

The Approaches to Value, Obsolescence, & Uniformity

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Approaches to Value

- **Cost Approach** - Establishing value of asset by estimating current or replacement cost of existing structure, deducting accrued depreciation in property and adding estimated land value.
- **Market Approach** - Valuing a property through examination and comparison of recent sales of comparable properties.
- **Income Approach** - Estimating the value of an income-producing property through capitalization of its expected annual net income during its remaining useful life.

Additional Value Approach for Assessment Appeals

- **Uniformity** – Comparing assessments or assessed market value with comparable properties to determine fairness of the assessment.

Cost Approach

Cost Approach

- Involves estimating reproduction or replacement cost of a property and subtracting the accrued depreciation
- Based on the premise that a potential user of the property would not pay more for a property than it would cost to build an equivalent

Cost Approach Technique

- Reproduction or Replacement Cost New
- Less Physical Depreciation
- Less Functional Obsolescence
 - Excess Operating Costs
 - Obsolete Technology
- Less External/Economic Obsolescence
 - Issues external to the property
- Plus value of land as if vacant
- Equals cost approach indicator of market value

Replacement vs. Reproduction Cost

- **Reproduction Cost:** Exact duplicate or replica using same design, layout and materials at current cost
- **Replacement Cost:** Equivalent utility using current cost, materials, design, and layout

Physical Depreciation

- Loss in value caused by deterioration or impairment condition as a result of wear and tear, deterioration, the passage of time, or similar factors
- Types of Physical Depreciation
 - Curable
 - Incurable

Physical Depreciation Calculation Methods

- Age/Life
 - Age
 - Chronological Age
 - Effective Age
 - Life
 - Physical Life
 - Economic Life
- Other Methods
 - Marshall & Swift Curves
 - Iowa Curves
 - Property depreciation studies

Functional Obsolescence

- A form of depreciation in which the loss in value of a property is caused by inefficiencies or inadequacies of the property itself, when compared to a more efficient or less costly replacement
- Types of Functional Obsolescence
 - Curable
 - Incurable

Examples of Functional Obsolescence

- Poor Design
 - Not enough bathrooms
- Excess Capital Cost
 - Duplicate equipment where only one unit would serve the same purpose
- Excess operating cost
 - New unit is more energy efficient due to recent technology advancements

Functional Obsolescence Calculation Methods

- Excess Capital Cost
 - Use reproduction cost less replacement cost
- Excess Operating Expense
 - Current OpEx less most efficient OpEx
- Design Issues
 - Subtract cost to change design

Economic Obsolescence

- Loss in value caused by influences external to the subject property itself
- Usually incurable on the part of the property owner

Examples of Economic Obsolescence

- Changes in zoning
- Changes in market supply/demand
- Changes in market desire and/or expectations
- Noise from airports, freeways or commercial businesses in the area

Economic Obsolescence Calculation Methods

- Market Derived
 - Compare cost approach value before accounting for EO to Sales Price
- Income Shortfall
 - Compare cost approach value before accounting for EO to the Income Approach
- Inutility
 - % Inutility = $[1 - (\text{Usage}/\text{Capacity})^n] \times 100$
 - “n” represents the scaling factor



“I’m afraid the fact that you’ve ‘got tons of blank tapes for it’ doesn’t make any difference ...”

Examples of Obsolescence

- Functional Obsolescence
 - Technologically Obsolete Equipment
 - Poor Layout
 - Labor-intensive processes
- Economic Obsolescence
 - Government restrictions/regulations
 - Economic downturns (not cycles)
 - Changes in consumer tastes & preferences

Trigger Events for Obsolescence - Examples

- Loss of major customer(s) or significant economic loss or layoffs.
- Production and/or price declines.
- Patent for product expires-competition from generics increases.
- Older less effective process or machines causing lower margins.
- Plant expansions over time have caused less efficient operations (inefficient layout).

Trigger events (Cont.)

- Higher operating costs compared to state-of-the art facilities.
- Price of fuel to run operations have increased.
- Labor costs are higher than alternative locations from U.S. or global competition pressures.
- Because of location, raw materials costs are increasing resulting in increased operating costs and decreased operating margins.

Trigger Events (Cont.)

- Change in technology to make product more efficiently makes cost to update prohibitive.
- Demand for product has decreased because of world events.
- The price for the product is dropping, but costs to manufacture are not.
- Environmental laws change which cause increased costs to comply. Increasing regulatory costs and decreasing operating margins.

Cost Approach Summary

- Strengths
 - Avoids contamination from intangibles
 - Can be used with special use, owner occupied, or single purpose properties where rental income, sales and market data are not available
- Weaknesses
 - Reliability is very dependent on having access to accurate cost data
 - Difficult to estimate accrued depreciation

Cost Approach Example

Widget Plant

Line 1 Built in 1980

Line 2 Built in 1990

Reproduction Cost New	\$800,000 (Indexed Historical Cost)
Replacement Cost New	\$650,000 (Engineering Publications)
Land Value	\$ 5,000 (Local Land Sales)
Capacity	3,000 widgets/day
Current Production	2,500 widgets/day
Operating Expenses	\$ 4,300
State-of-the-Art OpEx	\$ 3,500 (Single Line Facility)

Cost Approach Example

Physical Depreciation

Description	Reproduction Cost New	Effective Age	Service Life	Age/Life
Widget Line 1	\$300,000	20	30	67%
Widget Line 2	\$200,000	15	30	50%
Utilities	\$150,000	18	40	45%
Buildings/Imps	\$50,000	20	50	40%
Shipping & Storage	\$100,000	18	50	36%
Total	\$800,000			53%

Cost Approach Example

Functional Obsolescence

Excess Capital

Reproduction Cost	\$ 800,000
Replacement Cost	<u>\$ 650,000</u>
Excess CapEx	\$ 150,000

Excess Operating Costs

Current Operating Cost	\$ 45,000
State-of-the-Art Facility	<u>\$ 35,000</u>
Excess OpEx	\$ 10,000
Less Income Tax Benefit	<u>\$ 4,000</u>
Annual Excess OpEx	\$ 6,000
Present Value of Excess OpEx	\$ 28,000

Cost to Cure

Replace Pneumatic Controls w/ DCS System	\$ 10,000
Replace Extruder Knives w/ Alloy	<u>\$ 5,000</u>
	\$ 15,000

Cost Approach Example

External Obsolescence

Utilization Factor

Facility Capacity 3,000 widgets/day

Current Production 2,500 widgets/day

Percent Inutility = $(1 - (2500/3000)^{.7}) * 100$

Percent Inutility = 12%

Cost Approach Example Summary

Reproduction Cost New	\$800,000
Less Excess CapEx	<u>\$150,000</u> (FO)
Replacement Cost New	\$650,000
Less Physical Depreciation @ 53%	<u>\$345,000</u> (PD)
RCN Less Physical Depreciation	\$305,000
Less Present Value of Excess OpEx	<u>\$ 28,000</u> (FO)
RCN Less Physical Plus Functional	\$277,000
Less External/Economic @ 12%	<u>\$ 33,000</u> (EO)
RCN Less Physical, Functional & External	\$244,000
Less Cost to Cure Items	\$ 15,000 (FO)
Plus Land	<u>\$ 5,000</u>
Cost Approach Indicator of Value	\$224,000

Sales Approach

Sales Approach

- Involves the analysis of sales of similar properties to determine the value of the subject property
- Based on the premise that an informed buyer would pay no more for a property than the cost of acquiring a similar property of the same size and utility

Sales Approach Technique

- Gather data
- Determine the appropriate unit of comparison
- Apply the results of the analysis to the subject property

Sales Approach

Gather Data

- Newspapers and magazines
- Annual Stockholder's Reports, 10K's and 10Q's
- The Internet
- The buyer and/or seller

Sales Approach

Determine Relevant Units of Comparison

- Price per square foot
- Dollars per room
- Equivalent Distillation Capacity
- Effective age
- Location
- Financing terms
- Date of sale

Sales Approach

Analyze Results

- Adjust comparables to the subject
- Determine which sales are most comparable
- Use weighting or other techniques to arrive at a final value

Sales Comparison Approach Summary

- Advantages
 - Reflects actual transactions
 - Captures all forms of depreciation
 - Potential to develop trends for specific markets
- Weaknesses
 - Sales price could include intangibles
 - Difficult to obtain necessary details of transactions
 - Specific buyer may have paid premium for special consideration that other market participants would not have recognized

Sales Approach Example

Feature	Subject	Comp #1	Comp #1 Adj.	Comp #2	Comp #2 Adj.	Comp #3	Comp #3 Adj.
Sales Price		\$335,000		\$350,000		\$375,000	
\$/SqFt		\$108		\$115		\$119	
Location	Green Acres	Green Acres	\$0	Green Acres	\$0	Green Acres	\$0
Date of Sale		3/25/2010	\$0	4/10/2010	\$0	2/28/2010	\$0
View	Average	Average	\$0	Average	\$0	Average	\$0
Quality	Good	Good	\$0	Good	\$0	Good	\$0
Age	6	5	\$0	6	\$0	6	\$0
Condition	Good	Good	\$0	Good	\$0	Good	\$0
Garage	3 Car	2 Car	\$2,500	3 Car	\$0	3 Car	\$0

Sales Approach Example (Cont.)

Feature	Subject	Comp #1	Comp #1 Adj.	Comp #2	Comp #2 Adj	Comp #3	Comp #3 Adj
Pool	Yes	No	\$20,000	No	\$20,000	Yes	\$0
Beds/Baths	4/3.5	4/3.5	\$0	4/3.5	\$0	4/4	(2,000)
Gross Living Area	3,200	3,100	\$7,500	3,050	\$11,250	3,150	\$3,750
Net Adjustment			\$30,000		\$31,250		\$1,750
Percent Adj			9%		9%		1%
Adjusted Sales Price			\$365,000		\$381,250		\$376,750
Sales Approach Indication of Value	\$375,000						

Income Approach

Income Approach

The income approach is a method by which the future benefits of ownership are converted into present worth or market value. This conversion occurs through the capitalization process.

Income Approach

Primarily used for Income producing property

Examples

- Office buildings
- Retail stores
- Apartments
- Leased equipment

Income Approach

- The value of a property is based on its ability to generate income.

- "IRV"

- I = Income (Net Operating Income "NOI")

- R = Capitalization Rate

- V = Value

$I/R = V$ (Income/Rate=Value)

Income Approach Procedures

Determine Net Operating Income

- Potential gross income
- Less: vacancy & credit loss
- Equals: Effective gross income
- Less: Expenses
- Equals: Net operating income

Capitalization Rate

Determine Capitalization Rate

- **Capitalization Rate** – Any rate or multipliers extracted from market data used to convert income into value.

Methods

- **Survey Method**
- **Band of Investment**
- **Market Extraction**

Capitalization Rate

Methods to Derive the Capitalization Rate

Market Derived

	<u>NOI</u>	<u>Sale Price</u>	<u>Cap Rate</u>
• Sale 1	\$100,000	\$1,000,000	10%
• Sale 2	\$222,000	\$2,500,000	9%
• Sale 3	\$425,000	\$3,750,000	11%

Capitalization Rate

Methods to Derive the Capitalization Rate

Band of Investment

	<u>Ratio</u>	<u>Return</u>	<u>WT'D Avg</u>
Debt	80%	7%	6%
Equity	20%	12%	<u>2%</u>
			8%

Capitalization Rate

Methods to Derive the Capitalization Rate

Survey Method **Industry Sources**

Korpaz	CBRE
Cushman Wakefield	Appraisal Institute
NAREIT	ACLI

Income Approach

Calculate Value utilizing IRV

$$I/R=V$$

Net Operating Income (NOI)

Divide by Capitalization Rate

Equals Market Value

Income Approach Summary

- Strengths
 - Best approach for income producing properties
 - Mirrors investor behavior
- Weaknesses
 - Income may include intangibles
 - May not be the best approach for non-income producing properties

Income Approach Example

Potential Gross Income	\$20,000,000
Less Vacancy/Collection (5%)	<u>- \$1,000,000</u>
	\$19,000,000
Less: Repairs/Maintenance	-\$500,000
Management Fee	-\$950,000 (5%)
Utilities	<u>-\$2,000,000</u>
Net Operating Income	\$15,550,000/
Capitalization Rate	<u>10%</u>
Market Value	\$155,500,000

Uniformity

Uniformity

Uniformity is a comparison of the assessments of similar properties to ensure that the property is assessed in a uniform manner.

How does the assessment compare to similar properties?

Uniformity

- Best applied to supplement other approaches to value
- Not an accepted approach in all states

Uniformity Example

	Distance from subject	Year Built	Class	Size (sf)	Assmt. per SF
Subject		1998	"A" Office	400,000	\$265
Property A	Same block & street	1999	"A" Office	378,000	\$201
Property B	Same block & street	2001	"A" Office	415,000	\$195
Property C	1 block	1997	"A" Office	395,000	\$202

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