

# Bond Math 1 Questions 9/30/11

1. How is the Premium Calculated?

*The premium is the amount of bond proceeds above par. It is generated when bonds are sold with coupons that are higher than the yield to investors. The actual calculation is:  $(Price/100) \times Par$  Amount of Bonds. The calculation is done on a maturity-by-maturity basis and then the total amount of the premium on a bond deal is the sum of the premium on each maturity. Here's an example using the first maturity on page 19 of the presentation – the premium is \$40,738.70.*

*Step 1:  $\$1,315,000 \times 103.098/100 = 1,355,738.70$*

*Step 2:  $\$1,355,738.70 - \$1,315,000 = \$40,738.70$*

*Another way to think about it is  $(Price - 100) * Par$  Amount or:*

*Step 1:  $103.098 - 100 = 3.098$*

*Step 2:  $3.098/100$*

*Step 3:  $.03098 * \$1,315,000 = \$40,738.70$*

2. Can an administrative fee be included in the Cost of Issuance? If so, what would be an acceptable percentage?

*Some issuers do include an administrative fee. We would suggest that you consult with bond counsel for an acceptable percentage or guidelines for determining the amount.*

3. How is the Net Premium calculated?

*The Net Premium is Total Premium minus Total Discount. The calculation of premium is described in our response to Question 1. The calculation of discount is done the same way, but is for bonds where the coupon on a maturity is less than the yield to investors. After calculating the total premium and the total discount – the net premium is just the difference between the two. If there is more discount than premium, there would be a Net Discount, not a Net Premium.*

4. On Slide 25, Why does the Debt Service schedule show the total principal amount paid as \$13,465,000 and not \$47.8m?

*The schedule got cut off – it should say \$47.8 million. **Slide fixed for posting to website after webinar.***

5. Can you describe the difference between term and serial bonds in terms of yield and coupon?

**Serial Bonds.** *The principal amounts on a serial bond are repaid on a single date and each serial bond would have its own maturity, a coupon and a corresponding yield. Assuming we have five serial bonds in 2032-2036, each maturity would have a different coupon and corresponding yield. An investor would know exactly when it would get its principal back.*

**Term Bonds.** *Alternatively, term bonds consist of multiple principal repayment dates which are combined or “termed” up into one term bond with one coupon and one yield and a final maturity. Using the example above, the final maturity would be 2036 and there would be five annual sinking fund or debt service payments consisting of principal and interest through the maturity date. If an investor purchases a portion of a term bond, they don’t know when within 2032-2036 they will have their principal repaid. Once the issuer makes the sinking fund payment, the trustee determines through a lottery whose bonds are paid off.*

6. What is “sinking fund redemption”?

*Sinking fund redemption refers to the annual debt service payments (principal and interest) that are required to be made by the issuer on term bonds. After the issuer makes its debt service payment, the trustee will do a lottery to see which investors will have all or a portion of their principal repaid.*

7. For the reserve fund requirement, is it 10% of proceeds versus 10% of par on the 3 pronged approach for DSRF?

*The reserve fund requirement referred to above is the maximum permitted under tax law. Under tax law, the 3-pronged test refers to 10% of proceeds except when proceeds are approximately equal to par (i.e., within 2%), then tax law specifies that 10% of par should be used instead. Bond indentures may use other requirements for tax-exempt bonds as well, as long as the amount funding the DSRF does not exceed the maximum allowed under the 3-pronged tax test.*

8. What can be done if the cost of the project exceeds the originally projected cost?

*If the cost of the project exceeds the original bond proceeds, an issuer can potentially sell more bonds (or get another form of a loan) subject to an additional bonds test, if there is one under the legal documents or contribute cash/equity. The issuer may be required to return for governing body approval depending on an issuer’s organizational structure.*

9. If a premium increases bond proceeds. I assume these proceeds are not in the sources and uses portion of the OS. Are there restrictions on the way this type of proceeds may be used?

*Premium does increase bond proceeds and is typically included in the sources and uses of a bond offering and applied in the same manner as other proceeds of a bond issue. However, the legal uses of the proceeds derived from the premium varies for different types of issuers and different types of bonds and issuers have different policies with respect to the generation and use of premium. As a result, an issuer should consult with its bond and tax counsel.*

10. Is the sinking fund considered part of the debt service?

*Yes, sinking fund payments are debt service payments.*

11. What's the best approach for an issuer, who doesn't have access to a desk, to take an order to produce a scale to model a financing? Assuming the issuer is preliminarily scanning refunding candidates prior to engaging an FA or UW.

*If an issuer subscribes to the Bond Buyer, our daily industry newspaper, there are generic interest rate scales for various rating categories that could be used. However, these would not be specific interest rate scales that would accurately reflect the specific credit and structure of a given financing. Qualified public finance professionals use their access to recent primary bond offerings, query market participants and monitor trading activity to derive more timely and accurate interest rate scales. A practical solution would be to engage a general financial advisor that you could tap on an as-needed basis.*

12. What are the canned software programs that the speakers recommend for making bond calculations?

*DBC Finance and Munex are two software programs which are capable of making bond calculations, although it is also possible to build models in Excel to make these calculations.*