Chapter 16: Analyzing Income Producing Properties

Advantages of Real Estate Investment
- Cash Flow from Operations (After Tax Cash Flow – ATCF)
- Appreciation (After Tax Equity Reversion – ATER)
- Portfolio Diversification
- Financial Leverage

Disadvantages of Real Estate Investment
- large capital requirements
- risk
  - business risk
  - financial risk
  - purchasing power risk
  - liquidity risk

The Wealth Maximization Objective
- investment can be defined as present sacrifice in anticipation of future benefit
- investment decision making involves comparison of the expected future benefits with the costs of the investment
- investors’ ultimate goal is to maximize their wealth by choosing investments that are worth more than they cost
- the NPV decision rule employs the wealth maximization concept
  - If faced with two competing projects, one that offers an NPV of $1,501 and another that offers a NPV of $703, the investor would prefer the one with the largest NPV.

The Discounted Cash Flow Model
- To apply the NPV rule in practice, real estate investors may use the following discounted cash flow model.
  - \[ NPV = \sum_{t=1}^{T} \left( \frac{ATCF_t}{(1+i)^t} \right) + \frac{ATER_T}{(1+i)^T} - initial\ equity \]
  - ATCF = potential gross income minus vacancy and collect losses minus operating expenses minus debt service minus taxes
  - ATER = gross sale price minus selling expenses minus loan payoff minus taxes
  - Initial equity = purchase price minus loan amount
  - \( i \) = the investor’s required rate of return

Example of the Discounted Cash Flow Model
- Consider a four-unit apartment complex that is offered for sale at $255,000.
- The units are expected to rent for $725 per month in the first year (increasing at 5% per year) with an annual vacancy rate of 4%.
- The property is expected to have operating expenses of $9,900 in the first year (increases at 3% per year).
- A loan is available at 70% of the purchase price for 9% interest with monthly payments over 25 years.
- The investor believes property value will increase at the annual rate of 5% per year.
- The investor faces a tax rate of 28%.
- The investor expects a five year holding period.
- Is this a good deal based on the NPV rule at a required rate of return of 16%?
- See cash flow calculations in Table 16.3 (page 363) and Table 16.4 (page 364)

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NPV = \frac{5,230}{(1+.16)^1} + \frac{6,246}{(1+.16)^2} + \frac{7,231}{(1+.16)^3} + \frac{8,268}{(1+.16)^4} + \frac{9,279}{(1+.16)^5} + \frac{118,092}{(1+.16)^5} - 76,500 = \$2,493
\]

\[
IRR = 16.85\%
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