

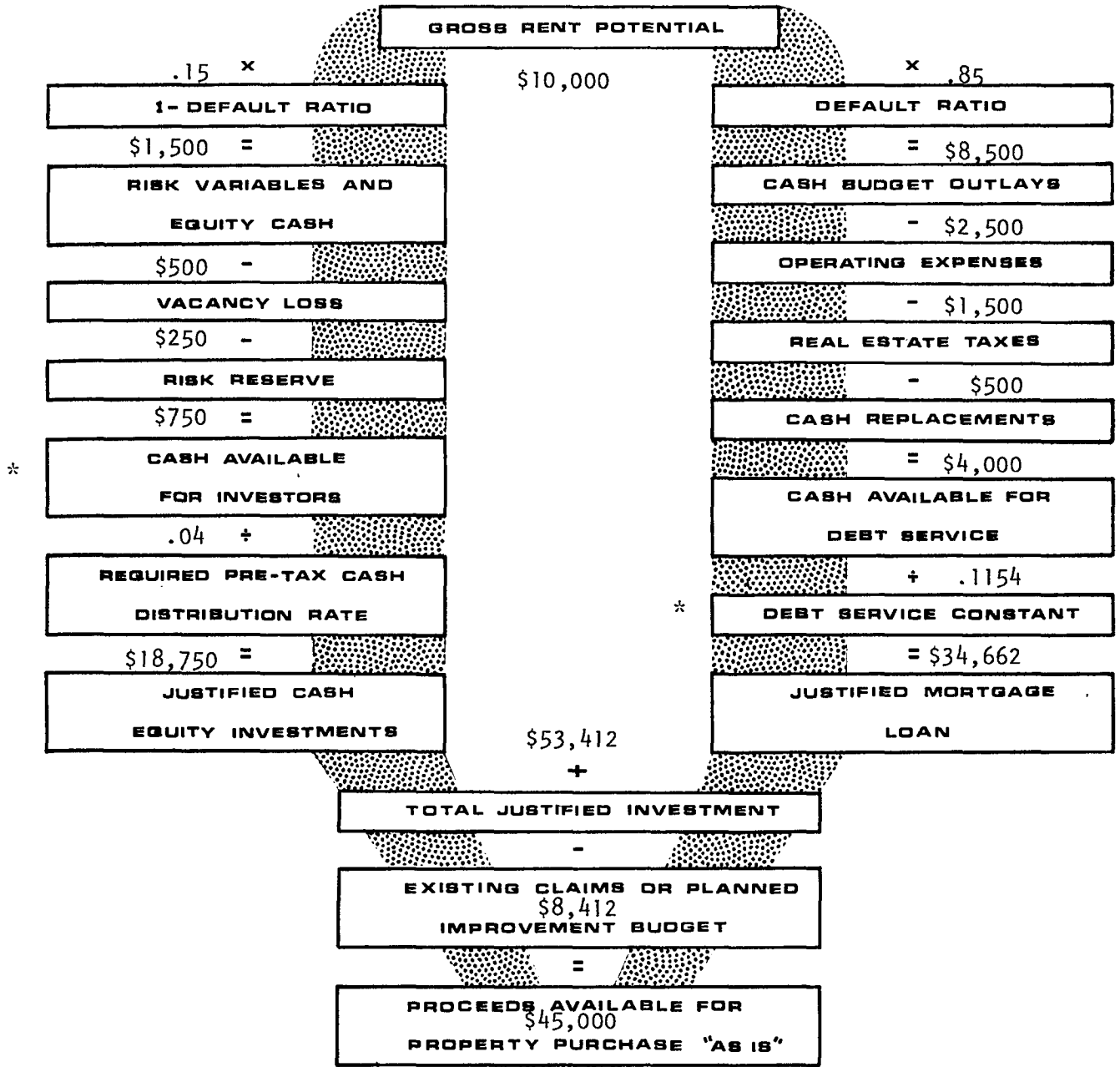
- JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS
- V. INDUSTRY SEMINARS AND SPEECHES - SHORT TERM
    - E. Realtor Associations
      - 3. "Investment Analysis Seminar Outline",  
presented to the Greater Madison Board of  
Realtors, November 8, 1979

INVESTMENT ANALYSIS SEMINAR OUTLINE  
November 8, 1979  
Greater Madison Board of Realtors  
Professor James A. Graaskamp, Instructor  
University of Wisconsin

- I. Rent Justified Investment in Income Property
  - A. Flow chart of financial analysis procedure
  - B. Determination of maximum loan
    1. Concept of cash breakeven point
    2. Concept of debt cover ratio
  - C. Determination of net operation income
  - D. Determination of debt service constant
  - E. The concept of cash on cash yield
  - F. Determination of justified equity investment
  - G. Advantages and disadvantages of pricing income property from rents
  
- II. Rents required by a Specific Purchase Price
  - A. Converting price paid to income required
  - B. Provision for expenses, real estate taxes, and reserves
  - C. Converting required cash income to gross rents
  - D. Allocating gross rents to various rental units
  
- III. Financial Tests
  - A. Net income to purchase price ratio
  - B. Cash breakeven point (default ratio)
  - C. Payback ratio
  - D. Maximum potential loss
  - E. Maximum probable loss ratio
  - F. Degree of leverage ratio
  
- IV. Basic Elements of Income Tax Law Effecting Real Estate
  - A. Tax depreciation shelter
  - B. Preferential income penalties on excess depreciation and capital gains
  - C. The tax trap of excess depreciation
  - D. The tax trap of excess refinancing
  - E. Inflation, net income, and capital gains

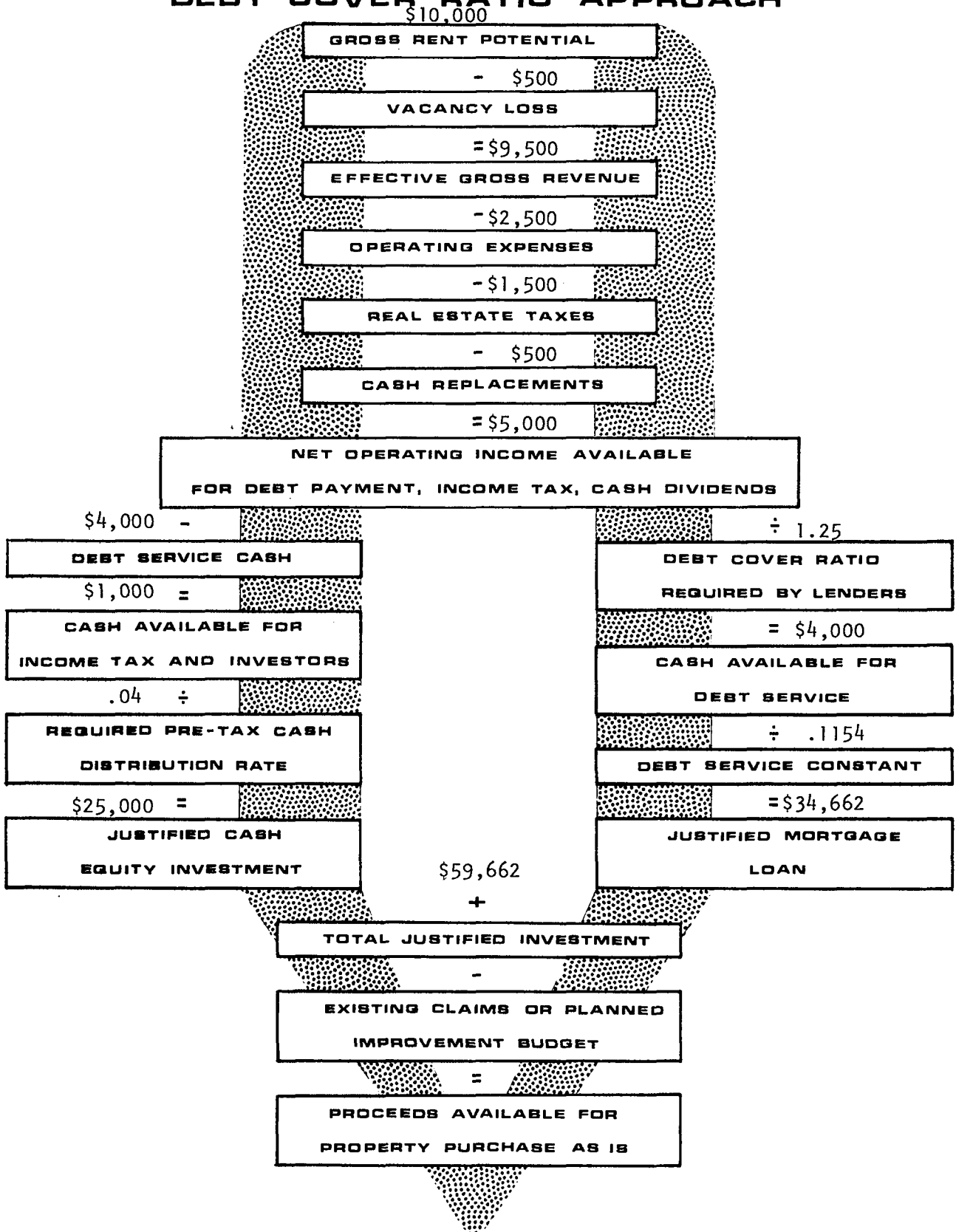
CASE 1

**REVENUE JUSTIFIED CAPITAL BUDGET  
DEFAULT RATIO APPROACH**



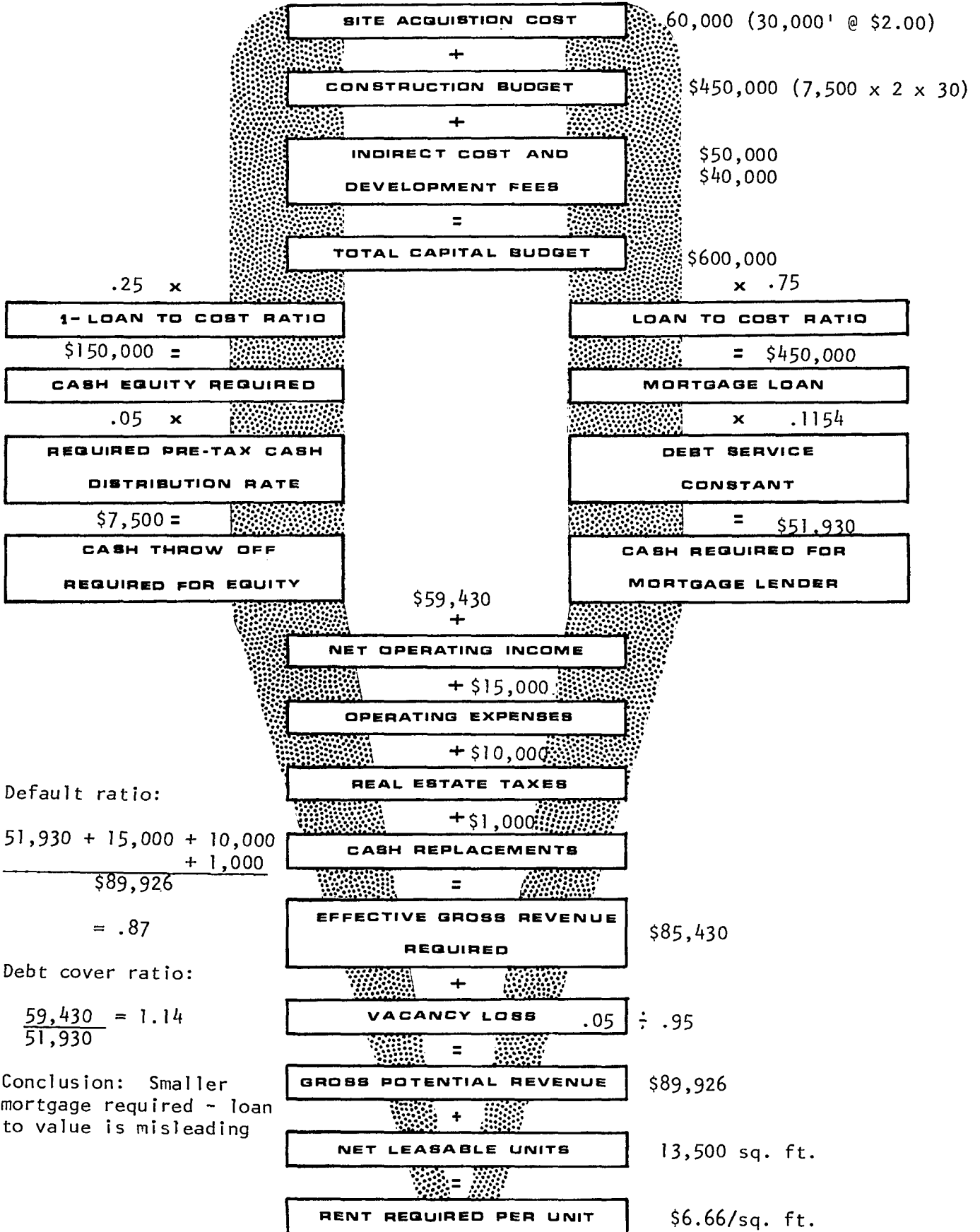
\* 10 3/4% 25 year monthly pay is .009620 x 12 = .1154  
 9% 25 year monthly pay is .008391 x 12 = .1006  
 or a \$40,000 justified loan

**REVENUE JUSTIFIED CAPITAL BUDGET  
DEBT COVER RATIO APPROACH**



\* Note that a full \$1,000 is distributed to investors rather than the \$750 in Case 1.

# REVENUE REQUIRED BY CAPITAL BUDGET LOAN TO COST RATIO APPROACH



Default ratio:

$$\frac{51,930 + 15,000 + 10,000 + 1,000}{89,926} = .87$$

Debt cover ratio:

$$\frac{59,430}{51,930} = 1.14$$

Conclusion: Smaller mortgage required - loan to value is misleading

\* 10 3/4 25 year monthly pay is .009620 x 12 = .1154

III. Preliminary financial analysis begins with a variety of ratios which are intended to reveal the tolerance of the project for variance in key assumptions, the ability absorb surprise, as well as dynamic risk. These ratios become the objective of further refinement through sensitivity analysis. Among the important ratios we have used so far are:

1. Absorption rate:

$$\frac{\text{Units sold or leased per period}}{\text{Total supply of units available}} = \text{Absorption rate for sale or lease}$$

2. Capture rate:

$$\frac{\text{Units in specific project sold or leased per period}}{\text{Total competitive units sold or leased per period}} = \text{Capture rate}$$

3. Vacancy ratio:

$$\frac{\text{Space unit} \times \# \text{ of units} \times \text{rental payment periods per year} \times \text{turnover rate} \times \text{rental payments lost} \times \text{rent}}{\# \text{ of units} \times \# \text{ of payments} \times \text{rent per period}} = (\text{gross rent})$$

1-bedroom apartments x 20 x 50% turnover x 1 month lost | \$200/mo.

$$\frac{20 \times 50\% \times 1 \times 200}{20 \times 12 \times 200}$$

$$\frac{2000}{48000} = \frac{1}{24} = 4.2\%$$

4. Expense ratio:

$$\frac{\text{Expenses}}{\text{Gross rent}}$$

5. Net income ratio:

$$\frac{\text{Net income}}{\text{Purchase price} + \text{additional costs}} = \text{Overall rate or cap rate (should be = to debt service constant or up to 2% lower)}$$

6. Debt cover ratio:

$$\frac{\text{Net operating income}}{\text{Debt service}}$$

7. Default ratio:

$$\frac{\text{Operating expenses} + \text{real estate taxes} + \text{short term debt} + \text{interest} + \text{principal payments}}{\text{Gross rent}}$$

## FEASIBILITY KIT FOR ARCHITECTS

Preprinted textbook on cocktail napkin

**RENT PER SPACE UNIT**  
• **PROPOSED NUMBER OF RENTAL UNITS**  
= **POTENTIAL GROSS INCOME**  
• **GROSS INCOME MULTIPLIER**  
× **TOTAL PROJECT VALUE**  
+ **PROJECT / BUILDING RATIO**  
= **BUILDING BUDGET**  
+ **PROPOSED NUMBER OF SPACE UNITS**  
= **BUILDING COST PER SPACE UNIT**

By Prof. James Canestaro

8. Loan to value ratio:

$$\frac{\text{Mortgage loan balance}}{\text{Purchase price}}$$

9. Cash on cash:

$$\frac{\text{Net income} - \text{debt service} - \text{reserves} + \text{refinancing surplus}}{\text{Total capital budget} - \text{original mortgage balance}}$$

- IV. Understanding the basic ratios leads to manual or data processing of sensitivity ratios; it is important to remember that projecting specific returns is not a forecast for the future; it is intended to be a basis for measuring the tolerance of the financial parameters for variance from the initial assumptions and identifying the thresholds of insolvency or incompatibility with competitive markets. Refer to John Nabors model in Exhibit .

If project makes sense before tax, then it is useful to refine analysis for projections over time on an after tax basis.

1. Accounting tabs for after tax income (See Exhibit )
2. Accounting tabs for after tax sale proceeds (See Exhibit )
3. Basic pattern of after tax financial analysis requires a pattern of assumptions (See Exhibit )

After tax spendable cash ratios include:

1. Distributable cash from operations:

$$\begin{aligned} &\text{Cash throwoff} \\ &\quad - \text{income taxes} \\ &\text{Cash from operations} \\ &\quad - \text{reserves} \\ &\quad - \text{repayment of working capital loans} \\ &= \text{Distributable cash} \end{aligned}$$

2. Spendable cash attributable to real estate:

$$\begin{aligned} &\text{Distributable cash} \\ &+ \text{tax savings to other income} \\ &\quad + \text{surplus from refinancing} \\ &= \text{Spendable cash} \end{aligned}$$

3. After tax sale proceeds:

$$\begin{aligned} &+ \text{return of working capital} \\ &\quad + \text{liquidation of sinking funds} \\ &= \text{cash reversion} \end{aligned}$$

4. Return on net worth B/4 tax:

$$\frac{\text{Cash throwoff} + \text{change in net worth}}{\text{Net worth at end of previous period}}$$



5. Return on net worth after tax:

$$\frac{\text{Spendable cash} + (\text{chnage in net worth} - \text{change in taxes on sale})}{\text{Net worth at end of precious period} - \text{taxes on sale}}$$

6. Payback ratio:

$$\frac{\text{Cumulative spendable cash}}{\text{Original budget} - \text{original debt} + \text{amount of personal guarantees}}$$

Precise definition of cash returns is critical in the negotiation of participating loans and partnerships

1. Defining effective gross, net income or cash throwoff with a participation loan.
2. Defining base number in which general partner will share