EUROPEAN CENTRAL BANK

EUROSYSTEM

ECB PROGRESS TOWARDS A EUROPEAN COMMERCIAL PROPERTY

PRICE INDEX[1]

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Abstract

In the on-going economic crisis policy makers have highlighted that an important gap in the dataset available for monetary and financial stability analysis is information on Commercial Property Prices (CPPIs). The European Statistical System initiated investigations on the topic with work on a compilation Handbook already started. The process of establishing these statistics from the statistical authorities is likely to take some time to complete. To fill the urgent requirements the ECB and National Central Banks are establishing an interim data set for this phenomenon, working predominantly with a commercial data provider. This paper presents progress so far, highlighting that in this field the compilation process needs to be both pragmatic and innovative.

The paper explains the motivation for the European System of Central Banks undertaking this project, it explains the work that has been covered thus far, presents "work in progress" results and sets out future plans for the indicator.

Key Words: Commercial property prices, financial stability, macroeconomic analysis.

1. Usage of Commercial Property Indicators

Indicators measuring the price development of commercial real estate are important in the euro area context for economic analysis, monetary policy, financial stability and prudential supervision. All the following applications could be envisaged:

- Financial stability[2] (incl. needs of the ESRB), i.e. CPPIs as financial soundness indicator,

- Mortgage lenders' exposure to risk and risk management by mortgage providers,

- Macro-economic indicator of inflation pressure,

- Macro-economic assessment (for the property market sector),

- In conjunctural analysis developments on the commercial property market and its connection to the construction sector (indicator of economic activity),

- Economic analysis (relating property prices to fundamentals, detection of bubbles, etc.),

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[2] See e.g. ECB (2007), "Commercial property investment and financial stability", Financial Stability Review.

- National accounts deflation and a measure of non-financial corporations' sector wealth.

Similar to the Residential Property Price Indicators it is clearly recognised that one universal index cannot serve equally well all data users. The intention therefore is to develop for ESCB purposes a headline CPPI which would satisfactorily serve most of the above purposes as well as having the building blocks necessary to allow limited variants of the index to be used for more specific analytical purposes.

The ECB's requirement is thus ideally, a quarterly constant quality euro area indicator of commercial property prices preferably based on transactions prices.

2. Development stages

This section details the milestones along the development path for the data.

2.1 stocktaking exercise

The WGGES first examined the subject of CPPIs in May 2010 based on a stocktaking exercise aimed at examining what data were available in each of the EU Member States. At that juncture the results were that 25 NCBs identified information describing the national commercial property market development (price and stock).

While this stocktaking exercise appeared to show a relatively good coverage of data, closer investigation revealed that the data sources were extremely heterogeneous with data collected at different times in the purchase process or under extremely different valuation or appraisal regimes or pertaining to other related phenomenon rather than prices per se. Furthermore metadata should be made available when required. These included:

- Rents/ rental values;

- total return, defined as annual compounded rate of monthly capital appreciation plus monthly net income received expressed as a percentage of monthly capital employed (capital value (growth) defined as annual compounded increase in monthly values, expressed as a percentage of the capital employed each month;

- performance of portfolio, defined as income receivable as a percentage of the capital value at the same date

- other concepts which include the appraisal valuation (sale prices, or derivatives.

After discussion with ECB end-users it became apparent that, ideally, for most analytical purposes, users would prefer an index of commercial real estate prices representing movements in transaction prices, which is consistent with what is required for residential property prices. In reality this may be more difficult to achieve for commercial property which tends to be infrequently traded in particular in small countries or times of stress, with each property highly heterogeneous as the market registers major reductions in liquidity. Nevertheless, the WGGES supports any additional efforts on the side of NCBs and other official sources to aim at constructing transaction based CPPIs by exploring and searching further for possible existing sources of data on sale prices of commercial property. Valuation based indicators remain a suboptimal option as they have been criticised for understating market volatility and for not capturing market turning points in a timely manner.

The countries' replies to the stock-taking conducted in May 2010 indicated that the majority of the price data available for commercial property are largely valuation-

based indices and the sources are predominantly private organisations. These indices are strictly speaking designed for performance measurement purposes rather than for measuring price changes over time. The indices thus often have the following issues:

- valuation error: the index could be calculated for a non-representative sample of the commercial property (sample bias);

- smoothing issue: the index value is based on valuations and may be subject to bias, because there is a tendency for appraisers to use historical comparable or past transaction prices when forming an opinion of the value of a property; a particular value might therefore to be too 'tied' to its previous valuation in a rapidly moving market;

- the underlying sample can have a non-continuous coverage ;

- for many countries only relatively short histories of index data are available.

- there is a heterogeneity of appraisal regimes (and calendars) across countries.

2.2 Two-step approach

Notwithstanding these conceptual issues, the WGGES agreed in February 2011 to explore a two-step approach for data supply on CPPIs:

While bridging the gap until the official statistics community will provide data with a higher degree of comparability, due to the current non-availability of relevant (and sufficiently harmonised) national data, the WGGES agreed that the ECB should explore the data set made available commercially from the Investment Property Databank as a first step. The main target was agreed to be a quarterly CPPI for the euro area and EU (without full national breakdown), using valuation prices to be provided by the IPD. To improve this "short-term" dataset and to fill national gaps, the WGGES agreed, that whenever better national data than IPD exits, and these are suitable to be included in the ESCB compilation process, these would replace or complement the IPD data.

3.   The interim approach: experimental statistics based on the IPD data set

The Investment Property Databank (IPD) is a commercial information business providing market data and performance analysis for the owners, investors, managers and occupiers of real estate. Since 2011 IPD worked closely with the ECB to enhance its data set in order to supply quarterly commercial property price indices for all directly held commercial real estate assets (all property) and for the four main market sectors – retail, office, industrial and residential (i.e. those residential properties that are let to tenants by professional landlords) - wherever they are held in professionally managed portfolios. The work, while remaining at an experimental stage, allows the production of two separate IPD data-sets: a) data calculated purely on the basis of professional valuations and b) a model-based indicator that combines the valuation data with additional information on actual transactions..

The IPD dataset collates asset level data from a wide variety of professional investors in real estate. It excludes any data from properties that are indirectly held through investment vehicles, bonds, cash, derivative and Real Estate Investment Trust share holdings. The IPD datasets currently available to the ECB contain national quarterly frequency price series for Austria, Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and UK albeit some of these are interpolated.

3.1 Compilation methodology

Two different methodologies have been distinguished to estimate commercial property prices at a national level by IPD: a valuation and, where the required data are available, a transaction linked method. The valuation data is based on open market valuations of real buildings produced by property professionals. The second data set uses the valuation data but supplements and enhances these with any available data on transactions in the market in the quarter in question. The data are presented in euro (converted using quarter average exchange rates where relevant). In both cases originally the data reflected properties under management in portfolios at the time of reporting. However, due to divestment or new portfolios joining the sample this could lead to structural breaks. To counteract this issue the data are now produced so as to maintain a "continuous coverage'. This method ensures that a single property stays at least for 5 consecutive quarters however this is a chained structure. In each quarter new properties can join or some can leave the sample. Therefore the coverage is constant across 5 consecutive quarters. This allows year to year percentage change series to be calculated which have the same underlying assets included in the calculation and thus ensuring that movements in the index in the analysis period are due to price movements rather than asset level shifts.

3.1.1 The Valuation Based Index

Ideally, the market valuation of a property corresponds to the price that would be agreed between a willing buyer and a willing seller within a reasonable negotiating period net of purchasers' costs e.g. legal fees, tax payments. This is also the definition that IPD request from their reporting agents. Nonetheless, in practice the valuation price may diverge from the price that would be settled if a transaction were to take place due the cyclical conditions of demand in the market. IPD provides the following valuation-based CPP headline indicators[3]:

Table 1: Computation Formulae

Total return

With respect to a single month total return is defined as:

$$TR_t = \frac{(CV_t - CV_{(t-1)} - CExp_t + CRpt_t + NI_t)}{(CV_{(t-1)} + CExp_t)} * 100$$

Income return

$$INCR_t = \frac{(NI_t)}{(CV_{(t-1)} + CExp_t)} * 100$$

Capital growth

$$CVG_t = \frac{(CV_t - CV_{(t-1)} - CExp_t + CRpt_t)}{(CV_{(t-1)} + CExp_t)} * 100$$

Where:

TR_t is the total return in month t

CV_t is the capital value at the end of month t

$CExp_t$ is the capital expenditure (includes purchases & developments) in month t

$CRpt_t$ is the capital receipts (includes sales) in month t

NI_t is the day-dated rent receivable during month t, net of property management costs, ground rent and other irrecoverable expenditure

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3.1.2 The Transaction Linked Index

IPD, at the behest of the ECB, have also been developing a model-based hybrid index which incorporates transaction information with the standard IPD valuation data described in the previous paragraphs. The aim is to get closer to a transaction based index given the specificities of the commercial property market such as heterogeneous

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[3] The ECB uses data that exclude capital expenditure as including capital expenditure created very high quarterly fluctuations that were not related to price developments.

properties and infrequent transactions. There are four fundamental stages in the methodology adopted in constructing Transaction Linked Indices:

3.2 Other methodological aspects

In addition to the compilation issues there are several other issues relating to the methodology that need to be noted.

3.2.1 Data frequency and interpolation: IPD provides quarterly CPPIs that are calculated from the highest possible frequency data available to IPD. Where quarterly data are not available the lower frequency data are interpolated.

3.2.2 Aggregation

IPD compiles the weights for their European aggregates using their own estimates of the capital value of the professionally managed investment market in each country (see table). This has several drawbacks: 1/. The estimates, while the best that are possible, are subject to considerable uncertainty; because commercial property is affected by new additions and decommissioning frequently. 2/. IPD only estimate market size for the countries that it is active in.

As mentioned above, for the ESCB CPPI dataset, the default data source is IPD, but NCBs are invited to provide better national data where it exists in order to replace or complement the IPD data. This also means that the ECB has to make its own compilation of European aggregates, which requires a weighting system for the national data. In its October 2012 meeting the WGGES agreed that there is no simple choice for how national data should be aggregated to European results. In principle for a price index the prices and weights should refer to the same phenomenon. Hence in the case of CPPIs, the commercial property prices of a country should ideally be weighted by the total size of the commercial property market in that country or the value of the annual turnover.

Users prefer transparency and simplicity in the methods used. As such a GDP weight method, which can be updated relatively quickly and do not suffer any issues relating to missing observations were agreed by the WGGES as the best weighting method to use at this juncture. The calculation of the weights is as follows:

- A moving 5-year average of GDP weights is applied to the annual percentage change of the IPD data (or where available an NCB recommended alternative is used).

- A European aggregate is produced only when there is at least 70% of the national coverage (for the valuation based indices) and, because the coverage is lower, 50% for the transaction linked indices[4].

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[4] IPD solve this low weight problem – which is caused by some country's only having very few observations on transactions in a particular country within a quarter – by creating regional indices. The ECB will examine if the provision of these regional data can be made available so as to improve the coverage of the IPD plus estimates. Alternatively, if Italian nationally recommended data became available this would also increase the coverage.

- Implicitly this implies that the missing countries are assumed to have the same dynamics as the average of the available data.

4. The interim approach: further development

The WGGES identified several issues to further improve the experimental dataset over the coming months and years until official and more harmonised data becomes available some of the items identified include:

- The establishment of allied indicators such as vacancy rates

- The way that the data are currently weighted together within a particular country: As described above the individual valuation/transaction data are simply summed to a country aggregate using the total information of each of the properties reported by IPD data respondents. This could mean that, for instance, the index is dominated by office properties while the structure of the market is different.

- Interpolation methods: At present where national data are supplied only at an annual frequency data are interpolated linearly. It may be that explanatory variables can be found that would allow this process to be enhanced.

  - Use of geographical information: To further enhance the transaction linked data a research project is underway at the ECB which examines the geographical position of the underlying properties and, where a transaction takes place, uses spatial autocorrelation i.e. the situation where similar values of a random variable tend to cluster in some locations. Applied to the CPPI data this means that high (low) commercial property prices would be geographically clustered rather than being randomly observed. One potential approach would then be to override changes in the valuation based data for close neighbours with a valuation per m2 of close neighbours to predict the sale price of a property.

- National datasets: NCBs might develop or detect better sources for national data than the IPD data set. Quality adjustment of the data is an important but data intensive and technically challenging area for longer-term research

- If further data become available from official sources, which can increase the coverage of transactions, these will be incorporated into the dataset.

5. Conclusions

The work undertaken by WGGES on the subject of Commercial Property Price indicators over the last two and a half years has been productive – and while it remains work in progress - initial estimates have been calculated. The aspect of metadata is likely to be particularly relevant in this case as the indicator is subject to significant caveats including the basing of the data principally on valuations; sub-optimal harmonisation of concepts; potential issues of being representative and other methodological issues. The approach might be considered as innovative, very pragmatic, and fast. However, despite basing the CPPIs on multiple sources and the aforementioned caveats, the experimental statistics on CPPIs once fully developed are likely to be appropriate to guide users on the overall trends in commercial property prices. A future publication of European aggregates is the starting point and the data can and will be further enhanced. As normal for ECB experimental statistics it will also be important to monitor the quality of the indicator over time to ensure that it performs well under periods of market stress and to ensure that it appropriately identifies turning points. Interest in and critique of the data might lead to significant further development and additional data sources in the medium term.