



APPRAISAL-BASED INDICATOR OF INVESTMENT RETURN



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CPPI HANDBOOK 2ND DRAFT CHAPTER 6

PREPARATION OF AN INTERNATIONAL
HANDBOOK ON
COMMERCIAL PROPERTY PRICE
INDICATORS

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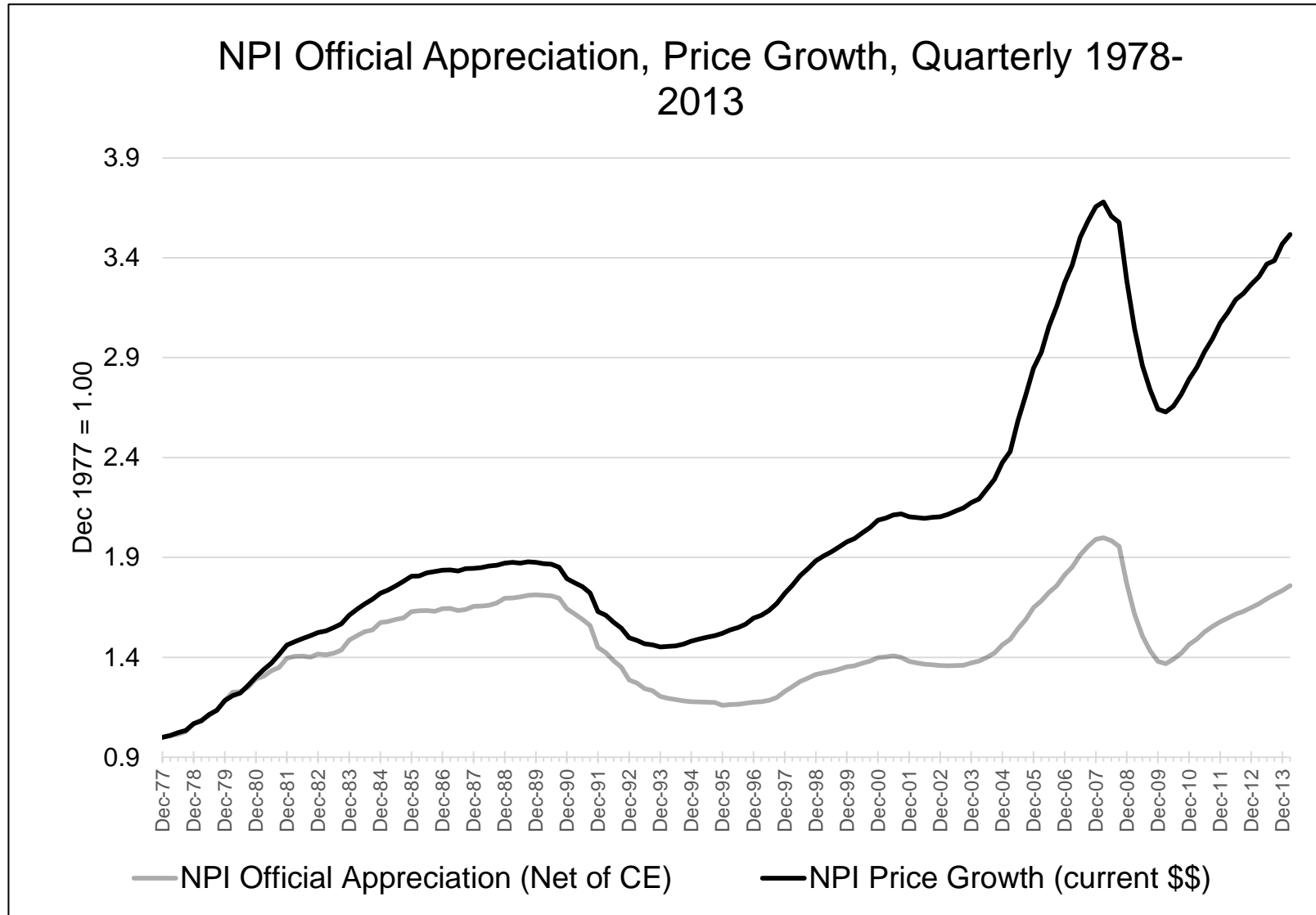
APPRAISALS

- Appraisal-based index
Investment return index (IRI) of commercial property that is based on professional appraisals (valuations) of individual property values within a defined population of properties constituting the index universe.
- Value in the 'real estate sense'
most likely or expected market price at which the subject properties would sell
- Appraisal process: market comparison approach
 - Compare the subject property to the comparables and correct for differences

RETURN DEFINITIONS

- Capital gain $g_t = (AV_t - AV_{t-1} + PS_t - CE_t) / AV_{t-1}$
 - Percentage change in asset value (AV)
 - Corrected for partial sales (PS) and capital expenditures (CE)
- Income return: $y_t = NOI_t / AV_{t-1}$
 - Net operating income (NOI) (rent) as percentage of the previous asset value
- Total return: $r_t = g_t + y_t$
- Value index is constructed from chaining growth rates g
- Capital expenditures can be left out from capital gain (and included in income return)
- Capital returns within appraisal based IRIs are essentially the same as asset price changes in repeat sales and appraisal-based methods

IMPACT OF CAPITAL EXPENDITURES



DATA COLLECTION

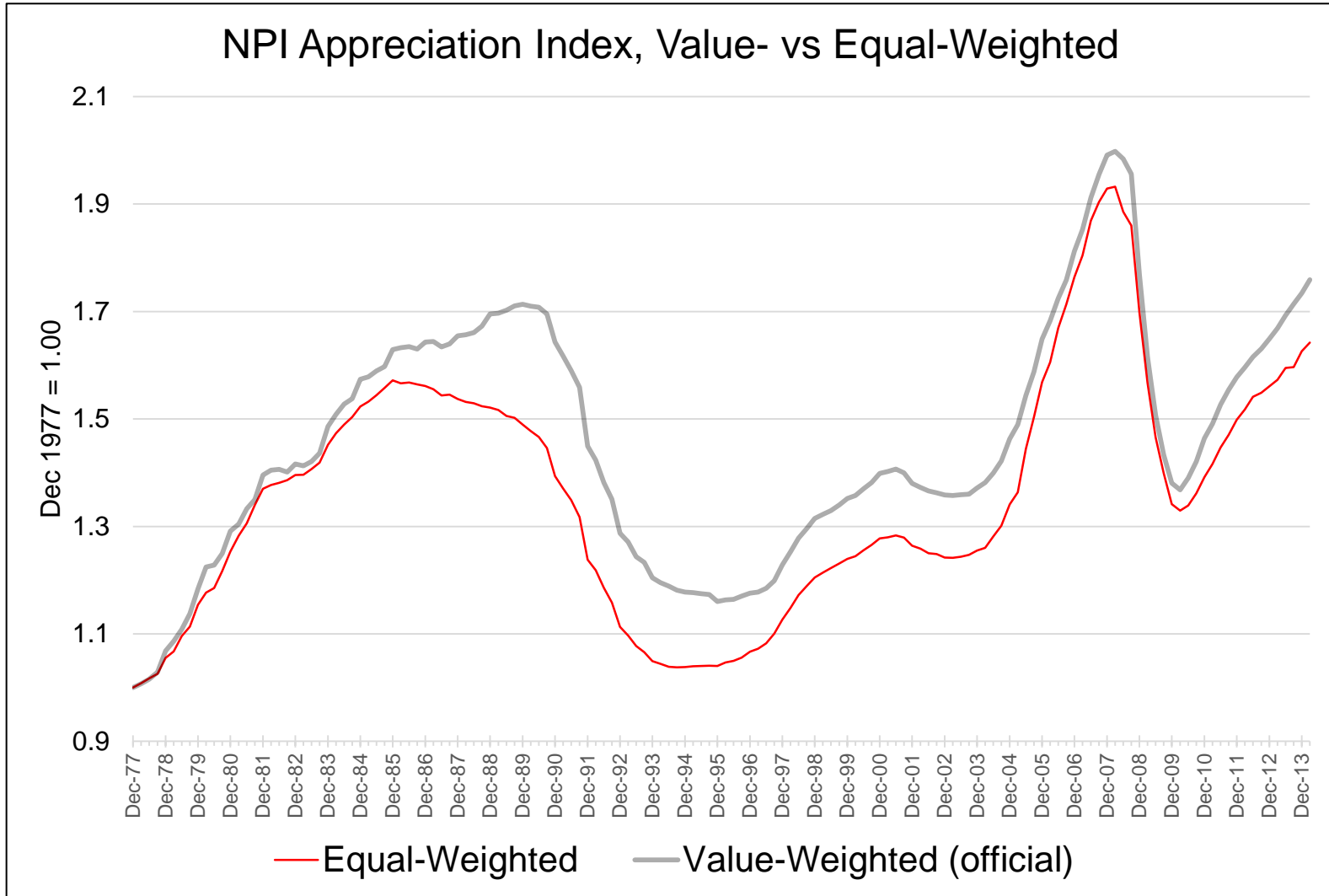
Computation of capital gains and income returns requires

- Asset values at start and end of each period
- Cash flows during period related to the asset
 - Net operating income (net-rent)
 - **Potential Gross Income** (gross-rent) minus
 - **Vacancy allowance** plus
 - **Other income** minus
 - **Operating Expenses**
 - Net proceed of partial sales
 - Capital expenditures
(tenant build-outs, improvement expenditures)

COMPUTATION OF APPRAISAL-BASED IRI (1)

- Set of properties in a specific market segment / stratum
- Properties owned by index member firms
- Value versus equal weighting of individual returns within a market segment /stratum
 - Value:
 - index is viewed as representing an entire population
 - Equal:
 - less influenced by a few very large properties
 - each property in the index is an equally valid representative of the type of investment performance by whatever population of properties the index is representing
- Set of properties is not constant over time due to buying and selling
- Only a part of the properties is re-assessed each period

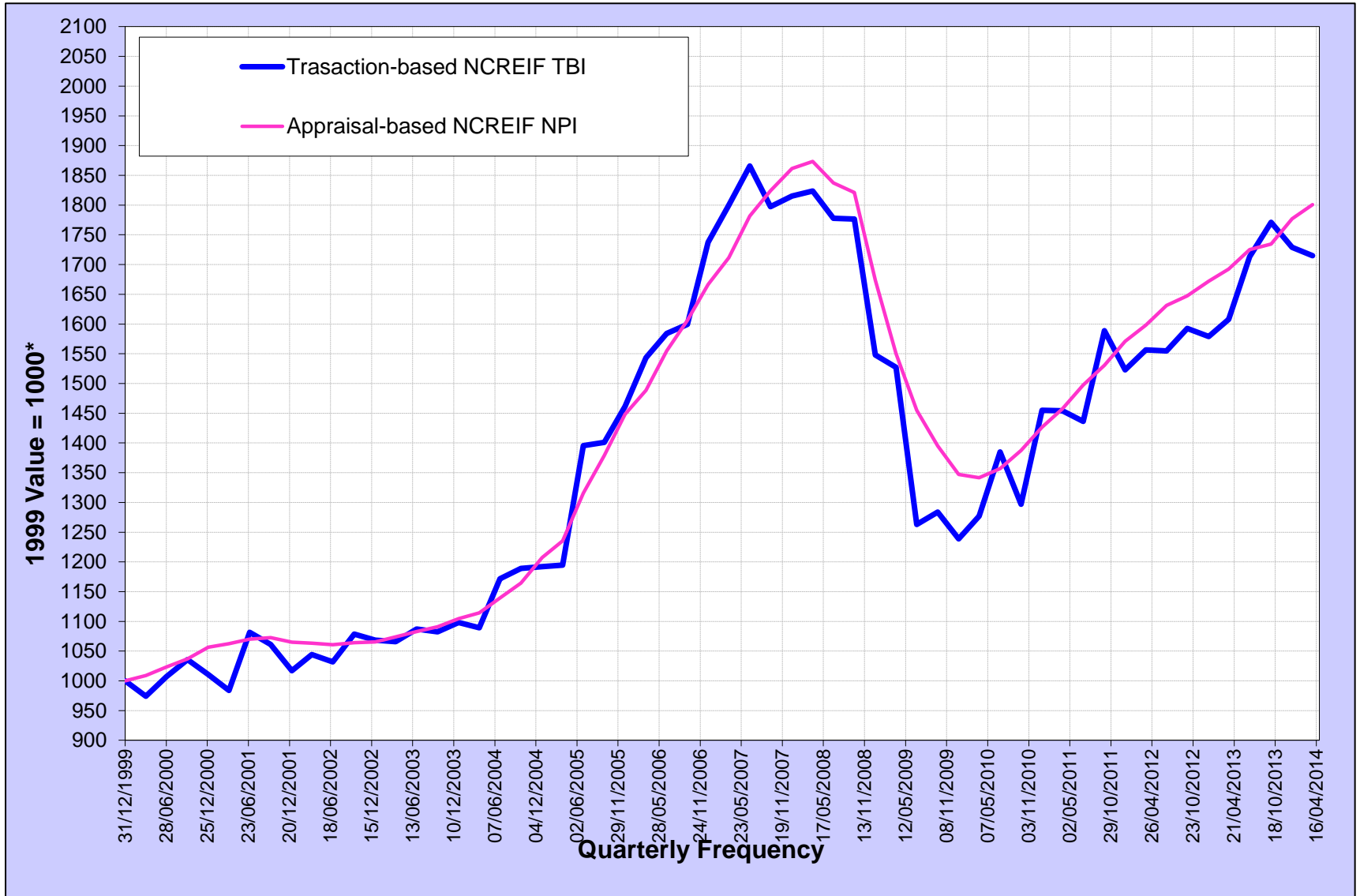
EQUAL AND VALUE WEIGHTING



COMPUTATION OF APPRAISAL-BASED IRI (2)

- Appraisal values are likely to be smoothed and lag the true price level
 - Noisy prices / Infrequent and irregular trading of real estates
- Appraisers base the appraisal value partly on contemporaneous market prices and previous appraisals
 - Relative high and persistent levels of serial correlation positively linked to frequency of measurement
 - Relative low levels of standard deviation
 - Appraisal based series fail to accurately record the timing of market movement
- De-smoothing procedures
 - Reduce serial correlation
 - Increase standard deviation
 - Advance timing of market movements

APPRAISAL-BASED INDICATORS OF INVESTMENT RETURN TRANSACTION AND APPRAISAL-BASED INDEX



SUMMARY APPRAISAL-BASED IRI

■ Advantages

- For markets with low number of observations with heterogeneous properties (logistics facility, hotel, hospital markets) appraisals are the only alternative
- Assessed values are periodically observed (for index construction, tax purposes)
- (Assessed values can be used in a hedonic price model)

■ Issues

- Appraisal errors
- Lagging and smoothing problem
- Client influence problems
- Appraisal based indices are not “constant age”
- International comparison of appraisal indices is difficult because of different valuation practices and terminology



Thank you!

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Project WorkSpace: HENDYPLAN – www.hendyplan.com