

- CREN - Croatian Real Estate Newsletter

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**Marko Škreb, Ph.D.,
Chief Economist, Privredna banka
Zagreb d.d.**

The Current State of Play in the Croatian Economy



**Ivan Stojević, Director, PBZ
Nekretnine d.o.o.**

Real Estate Price Index Construction by PBZ - PBZ Nekretnine

1. INTERVIEW

**Marko Škreb, Ph.D.,
Chief Economist, Privredna
banka Zagreb d.d.**



The Current State of Play in the Croatian Economy

What is the state of play in the Croatian economy and how will it develop in comparison to the rest of the region?

In the global dynamics of past developments and future expected trends, we have a great deal in common with the region. The last decade (up to the crisis) was a decade of high growth rates, of about 4% GDP annually in Croatia, and in the region (however we define it), about 5%. This growth was generated mostly by domestic demand (personal consumption, state spending and investments), and, for the most part, was financed from abroad. Most countries had a current account deficit, a high growth of credit and a growing external debt. However, when the crisis broke out it became obvious that the story of the last decade would not and could not be repeated, and there are several reasons for that. What this region can expect in the medium term is slower growth than in the past, that's for sure. How much slower? That depends on the country. I expect that the region will develop, that is, come out of the crises differently.

- According to PBZ projections, the Croatian GDP in 2011 might grow about 1.4%, and there are relatively high risks that may keep the growth even below this level (thus we expect a negative growth rate in the first quarter of 2011).
- The following countries might be able to achieve growth rates higher than 3% (even up to 4%) in 2011: Albania, Bosnia and Herzegovina, Serbia, Macedonia, Bulgaria.
- In Slovenia, growth is expected in 2011 somewhat above 2%, Hungary about 2.8%, Romania about 2.9%.

So, we can see that the expected growth rate in Croatia is at the very bottom of the list of the countries in the region and unfortunately, not only of this region, because it will be very much on the low side in European terms too. According to the forecasts by the IMF, only countries on the "outskirts" of the EU, which have already received assistance, and which are undergoing restructuring (Greece, Portugal, Ireland), and the countries with problems (Italy, Spain) should have a slower growth rate than us. In summary, our recovery is very slow.

Although your question relates to the region, I would like to emphasize that we cannot only look at the region. The game that is to say, is „no longer only being played at the regional level“. We have to understand that we are part of a globalized world. So, potential investors do not only look whether to invest in Croatia or Serbia, but locations are chosen from all across the world. If we do not comprehend this global context soon, the country might have serious problems. We have to realize that this region's growth is slow compared to the rest of the world. Thus the IMF, which we already mentioned, expects that the global growth rate in 2011 should amount to about 4.4%, Asian countries will grow by about 8.5%, and China is still very close to 10%.

Are we threatened by inflation?

The briefest answer is yes, we are. Although the risks were somewhat reduced in mid May (due to the drop in oil prices), we have to understand that import-related inflationary pressures are truly high. But they do not only relate to Croatia. In the whole world, there has been a significant increase in the prices of the main food products and of some raw materials, especially oil. This causes the inflation of costs. Although in theory the central banks do not have to fight it, it is necessary to be extremely careful to prevent the effects of this price shock in the second round. Also, higher inflation will influence all the real rates in Croatia. Naturally, this is what any inflation rate does, but as in 2010 the average inflation amounted to 1.1% this influence was minimum. Now, when we expect an inflation rate of about 3% in 2011 (according to PBZ forecasts, and there is a risk of it being even higher), it is obvious that the real rates for some loans (let's say in the A model) will be close to zero. The inflation risk exists in the region as well, but the higher the

growth rates, the easier it is to bear the burden.

And what about the exchange rate?

In the medium term, I expect the currency exchange rate to remain at the levels we had in the recent past. This primarily relates to the nominal kuna to EURO rate, which is, naturally, the most important rate for the Croatian economy. But, this does not mean that it will be a fixed rate. We are well familiar with seasonal oscillations. Also, as this is quite a narrow market, even relatively small transactions may be of influence, but it won't have a significant influence. We also hope that the forecasts by Intesa Sanpaolo about the weakening of the Swiss franc up to the end of this year (to EURO and to HRK) will come true. However, we have to count on the fact that the global foreign exchange markets will be exposed to numerous shocks and uncertainties in the forthcoming period. It is obvious that the problems of the excessively high debts of some countries on the outskirts of the Euro-zone have not been resolved. On the other hand, huge problems and deficits in the US economy make the development of the US\$ uncertain. So, it is necessary to prepare for turbulence and variations on the foreign exchange market in the forthcoming period.

How about unemployment?

Speaking about unemployment for Croatia, we expect an unemployment rate of about 12% according to the internationally comparable definitions (we are talking about the rate at the beginning of 2012). One should emphasize the seasonal character of our employment and unemployment rates, with respect to the construction industry (currently in a state of depression), but, naturally, also in tourism. The fact is that regardless of how we measure it, unemployment is a

problem in Croatia. And there is no easy or quick solution to that. I do not see the possibility of it being reduced significantly without achieving a higher pace of economic growth. This will not happen without serious structural adjustments, which include fiscal consolidation. It is not to be expected that trends will change a couple of months before the elections, and certainly the new government should make it its priority to work on that (fiscal consolidation) after the elections.

What implications will it have on interest rates?

According to information currently available, we may expect a small drop in passive and active interest rates in Croatian banks by the end of 2011. Although a small growth in the EURIBOR rate is expected by the end of the year, liquidity in the Croatian banking system is very high, and demand for borrowing (especially from households) is relatively low. Provided there are no major external shocks, such as a reduced credit rating, which would influence the premiums for country risk, there are no indications that interest rates should grow, on the contrary. Also, we have to understand that this expected drop will be very small and uneven. Oscillations are possible, but we expect that this year will be a year of reduced interest rates. These is good news for those bank clients who want a loan, although client risk assessment will still be the primary concern in determining bank credits.

Final message:

As a conclusion, I do not perceive the relatively slow growth in 2011 as a problem for Croatia now, but in the medium term it is a problem. We had one model of growth in the last decade

(fast growth of loans, growth of personal and state consumption was the main generator of this growth, and growth was financed through loans and external capital inflow). Now, we are in a situation of high external debt, we can no longer expect such high rates of credit growth nor such high demand for loans.

In this region, Croatia is certainly the closest to becoming an EU member, it has the highest income per capita, and it is the most developed in terms of numerous indicators. The key now is to secure stable and higher growth rates. Without growth, we are faced with the problem of debt (both public and external), and we risk another crisis.

Therefore, what we need are reforms. Our current system of "entitlements" is simply unsustainable in the medium term and in the long run. I do not just mean social entitlements, but also pensions, costs of the public sector, health, so-called free education etc. And this is not a matter of a form of wild and liberal capitalism, it is just the necessity that certainly awaits us. And not only us, but most developed countries as well. The crisis has clearly showed the unsustainability of public finance at this level in a range of countries, and credit rating agencies are clearly warning us that they will lower our credit rating and thus make the servicing of public debt even more expensive, if we do not change the course of our fiscal policy.

Once again, it is the legitimate right of any country to choose its own path. It is a matter for politicians, a matter of choice, of those who decide. But the choice of any policy has its price. It is up

to the professionals to say what the possible solutions for the future are, that is, what the price of each of these solutions is. We do not have to maximise growth in the medium term, we do not have to change the labour laws. But, if someone tells you that you can keep the same level of social entitlements in the medium term (including the pension fund), and keep up the same pace of fiscal expenses, and at the same time expect more than 5% growth in the longer run, I will tell you right away that this is not possible.

There is a great deal that economists do not know about the functioning of the economy. Economies are complex systems, they are changeable, and by applying mathematical models, no one has succeeded in anticipating all the risks as expected. So, any forecasts should be taken with a grain of salt.

However, there are some main rules that we know about. As we know that

smoking is not good for our health, we also know that excessive fiscal spending is not good for long-term growth, especially not after a crisis, which has changed the investors' perspective, who now view the debt issue differently than before the crisis. And especially not if you have the lowest possible credit rating, and the agencies are explicitly warning you that they will reduce it further if you do not change your course. And especially not if we know that any serious reform redistributes income, so that those who feel deprived will fight to keep their level of benefits (although this is bad for the entire economy). Therefore, one has to think about each option and make some decisions. But if we do not create the possibility for young people to stay here, to see some hope of a better tomorrow, there will be nobody here to pay contributions into the pension fund. And if the cash register is empty, there is little one can do with one's entitlements.

2. INTERVIEW

**Ivan Stojević, Director, PBZ
Nekretnine d.o.o.**



Real Estate Price Index Construction by PBZ - PBZ Nekretnine

In this document, we would like to give you a simplified presentation of and introduction to the process of developing and using the **residential** property price index for the needs of the *Collateral Management* portfolio of the Bank. The price index has been developed by the *Directorate for Credit Risk Management* in cooperation with **PBZ Nekretnine (PBZ Real Estate)**.

For all properties analysed for the purpose of developing the price index, the company PBZ Nekretnine undertook a value assessment, at least once in the period 2002– 2010.

The documentation on the value assessment process (*value assessment studies, value assessment reviews*) of these properties is available in the archives of PBZ Nekretnine and the characteristic features of all the properties are kept in digital form.

In the period mentioned, the volume/number of value assessment studies developed ranged from 6,000 to as many as 12,000 studies a year, with respect to various properties (flats, apartments, houses, construction land, hotels, business facilities, industrial facilities, factory units etc.).

Following the movement of prices is extremely important for any bank in order to reassess the value of the assets the Bank has accepted as collateral when approving loans. In the process of approving loans, the evaluators of PBZ Nekretnine “go out on site” and do an initial assessment of the market value of property. However, during the entire period of loan repayment, for business and regulatory reasons (the **Basel II regulations require that the value assessment of a residential property that serves as coverage for any exposure should not be older than three years, and for business property it has to be renewed every year**), it is in the Bank’s interest to know the current market price of property, which has been accepted as collateral. Additional periodic expert value assessments by evaluators are only possible for a small subgroup of properties accepted as collateral, and therefore it was necessary to develop a methodology, which would allow the assessment of the current value of each individual piece of property on the basis of the systematic monitoring of market developments.

First of all, it was necessary to construct a price index chart. Mathematics and statistics provide us with 4 main statistical approaches,

which make it possible to monitor movements on the market, that is, price index construction, and to calculate the current value of the properties:

- **Average price method (or median price)** – the simplest approach. The movement is monitored of the average value or the median price for every group of properties. Since price distribution is, as a rule, asymmetric, the average value is more sensitive to changes in the volume of transactions in more expensive, than cheaper properties. Therefore, the median, which is much less sensitive to this effect, is preferred in statistics. The advantage of this approach is the small range of data necessary: one only needs transaction prices within a specific time period, and within an individual group. The weakness of this approach is the lack of any possibility to monitor the way in which the market values change in terms of the quality of the properties observed, and the consequence of this is that the growth in the prices of properties of the same quality is overrated.
- **The representative property method** resolves the problem of assessing the value of changes in property quality by providing for price index construction for a narrow group of properties, a “class” of representative properties (hereinafter: **CRP**). With this method, we define a narrow subgroup of properties (CRP), which represents the whole group well, and which consists of properties with a

controlled range of quality attributes (for instance, flats in Zagreb are represented by two/two and a half-room flats between 45 and 70 square meters surface area, between 7 and 20 years old....). For CRPs defined in this manner, the medium value or the median price in a certain period is calculated. This resolves the problem of taking changes in quality into account, but opens up the issue of the representativeness of the CRPs. It may happen that by monitoring the prices within the CRPs, we do not perceive a price development trend within the whole group, represented by the CRP. As the CRP is defined by qualitative attributes, we do not only need more data than for the average price method, but there is also the issue of how to define CRPs correctly, that is, how to select the right attributes, the range of which defines the CRP.

- **The Hedonic price model** was developed in order to avoid the above mentioned problems. This model relies on the assumption that the value of transactions in any property depends on the time period in which the transaction is performed and on the property’s quality attributes. Once the form of the Hedonic function is established, the functional coefficients can be calculated by regression analysis. Although the Hedonic model does not require a larger range of data than the representative properties model, it does require more observation.

- **Resale price method.** This method was developed in order to avoid collecting a huge amount and broad range of data. This method uses the advantage of the fact that the quality attributes of property, which is sold twice or more during an observed period, mostly remain the same, and in this way the changes in quality are controlled. However, this method requires an extremely liquid market, and it can only be used in practice in some markets within the USA.

The scope of data collected and used by PBZ Nekretnine is sufficient to apply the Hedonic price model (which makes the use of less sophisticated methods, such as the median price method, superfluous; the resale price method is not used due to relative lack of liquidity on the domestic real estate market). However, due to technical reasons, data from assessment studies older than fall 2006 are not available in digital form, and – given the available resources – it would be impossible to extract them fully and transcribe them to digital form, and thereby make them suitable for statistical analysis. Only part of the data from the value assessment studies has been transcribed into digital form.

For the needs of statistics, we used a set of 23 pieces of data from the value assessment studies.

From the above, it may be concluded that the representative property method was the natural choice for construction of the PBZ price index.

Price index construction based on the representative property method

In order to construct the price index successfully on the basis of the

representative property method, it is necessary to:

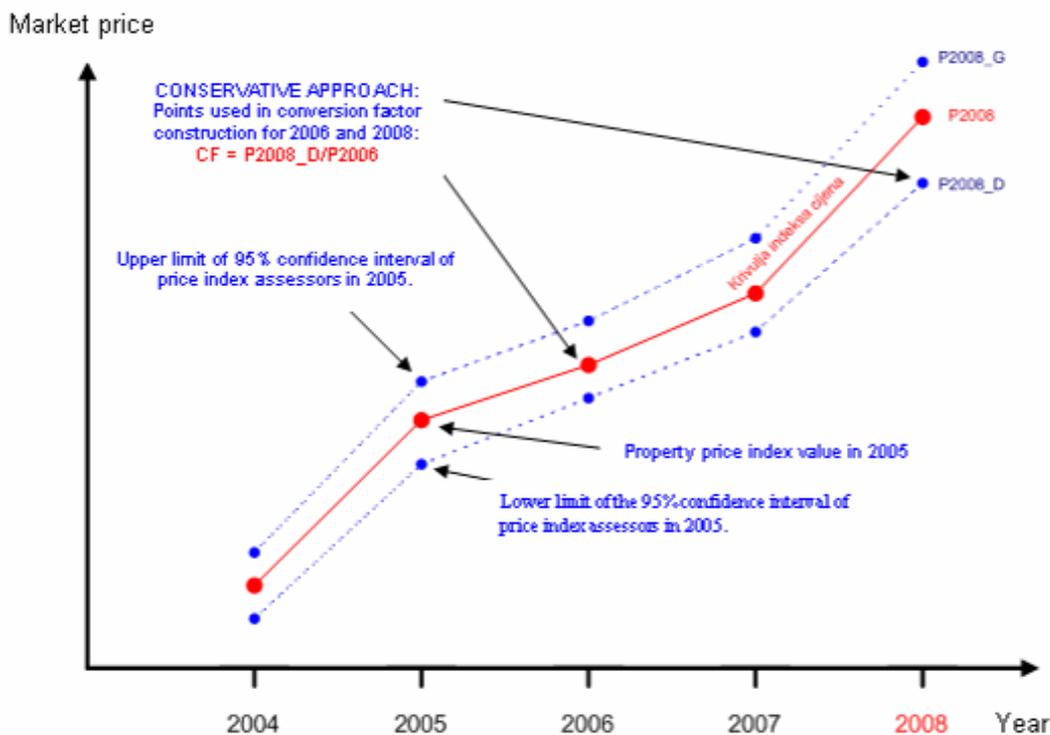
- divide the properties into **homogenous groups** defined in that the properties within a group have an approximately equal trend in price fluctuation within a reasonably long time period. **Example:** if you were to take flats in the city area and houses on the outskirts of any large city, their trends in price fluctuation over a period of a couple of years would probably be the same in terms of the direction and intensity of price change. However, price distribution within such a population would be very broad, probably with two peaks – one for houses, and the other for flats. Furthermore, the realistic possibility exists that these two markets could separate in the future (when the city becomes too crowded and people move out to the outskirts...), and the trends in price change between the two reversed.
- define a **class of representative property** (CRP) within each group, with a limited range of quality attributes. This should largely eliminate concern about changes in property quality, and leaves us with the consequences of supply/demand. **Example:** for the group of flats in Zagreb and in larger coastal cities, a representative class of properties might consist of flats with a surface area ranging between 47 – 71 square meters, between 4 and 37 years old...
- calculate the **average market values**, and the pertaining 95% confidence intervals within each

representative class of properties, for each year of interest. As the perceived price distribution is normally very asymmetrical within a single group, the average value is more sensitive to changes in the volume of transactions, with more expensive properties, in comparison to cheaper properties. However, the perceived distributions within the CRP of every group are significantly less asymmetric than the distributions within the whole group, so that the use of median values becomes acceptable. Also, it is extremely easy to construct 95% confidence intervals for the median value. **The price index consists of a series of average market values for a**

certain group (CRP) through time.

We can obtain a conservative assessment of the conversion factors CF (YYYY – n, YYYY) as a ratio of the lower limit of the 95% confidence interval for the median market value of properties in the current year and the median market value of properties within an individual CRP for the year of our interest.

On the basis of the division into zones made by PBZ Nekretnine, and also taking into account the characteristics that connect individual zones, and a projection of the available number of observations necessary to make statistically credible conclusions, the Risk Management Sector developed a system of division into 5 groups of properties (Table 1).



The market zones as defined by PBZ Nekretnine are the following:

- Zone 1 – the city of Zagreb + tourist destinations + large coastal cities,
- Zone 2 – large cities in the continental part + coast: less attractive locations,
- Zone 3 – cities in the continental part + the surroundings of 2,
- Zone 4 – municipalities in the continental part + surroundings of 3,
- Zone 5 – surroundings of 4 + unattractive areas: Lika, Banovina, Kordun, Moslavina...

Formation of property groups

PROPERTY GROUPS	
PROPERTY GROUPS	DESCRIPTION
Group 1	FLATS – Zone 1
Group 2	FLATS – Zone 2, Zone 3, Zone 4 and Zone 5
Group 3	HOUSES – Zone 1
Group 4	HOUSES – Zone 2 and Zone 3
Group 5	HOUSES – Zone 4 and Zone 5

Table 1 * Division of properties into groups

Results

In Figures 1 – 3 and in the pertaining tables, average prices per unit of surface are shown for the

representative class of properties for every group, in the period from 2002 – 2010.

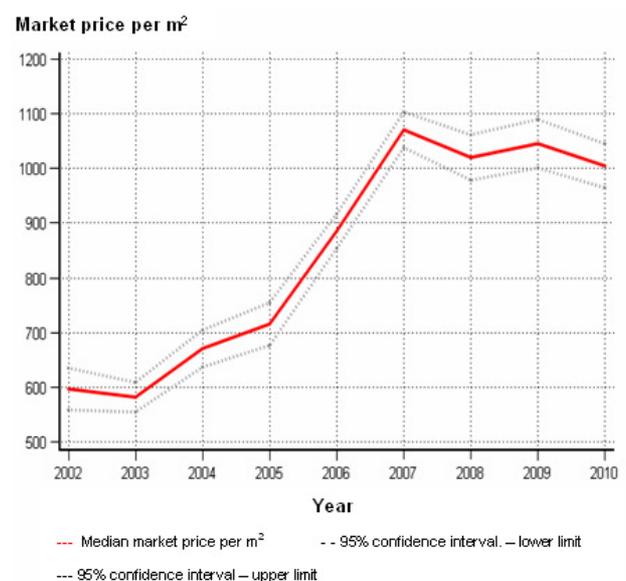
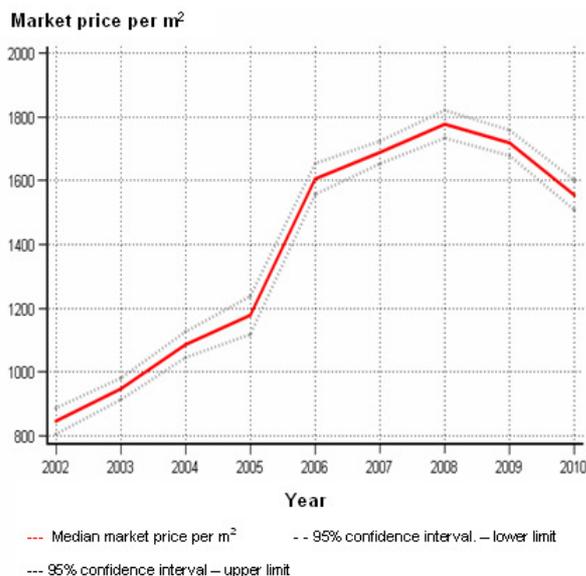


Image 1. Movements of average prices in the representative class of properties for **GROUP 1** and **GROUP 2**.

GROUP 1 – FLATS									
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Upper limit of the 95% confidence interval [€]	887	981	1127	1238	1654	1724	1821	1759	1601
Average market price CRP [€]	847	948	1086	1179	1606	1689	1777	1719	1555
Lower limit of the 95% confidence interval [€]	806	914	1046	1119	1557	1653	1734	1679	1508
GROUP 2 - FLATS									
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Upper limit of the 95% confidence interval [€]	635	609	705	755	917	1103	1062	1090	1045
Average market price CRP [€]	597	582	671	716	886	1071	1020	1046	1005
Lower limit of the 95% confidence interval [€]	559	555	637	677	854	1038	979	1001	964

In order to standardize the prices of properties within groups 3, 4, and 5 (groups consisting of houses) according to prices per unit of surface, standardisation according to the surface area of the property was selected and not for the whole property. It became evident that the

prices obtained in this way have a smaller relative standard deviation from prices standardized in terms of the surface area of the whole property. We introduced the term "property structure" (or just "structure") to signify a house on the property, consisting of the house and the pertaining land.

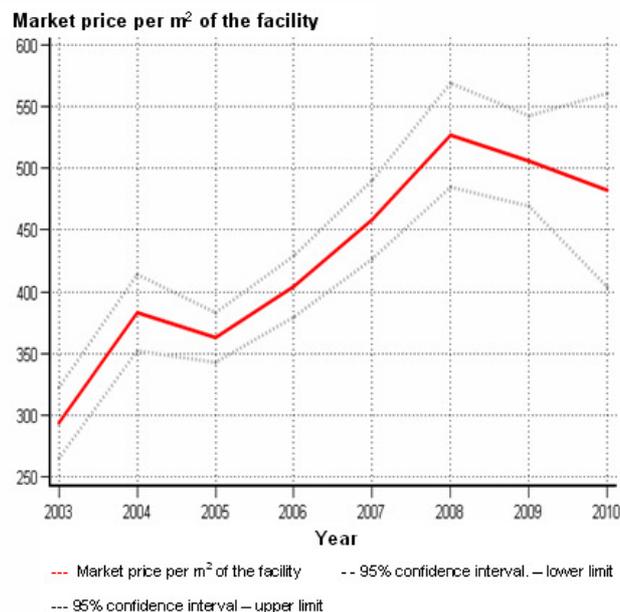
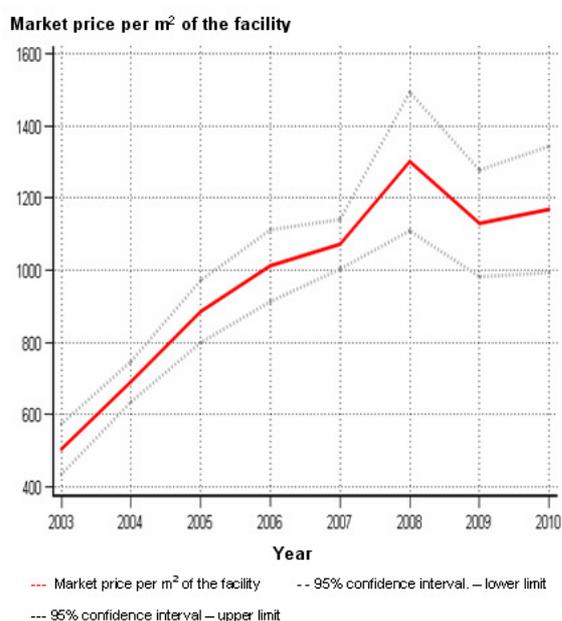


Image 2. Movement of average prices of the representative class of properties for **GROUP 3** and **GROUP 4**.

GROUP 3 – HOUSES									
Year	2003	2004	2005	2006	2007	2008	2009	2010	
Upper limit of the 95% confidence interval [€]	574	748	972	1112	1141	1493	1278	1343	
Average market price CRP [€]	505	692	886	1013	1072	1301	1130	1169	

Lower limit of the 95% confidence interval [€]	435	636	800	913	1004	1109	982	994
GROUP 4 - HOUSES								
Year	2003	2004	2005	2006	2007	2008	2009	2010
Upper limit of the 95% confidence interval [€]	322	414	383	429	490	569	543	561
Average market price CRP [€]	294	383	363	404	459	527	506	482
Lower limit of the 95% confidence interval [€]	265	352	343	380	427	485	469	404



Image 3. Movement of average prices of the representative class of properties for **GROUP 5**.

GROUP 5 - HOUSES								
Year	2003	2004	2005	2006	2007	2008	2009	2010
Upper limit of the 95% confidence interval [€]	218	311	306	339	369	369	418	400
Average market price CRP [€]	206	293	290	317	351	346	379	367
Lower limit of the 95% confidence interval [€]	195	275	274	295	333	324	340	334

Comment: market prices standardized for the surface of the structure on a piece of property should not be compared between the groups, but rather within a time period and within a single group. Namely, the average land area of a piece of property grows as we move towards higher groups, or towards more rural areas.

From the data in Tables 1 – 5 we calculated the conversion factors with respect to the current year (2010). The results are given in Table 6. As a reminder: the conversion factor is defined as the ratio between the lower limit of the 95% confidence interval for the price index in the current year (in this case 2010), and the value of the

index in one of the previous years YYYY-n.

CONVERSION FACTORS – BASIS YEAR 2010 ¹					
YEAR	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5
2010	1.0000	1.0000	1.0000	1.0000	1.0000
2009	0.8775	0.9220	0.8797	0.7985	0.8805
2008	0.8486	0.9449	0.7639	0.7667	0.9647
2007	0.8930	0.9003	0.9271	0.8811	0.9521
2006	0.9391	1.0885	0.9815	0.9991	1.0542
2005	1.2795	1.3469	1.1222	1.1133	1.1513
2004	1.3882	1.4368	1.4370	1.0546	1.1393
2003	1.5915	1.6563	1.9697	1.3755	1.6182
2002	1.7810	1.6147			

Table 6

Conclusion

When speaking about calculating a property price index, we certainly have to conclude that the property price indexes shown on portals, using various methodologies of calculation are based on various groups of data on property prices. Thus we have portals, which calculate their indexes on the basis of prices asked and attained, but we see the weakness of this data base in that it only contains properties, which are being sold or which were sold through agencies that are members of that stock market. Along with everything mentioned above, calculations so far have not taken into account the period in which the property was being offered for sale, that is the influence of the asking price of a certain property offered for a long period of time on the average prices of liquid properties.

Since other portals provide a calculation of indexes of average prices asked for properties, they try to make up for the errors and deficiencies of this method by using a more complex calculation methodology. In terms of data reliability, we feel that the deficiency of this data base is the fact that data on properties and their attributes are not supplied by professionals but by the sellers, whose objective it is to sell their (own) property, and where the subjective view of the owner is always over-emphasized in comparison to the method where such data are entered by professionals.

The PBZ index uses the representative property method, which is a better way of resolving the problem of taking into account changes in the quality of properties, by constructing a price index for a narrowly defined subgroup of properties. With this method, we define a narrow subgroup of properties within every group (CRP), which represents the whole group well and which consists of properties with a controlled range of quality attributes.

The division of the portfolio into **groups** is based on division into **market zones** by **PBZ Nekretnine**. Experts expect the trends in price change for certain types of

¹ At the moment they were documented, the calculations were made using data for the first 8 months of 2010.

properties within such defined market zones to be homogenous, and sufficiently different between the zones to justify their existence.

3. STATISTICS

3.1. Average Asking Prices of Real Estate Offered for Sale – May 2011

	average price EUR/m ²	price range EUR/m ²
ZAGREB		
Housing		
Apartments	1.822	558 – 6667
Houses	1.699	404 – 14.667
Commercial space		
Offices	1.791	1.300 – 3.333
Business premises	2.326	722 – 8.663
Office blocks	1.280	618 – 4.867
COAST		
Housing		
Apartments	1.946	611 – 6.383
Houses	1.717	160 – 18.269
Commercial space	1.678	651 – 4.000
Tourist facilities	2.122	882 – 2.257

Average is calculated on the basis of the currently quoted prices on the Burza nekretnina d.o.o. (Real Estate Stock Market Ltd.), which is available online: www.burza-nekretnina.com.

3.2. Statistical Reports of the Central Bureau of Statistics from the Area of Construction

3.2.1. Building permits issued, March 2011

In March 2011, there were 899 building permits issued, which was by 0.8% more than in March 2010. The total number of building permits issued in the period from January to March 2011 was by 5.9% lower than in the same period of 2010. In March 2011:

- by types of constructions, 88.9% out of the total number of permits were issued on

buildings and 11.1% on civil engineering works

- by types of construction works, 81.8% of permits were issued on new constructions and 18.2% on reconstructions.

According to permits issued in March 2011, it was expected for 1 175 dwellings with the average floor area of 92.6 m² to be built.

Advice: Building permits issued, March 2011, Central bureau of statistics, Zagreb, 2011.

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It is our wish that the Croatian Real Estate Newsletter / CREN be a source of speedy and quality information for all who are active in the real estate sector – developers, planners, contractors, mediation agencies etc. Please send your comments, proposals and opinions to cren@filipovic-advisory.com to help us improve CREN and make it the leading medium on the Croatian real estate market.

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