



CENTRAL BANK OF CYPRUS
EUROSYSTEM

Frequently Asked Questions: Residential Property Price Index

1. What is a Residential Property Price Index (RPPI)?

An RPPI is an indicator which measures changes in the prices of residential properties across time.

2. How can an RPPI be interpreted?

An RPPI captures the average change in the prices of a basket of representative residential properties in a specific geographical area. As such, these can be used to give a broad indication of the evolution of residential property prices across time. For example, if the level of the RPPI index for the first quarter of 2010 is 100 and for the second quarter of 2010 is 110, this indicates an average 10% increase in residential property prices between the second and the first quarter of 2010.

3. Does a 10% increase in the index mean the prices of all properties have gone up by 10%?

A 10% increase does not necessarily mean that the price of all residential properties has increased by this amount, since, for example, luxury residences may have increased by more and standard residences may have not increased at all. It simply means that the estimated value of the residences covered in the index increased on average by 10%.

4. Can the index be used to measure the value of a given property?

No. The index provides a summary of the trend of prices of all properties included in the sample. Thus, the index alone cannot be used to evaluate what a single property is worth.

5. If the level of an index in one district is higher than the level of an index in another district, does it mean properties are more expensive in the first district?

No. It merely means that property prices have risen faster in the district with the higher level of the index.

6. What is the purpose of the RPPIs constructed by the CBC?

The primary purpose of the RPPIs constructed by the CBC is to be used by the partnered credit institutions for the monitoring of the real estate market and the efficient implementation of Article 208 of the Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms (CRR).

Further to the above, the CBC's RPPIs enhance transparency in the real estate market and provide a useful tool for investors, macroeconomic analysts, policymakers and other market participants.

7. *What type of properties do the CBC RPPIs cover?*

The CBC RPPIs cover new and existing houses and apartments.

8. *What geographic areas are covered by the data used to construct CBC RPPIs?*

The data used to construct the CBC RPPIs cover all municipalities, communal authorities and quarters which belong to the five districts of the government controlled territory of the Republic of Cyprus namely Nicosia, Limassol, Larnaca, Paphos and Famagusta.

9. *What types of RPPIs are currently being produced and published by the CBC?*

A total of 18 RPPIs are currently being produced and published by the CBC. These are as follows:

- National residential property price index
- National house price index
- National apartment price index
- Nicosia residential property price index
- Nicosia house price index
- Nicosia apartment price index
- Limassol residential property price index
- Limassol house price index
- Limassol apartment price index
- Larnaca residential property price index
- Larnaca house price index
- Larnaca apartment price index
- Paphos residential property price index
- Paphos house price index
- Paphos apartment price index
- Famagusta residential property price index
- Famagusta house price index
- Famagusta apartment price index

Further to the above, RPPIs for Municipalities, RPPIs for touristic areas and Commercial Property Price Indices (CPPIs) are produced. However, these additional indices are available only for exclusive use by the credit institutions that provide data for the construction of the indices. As such, these indices are not available to the public.

10. *How often are the RPPIs published?*

All the publicly available RPPIs are published on a quarterly basis.

11. *What is the period covered by the published RPPIs?*

The published national RPPI and the RPPIs by district cover the period from the first quarter of 2006 onwards. A further breakdown of RPPIs by apartment and house price indices as well as by district cover the period from the first quarter of 2010 onwards.

12. What is the base period of the published RPPIs?

The base period (a point in time used as a reference point for comparison with other periods) is the first quarter of 2010 (i.e. 2010Q1=100)

13. Is the base period of the RPPIs subject to change?

Yes, the base period of the indices is subject to change through a process called rebasing. According to general guidelines of Eurostat (European Price Statistics: An Overview, 2008) the rebasing should take place every 5 years in order to narrow the difference between the base period and the current period.

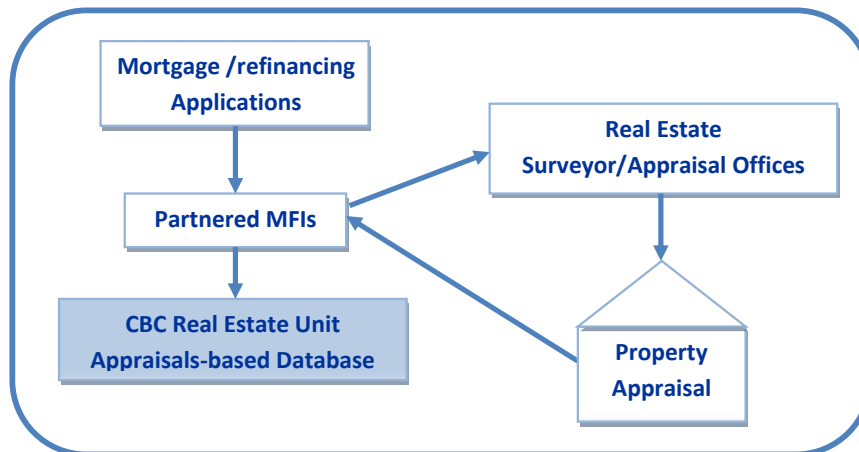
14. What is the type of data used for the construction of the different CBC RPPIs?

The different CBC RPPIs are based on property appraisals data (property valuations) conducted in connection with mortgage collaterals.

15. How are the data used for the construction of the CBC RPPIs collected?

Valuations data are collected from 11 partnered credit institutions (i.e. monetary financial institutions - MFIs). The institutions collect the data from over 100 appraisal offices, which conduct such appraisals in connection with mortgage collaterals. Then the MFIs submit the data to the CBC in a standardised format through an electronic data submission system developed and customised at the CBC. **Figure 1** depicts the flow of the data from the mortgage/refinancing applications to the CBC.

CHART 1 Data collection process



16. How are the CBC RPPIs produced?

For the construction of the different CBC RPPIs, the ‘hedonic’ methodology is employed. The hedonic methodology uses multivariate regressions to disaggregate statistically the price of the property into its constituent characteristics. Thus, by determining the contribution of each characteristic to the price of the property, it is able to distinguish the part of the price variation between two periods which is due to the change in the mix of the sample and the part that is due to market conditions. Further details about the methodology followed for the construction of the indices can be found at:

http://www.centralbank.gov.cy/media/pdf/Methodology_EN.pdf

17. Are the published RPPIs seasonally adjusted?

No, the published RPPIs are not seasonally adjusted. Through various exercises and tests performed by the CBC's Real Estate Unit, it was found that none of the published indices is affected by consistent and significant seasonality. The trend of the RPPIs seems to be driven by main economic events (e.g. accelerated construction activity between 2006 -2008, the economic crisis that began in 2008, the Eurogroup decision in March 2013, etc).

18. How is the national RPPI weighted?

The national RPPI is calculated as the weighted sum of the two by type sub-indices (house and apartment price indices), based on the number of observations for each period. Similarly, the by district RPPIs are calculated as the weighted sum of the by district house and apartment price indices.

19. Are the published RPPIs subject to revisions?

Yes, the results of the published RPPIs may be subject to revisions in the future. This may be due to significant changes in the available sample for each period or improvements in the hedonic regression estimation technique. Revisions are essential in ensuring the best possible quality of the published indices. Whenever a revision is made, this will be clearly stated in the published reports.

20. Can the CBC RPPI reports and data be used by third parties?

The contents of the published CBC RPPI reports may be used or cited by third parties provided that these are appropriately referenced. The CBC is not responsible for any misuse or misinterpretation made by third parties.

21. What other residential property price indices are available for the Cypriot market?

Apart from the CBC, there are other residential property price indices available for the Cypriot market, e.g. the one constructed by Cystat as part of Eurostat's harmonised house price indices and the indices published by RICS Cyprus.

22. Do the various available indices produce the same results?

Although the results of various indices differ in terms of magnitude, the general trend of indices is usually very similar. Differences might arise due to the type of data used for the construction of the indices, the methodology employed, the geographical area covered, the sample data and the definition of a representative property, etc. Differences in the results of RPPIs are observed in other countries as well (e.g. in the UK between the Land Registry, the Nationwide and the Halifax indices).

Table 1 outlines the technical differences between the three main RPPIs in the Cypriot market, i.e. the CBC, the RICS and the Cystat RPPIs, while **Table 2** presents the characteristics of the property taken into account in the calculation of each index.

23. Why do different indices exist and which one is the most appropriate to use?

The existence of various RPPIs for the Cypriot market significantly enhances transparency and information in the market, supporting sound decision-making by the market participants. Different computation methodologies are more appropriate for some purposes than others. For example

David Fenwick of the UK's Office for National Statistics, in a paper published by the Bank of International Settlements, argues that it is more appropriate to use a quality adjusted index based on transactions data when the aim is to monitor the price of a typical house sold. However, when the aim is to monitor the price of a house typical of the stock he prefers a quality adjusted index based on stock data (Fenwick, 2005). Since property price indices have various usages (e.g. measuring housing wealth, financial stability indicators, measuring credit exposure, as macroeconomic indicators of inflation, etc), the decision as to which index to use will be determined by the ultimate aim of its usage.

In all, no single index can be argued to be the best. Rather, as outlined by Fenwick, a family of property price indices should be available (Fenwick, 2005 and 2006). Any index construction method, which is often constrained and determined by the type of available data, has certain benefits and weaknesses, which should be taken into account in the interpretation and use of the results. **Table 3** outlines the limitations of each RPPI available for the Cypriot market, according to their type of data and their method of estimation.

Table 1: Technical aspects of RPPIs produced for the Cypriot market

	RPPIs - Central Bank of Cyprus	House Price Index - Cystat	RICS Cyprus Property Price Index
Data Sources	Valuations performed by >100 appraisal offices, received through local credit institutions	<u>Primary:</u> Developers (price calculation) <u>Secondary:</u> Land & Survey Dep't (Price and Weight calculation) <u>Administrative:</u> Construction and Housing Stats, Real Estate Activities Stats (Weight calculation)	3 Valuators accredited by RICS monitor hypothetical or notional buildings of specific characteristics in each district (i.e. 15 valuers in total)
Data Type	Valuations related to mortgage loans (new loans, reschedulings, re-assessment of the value of the collateral, etc)	Transaction prices from developers and a part of the transactions from the Department of Lands and Surveys	Hypothetical valuations
Property Types	CBC receives data for all type of properties that can be accepted as collateral by MFIs (residential, commercial, land, hotel, farm, garage, etc)	<u>Primary:</u> sold newly-built dwellings (houses and apartments) <u>Secondary:</u> sold new and used properties	Apartments, houses, offices (central business districts), retail (high street) and warehouses (industrial)
Frequency	Quarterly	Quarterly	Quarterly
Methodology	Hedonic regression method	Simple average (MV/Sq.M.)	The arithmetic mean of the 3 estimated prices of standard properties with constant characteristics
Areas Covered	Whole of government controlled area of Cyprus	Whole of government controlled area of Cyprus	Specific municipalities/ communal authorities for each type of property
Standardisation	Achieved through hedonic regressions	Achieved through the use of strata	Achieved through the estimation of the same notional properties
Stratification	A) Indices by district and type B) Captured in the regression model from the variable "location" (urban, rural) and by other variables related to location (e.g. planning zone's coefficients)	Urban, suburban, rural Number of strata for new and used property	Indices by district and type
Starting period	From 2002Q1 aggregated for Cyprus / 2006Q1 by District	From 2005Q1	From 2009Q4
Background information - Mandate	The indices are included in the Statistical Data Warehouse (SDW) of the ECB and the BIS database as their headline indicator for residential property prices in Cyprus. In addition, CBC indices are used by the partnered MFI's for the purpose of monitoring the value of the collateral in their portfolio of real estate loans.	i) The construction of Eurostat's house price indices is mandated by the: " <i>Commission Regulation (EU) No 93/2013 of 1 February 2013 laying down detailed rules for the implementation of Council Regulation (EC) No 2494/95 concerning harmonised indices of consumer prices, as regards establishing owner-occupied housing price indices</i> " ii) The OOH is intended to become a component of the Consumer Price Index. ii) HPI is used as "an independent indicator that attempts to measure house inflation".	It is based on a methodology developed by the University of Reading, UK, and tracks property prices and rental yields in specific areas of the Republic of Cyprus for four main property types: office, retail, industrial and residential.

Table 2: Property characteristics used in the derivation of available indices

RPPIs - Central Bank of Cyprus	House Price Indices - Cystat	RICS Cyprus Property Price Index
<p><u>Apartments (A) & Houses (H)</u> Internal covered area (A, H) Age (A, H) Central heating (A, H) Touristic location (A, H) Area of covered verandas (A, H) Area of uncovered verandas (A, H) Maintenance: very good (A, H) Maintenance: average (A, H) Maintenance: poor (A, H) Quality: below ordinary (A) Quality: luxurious (A, H) Sea view (A, H) No swimming pool (A) Private pool (H) Central air-conditioning (A, H) No air-conditioning (H) Planning zone coefficients (A, H): - Building coefficient - Coverage coefficient - Maximum number of floors - Maximum height Urban/Rural area (A, H) Ownership rate (H) Area of basement (H) House in plot or field (H) Detached house (H) Property under construction (A, H) Number of covered parking spaces (H) Proportion of area of structure to land area (H)</p>	<p><u>Data from Developers:</u> Sq.metres of covered area</p> <p><u>Data from Department Lands & Surveys:</u> Sq.metres of living area (for all used properties)</p>	<p><u>Standard characteristics* of notional or hypothetical buildings</u></p> <p><u>Apartments:</u> Two bedroom, 85sqm, medium quality.</p> <p><u>Houses:</u> Three bedroom with garden, semi-detached, 250sqm, medium quality.</p> <p><u>Retail:</u> High-street retail, 100sqm ground floor area with 50sqm mezzanine.</p> <p><u>Warehouse:</u> Light industrial area, 2.000sqm, 200sqm office space.</p> <p><u>Office:</u> Grade A, City centre location, 200sqm.</p> <p>*In addition, some constant characteristics apply to all type of properties, e.g. newly built properties in good state of repair, located in the city centre, in non-tourist areas, with title deed.</p>

Table 3: Limitations of each RPI available for the Cypriot market

RPPIs - Central Bank of Cyprus	House Price Indices - Cystat	RICS Cyprus Property Price Index
<ul style="list-style-type: none"> • Data are collected through credit institutions. Hence, any property that is transacted without financing (e.g. cash based) or does not relate to mortgage loan (e.g. not used as collateral) is not included in the sample. • Since they are based on valuation prices, they are expected to be smoother and exhibit a time-lag relative to a comparative index of transaction prices. 	<ul style="list-style-type: none"> • Subject to significant sample bias during periods of economic crisis, due to limited transaction data availability. Results can therefore be more prone to distortion from the existence of any low or high transaction price. • The fact that only two characteristics are taken into account when estimating price fluctuations (m² of the living area and location), makes the results vulnerable to changes in the quality of the properties in the sample of every period. 	<ul style="list-style-type: none"> • Based on hypothetical properties with constant characteristics, which is assumed to reflect the typical property of the market. Thus, it does not take into account that the characteristics of the typical property may change over time (e.g. smaller apartments are build) • The indices cover specific locations of each district, mainly in the city centres. While the areas covered may give a good indication of the price fluctuations in the market, one cannot guarantee that the areas left uncovered (e.g. tourist areas) do not behave differently than the areas covered.

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