's looks beyond the accounting to the underlying economic reality of the swaps. Although the swings in reported earnings due to unrealized gains or losses from derivatives can be dramatic (reflecting a volatile interest rate environment), the reported changes in value are unrealized and for hedging transactions usually would not impact the issuer unless the swap is terminated. In fact, if a swap is used for hedging purposes and runs to maturity, the unrealized gains and losses recognized on the income statement and balance sheet should ultimately offset each other. Although a termination can be at the issuer's initiative, the occurrence of an Event of Default due to counterparty default is considered remote as swap counterparties normally are of high credit quality. Therefore, Moody's will generally not consider the changes in the swap values (with the resulting impact on the income statement or balance sheet) to have a real economic or financial impact unless the specific circumstances suggest that there is the likelihood of a permanent position that results in material cash inflows or outflows.

An issuer uses a derivative to hedge against the impact that interest rate volatility may have on its underlying investment or debt. Generally, if an issuer holds fixed rate investments or has issued fixed-rate debt, it will experience changes in the fair, or market, value of those investments or debt from interest rate movement - e.g. the value of the investment declines as interest rates rise. If an issuer holds variable rate investments or has issued a variable rate debt issue, subsequent interest rate fluctuations affect the related cash flows the issuer would actually receive or pay.

FASB 133 dictates the accounting treatment of swaps and how they should be reported in the financial statements. For all swaps, cash payments and receipts from the swap are normally netted and reported as interest expense or income, as appropriate. Disclosure in the notes to the financial statements may indicate how many swaps the issuer has and their nature, as well as where within the financial statements the impact of the unrealized gains or losses is reported. However, there is generally no breakout of the normal cash flows received under the swap terms. Therefore any large swings in interest rate expense or income may be examined to determine the drivers for the changes. Specific terms of unusually structured swaps (i.e. a swap that is not a "plain vanilla" swap) would need to be obtained from the municipal issuer and then examined to determine if there is any impact on the financial position and, possibly, credit quality of the issuer.

#### **Accounting Treatment Dictated by Hedge Type:**

An issuer may use a special accounting treatment if the swap hedges (1) the exposure to changes in fair value of an asset, liability or a firm commitment (hedged item) attributable to a particular risk or (2) the exposure to variability in expected future cash flows that is attributable to a particular risk.

If a fixed-to-floating swap meets the conditions specified in FASB 133 for a fair value hedge, the issuer can offset the gain or loss on the mark-to-market value of the swap against the change in market value attributable to the hedged risk of the underlying asset or liability and then report that net difference on the income statement as a Non-Operating Gain or Loss. As the movement in the swap value and the underlying value will be in opposite directions, the net result of the changes in values flowing through the income statement is a much lower number, therefore resulting in lower volatility in earnings. The fair value hedge can be used if, both at inception of the hedge and on an ongoing basis, the hedging relationship is expected to be highly effective in achieving offsetting changes in fair value attributable to the hedged risk during the period that the hedge is designated. Additionally, special "shortcut" method accounting is permitted for certain interest rate risk hedges when the index on which the variable leg of the swap is based matches the benchmark interest rate - either the Treasury rate or the LIBOR swap rate. *Since the variable leg on all BMA swaps (i.e. the vast majority of the municipal swap market) is not based on Treasury rates or the LIBOR swap rate, the shortcut method is not permitted in those situations.*

If a floating-to-fixed swap meets the conditions specified in FASB 133 for a **cash flow hedge**, the change in the swap's mark-to-market value is calculated; in addition, the change is examined to determine how much of the results are "effective" and "ineffective". The *effective* component of the swap results (i.e. the amount considered matched against the forecasted cash flow of the hedged debt or investment) is initially posted to the issuer's equity (unrestricted net assets, fund balance or other equity account, depending upon the industry sector and reporting practices) as "other comprehensive income" or an addition to equity for the current period. The deferred gain will later be reclassified to revenue in the same time period when forecasted cash flows are recognized as earnings. The *ineffective* portion of the change in value is realized in current income as an unrealized gain or loss on the Income Statement or Statement of Activity reported below "Excess of Revenues and Expenses".

If the derivative transaction does not meet the conditions for either a fair value or cash flow hedge (even if used to hedge an underlying investment or debt), FASB considers that the derivative has been used for **speculative purposes**. Therefore, the issuer must report the changes in the value of the derivative (i.e. the gains or losses in market value) on the income statement as Non-Operating Gain or Loss, without any benefit of netting or deferral.

**Impact of Interest Rates on Market Value:**

For reporting purposes, the market value of a swap is essentially determined by calculating what the issuer owes to, or receives from, the counterparty if the swap is terminated (either by the issuer or through the occurrence of a Termination Event or Event of Default). That value, like the valuation of bonds, is driven by the measurement of the movement of interest rates against the terms of the existing swap. The effect of interest rate movements on the fair value of the swap, with the ultimate position of unrealized gain or loss at the time of valuation, is summarized below.

	Interest Rates Increase	Interest Rates Decline
<b>Fixed to Floating</b>	Issuer owes Counterparty if swap is terminated. Issuer recognizes Unrealized Loss and a current liability (e.g. Swap Payment Payable).	Counterparty owes Issuer if swap is terminated Issuer recognizes Unrealized Gain and current asset (e.g. Swap Payment Receivable).
<b>Floating to Fixed</b>	Counterparty owes Issuer if swap is terminated. Issuer recognizes Unrealized Gain and current asset (e.g. Swap Payment Receivable).	Issuer owes Counterparty if swap is terminated. Issuer recognizes Unrealized Loss and currently liability (e.g. Swap Payment Payable).

**Summary of Swap Reporting as Required by FASB:**

The impact of the FASB requirements on a municipal issuer's financial results differs significantly, depending upon the type of swap in question (i.e. fixed-to-floating or floating-to-fixed) and if the hedge is reported as a fair value, cash flow or speculative hedge. Exhibit I illustrates the reporting differences across these scenarios in environments of both rising and falling interest rates. The assumptions used for the scenarios were that the issuer entered into a \$100 million swap of a 30-year maturity, with a fixed-rate leg of 6% and a variable rate leg of 3% (at the time of inception). In addition, the issuer that enters into a fixed-to-floating swap is hedging fixed rate debt with a 6% coupon; the issuer entering into a floating-to-fixed swap is hedging its variable rate debt that is currently paying 3% interest. The scenarios demonstrate (for illustrative purposes) a summarized income statement for the issuer at times of rising and falling interest rates and under the various reporting possibilities (i.e. fair value hedge, cash flow hedge, or speculative hedge).

The scenarios produce the following:

- **Base Case (no change in interest rates):**
  - **Fixed-to-Floating:** The issuer is paying \$6.0 million of interest to its bondholders; under the swap terms, it receives \$6.0 million for its fixed-rate payment from the counterparty and pays \$3.0 million (reflecting the current rate for the variable index). The issuer recognizes \$3.0 million of effective interest expense (\$6.0 - \$6.0 + \$3.0) for the year.
  - **Floating-to-Fixed:** The issuer is paying \$3.0 million of interest to its bondholders (with the current 3% variable rate for the debt); under the swap terms, it receives \$3.0 million for its floating-rate payment from the counterparty and pays \$6.0 million for its fixed-rate payment. The issuer recognizes \$6.0 million of effective interest expense (\$3.0 - \$3.0 + \$6.0) for the year.
- **Interest Rates Rise 100 BPs (assume 5 years from inception):**
  - **Fixed-to-Floating:**
    - For interest expense, the issuer now reports \$4.0 million for the period (\$6.0 paid to bondholders, less \$6.0 million received from the swap counterparty, plus \$4.0 million paid to the counterparty, based on \$100.0 million notional times the 4% variable interest rate).
    - In addition, the increase in interest rates results in a \$11.0 million unrealized loss on the swap, and a \$10.0 million unrealized gain on its outstanding debt. Because the hedged debt is fixed-rate, the issuer may qualify for the conditions of a fair value hedge or may be required to report its swap as an unhedged (i.e. speculative) transaction. If the conditions of the fair value swap and the accounting shortcut treatment are met, the issuer can offset the swap loss with the gain on the debt, recognizing a net \$1.0 million unrealized loss that is recognized on the income statement for the period. If the swap does not qualify for the accounting shortcut treatment, the issuer must separately report the unrealized loss on the swap on the income statement.

- Floating-to-Fixed:
- For interest expense, the issuer continues to report \$6.0 million for the period (\$4.0 paid to bondholders, less \$4.0 million received from the swap counterparty, plus \$6.0 million paid to the counterparty).
- The increase in the interest rate produces a \$13.0 million unrealized gain on the swap. Because the debt hedged is variable rate, the issuer may qualify for the conditions of a cash flow hedge or may be required to report its swap as an unhedged derivative transaction. If the conditions of the cash flow hedge are met, the issuer will recognize the \$13 million unrealized swap gain on its balance sheet as an increase to its equity (as Other Comprehensive Income, as Unrestricted Net Assets or another equity title). If the swap does not qualify as a cash flow hedge, the issuer must report the unrealized gain on its income statement for the year.
- Interest Rates Decline 100 BPs (assume 5 years from inception):
- Fixed-to-Floating:
- For interest expense, the issuer now reports \$2.0 million for the period (\$6.0 paid to bondholders, less \$6.0 million received from the swap counterparty, plus \$2.0 million paid to the counterparty, based on \$100.0 million notional times the 2% variable interest rate).
- In addition, the drop in interest rates results in a \$11.0 million unrealized gain on the swap, and a \$10.0 million unrealized loss on its outstanding debt. If the conditions of the fair value swap and accounting shortcut treatment are met, the issuer is able to offset the swap gain against the loss on the debt, recognizing a net \$1.0 million unrealized gain that is recognized on the income statement as part of net income for the period. If the swap does not qualify for a fair value hedge, the issuer must recognize the \$11.0 million unrealized gain on the swap on the income statement for the period.
- Floating-to-Fixed:
- For interest expense, the issuer continues to report \$6.0 million for the period (\$2.0 paid to bondholders, less \$2.0 million received from the swap counterparty, plus \$6.0 million paid to the counterparty).
- The interest rate decline produces a \$13.0 million unrealized loss on the swap. If the conditions of the cash flow hedge are met, the issuer will recognize the \$13 million loss as a decrease to its equity. If reported as a speculative hedge, the issuer must report the \$13.0 million loss on its income statement for the year.

In examining the results, it is clear that the reported results swing widely under the speculative reporting format. However, the swap driving the results must be examined before any interpretation of the results can occur. Under FASB, a swap must be reported as a speculative hedge if it is not hedging an underlying investment or debt. However, it must also report as a speculative hedge any derivative that may be used to hedge an underlying investment or debt but is not highly effective (according to FASB, meeting 80-120% of the potential volatility that the underlying can experience in either fair value or cash flow). An example of a derivative that is hedging an underlying investment or debt but is not highly effective is an outstanding variable rate bond that is paying BMA, but is hedged by a swap that has LIBOR as the index for the variable leg. Therefore, an understanding of the purpose of the swap and an analysis of the reported results are required before determining what, if any, effect the transaction has on the credit profile of the issuer. Generally, the results related to actual speculative transactions will have a current economic impact on the issuer that is factored into the credit analysis as the financial impacts will not "wash" by the end of the swap term.

However, the unrealized gains and losses resulting from swaps used for hedging purposes should generally have minimal impact on the credit quality of the issuer. The immediate impact on the effective interest rate is captured in the "interest expense" line on the income statement for the period for all types of hedges. FASB 133 requires the recognition of unrealized gains and losses on the swap and the underlying that should, if the swap is held to maturity, offset each other. For a fair value hedge, the net amount reported on the income statement should be minimal and generally can be disregarded. A cash flow hedge will not affect the income statement; however, the issuer's equity may need to be adjusted to exclude the swap's gains or losses from the equity for ratio calculation. However, if the gains or losses relative to the equity are significant, Moody's will determine the factors driving the reported changes to determine if they require further explanation and inclusion in our credit analysis.

## EXHIBIT I

<b>BASE CASE</b>					
<div style="text-align: center;"> <b>\$100 M NOTIONAL SWAP</b>  <b>30 YEAR MATURITY</b>  <b>FIXED LEG - 6%</b>  <b>FLOATING LEG - 3%</b>    <b>Fixed to Floating Swap</b> <span style="float: right;"><b>Floating to Fixed Swap</b></span> </div>					
Underlying - 6% Fixed Rate Debt			Underlying - 3% Variable Rate Debt		
	Fair Value	Speculative		Cash Flow	Speculative
<i>Total Revenues</i>	100.00	100.00	<i>Total Revenues</i>	100.00	100.00
<i>Interest Expense</i>	3.00	3.00	<i>Interest Expense</i>	6.00	6.00
<i>Other Expenses</i>	80.00	80.00	<i>Other Expenses</i>	80.00	80.00
<i>Operating Gain (Loss)</i>	17.00	17.00	<i>Operating Gain (Loss)</i>	14.00	14.00
<b>5 YEARS LATER</b>					
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>INTEREST RATES RISE 100 BP</b>  <b>Underlying - 6% Fixed Rate Debt</b>  <b>Unrealized Loss on Swap - 11.0 M</b>  <b>Unrealized Gain on Debt - 10.0 M</b> </div> <div style="width: 45%;"> <b>Underlying - 4% Variable Rate Debt</b>  <b>Unrealized Gain on Swap - 13.0 M</b> </div> </div>					
	Fair Value	Speculative		Cash Flow	Speculative
<i>Total Revenues</i>	100.00	100.00	<i>Total Revenues</i>	100.00	100.00
<i>Interest Expense</i>	4.00	4.00	<i>Interest Expense</i>	6.00	6.00
<i>Other Expenses</i>	80.00	80.00	<i>Other Expenses</i>	80.00	80.00
<i>Operating Gain (Loss)</i>	16.00	16.00	<i>Operating Gain (Loss)</i>	14.00	14.00
<i>Less Unrealized Loss</i>	(1.00)	(11.00)	<i>Plus Unrealized Gain</i>	-	13.00
<i>Net Income</i>	15.00	5.00	<i>Net Income</i>	14.00	27.00
<i>Below the Line</i>			<i>Below the Line</i>		
<i>Adjustment to Equity</i>	-	-	<i>Adjustment to Equity</i>	13.00	-
<b>5 YEARS LATER</b>					
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>INTEREST RATES DECLINE 100 BP</b>  <b>Underlying - 6% Fixed Rate Debt</b>  <b>Unrealized Gain on Swap - 11.0 M</b>  <b>Unrealized Loss on Debt - 10.0 M</b> </div> <div style="width: 45%;"> <b>Underlying - 2% Variable Rate Debt</b>  <b>Unrealized Loss on Swap - 13.0 M</b> </div> </div>					
	Fair Value	Speculative		Cash Flow	Speculative
<i>Total Revenues</i>	100.00	100.00	<i>Total Revenues</i>	100.00	100.00
<i>Interest Expense</i>	2.00	2.00	<i>Interest Expense</i>	6.00	6.00
<i>Other Expenses</i>	80.00	80.00	<i>Other Expenses</i>	80.00	80.00
<i>Operating Gain (Loss)</i>	18.00	18.00	<i>Operating Gain (Loss)</i>	14.00	14.00
<i>Plus Unrealized Gain</i>	1.00	11.00	<i>Less Unrealized Loss</i>	-	(13.00)
<i>Net Income</i>	19.00	29.00	<i>Net Income</i>	14.00	1.00
<i>Below the Line</i>			<i>Below the Line</i>		
<i>Adjustment to Equity</i>	-	-	<i>Adjustment to Equity</i>	(13.00)	-





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