Real Estate Prices: an international handbook on Commercial Property Price Indices

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Background

- Commercial property covers a broad and heterogeneous range of properties and business activities – more so than residential property

- Dynamics of the commercial property market different to residential property - commercial property transaction is often seen as more of an investment, sometimes with speculative motives.
  - Also less transparent.

- CPPIs less developed than residential property price indices.

Background

- Key uses of CPPI include: macroeconomic management; financial stability analysis; informing investment decisions.
  - As a financial stability or soundness indicator to measure risk exposure; as a macro-economic indicator of economic activity; for use in monetary policy and inflation targeting; as a component of wealth; as a deflator in the National Accounts; as an input into a company's or a citizen's decision making on whether to invest in commercial property; for use in making inter-area and international comparisons.

- Few National Statistical Offices compile CPPIs.
  - Most CPPIs produced by private sector are appraisal-based indices for investment industry.
  - No international guidelines or harmonised methodology.
  - ISWGPS sponsored a handbook that "investigates, in depth, the concepts underlying commercial property price indices and provides practical advice on their compilation".

Japan

Survey	Organisation	Use	Source	Coverage	Frequency	Availability*
Japan Commercial Property Price Index	Ministry of Land, Infrastructure, Transport and Tourism	Office, Retail, Logistics, Hotel and Land	Transaction price	All Japan	Quarterly	2008
Land Market Value Publication	Ministry of Land, Infrastructure, Transport and Tourism	Land for commercial, residential and industrial real estate	Appraisal value	All Japan	Annual	1970
Urban Land Price Index	Japan Real Estate Institute	Land for commercial, residential and industrial real estate	Appraisal value	223 cities	Biannual	1936
ARES Japan Property Index	The Association For Real Estate Securitization	Office, Residential, Retail, Logistics, Hotel and others	Net income and capital value	J-REIT Funds + Unlisted Funds	Monthly	2001
IPD Japan Monthly Property Index	IPD: Investment Property Databank	Office, Residential, Retail, Logistics, Hotel and others	Net income and capital value	J-REIT Funds + Unlisted Funds	Monthly	2001
JREI Office Index (JOIX)	Japan Real Estate Institute	Office	Estimated net income and capital value	13 major cities	Biannual	2002
MUTB-CBRE Real Estate Investment Index	Mitsubishi UFJ Trust and Banking Corporation & CB Richard Ellis	Office	Estimated net income and capital value	13 major cities	Annual	1970-2010
Sumitomo Trust Property Index (STIX)	The Sumitomo Trust and Banking & STB Research Institute	Office	Estimated net income and capital value	Tokyo and Osaka	Annual	1976-2008
Farmland Value And Rent Survey	Japan Real Estate Institute	Farmland	Transaction price and rent (based on survey)	All Japan	Annual	1913
Timberland Value Survey	Japan Real Estate Institute	Timberland	Transaction price (based on survey)	All Japan	Annual	1940

*Availability means that the data is available from this year.

A CPPI as a macro-economic indicator of economic activity

- The future value of commercial property assets will be influenced by the supply of such property (from the owners) and the demand (from the investors), including the demand and supply with respect to the rental sector.
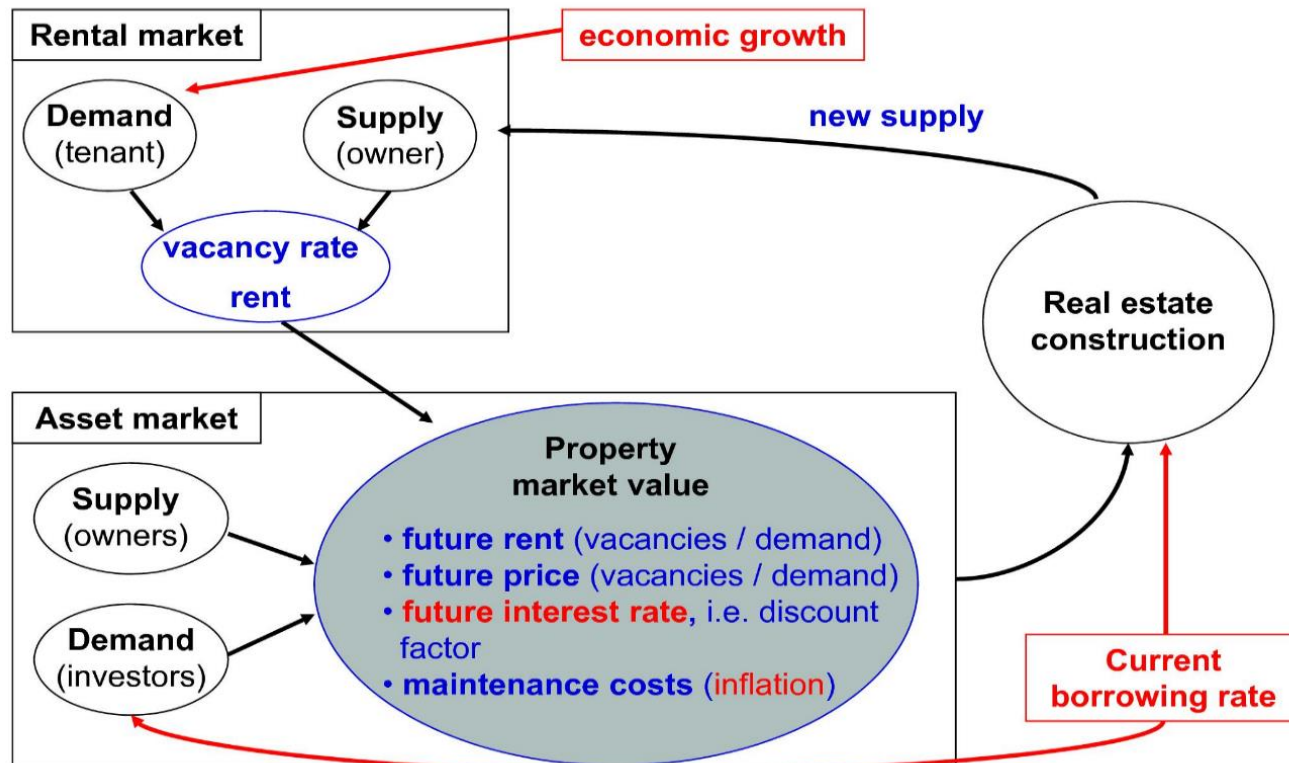
Relationship between the commercial and residential property markets, and real GDP growth

- In recent years the prices of prime commercial property values have been relatively more volatile than residential property prices, emphasising the importance of commercial property values in the context of financial stability indicators.
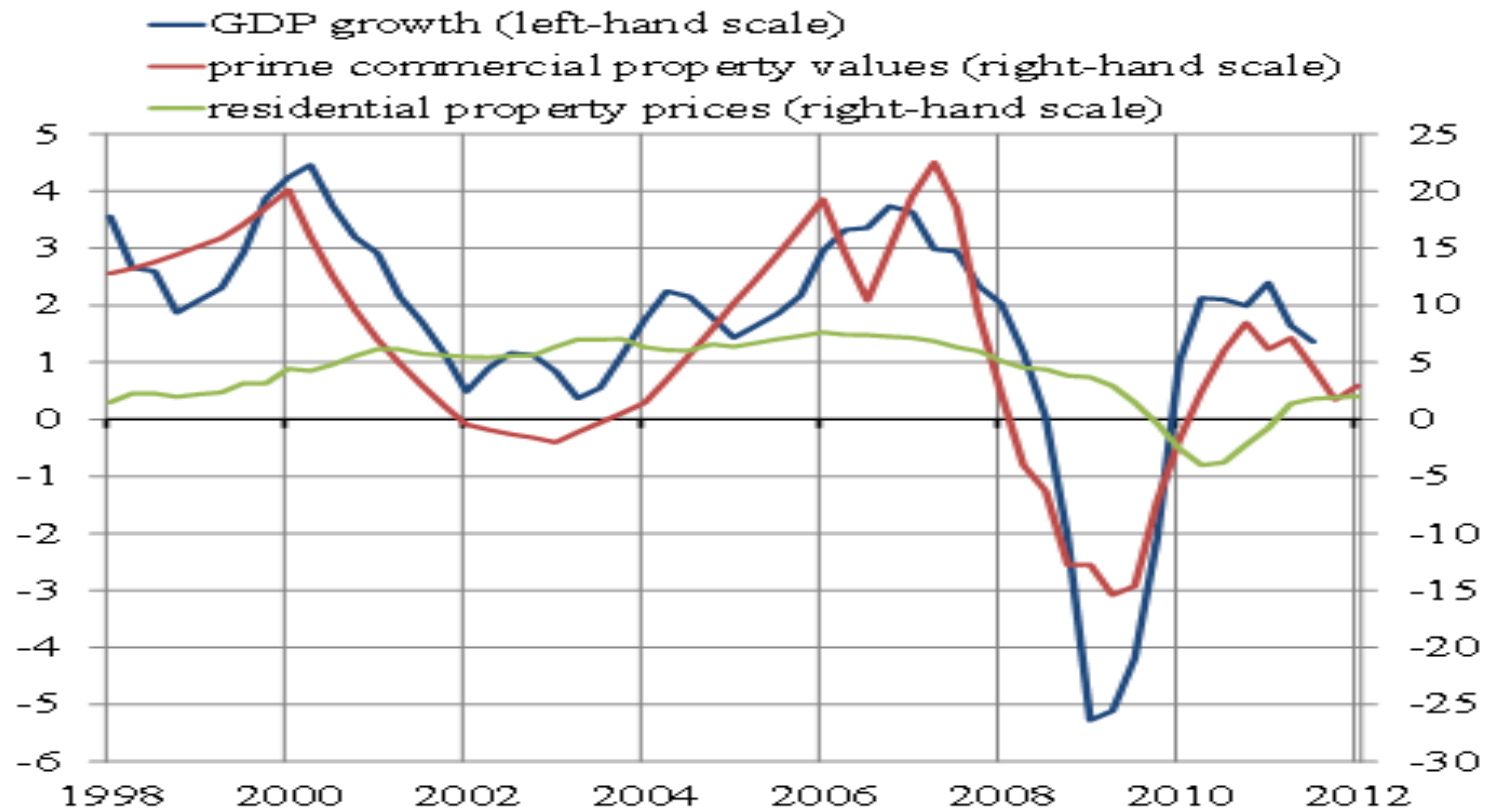
Lack of harmonisation extends beyond price index methodology

- THE *INVESTMENTS PERSPECTIVE (APPRAISALS)* IS RELEVANT FOR THE ROLE THAT CPPIS MAY PLAY IN THE OVERSIGHT OF THE FINANCIAL SYSTEM <u>but.</u>
  - THIS IS DIFFERENT FROM THE *REAL ASSET* PERSPECTIVE TAKEN FOR NATIONAL ACCOUNTING AND OFFICIAL STATISTICS PURPOSES.
  - MOST COMPILERS & USERS OF OFFICIAL ECONOMIC STATISTICS LOOK TO NATIONAL ACCOUNTS AS STARTING POINT.
- Definition - all real estate property (land + buildings), <u>*other than*</u> OOH, owned by firms plus real estate property owned by government, that is, other than owner-occupied dwellings as referred to in 2008 SNA 6.117.
  - Includes residential properties that are rented to their occupants (residential properties used for market production).
  - Covers a broad range: offices, retail facilities, investment housing, factories, distribution facilities, hotels, hospitals, care facilities.
  - Infrastructure e.g. Bridges?

Lack of harmonisation extends beyond price index methodology

- Classification of Commercial Properties (for sampling & analysis & market segmentation).
  - No internationally agreed classification. To be based on the technical design resulting from the specific use (e.g. commercial buildings, road structures, waterworks, pipelines) and, particularly for buildings, on their main use (e.g. residential, non-residential)? Or sector type (offices, rental residential, retail, and industrial)?
  - Treatment of Types of Real Estate – freehold & leasehold.
- Decomposition between the Building and Land components.
  - SNA Balance Sheet estimates of national wealth distinguish between the structures component of commercial property and the land component.
    - The *national balance sheet accounting approach to the construction of commercial property price indexes* by Diewert and Shimizu (2014) and it is called the *residual approach* by Eurostat and OECD (2014).
    - The approach, which is used by national income accountants to construct capital stock estimates, requires information on overall property values at a point in time along with imputed values of the structures that sit on the properties at the same point in time.

CPPIs: data constraints

- THE COMPUTATION OF COMMERCIAL PROPERTY PRICE INDICES HAS QUITE A FEW ASPECTS IN COMMON WITH RESIDENTIAL PROPERTY PRICE INDICES.
  - Hedonic method, repeat sales method and SPAR method regression models are useful tools as quality adjustment methods in estimating commercial property price indices.
  - But lack of data is significant constraint.

- Commercial property market is thin.
  - Few transactions.
  - Heterogeneity is much stronger.
  - Especially in comparison with the housing market.
- Practical problems relating to data highly likely.
  - Not being able to obtain enough transactions to construct an index.
  - Not enough sufficiently detailed information to perform quality adjustment.
    - And technical facilities more important for commercial property e.g. IT infrastructure.

Data constraints

- Compilers exploit two data sources.
  - *Registrations of transactions when ownership changes*.
    - Should give verifiable transaction or market price.
    - Indices so derived are referred to as <u>transaction-based</u> indices.
  - *Appraisals that give an assessment of value*.
    - Administrative systems e.g. valuations revenue authorities for taxation purposes or by companies for annual accounts.
    - Valuations for other specific purposes.
    - Not generally purpose designed for constructing "official" CPPIs &/or other Indicators.
    - Indices, so derived, are referred to as <u>appraisal-based</u> indices.

Transactions: practical data-related difficulties

- *A lack of transparency.*
  - From complexities in sale contracts.
    - Transfers of commercial property can be very intricate.
      - Leasehold/freehold; shared facilities; parts of building.
    - Or from the evasion of duties imposed by revenue authorities.
  - Complication factors such as the existence of tenancy agreements, and planning consent for redevelopment etc., can impact on expected future returns & affect transaction price.
    - These factors may not always be recorded along with the price in official registries etc.

- *A lack of timely data from a transparent source that can be independently verified.*
  - Official data on transaction prices can be difficult to obtain.
  - The sale of a commercial property may not be registered until some months after the sale.
  - The recorded price cannot be verified independently as to whether it was the actual transaction price (previous slide refers).
    - Reliance on policing of administrative system.

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- *Small numbers of transactions.*

    - The buying and selling of commercial property can be relatively infrequent.

    - Limits the use of data source in compiling frequent indices (quarterly, monthly etc.), particularly in smaller commercial property markets.

    - Methods for dealing with small sample sizes in this context are discussed in Chapters 5 & 6.

Transactions: practical data-related difficulties

- Commercial properties are relatively heterogeneous.

- Requires mechanisms to ensure a property price index tracks the prices of like-for-like properties over time.

  - Low numbers of transactions and limited information on the properties being transacted can preclude traditional quality adjustment methods to account for the change in the mix of properties sold.

- Practical difficulties often lead to a lack of observable prices in consecutive periods.

  - Needed to facilitate the computation of an index that is not confounded by.

    - Lack of data.

    - Changes in the different mixes of commercial properties and property characteristics entering the index at each computation.

- Methodologies for dealing with such inadequacies exist.

  - As long as the transactions don't completely dry up during market down-turns.

- Methodologies are referred to in earlier chapters.

Transactions: lack of harmonisation

	Statistics Denmark	Hong Kong
Classification of property	• Mixed (residential and business**).** Business use has to be at least 25%. • Business only. • Factories and warehouses. • Agriculture (but excludes corporate sales).	▪ Offices. ▪ Retail. ▪ Industrial
Price data & index construction	• Price recorded in Land Registration System. • SPAR method: ratio of purchase price to appraisal value. • Excludes "atypical" sales/properties e.g. Where sold by local authority or where bundle of properties sold.	• Price recorded in Agreement of Sale & Purchase. • Price per "saleable" floor area. • Repeat sales. • Quality adjusted by rateable (rental) value (similar to SPAR). • All leasehold.

Valuations: practical data-related difficulties

- Obtained from.

  - Existing administrative systems.

    - E.g. where valuations are undertaken by tax authorities as a basis for levying taxes or by corporations for filing company accounts.

  - Special data gathering exercises carried out for specific purpose of computing an index.

  - Valuations undertaken for portfolio management or for providing collateral against a bank loan, or for internal accounting between different parts of a business.

    - Can be infrequent and are often unregulated.

- Lack of international guidelines relating for valuations.

  - Valuations undertaken for specific purposes e.g. submission of a tax return - may operate within guidelines laid down by Government/professional body but can vary between countries.

    - Same for official CPPIs.

  - Rely on judgement.

  - Can be differences between one set of valuations and another.

Valuation systems

- ✓ User has limited influence over the composition of data. For example.

    - ✓ Definitions.

    - ✓ Collection of supplementary information.

        - ✓ Required for index computation but not for collection of taxes. E.g. price-determining characteristics for computing "constant quality" price index

    - ✓ Can represent an expert and objective judgement on how much a property would sell.

    - ✓ If undertaken regularly can avoid collection costs of customised data collection.

    - ✓ Potential data source for exploitation at minimal cost.

- • Access to relevant datasets may be limited.

- • Infrequent and subject to significant time-lags.

Valuations: practical data-related difficulties

Valuations for the financing or re-financing of commercial property.

- Valuation rules insufficient to entirely overcome pressure on appraisers to bias appraisals toward valuations that support the lending transactions.

  o Unless appraisers hired by independent agencies.

    ▪ Adds to the range of uncertainty around some valuations, depending on the purpose and motivation.

    ▪ A "95% confidence range" is of the order +/- 20% of the property value.

  o Valuations over-influenced by past prices resulting in smoothed index (generic to appraisal-based indices).

    ▪ Not so good at identifying turning points.

  o The potential for compiling indices depends on statutory and industry information standards requirements.

Appraisal prices as a proxy for transaction prices?

- Potential to use appraisals as a proxy for market prices.

  ✓ Subject to appropriate protocols relating to basis of valuations.

  ✓ Some indices compiled using a combination of transactions and appraisals.

- ....and some other positive properties.

  ✓ Appraisals based on transaction price evidence.

  ✓ Often share same goal of tracking movements in market prices.

  ✓ Can track same properties (but quality adjustment may be needed).

Commercial property price indices: data for weights

- Most indices are transaction-weighted rather than stock-weighted.

  - Conceptual basis of a CPPI should determine weights.

    - Monitoring commercial property inflation experienced by purchasers - use transaction prices and weights based on value of transactions.

    - Valuing commercial property stock for wealth measurement and measuring indebtedness - use value of commercial property stock.

  - Data on stock obtained from land registry or a census of commercial property.

  - Data on transactions obtained from land registry.

    - Re-weight if transactions not representative of stock.

  - A more detailed discussion in Chapter 4.

  - Index calculation more sensitive to prices.

Data relating to land prices/values

- Data sources same as for commercial buildings.

  - Land Registries, tax office records, valuation offices, other valuers, real estate agents, local municipalities.

  - But the availability of data on land prices is relatively sparse (more so than for residential property or for commercial buildings).

    - Not always accessible.

- Characteristics of all data sources.

  - Plots of identical size in same location can vary in price e.g. if one plot being sold for house construction has a nice view and another doesn't.

  - Need relatively prescriptive descriptions (transactions & valuations).

  - Need to convert to a unit values e.g. price per hectare.

Data relating to land prices/values: continued

- For a "transactions" database.

  - More records relating to land prices in rural areas than in urban areas due to scarcity of urban land.

  - Sample sizes are likely to be small at and below the regional level, and for different types of land use.

- Problems of interpretation.

  - Transactions can be speculative - anticipating a change in use.

  - International comparisons confounded by absence of land use information and a lack of an internationally agreed classification.

  - Freehold versus leasehold properties (long-term ground leases) is an added complication.

Trends in officially appraised values and urban land price indices for commercial and industrial land

- Indices based on appraisals & assessments.

- Different methods lack comparability.

- Stability & continuity of index provision important.
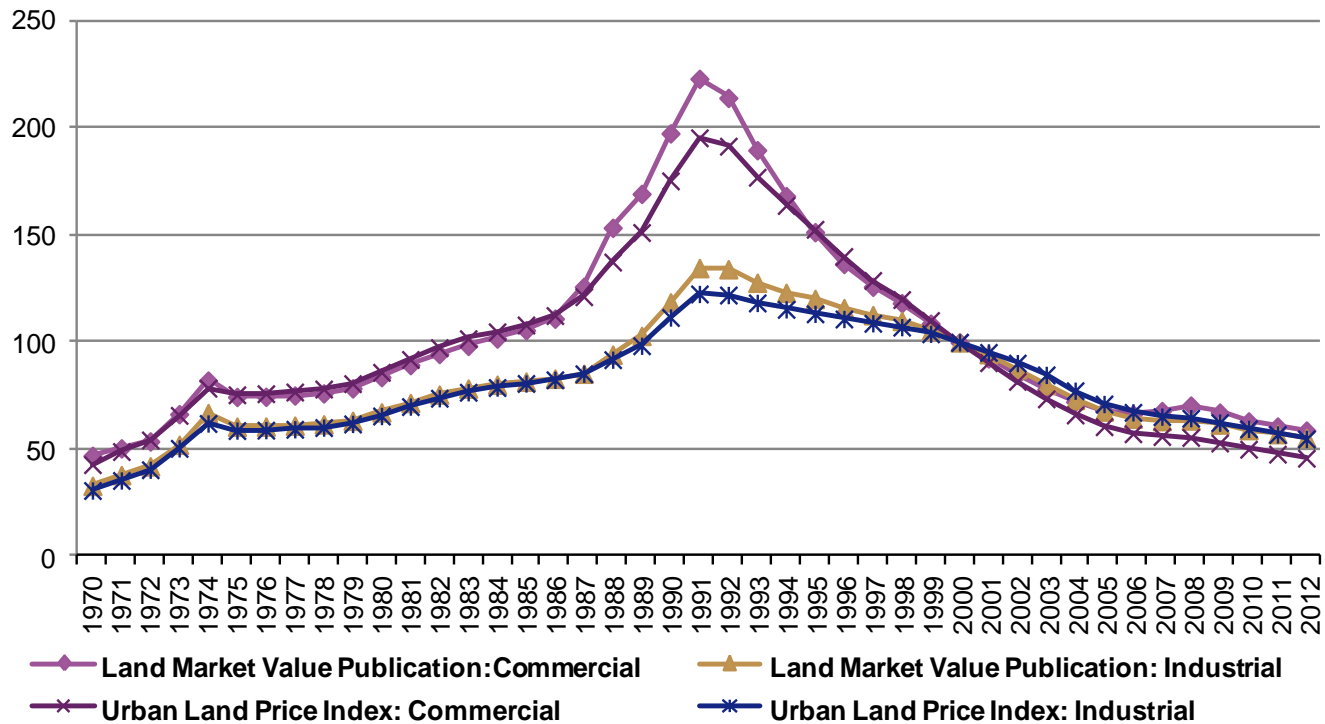
Overall conclusions

- Prominent practical problems relating to *transaction data.*

  - Few transactions.

  - Not being able to sufficiently perform quality adjustment.

    - Heterogeneity & lack of detailed information.

  - Limited transparency.

- Also prominent problems with *valuation data.*

  - Collected for a variety of purposes.

    - Monitoring of property prices, portfolio valuations, taxation.

    - Valuation protocols vary.

- Transaction-based & appraisal-based indices all generally trying to obtain market value: subject to appropriate measurement protocols.

Overall conclusions

status of available indices & comparability issues arising
comparable, agreed protocols = √   non-comparable, no agreed protocols = X unclear = ?

|		Transactions	Valuations
Comparability	Coverage	?	X
	Classifications	X	X
	Protocols for recording "market" price	✓	X
	Index methodology	✓	X
International protocols needed			

The importance of other indicators relating to the commercial property market

- For real estate asset market: transaction prices are not a sufficient statistic for the state of the market.
  - reliance on other associated indicators for analytical purposes e.g. asset transaction volume and rental market data are of fundamental importance, in particular from an investments industry and financial system perspective.
  - OTHER INDICATORS INCLUDE.
    - Commercial land prices (not often compiled).
    - Office rents per m2.
    - Derived variables: Net or Gross Debt as a percentage of Net Asset Value; Capital value-to-GDP ratio; capital value-to-private consumption ratio; capital value-to-employment ratio; capital value-to-rent ratio yield average.

Japan: capital returns for property used for offices

- ARES, IPD, and JOIX indices.
  - ARES and IPD indices use similar data sources and compilation methodologies.
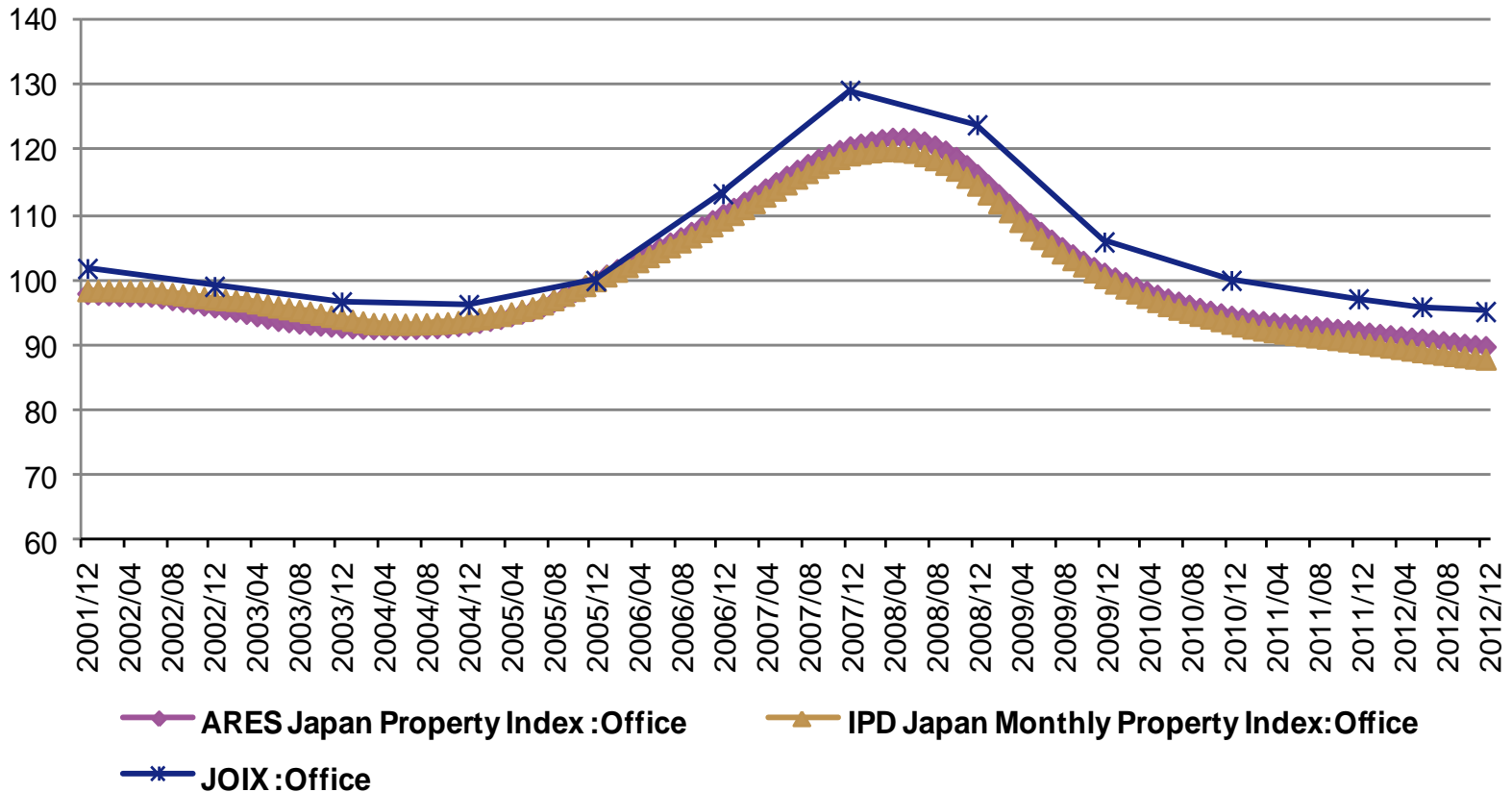
Other commercial property indicators: conclusions

- <u>Other indicators</u> also important.

  - Commercial land prices (not often compiled, lack of data).

  - Office rents per m2.

  - <u>Derived</u> variables.

    - Net or Gross Debt as a percentage of Net Asset Value; Capital value-to-GDP ratio; capital value-to-private consumption ratio; capital value-to-employment ratio; capital value-to-rent ratio yield average.

Similar challenges.

In summary: general observations

- Computation of "official" CPPIs is a priority.

- Cannot be too prescriptive on recommendations.
  - Practical solutions to compilation issues not always clear cut & will vary depending on country specific circumstances.
    - Data availability & nature of the commercial property market.
  - Concepts & methods for compiling CPPIs are still developing as knowledge & practical experience progresses.
  - Further research and international agreement.

- Need to agree concepts, definitions, classifications etc.
  - To facilitate harmonisation using best available methodology.

- Target index is a *"transaction-based constant quality index"*.
  - Meets the requirements of Governments for economic analysis and also by official agencies and institutions charged with overseeing and regulating the health of the financial system & investment industry.
    - Transaction prices represent observable market valuations.
    - Constant quality so only price changes reflected (same methods as RPPI).

In summary: general observations

- Main Methods for the Construction of a constant quality Commercial Property Price Index.
  - The four main methods for constructing a transaction based constant quality property price index that were suggested in the Handbook of Residential Property Price Indices (*RPPI Handbook*, 2013) can be adapted to the construction of Commercial Property Price Indices.
    - The stratification or mix-adjustment approach; hedonic regression (time dummy variable method and the hedonic imputation method); repeat sales; and appraisal-based methods using SPAR methodology.
      - The SPAR method has a particular advantage in the context of commercial property where the volume of sales can be very low but it cannot deal with quality change e.g. when a building is subject to significant refurbishment and upgrading.

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End of presentation