



CENTRAL BANK OF CYPRUS

EUROSYSTEM

RESIDENTIAL PROPERTY PRICE INDEX (RPPI)

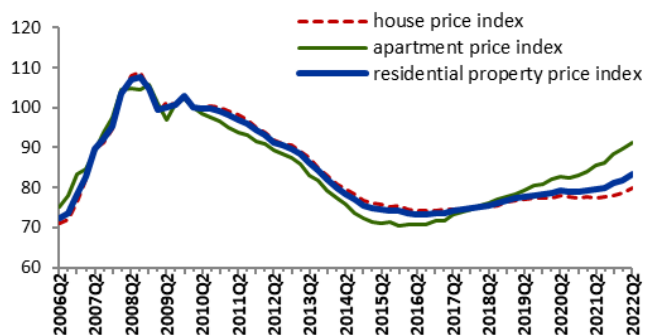
2022 Q2

Acceleration in residential property price increases was recorded in 2022Q2, mainly due to increased construction cost.

- The Residential Property Price Index (RPPI) of the Central Bank of Cyprus (CBC)¹ (apartments and houses) registered a quarterly increase of 1,7% compared with 1,1% in 2022Q1. On an annual basis the index recorded an increase of 4,7% compared with 3,2% in 2022Q1.
- The acceleration in residential property price increases is mainly due to increased construction costs, which is reflected in the increased prices of both apartments and houses. On an annual basis, the increases in apartment prices are larger than those of houses in all districts. For the first time since the outbreak of the pandemic, all districts are showing annual increases in both apartment and house prices, indicative of the upward trend in prices across the spectrum of the housing market.
- The demand in the real estate market during 2022Q2 exhibited an upward course (from both the domestic market and abroad), while there were signs of a downward course in supply. The war in Ukraine has intensified inflationary pressures, with a significant impact on construction cost, which however does not appear to have adversely affected demand so far. In the medium term, the increase in borrowing cost due to the rise in interest rates, as well as, the erosion of income due to inflationary pressures are expected to reduce demand, but without necessarily reducing prices, which currently show an increasing tendency due to construction cost.

Table 1 Overview	2021 Q3	2021 Q4	2022 Q1	2022 Q2
Residential property price index (2010 Q1=100)	80,0	81,0	81,9	83,2
Quarterly change	0,6%	1,3%	1,1%	1,7%
Annual Change	1,2%	2,6%	3,2%	4,7%
(a) Property price index Houses (2010Q1=100)	77,6	78,1	78,7	80,0
Quarterly change	0,3%	0,7%	0,7%	1,7%
Annual change	-0,3%	1,0%	1,5%	3,5%
(b) Property price index Apartments (2010Q1=100)	86,3	88,3	89,8	91,1
Quarterly change	1,3%	2,4%	1,7%	1,5%
Annual change	4,5%	6,3%	6,8%	7,0%

CHART 1 House and apartment price indices (2010 Q1 =100)



Source: CBC.

¹ The CBC RPPI is calculated on the basis of market valuations of real estate prices and a statistical methodology widely used in the international literature. It takes partial account of developments in previous quarters through smoothed regression coefficients (see relevant methodology):

https://www.centralbank.cy/images/media/pdf/Methodology_EN_latest.pdf. Therefore, it is likely that there will be a short lag in fully capturing the pass-through of developments in the Index's turning points, with respect to both time and the magnitude of the change in market course.

Changes in the residential property price index (RPPI)

The RPPI (houses and apartments) recorded a quarterly increase of 1,7% in 2022Q2, compared with 1,1% in 2022Q1.

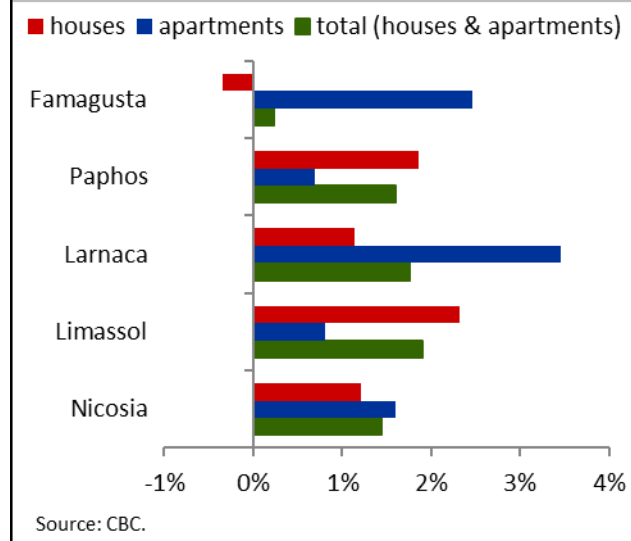
The increase in the RPPI is mainly due to the 1,5% increase in apartment prices, compared with the previous quarter, while house prices increased by 1,7% during the same period (**Table 1, Chart 1, p. 1**).

On an annual basis, RPPI recorded an accelerated increase of 4,7% in 2022Q2 compared with 3,2% in 2022Q1. During the quarter under review, apartment prices recorded an annual increase of 7%, while house prices increased by 3,5% (**Table 1, p.1, Chart 2**).



The acceleration in house price increases is mainly driven by construction cost, which is reflected in the acceleration in the growth rate of both apartment and house prices. Whether the influence of residential property prices from construction cost will be sustained in the future will directly depend on the duration of the upward trend in energy and construction materials prices. Also, government subsidies for energy upgrading of homes, as well as other home renovation works, may also contribute positively to price increases, since they increase their value. Conditions in the credit market showed the first signs of tightening (a small increase in interest rates, tighter lending criteria), although demand does not seem to have been affected at the moment (there is an increase in sales contracts). The descent of a significant number of Ukrainian refugees and Russians to Cyprus contributes to the maintenance of high rental levels, thus making real estate an attractive option for buy-to-let investors. Also, the fact that real

CHART 3 Quarterly percentage change by district and by type of property, 2022Q2



estate is considered as a safe haven against inflation (safe asset) supports their dynamics.

Price changes by district

In 2022Q2, the RPPI recorded quarterly increases in all districts. Specifically, RPPI in Nicosia increased by 1,4%, in Limassol by 1,9%, in Larnaca by 1,8%, in Paphos by 1,7% and in Famagusta by 0,2% (**Chart 3, Table 4, p. 8**).

As far as annual changes in the price indices of individual districts are concerned, the RPPI recorded increases in all districts. Specifically, in Nicosia residential property prices increased by 3,1%, in Limassol by 5,1%, in Larnaca by 3,3%, in Paphos by 7,4% and in Famagusta by 6,3% (**Chart 4, p.3, Table 4, p.8**).

On a quarterly basis, house prices recorded increases in all districts, except in Famagusta where house prices marginally declined by 0,4%. In particular, in Nicosia house prices increased by 1,2%, in Limassol by 2,3%, in Larnaca by 1,1% and in Paphos by 1,9%. On an annual basis, house prices recorded an increase in all districts. House prices in Nicosia, Limassol, Larnaca, Paphos and Famagusta increased by 2,4%, 3,4%, 2,5%, 6,2% and 4,8%, respectively.

Apartment prices increased in all districts on a quarterly basis. In particular, in Nicosia, apartment prices increased by 1,6%, in Limassol by 0,8%, in Larnaca by 3,5%, in Paphos by 1% and in Famagusta by 2,5%. The

rise in apartment prices in all districts has been recorded on an annual basis as well. Specifically, in Nicosia apartment prices increased by 4,5%, in Limassol by 6,5%, in Larnaca by 5,3%, in Paphos by 10,3% and in Famagusta by 9,8%.

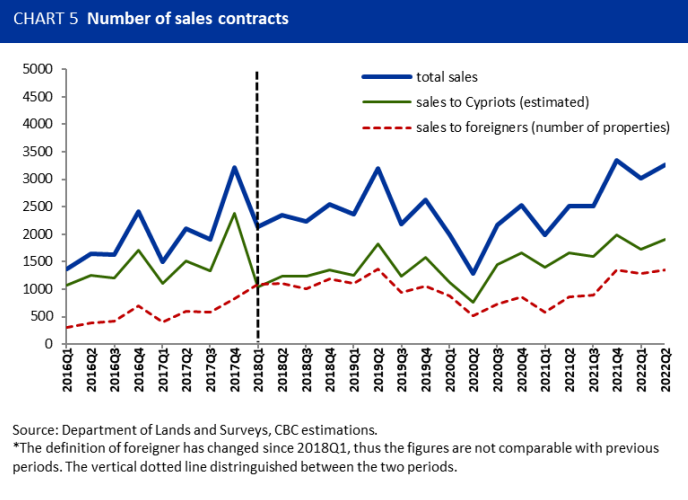
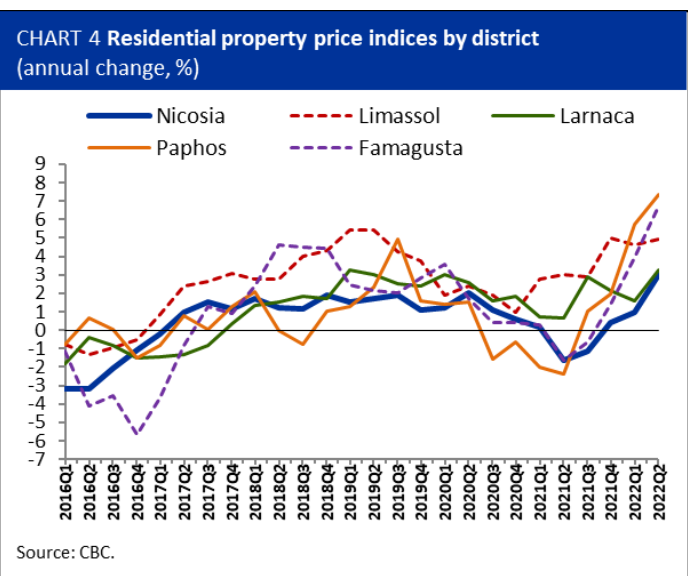
The significant increases in apartment prices that have been recorded in Paphos and Famagusta can be attributed to the delayed recovery of the real estate sector in these districts relative to the other districts, as it has already been elaborated in the previous RPPI report for 2022Q1. For 2022Q2 it is worth noting that on an annual basis the prices of both apartments and houses recorded an acceleration in their growth rate in all districts, with the exception of apartment prices in Limassol district, which have decelerated.

Other market indicators

The dynamics in the real estate market, i.e. the increased demand from buyers and the rising construction cost and prices on one hand, as well as the limited supply on the other hand, are all reflected in various indicators of the real estate sector.

According to the latest data published by the Department of Lands and Surveys (DLS), in 2022Q2, the number of sale contracts recorded an annual increase of 29,3% (3.254 compared with 2.516), reflecting the increased interest for real estate. In addition, in the quarter under review, demand from foreign buyers recorded an annual increase of 58,4% (1.351 compared with 853), resulting from an annual increase of 48,5% in transactions from European Union (EU) residents and 68,1% increase in transactions from third country (non-EU) residents (Chart 5).

Other factors that support the real estate market are the tax reliefs promoted by the state in the context of international headquartering, as well as the government's subsidies for the energy upgrade of homes. In particular, the incentives in the context of international headquartering facilitates the attraction of foreign professionals and their families to Cyprus. Also, the war in Ukraine may create demand in the real estate market from businessmen and investors from Russia and Ukraine, who are looking for alternative headquarters abroad, choosing Cyprus due to the favorable investment environment, the aforementioned tax facilities and the existing trade relations with two countries. In addition, government



subsidies for home energy upgrades provide incentives for home renovations, which result in an increase in their value, potentially contributing to the upward trend in prices observed.

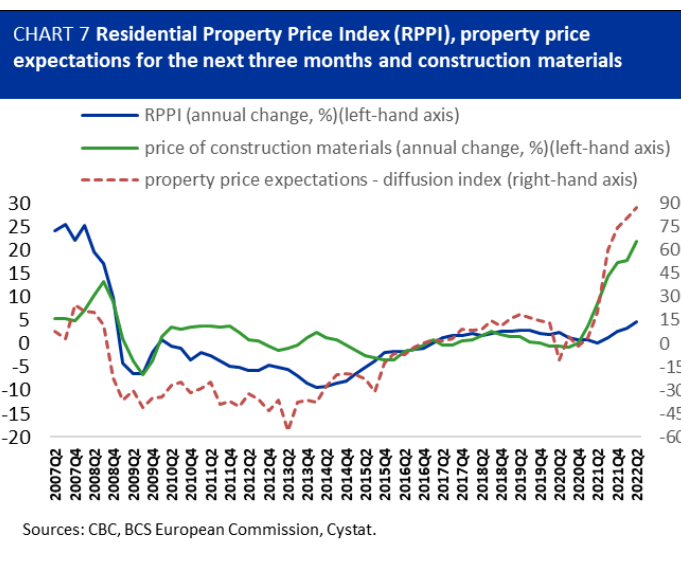
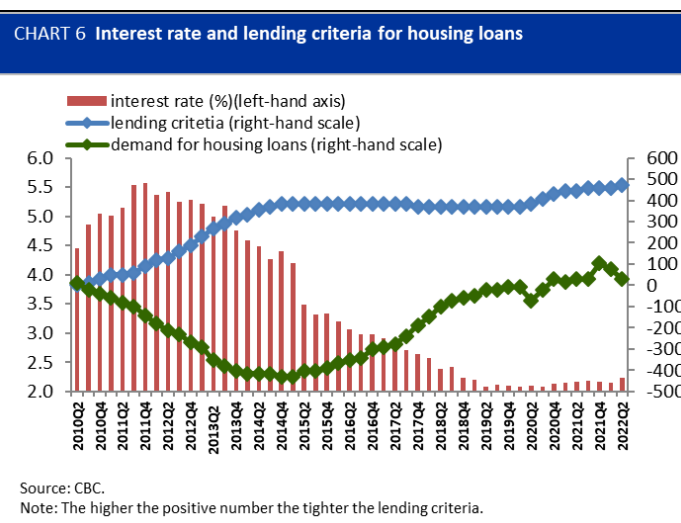
In contrast, construction activity is showing signs of moderation. Specifically, according to data from the Statistical Service of Cyprus (Cystat), the number of residential units for which building permits have been approved, which is a leading indicator of construction activity, registered an annual decrease for the period January - April 2022 by 7,4%. Also, Cystat's index of production in construction (buildings category) recorded consecutive annual declines over the last three available quarters (2021Q3 to 2022Q1). According to data from the Business and Consumer Surveys (BCS) of the European Commission, the index

of construction activity in the previous three months worsened in 2022Q2, reaching -23,5 compared with -13,6 in the previous quarter and -12,9 in the corresponding quarter of the previous year, essentially confirming the restraint in construction activity.

The first signs of a tightening in credit conditions emerged during the quarter under review, although they do not appear to be impacting demand for the time being. According to CBC's *Monetary and Financial Statistics*², new loans for the purchase of housing in 2022Q2 decreased by 12,3% on an annual basis (€256 million in 2022Q2 compared with €292 million in 2021Q2). According to the same source, the interest rate on new housing loans³ in 2022Q2 recorded the first increases, after it averaged at 2,27%, compared with 2,15% in 2022Q1 (Chart 6). Further increases in mortgage rates are expected in the future (given the ECB rate hike). According to the Bank Lending Survey, lending criteria tightened compared with the previous quarter⁴.

The price index of construction materials, published by CYPSTAT, recorded an increase for the seventh consecutive quarter (Chart 7). In 2022Q2, the prices of construction materials recorded an annual increase of 21,9%, with the largest increases mainly recorded in metallic products. The large increase in the price of construction materials, firstly as a result of the disruption in supply chains and secondly due to the war in Ukraine, is driving up the prices of new properties, albeit with some time lag, as it takes time for new orders of materials to arrive on the one hand, and on the other hand the construction companies absorb part of the increased costs. Further analysis on the impact of rising construction cost on residential property prices is presented in the Box (p. 5 of this report).

According to Business and Consumer Surveys (BCS) of the European Commission, in 2022Q2, the real estate sector continues to register increases (Chart 7). In particular, property price expectations for the next three months averaged at 87,1 in 2022Q2, compared with 80,3 in the previous quarter and 20,1 in 2021Q2, reaching historical high levels. As a result of the reduced construction activity, as noted in the previous paragraph, the index of expectations for employment in the real estate sector in the next three months



fluctuated at negative levels in 2022Q2 (-1) compared with -0,4 in 2022Q1 and positive levels (2,4) in the corresponding quarter last year.

In conclusion, the real estate sector records an accelerated increase in house prices as a result of the increase in construction cost, but also the decrease in construction activity. The expected further tightening in the credit market, and the erosion of income due to inflation is expected to have a contractive impact on real estate demand. The fact that real estate is seen as a safe haven in times of high inflationary expectations is expected to support demand.

² [Central Bank of Cyprus - Monetary and Financial Statistics](#)

³ Floating rate and up to one year fixed.

⁴ [Central Bank of Cyprus - Bank Lending Survey](#)

Box: The role of construction materials prices in RPPI changes⁵

For seven consecutive quarters since 2020Q4, the price index of construction materials has exhibited significant increases (**Chart A**), mainly due to the disruption to supply chains during the pandemic, prolonged by the war in Ukraine and subsequent sanctions against Russia. Particularly, increased energy costs as a consequence of geopolitical developments also contributed significantly to construction materials price increases in 2022. According to recent data from Statistical Service of Cyprus (Cystat), the largest increases are identified in metallic products, products of wood, insulation materials, chemicals and plastics, while the increases in minerals and mineral products are moderate.

An important question is to what extent the increases in construction material prices are passed through to residential property prices, thus affecting the RPPI. The present econometric analysis presents the results of a Bayesian Vector Autoregressive (B-VAR) model that decomposes RPPI changes into contributions of the individual components/variables that drive residential property prices. The analysis allows the assessment of the main factors influencing changes in the RPPI, while the historical review of the results demonstrates the extent to which changes in the various components can be translated into corresponding changes in the RPPI.

The B-VAR model includes six endogenous variables: Construction Cost Index growth (composed of construction material prices and labour costs), mortgage interest rate, changes in mortgage loans, housing investment, the level of foreign direct investment in the real estate market and finally the RPPI. The estimation of the model took into account data from 2003Q1 to 2022Q2, using 4 time lags.

According to the results of the analysis (**Chart B**), construction cost is the main driver of residential property price increases from mid-2021 onwards. It is worth mentioning that, according to the present analysis, hadn't been for the aforementioned increases in construction cost, the RPPI would have recorded negative year-on-year growth rates, ceteris paribus. Housing loans also had a small positive contribution to RPPI in 2021, supported by the government's mortgage subsidy scheme and the general low interest rate environment.

Chart C also confirms that, historically, the relationship between changes in the price of construction materials and the contribution of construction costs in RPPI changes is not linear or constant through time. Generally, significant drops in the price of construction materials, such as those observed in 2009Q3, are associated with strong response of contribution of construction costs in RPPI changes. In these cases the pass-through of the price of construction materials in residential property prices seems to be strong. Instead, significant increases in the price of construction materials, like those observed in 2008Q3 and over the recent quarters, do not induce the corresponding immediate response of the contribution of construction costs in residential property prices, which seem to remain relatively subdued compared to the immense increases in the price of construction materials.

This, inter alia, might be associated with the fact that part of the price increases are absorbed by the developers, squeezing their profit margins (pricing to market behaviour). In addition, the rising cost of construction materials concerns only newly built dwellings, which only constitute a small part of residential properties included in RPPI. Hence, any spill-over effects in the prices of second-hand residential properties are likely to take some time to become evident.

⁵ Econometric analysis by the Real Estate Unit of the CBC.

Chart A: Construction materials prices, (annual change, %)

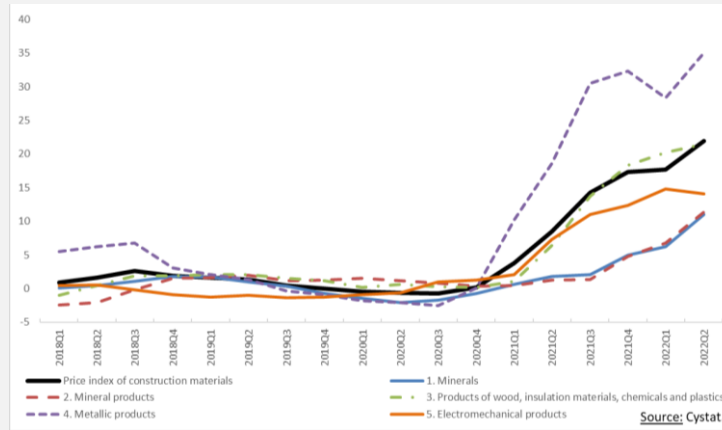


Chart B: Historical decomposition of the RPPI, based on the contribution of endogenous variables

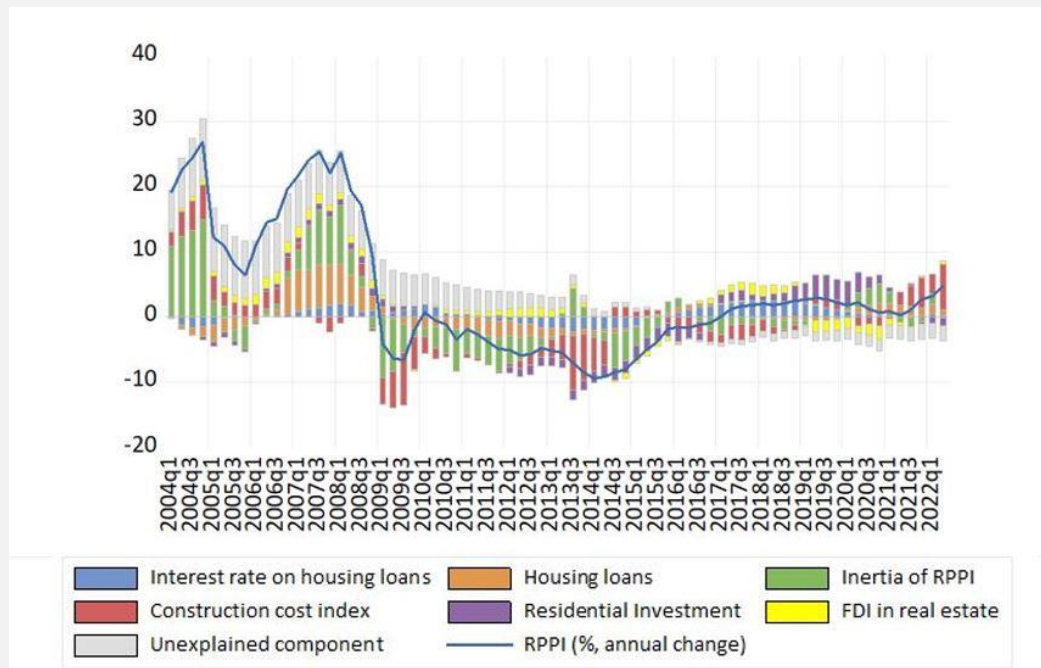


Chart C: Construction cost index, price index of construction materials and contribution of construction cost in RPPI changes

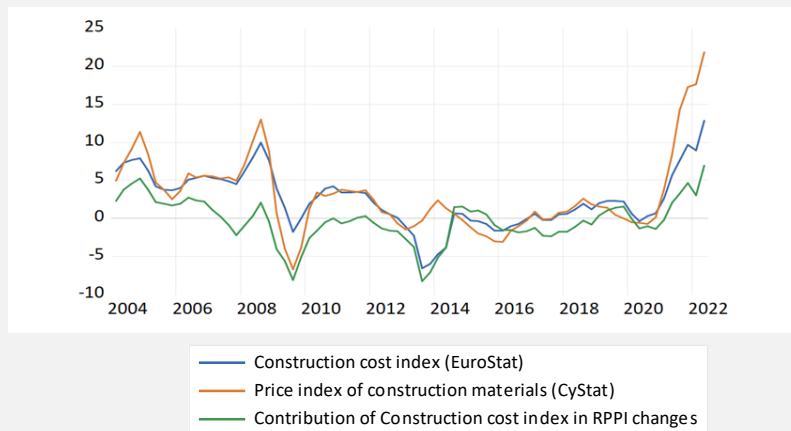


TABLE 2 Residential property price indices by type and by district

(annual and quarterly data, 2010Q1 = 100)

Year*	Quarter	Residences by type			Residences by district					Residential property price index
		Apartments	Houses	N/sia	L/sol	L/ca	Paphos	F/sta		
2010	-	98,2	100,1	99,9	99,0	99,5	100,3	99,5	99,6	
2011	-	93,3	97,2	98,6	94,4	94,9	95,4	94,4	96,3	
2012	-	89,0	91,8	94,4	90,8	87,3	87,5	87,9	91,2	
2013	-	82,5	86,1	87,8	86,5	79,5	83,3	80,0	85,2	
2014	-	74,7	78,8	80,3	79,5	72,1	77,4	71,1	77,8	
2015	-	71,0	75,6	76,0	76,4	68,7	75,3	70,1	74,4	
2016	-	71,0	74,3	74,2	75,7	67,9	75,1	67,6	73,4	
2017	-	73,4	74,6	74,9	77,4	67,4	75,3	67,2	74,3	
2018	-	76,6	75,6	76,0	80,1	68,5	75,7	69,9	75,8	
2019	-	78,8	77,1	77,2	83,8	70,4	77,6	71,5	77,8	
2020	-	82,6	77,6	78,1	85,3	72,0	77,8	72,6	79,0	
2021	-	85,9	77,6	77,7	88,2	73,1	77,5	72,5	80,0	
2022	Q1	89,8	78,7	78,6	90,8	73,7	80,9	75,7	81,9	
	Q2	91,1	80,0	79,8	92,6	74,9	82,3	75,9	83,2	

Source: CBC.

*The annual index is calculated as the average of the four quarters of each year.

TABLE 3 Apartment and house price indices by district

(annual and quarterly, 2010Q1 = 100)

Year*	Quarter	Apartments					Houses				
		N/sia	L/sol	L/ca	Paphos	F/sta	N/sia	L/sol	L/ca	Paphos	F/sta
2010	-	99,3	97,8	97,1	97,0	97,1	100,1	99,4	100,4	101,4	100,1
2011	-	99,0	91,8	88,7	82,7	83,1	98,5	95,1	96,8	99,1	97,2
2012	-	95,2	88,3	82,2	76,9	76,8	94,1	91,5	88,7	90,7	89,7
2013	-	89,0	82,8	71,7	71,7	71,8	87,3	87,5	82,1	86,7	81,4
2014	-	81,5	74,9	63,8	67,2	64,1	79,8	81,1	74,7	80,7	72,3
2015	-	76,6	74,0	61,0	64,2	60,3	75,8	77,2	71,9	79,3	71,8
2016	-	75,0	74,6	61,3	66,0	57,8	73,9	76,1	70,8	78,9	69,4
2017	-	77,0	78,6	61,8	64,2	57,4	73,9	76,9	69,5	80,2	69,4
2018	-	78,9	84,6	63,5	67,6	59,5	74,6	78,4	70,1	79,8	72,4
2019	-	80,3	90,8	69,0	69,5	61,7	75,9	81,3	70,9	81,3	73,8
2020	-	82,2	96,3	71,9	70,0	62,0	76,4	81,5	72,0	80,9	75,7
2021	-	84,0	100,2	75,7	71,7	65,2	74,9	83,6	72,4	79,7	74,5
2022	Q1	86,1	104,9	76,8	76,9	69,5	75,4	84,7	72,7	82,6	77,1
	Q2	87,5	105,7	79,5	77,7	71,2	76,3	86,7	73,5	84,1	76,9

Source: CBC.

*The annual index is calculated as the average of the four quarters of each year.

Table 4 Residential property price indices by type and by district
(y-o-y, %)

Year*	Quarter	<u>Residences by type</u>		<u>Residences by district</u>					Residential property price index
		Apartments	Houses	N/sia	L/sol	L/ca	Paphos	F/sta	
2010	-	-2,0	-0,8	-0,6	2,1	-1,8	-2,6	-4,7	-1,1
2011	-	-5,0	-2,9	-1,3	-4,6	-4,6	-4,9	-5,1	-3,3
2012	-	-4,6	-5,6	-4,3	-3,8	-8,1	-8,2	-6,9	-5,3
2013	-	-7,3	-6,2	-7,0	-4,8	-8,9	-4,8	-8,9	-6,5
2014	-	-9,4	-8,5	-8,5	-8,0	-9,3	-7,0	-11,2	-8,8
2015	-	-4,9	-4,0	-5,3	-4,0	-4,6	-2,7	-1,4	-4,3
2016	-	-0,1	-1,8	-2,4	-0,9	-1,2	-0,4	-3,6	-1,4
2017	-	3,3	0,5	0,9	2,2	-0,8	0,3	-0,6	1,2
2018	-	4,4	1,2	1,5	3,5	1,6	0,6	4,0	2,1
2019	-	4,2	2,0	1,6	4,7	2,8	2,5	2,3	2,6
2020	-	3,5	0,7	1,2	1,8	2,2	0,2	1,5	1,5
2021	-	4,1	0,0	-0,5	3,4	1,6	-0,4	-0,2	1,2
2022	Q1	6,8	1,5	1,0	4,6	1,6	5,7	3,9	3,2
	Q2	7,0	3,5	3,1	5,1	3,3	7,4	6,3	4,7

Source: CBC.

*The annual index is calculated as the average of the four quarters of each year.

Table 5 Apartment and house price indices by district
(q-o-q, %)

Year	Quarter	<u>Apartments</u>					<u>Houses</u>				
		N/sia	L/sol	L/ca	Paphos	F/sta	N/sia	L/sol	L/ca	Paphos	F/sta
2019	Q1	-0,1	1,1	3,8	1,7	-1,1	0,5	1,6	0,4	0,1	-0,3
2019	Q2	0,6	1,8	2,0	0,2	1,9	0,1	0,3	0,1	0,9	1,6
2019	Q3	0,7	2,4	1,7	2,9	0,5	0,4	0,1	0,1	0,6	1,0
2019	Q4	0,3	2,1	-0,2	-3,0	-0,5	0,1	0,4	0,3	-0,9	1,0
2020	Q1	0,8	1,3	1,5	4,4	0,4	0,2	-1,0	1,8	-0,6	0,6
2020	Q2	0,9	2,1	0,4	-1,7	-0,6	1,2	1,0	0,0	1,5	0,5
2020	Q3	0,3	-0,6	1,3	-2,2	-0,3	-0,8	0,4	-1,0	-1,6	0,0
2020	Q4	0,6	0,7	2,2	-1,3	1,0	-1,0	-0,4	-0,1	0,0	0,0
2021	Q1	0,5	1,1	1,9	2,2	3,0	-0,4	1,6	0,3	-1,5	-0,6
2021	Q2	0,5	1,2	0,6	0,9	1,1	-1,3	1,0	-0,1	-0,2	-2,7
2021	Q3	0,7	0,8	0,7	1,7	-0,2	-0,3	-0,3	2,1	1,5	0,7
2021	Q4	0,8	3,4	0,3	4,5	3,4	1,4	0,7	-0,5	-0,6	2,3
2022	Q1	1,3	1,4	0,8	2,7	3,9	0,1	0,6	-0,2	3,3	2,1
2022	Q2	1,6	0,8	3,5	1,0	2,5	1,2	2,3	1,1	1,9	-0,4

Πηγή: KTK.

Notes:

The residential property price index and other residential property price indices and sub-indices presented in the current report are produced by the Real Estate Unit at the Central Bank of Cyprus (CBC).

Data from 2006 to 2009 were collected retrospectively from a number of credit institutions. From 2010 onwards, the data have been collected by the CBC from the member banks of the Association of Cyprus Banks (Bank of Cyprus, Hellenic Bank, Alpha Bank, National Bank of Greece, Astro Bank, Cyprus Development Bank, Société Générale, RCB Bank and Eurobank) and the Cyprus Asset Management Company in standardised form, through an online data submission platform.

The partnered credit institutions receive the relevant information from more than 90 independent property surveyor offices in relation to mortgage lending. The data received are representative of the Cyprus residential property market, covering the whole of the government-controlled territory of the Republic of Cyprus (Nicosia, Limassol, Larnaca, Paphos and Famagusta districts) and they refer to all types of residential property (houses and apartments).

All the estimated indices have been rebased so that the first quarter of 2010 equals 100. The aggregate Residential Property Price Index (RPPI) is calculated as the weighted sum of the two indices by type (house and apartment price indices).

Change in the weighting method to calculate the aggregate indices: In 2015Q1, the weighting method changed and the aggregate houses and flats indices are now calculated by using as weights the summation of the value of the properties in the sample of the last four quarters. This weighting method is applied in the historical series as well. In this way a more representative allocation between houses and apartments in the Cypriot housing market is provided. In previous reports, the indices used to be aggregated using the number of observations (valuations) of the last four quarters. Similarly, the aggregate RPPI is calculated using as weights for the residential property price indices by district the summation of the value of the properties in each respective district. This change in the weighting method was suggested by the IMF as part of an evaluation exercise of the RPPI. The evaluation was carried out in the context of the possible use of the indices for updating the property values of the General Valuation (1 January 2013) undertaken by the Department of Lands and Surveys.

As a result of the change in the weighting method, the CBC RPPI for both the historical (2006-2009) and the new series (2010 onwards) has been revised. In the new series the aggregated flats and houses indices, and the residential property price indices by district have also been revised. It is worth noting that the change in the weighting method has not affected significantly either the level of the indices or their growth rates.

The hedonic methodology is used for the construction of the indices. In case the number of observations per quarter in a particular district is not enough to implement the hedonic method, the simple average method is used. Further details about the methodology and other relevant information are available on the CBC's website, at https://www.centralbank.cy/images/media/pdf/Methodology_EN_latest.pdf

The current report is available at <https://www.centralbank.cy/en/publications/residential-property-price-indices>