A Budgeting Guide for Local Government, 3rd edition

Excel Exercise #4
Chapter 10, The budget cycle: Accounting and auditing

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Background
The goal in this exercise is to examine the impact of debt service on the operating budget. The exercise uses forecasted increases in the property tax base to evaluate the effect of two simple debt service repayment scenarios on operating tax revenues and the available operating tax rate.

The first schedule uses a level repayment of debt service and the second uses a decreasing repayment of debt service. Using these schedules, comparisons can be made to evaluate the potential impact of this bond issue on the city's tax rates and operating budget.
Both schedules assume a constant 2% growth in the tax base annually and the calculations can be applied to both tabs.

The equations in the exercise are as follows:

- Increasing Tax Base: = (Tax base amount x 1.02) after the first year.
- Operating Property Taxes: = (Tax Base/100 x Operating Property Tax Rate)
- Total Taxes: = (Debt Service + Operating Property Taxes)
- Debt Service Property Tax Rate: = (Debt Service / (Tax Base/100))
- Available Operating Tax Rate: = (0.4 – Debt Service Property Tax Rate)

Column widths and number formatting should adjusted throughout the exercise for proper display.

Tasks
Task #1: Calculate the tax base with an annual increase of 2%:

The amount in (J10) should be 500,000,000 for year one. The equation in (J11) should look like =(J10*1.02), then copy the equation in (J11) down the column through year 20. The (1.02) multiplier in the equation increases the tax base by 2% each year.

Label the column "Tax Base with 2% Incr.".

SAVE the worksheet.

Task #2: Calculate the Operating Property Taxes:

The equation in (K10) should look like: =(J10/100)*0.4, then copy the equation down the column through year 20. The operating property tax base is calculated by dividing the tax base by $100 dollars of valuation and then multiplied by operating property tax rate of 0.4.

Label the column "Operating Property Taxes"

SAVE the worksheet.

Task #3: Calculate the Total Taxes:

The equation in (L10) should look like: =(I10+K10), then copy the equation down the column through year 20. Total taxes are debt service (P&I) added to the operating property taxes.

Label the column "Total Taxes".

SAVE the worksheet.

Task #4: Calculate the Debt Service Property Tax Rate:

The equation in (M10) should look like: =(I10/(J10/100)), then copy the equation down the column through year 20. The debt service property tax rate is the debt service divided by the tax base divided by 100.

Label this column "Debt Service Property Tax Rate"

SAVE the worksheet.

Task #5: Calculate the Available Operating Tax Rate:

The equation in (N10) should look like: =(0.4-M10), then copy the equation down the column through year 20. The available operating tax rate is debt service tax rate subtracted from the operating property tax rate.

Label this column "Available Operating Tax Rate"

SAVE the worksheet.

Once the columns have been populated through year 20, the columns can be applied to the "Decreasing" debt service tab worksheet. Copy the newly calculated columns to the other debt service tab in the worksheet.

Highlight columns "J" through "N" on the "Level" tab and select "COPY". Click on the "Decreasing" tab and click on cell (J1) and select PASTE. The equations from the "Level" tab should now be copied to the "Decreasing" tab.

Discussion:

1. How do annual debt service payments affect the amount of revenue available for operating purposes? Which of the two scenarios for retiring this $20 million bond issue gives the city the greatest flexibility in meeting its operating obligations?

2. As the budget analyst, what advice would you give the manager on whether to issue this debt and what repayment scenario should be used? Are there alternative repayment scenarios that would provide more flexibility on the availability of property tax revenue in future years?

3. How much in reserves for debt service would you advise this city to have for this bond issue? Justify your recommendation.

4. Is it valid to claim in public statements that this bond issue will "pay for itself?"

5. What effect does stagnant growth in the property tax base (i.e. 0% increase in the tax base) have on the city's property taxes for operations? How realistic is it for this city to hold to no change in its overall property tax rate of $0.40 per $100 assessed value if it proceeds with this bond issue?