Financial Modeling for a run-down apartment complex

1) Analyze the purchase of a run-down apartment complex, West Ridge North. Streit is interested in buying this property because they believe they can renovate it and make it one of the best places to live in Downtown Detroit. Before Streit buys it, they must review the financial information and determine if it's a good investment.

- Rental income is strictly related to collecting rent from tenants. In real estate, its common to show the total potential rent of the entire property, then subtract any uncollected rent, either from non-payments or vacancies.

Total Rental Income = Net Potential Rent + Vacancy + Delinquency

- Operating expenses are any expenses related to running the day-to-day operations of the business.

Total Operating Expenses = Repairs & Maintenance + Turn Expenses + Utilities (Vacancy) + Salaries and Wages + Taxes

- Net operating income (NOI) is the income leftover after paying all expenses related to running the day-to-day operations of the business.

Net Operating Income = Total Rental Income + Total Operating Expenses.

- Capital expenditures are any expenses related to acquiring or renovating the property. Essentially, capital expenditures are investments that extend the life of the property beyond regular maintenance.

Total Capital Expenditures = Property (Purchase) Sale + Renovations

- Net income is the income left over after all expenses have been paid. This is also the profit for the period.

Net Income = Net Operating Income + Total Capital Expenditures.

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2) Real estate investors rely on the capitalization rate, or cap rate for short, to calculate their yield on the investment. The cap rate is found by using this formula:

[Cap Rate] = [Net Operating Income]/[Property Value].

Investors generally have a target cap rate in mind already, so using some simple algebra, we can rearrange this formula to find a property value: [Property Value] = [Net Operating Income]/[Cap Rate].

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3) Financial models are often used to analyze an investment over time, and they use assumptions to make estimates of what revenue and expenses could look like in the future.

Growth rates are used to increase revenue and expenses over time. We can use this calculation to find a future value of something with a growth rate: [Previous Value] * (1 + [Rate]).

Future Value = Previous Value * (1+Growth Rate)

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4) they want us to start exploring some different possible outcomes. The Scenario Manager is a tool in Excel that organizes various scenarios and their input changes to make it easier to compare.

We use **What if (Data → what if → Scenario manager)** to explore different possible outcomes.

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5) we had a target or goal and wanted to know how much an input would need to change in order to meet it? The Goal Seek tool is especially useful in this case.

We use **What if (Data → what if → Goal seek)** to explore different possible outcomes.

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6) Data Tables are awesome for sensitivity analysis, which analyze ranges of input changes to understand how they impact the output.

Let's run a sensitivity analysis on how the Rent Growth % impacts net operating income.

We use **What if (Data → what if → Data tables)** to explore different possible outcomes.

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7) Return on investment (ROI) is a fundamental profitability ratio that describes how much profit each dollar invested produced. The formula for return on investment is :

 ROI = Total Return / Investment Amount.

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8) We can FV() to find the future value of the investment amount based on this benchmark rate and the investment horizon.

FV = PV * (1 + rate)^n

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9) Net present value

The Chief Investment Officer wants us to find the net present value of the total net income earned over the lifetime of West Ridge North. NPV() is one of the simpler functions to do this.

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10) XNPV with time series

In the last exercise we ran into the limitation of NPV() not knowing exactly when our cash flows started, so it analyzed Year 0 as Year 1.

XNPV() is the most powerful net present value function in Excel,

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11) Internal rate of return

The internal rate of return **(IRR ())** gives us the discount rate that makes net present value 0.