

11.437 Financing Economic Development Fall 2013
Municipal Debt Financial Analysis Worksheet: Orlando TIF Case

This worksheet addresses the calculation and structuring of municipal bonds with information from the Orlando TIF Case Study, in *Economic Development Finance*, pp. 358 to 363. In short, the city of Orlando has established a TIF district for its downtown and is looking to use TIF revenue to raise \$19 million to fund infrastructure improvements needed to attract new private investment to the downtown. This worksheet addresses how to calculate the supportable debt based on a serial bond structure and the projected TIF revenue and use of a capitalized interest reserve.

Municipal debt often uses a serial bond structure with annual principal payments that vary in amount each year and have a different interest rate for each maturity. To determine the amount of principal that can be raised under a serial bond structure with a projected revenue stream, it is necessary to work backwards from the last maturity to sequentially calculate the bond principal amount for each year, using the following formula:

$$P_n = (CF_n - \text{Interest on future principal}) / (1 + i_n)$$

P_n = the bond principal amount for year n

CF_n = cash flow available for debt service in year n

i_n = interest rate for the serial bond in year n

Interest on future principal = the interest paid in year n for bond principal maturing in later years

Since there is no future principal (and thus no interest to pay for them), the principal amount for the final bond maturity is simply the final year cash flow available for debt service divided by 1 plus the interest rate for that serial bond. For the second to last maturity, the interest payment on the final bond principal must first be subtracted from cash flow and the resulting value divided by (1 + i) to determine bond principal for that year. For the third to last maturity, interest on the next two bond maturities must be subtracted and then the remaining cash flow used to determine principal amount for that year, and so on.

Based on an analysis of planned development in the downtown Orlando TIF district, the projected tax increment payments to the district over ten years were forecast as follows:

Year	Projected Tax Increment	Tax Increment Paid to District (.95)
1983	\$791,000	\$751,450
1984	\$990,000	\$940,500
1985	\$1,247,000	\$1,184,650
1986	\$2,390,000	\$2,270,500
1987	\$3,003,000	\$2,852,850
1988	\$3,658,000	\$3,475,100
1989	\$4,483,000	\$4,258,850
1990	\$6,320,000	\$6,004,000
1991	\$7,112,000	\$6,756,400
1992	\$8,000,000	\$7,600,000

Total	\$37,994,000	\$36,094,300
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To successfully borrow funds, the district has been advised that it will need a 1.40 minimum debt service coverage ratio (DSCR) on any bonds sold and thus principal and interest payments must fall within this 1.40 ratio. Calculate the cash flow available for debt service based on the 1.40 DSCR :

Year	Cash Flow Available for Debt Service form District Tax Increment
1983	
1984	
1985	
1986	
1987	
1988	
1989	
1990	
1991	
1992	
Total	

Assuming a constant interest rate of 10% for each maturity, calculate the supportable principal amount for each year and then determine the total debt service for each year, i.e., the principal paid that year plus interest paid on both that year's bond principal and all bond principal maturing in future years.

Year	Principal Amount	Interest Payment	Total Debt Service	Cash Flow Available for Debt Service	Cash flow shortfall/ capitalized interest
1983					
1984					
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
Total					

Debt service is usually equal to (or below) the cash flow available for debt service in that in that year but since there tax increment grows slowly, there is insufficient cash flow to cover the minimal debt service needed in any year to at least meet interest payments . When interest payments exceed the cash flow available from tax increment revenue, a reserve is needed to fund the amount by which interest payments exceed cash flow available for debt service.

What is the amount of the required capitalized interest reserve for the ten year bond issue?

Since this capitalized interest reserve cannot fund infrastructure improvements, it needs to be deducted from the total principal raised to determine the net bond proceeds that the Orlando TIF District will have to fund its \$19 million capital plan.

After deducting the capitalized interest reserve, how much money is left for capital improvements:

What percent of the total bond principal is needed for the capitalized interest reserve? _____

With the net proceeds from a ten year bond sale below the required \$19 million, one option to raise more funds is to increase the length of the bond series, i.e., add several more years of new principal to the bond sale. Assuming that the tax increment continues to increase by 10% each year and the district extends the length of the bond issue to 13 years (to 1995), what is the new schedule of bond principal, interest payments and capitalized interest?

Year	Principal Amount	Interest Payment	Total Debt Service	Cash Flow Available for Debt Service	Cash flow shortfall/ capitalized interest
1983					
1984					
1985					
1986					
1987					
1988					
1989					
1990					
1991					
1992					
1993					
1994					
1995					
Total					

Do you recommend that Orlando proceed with this 13 year TIF financing? Explain the reasons for your recommendation.

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