Residential property prices in 2007 according to the Real Estate Price Map portal

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The housing real estate market is currently among the dynamically developing commercial segments also in Slovakia. It is the result of a still unsatisfied demand for housing on the one hand, and of extending possibilities for the acquisition of own housing (a relatively favorable economic development, growing purchasing power of the population, improving availability of loan funds for housing real estate investment, increased activities of construction and developer companies) on the other hand. An important instrument of the housing real estate market is the condition and the development of houses and flats prices.

In connection with the evaluation of terms and conditions during granting of housing loans, which are based on their collateralization by means of real estates, the need arises to gain information on the objective market price of the collateral. The fact that the residential property market has existed only for a relatively short time in Slovakia is one of the reasons why no official data on the price development have been available so far. Commercial banks and further institutions granting housing loans create their own price maps for the purposes of objective real estate valuation, but at the same time they are looking for possibilities of alternative market price setting using other sources. One of such current sources is the internet portal Real Estate Price Map (CMN).

Basic methodological issues of the CMN application

A common project of the companies Datalan and National Association of Real Estate Agencies of Slovakia (NARKS) called the Real Estate Price Map was presented at a professional conference held within the SlovReal Invest 2006 fair. The CMN application enables to obtain on-line relatively structured data on housing real estate prices by a number of characteristics by means of an internet portal. In term of content and scope, this data can satisfy the needs of NBS to a substantial extent.

The application enables to carry out database selections:

- for various types of transactions (offer: sales, letting, auctions; demand: purchases, renting),
- with alternative ways of expressing the price (in SKK, SKK/m^2, SKK/m^2/month, EUR, EUR/m^2 etc.),
- for a differentiated state of the offer (current, realized, historic)
- for various time periods from 2000,
- with the possibility to enter the selected selection limits for the price, various ways of expressing the area and amenities of the respective real estate,
- with alternative ways of selection within 10 real estate groups (flats, buildings for housing and recreation, buildings for commerce and services, operations rooms etc.),
- by the condition of the real estate (original condition, partial reconstruction, complete reconstruction, new building)
- by the size of the built-up, useful, dwelling, total floor area or by plot size,
- by the year of construction,
- by the form of ownership,
- by a number of other specific real estate characteristics,
- by Region, district, municipality and street,
- with the selection of a table or map output.

From the 4th quarter 2006 onwards, the CMN application enables to carry out on-line selections from a new database using all the above-mentioned characteristics (historic data enable only selections by a limited number of characteristics). The possibilities for specific selections of flat sales by certain characteristics from the original NARKS database are very limited.

In the CMN application, the procedure for the exclusion of extreme values is based on the application of the principle: arithmetic mean of parameter values ± 2δ, where δ stands for the value of the standard deviation of the parameter in

Fig. 1 The gist of the principle of elimination of extreme parameter values

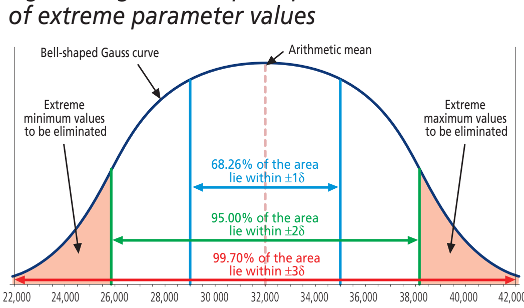
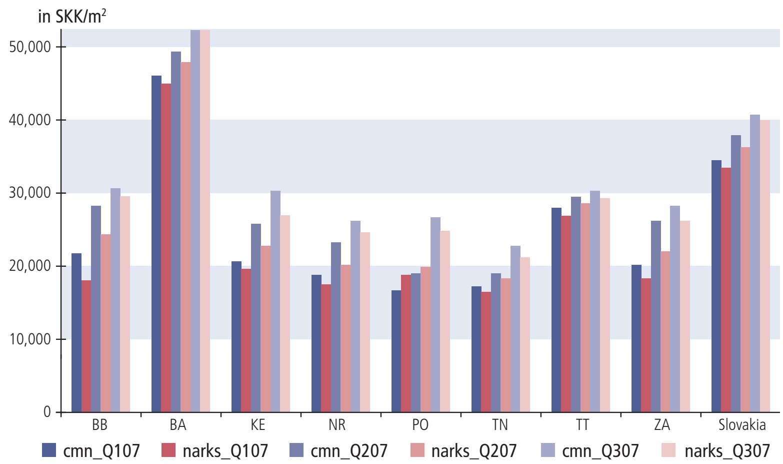
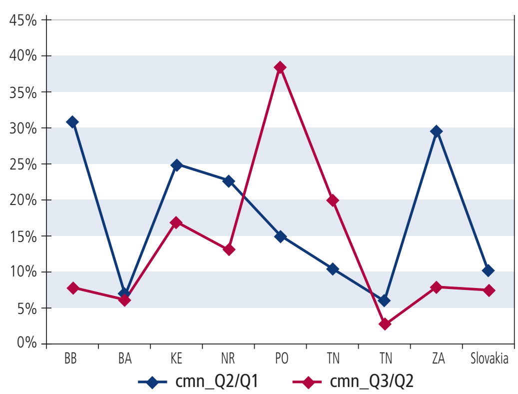


Chart 1 The development of average prices of flats in 2007 according to two data sources



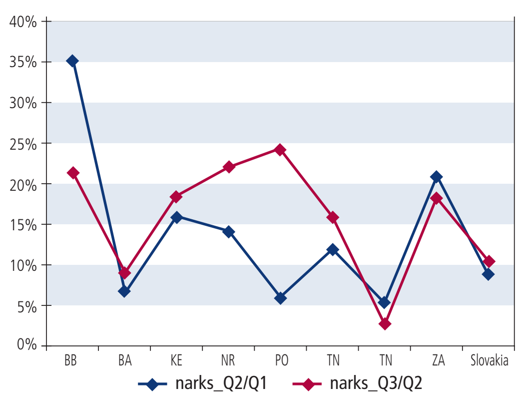
Source: NARKS, CMN, chart by NBS.

Chart 2 The development of average prices of flats in 2007 according to CMN data



Source: CMN, chart by NBS.

Chart 3 The development of average prices of flats in 2007 according to NARKS data



Source: NARKS, chart by NBS.

the selected population. (The gist of the principle of elimination of extreme parameter values when creating user databases is shown in Fig. 1.) Records, the parameter values of which fulfill the condition (an arithmetic mean of ± 2δ) are subject to further processing, and records that do not fulfill the given condition are excluded from further processing. The original NARKS database applies the principle: arithmetic mean of parameter values ± δ. The total number of selected sales of flats in Slovakia from the new database should be greater (it includes up to 95% of objects from the total population) than that from the original population (it includes around 68% of the entities from the total population). It is important to use the 2δ principle in order to ensure a sufficient number of objects also in groups and other degrees of object sorting (e.g. a sufficient number of selected individual types of flats also for the individual districts etc.).

After pilot testing of the CMN application, the subsequent presentation to several commercial banks, developer companies and its opening also for the NBS as a user, it can be stated after the first experience that it is a quite successful attempt to achieve a qualitative shift of the hitherto offer of data on housing real estate prices in Slovakia. An important objective of the creators of the application is a gradual increase of the representativeness of the data input into the database, which should be also facilitated by the possibility of mutual confrontation of data from the new and the original database.

The CMN application offers the possibility to perform various specific selections of sales and letting of houses, flats and other buildings for housing and recreation both in terms of absolute values and in terms in prices for 1 m² (in SKK and EUR). Based on practical experience so far, it can be stated that it is a relatively comfortable application for a user, although it does not contain an upgrade for a further analysis of the obtained data.

For the three quarters of 2007 under comparison, the unit prices of flats, calculated from the CMN database, are slightly higher than when using data from the original database (by some 1,200 SKK/m² in the 1st quarter, by some 1800 SKK/m² in the 2nd quarter and by more than 800 SKK/m² in the 3rd quarter). One of the main reasons of the said difference is the fact that when the 2δ criterion is used, the selection also includes more transactions with relatively higher flat prices.

The growth of average flat prices for 1 m² was higher according to calculations using data from the new database than using data from the original database (10.2% and 8.8%, respectively) in the 2nd quarter as compared to the 1st quarter. In the 3rd quarter, however, the average flat prices for the whole of Slovakia grew more slowly according to calculations using data from the new database than according to the original database (7.5% and 10.5%, respectively).

The charts herein show that the development of average flat prices was considerably differing according to the two data sources. Certain differences can be also seen when comparing the dynamics of the development of flat prices using data from the two sources used, although the trends are quite similar. Comparisons like that can also serve as feedback for the creators and operators of databases in order to enhance their quality.

From the perspective of the data user, it has to be said that even the new database does not fully fulfill the mathematical and statistical criteria for a representative data population. Although more than 900 real estate entities from the whole of Slovakia are currently contributing to the CMN, the highest quality data is delivered to the system by those real estate agencies, with which a contract for the recording of more detailed data on real estate objects has been entered into (more than 250 real estate agencies are currently participating in what is called strong validation). The representativeness is also associated with adequate provision of the necessary data from the individual regions (realistically reflecting the situation in the housing real estate market with the whole of Slovakia) and last but not least the timeliness and reliability of the data recorded. The creators and operators of the CMN application realize the importance of improving the representativeness of the collected data and they have also taken several effective steps already. One of the important steps is the certification of NARKS brokers by means of issuing personal cards and a very effective instrument for enhancing the quality of the database is also a concerted recruitment of new real estate agencies in regions where there is an obvious disproportion between the number of on housing real estate transactions data obtained so far and the real number thereof.

Although, for the time being, the original NARKS database and the new CMN database are no ideal data sources on housing real estate prices, it has to be also added that they are the virtually most suitable available sources of this type of data. The new database on real estate prices within the CMN application can be unambiguously assessed an important shift in the quality of the hitherto offer of data on housing real estate prices in Slovakia. We expect that after testing further functions of the CMN internet application by means of performing selections for the 3rd and 4th quarter of 2007, sufficient information will be available for a possible adoption of a decision on the calculation of housing real estate prices for the needs of NBS from the beginning of 2008 based on the CMN database.

Flat prices in 2007 according to the CMN portal

In this part, we are going to compare the state and development of sale prices of flats in Slovakia during 2007 according to offer prices in SKK/m², realization prices and according to unit square prices of newly built flats, both according to the individual types of flats, as well as from the regional perspective.

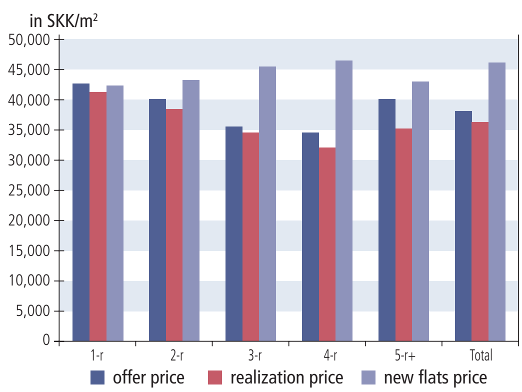
The average offer price of the sold flats has reached the value of 37,882 SKK/m² in Slovakia in the first three quarters of 2007, which has been more than 1,500 SKK above the average realization price of the sold flats. This means that the average realization price was 4% lower than the offer price. About one fourth of the total number of flats offered for sale has been realized (more than 96 thousand offers for the sale of flats have been recorded, 25,129 sales of flats and more than 5 thousand sales of flats in new building have been carried out in the first three quarters of 2007).

A considerable decline in the average realization prices of flats as compared to the offer prices occurred above for the sales of 5-room flats (more than 12%). The realization prices of 4-room flats were 7.5% lower and the realization prices in the case of smaller flats between some 3.5% and almost 5% lower than the offer prices.

There were also differences between the average offer and realization prices of flats in the individual Regions. The greatest differences occurred in the Prešov Region and in the Žilina Region (-11%) and the smallest ones in the Košice Region (-2%). The Nitra Region is quite specific in that the average realization prices of the sold flats for the first three quarters of 2007 were more than one percent higher than the average offer prices of those flats (above all due to the sales of flats in the 1st quarter when he realization prices were up to 3% higher than the offer prices of the sold flats).

The average price for 1 m² of floor space of the sold flats in new buildings has reached the value of almost 46 thousand SKK in the first three quarters of 2007 in Slovakia, which is more than

Chart 4 Average offer prices, realization prices and prices of new buildings in the first 3 quarters 2007 by types of flats



Source: CMN, chart by NBS.

Chart 5 Average offer prices, realization prices and prices of new buildings in the first three quarters of 2007 by regions

Source: CMN, chart by NBS.

21% above the average offer price, more than 26% above the average realization price of all sold flats and more than 35% above the average value of the realization price of flats sold in their original condition. The sales of new buildings made up only some 5% of the total number of flats in the first three quarters of 2007.

A more detailed analysis of the prices of flats sold in new buildings by the individual types of flats and by regions is limited by lower frequencies of the recorded transactions with new flats in some regions (primarily in the Nitra Region, Košice Region and Trenčín Region).

Offer prices

The average offer price of a flat for the whole of Slovakia was about 41 thousand SKK in the 3rd quarter and it increased by some 18.5% as compared to the 1st quarter 2007. The offer prices of flats in the second quarter (10.2%) grew faster in the third quarter (7.5%) as compared to the preceding quarters. The highest growth in 2007 occurred with the offer prices of 1-room flats and the lowest growth with the offer prices of 5-room flats. The offer prices in Bratislava Region and Trnava Region grew at a relatively slow and stable rate, while the growth of offer prices in the remaining Regions was higher and quite differentiated.

The offer of 3-room flats (more than 44% out of more than 30,600 recorded offers of flat sales) was the most frequent offer in the 3rd quarter of 2007. In general, smaller flats are traded more often, because the proportion of offered sales of 2-room flats was almost one quarter in the 3rd quarter, the proportion of sales of 1-room flats

Table 1 Sales prices of flats in the 3rd quarter of 2007 in SKK/m^2

Offer prices	BB	BA	KE	NR	PO	TN	TT	ZA	Slovakia
1-room flats	34,294	60,458	32,000	33,954	27,301	19,089	38,538	32,571	47,390
2-room flats	29,714	56,167	30,621	28,459	30,892	25,483	29,741	29,503	43,279
3-room flats	30,129	48,610	30,392	23,834	23,535	22,597	28,629	26,768	38,307
4-room flats	29,972	47,627	25,709	21,496	25,189	21,126	29,882	23,231	37,237
5-room flats	25,799	53,240	33,843	21,960	36,569	23,499	36,230	26,162	41,961
Total	**30,637**	**52,473**	**30,368**	**26,188**	**26,589**	**22,855**	**30,345**	**28,174**	**40,973**
Q2/Q1 (%)	31.0	7.0	25.1	22.8	15.1	10.6	5.9	29.7	10.2
Q3/Q2 (%)	7.9	6.2	17.0	12.9	38.8	19.8	2.7	7.9	7.5
Q3/Q1 (%)	41.3	13.7	46.4	38.6	59.8	32.4	8.8	39.9	18.5
Prices of new buildings	BB	BA	KE	NR	PO	TN	TT	ZA	Slovakia
1-room flats	38,457	65,658	0	34,966	44,091	0	40,986	39,106	49,045
2-room flats	38,070	57,279	0	33,670	46,669	35,117	38,949	39,758	45,804
3-room flats	41,898	59,729	0	35,412	45,351	49,017	34,771	35,699	47,094
4-room flats	37,246	60,521	24,421	37,432	0	43,385	34,596	43,352	47,779
5-room flats	28,050	57,127	0	54,187	0	0	28,433	42,218	42,660
Total	**39,383**	**59,930**	**24,421**	**36,315**	**48,952**	**42,232**	**36,449**	**38,211**	**48,833**
Q2/Q1 (%)	4.0	3.8	25.5	115.8	28.4	-27.2	5.8	12.9	7.7
Q3/Q2 (%)	4.4	8.8	-30.2	6.0	8.0	10.2	3.3	2.6	5.7
Q3/Q1 (%)	8.6	12.8	-12.5	128.8	38.7	-19.8	9.2	15.8	13.9
Realization prices	BB	BA	KE	NR	PO	TN	TT	ZA	Slovakia
1-room flats	32,900	57,715	31,749	32,953	21,105	14,182	38,328	28,923	45,118
2-room flats	28,439	54,321	30,080	27,150	23,421	21,482	29,349	24,475	41,314
3-room flats	27,957	47,371	29,884	23,283	19,217	21,649	28,858	25,186	37,212
4-room flats	26,191	43,305	25,215	23,331	22,333	20,925	29,564	21,204	34,600
5-room flats	0	52,557	35,375	1,106	0	21,894	30,943	22,577	36,329
Total	**29,064**	**50,534**	**29,923**	**25,949**	**21,381**	**21,022**	**30,418**	**25,702**	**39,433**
Q2/Q1 (%)	26.5	6.7	22.5	21.4	14.1	4.5	9.2	31.4	10.0
Q3/Q2 (%)	7.3	7.1	19.4	9.8	17.7	24.4	4.6	11.0	8.1
Q3/Q1 (%)	35.7	14.2	46.2	33.3	34.3	30.0	14.2	45.8	18.9
Prices of new buildings/offer prices (%)	28.5	14.2	-19.6	38.7	84.1	84.8	20.1	35.6	19.2
Realization prices/offer prices (%)	-5.1	-3.7	-1.5	-0.9	-19.6	-8.0	0.2	-8.8	-3.8

Source: CMN.

reached almost 17%, but the proportion of the offered sales of 4-room flats was about 13% and the proportion of offered sales of 5-room flats was almost 1.5% only. Similar relations between the offers also prevailed in the first two quarters.

Mainly unit offer prices of 1-room flats were above the average of the whole of Slovakia in the 3rd quarter of 2007 (by some 16%).Unit offer prices of 2-room and 5-room flats were slightly higher than the average for Slovakia (by some 6% or above 2%). In the 3rd quarter, the offer prices for 1 m^2 of 3-room flats were more than 6% below the average of the whole of Slovakia and those of 4-room prices some 9% below the average of the whole of Slovakia.

From the regional perspective, the offer prices of flats in SKK/m^2 in Bratislava Region have been traditionally considerably above the average of the whole of Slovakia (by more than 28% in the 3rd quarter), while in the remaining Regions the unit offer prices of flats were considerably below the average of the whole of Slovakia (the highest difference – by 45% – has been reached in the Trenčín Region). In all the remaining Regions, the value of average offer prices of flats in SKK/m^2 reached less than 60% of the average offer price of flats in Bratislava Region.

A considerable part of the flat market (about 86%) was concentrated in Bratislava Region in the first three quarters of 2007. Trnava Region accounts for more than 5% and Košice Region for about 4% of the total number of offers of sales of flat sales within the whole of Slovakia. Prešov Region and Trenčín Region had the share in the flat market (0.6%).

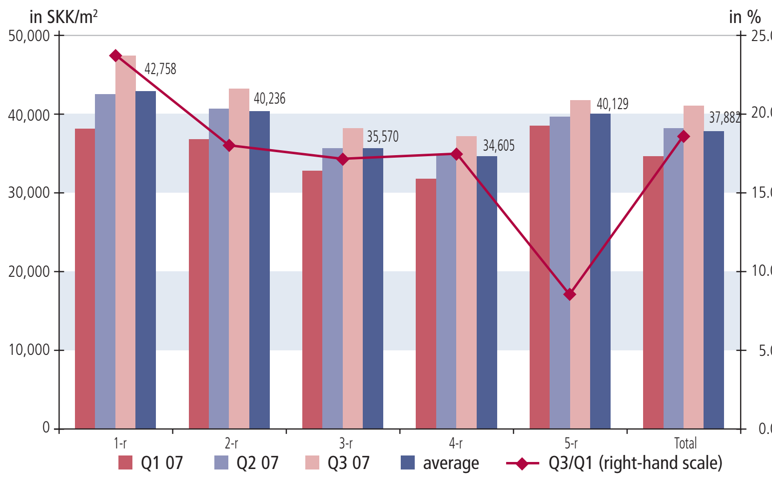
Realization prices

The average realization price of the sold flats reached the value of more than 39,000 SKK/m^2 in the 3rd quarter of 2007 and it was 3.8% lower than the offer price (similarly to the average for the first three quarters which fell by 4.0%). Almost one fourth (22.4%) of the total number of flats offered for sale (less than the average for the first three quarters of 2007) was realized.

The average realization price of flats for the whole of Slovakia grew by 18.9% in the 3rd quarter of 2007 as compared to the 1st quarter of 2007. The realization prices of flats in the second quarter (10.0%) grew faster than in the third quarter (8.1%) as compared to the preceding quarters.

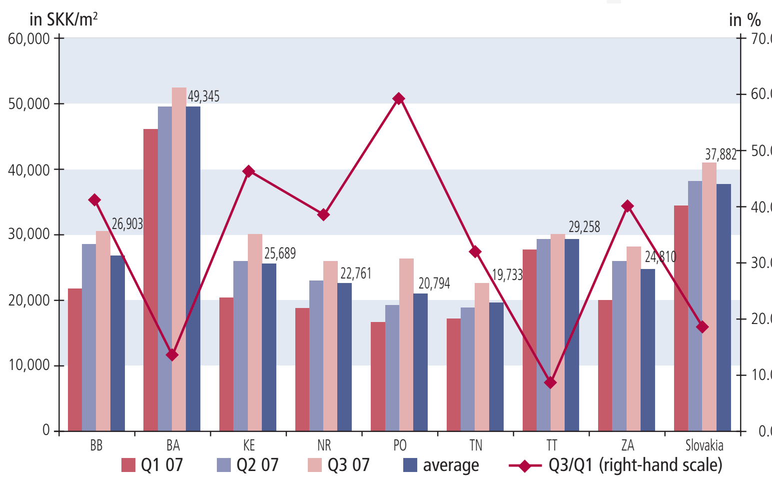
The realization prices of 1-room flats were the main group to be above the average of the whole of Slovakia in the 3rd quarter of 2007 (by more than 14%, i.e. less than the offer prices). The unit offer prices of 2-room flats were slightly higher than the average of the whole of Slovakia (by almost 5%). The realization prices of 3-room and bigger flats were below the average of the whole of Slovakia in the 3rd quarter of 2007 (those of 3-room flats by almost 6%, those of 4-room flats by almost 2%, those of 5-room flats by almost 8%).

Chart 6 The development of the offer prices of flats sold in 2007



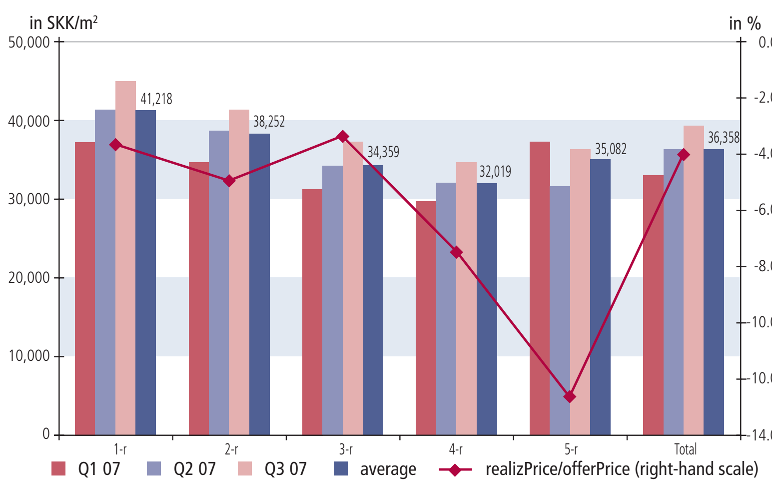
Zdroj: CMN, graf NBS.

Chart 7 The development of the offer prices of flats sold in 2007 by regions



Source: CMN, chart by NBS.

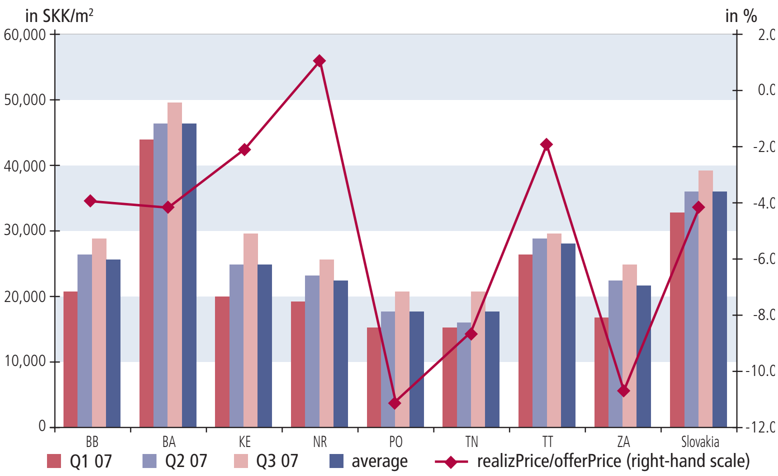
Chart 8 Realization prices of the sales of individual types of flats in 2007



Source: CMN, chart by NBS.

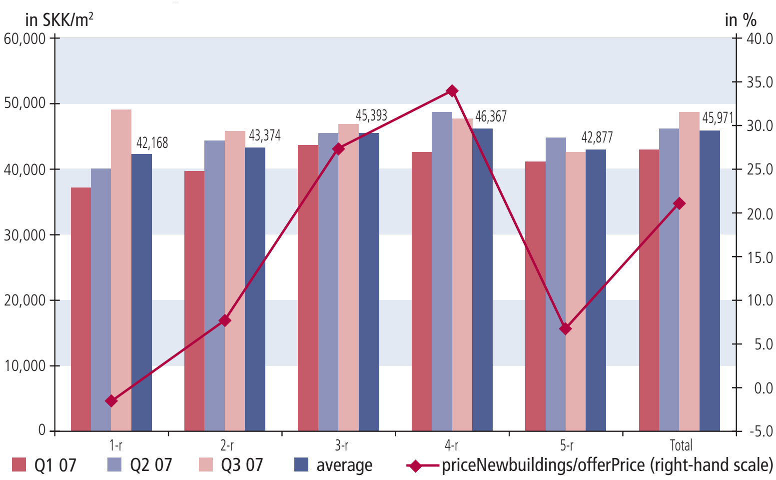
Sales of 3-room flats were the most frequent sales carried out in the 3rd quarter 2007 (almost 44% out of above 7,200 flat sales carried out). The sales of 5-rooom flats were the least frequent sales carried out (only 53 realized transactions).

Chart 9 Realization prices of the sales of flats in 2007 by regions



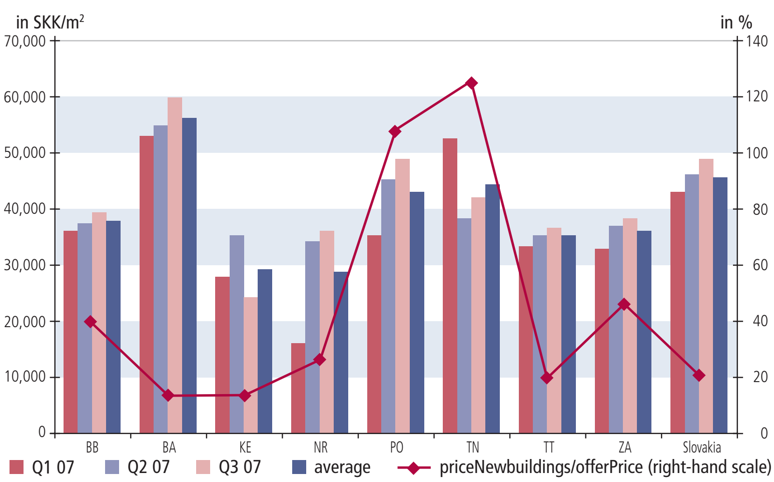
Source: CMN, chart by NBS.

Chart 10 Sale prices of individual types of flats in new buildings in 2007



Source: CMN, chart by NBS.

Chart 11 Sale prices of flats in new buildings in 2007 by regions



Source: CMN, chart by NBS.

The average realization prices of 1 m² of floor space of all types of flats sold were lower than their average offer prices for the three quarters of 2007. In the case of small flats, they were lower by some 4% to 5%, in the case of 4-room flats by more than 7%, but also in the case of 5-room flats by almost 13% (lower by more than 20% in the 2nd quarter).

From the regional perspective, the realization prices of flats in the 3rd quarter of 2007 were considerably differentiated. In Bratislava Region, they were considerably above the average of the whole of Slovakia (by some 28%, similarly to offer prices), while in the remaining Regions the unit realization prices of flats were considerably below the average of the whole of Slovakia (the most in Trenčín Region and Prešov Region – by almost 47% and 46% respectively). The realization prices of the sold flats in Trnava Region, Košice Region and Banská Bystrica Region in the 3rd quarter of 2007 reached the value of about three quarters of the average of the whole of Slovakia.

In the first three quarters of 2007, the average realization prices of the sold flats were lower than the average offer prices in almost all Regions (in the first two quarters, the average realization prices in Nitra Region were higher than the offer prices). The sales of flats were carried out at relatively more advantageous prices in the first three quarters of 2007 in Nitra Region, Trnava Region, Košice Region, Banská Bystrica Region and Bratislava Region, while when selling flats in Trenčín Region, Žilina Region and Prešov Region, the sellers had to decrease the set offer prices more considerably in order to sell them.

A substantial part of all the more than 25,000 sales of flats within the whole of Slovakia (almost 80%) was carried out in Bratislava Region over the three quarters of 2007. Almost 7% were carried out in Košice Region, almost 6% in Trnava Region, almost 4% in Nitra Region and 2% in Banská Bystrica Region of the sales of flats in the whole of Slovakia. The share of sales of flats in the whole of Slovakia carried out in Trenčín Region, Prešov Region and Žilina Region was less than 1%.

Prices of new buildings

As an introduction in analyzing the prices of new buildings, it is necessary to state that the database contains a quite small number of data on sales of flats in new buildings in the separate quarters of 2007. Over three quarters, a total of almost 1,500 records on sales of flats carried out in new buildings has been recorded, almost 1,300 records being for Bratislava Region and the numbers of records for Nitra Region, Košice Region and Trenčín Region were below 10 for the first three quarters of 2007. In order to ensure the adequate information value of generalizing knowledge, we will issue from the more frequent data on offer prices of sales of flats in new buildings in this part of the text. We will thus issue from the data of more than 5 thousand records, in which the records on the prices of flats sold in new building in the above-mentioned Regions occur with higher frequencies (24 records for Košice Region, 29 records for Nitra Region and 36 records for Trenčín Region).

The average offer price of flats sold in new buildings in Slovakia was above 49 ths. SKK/m^2 in the 3rd quarter of 2007 and it was 19.2% higher than the offer price of all the sold flats. It grew by almost 14% as compared to the 1st quarter of 2007. The offer price of sold flats in new buildings grew more considerably in the second quarter (7.7%) than in the third quarter (5.7%) as compared to the previous quarters.

Only the offer prices of 1-room flats sold in new buildings were slightly above the average of the whole of Slovakia in the 3rd quarter of 2007 (by 0.4%). The offer prices of bigger flats sold in new buildings were below the average of the whole of Slovakia in the 3rd quarter (2-room flats by almost 6%, 3-room flats by almost 4%, 4-room flats by more than 2% and 5-room flats by almost 13%).

In the first three quarters of 2007, the average offer prices of flats sold in new buildings were 21% higher than the average offer prices of all sold flats. This was primarily the result of considerably higher offer prices of 3-room and 4-room flats sold in new buildings (by almost 28% or 34.0%).

From the regional perspective, it is interesting that the offer prices of sales of flats in new buildings in the 3rd quarter were higher than the average for the whole of Slovakia not only in Bratislava Region (by almost 23%), but also in Prešov Region (by 0.2%). In the remaining Regions, the offer prices of flats in new buildings were considerably below the average for the whole of Slovakia (the highest decrease occurred in Košice Region – by 50%, but we have based this number on one single record).

The higher average offer prices of flats sold in new buildings as compared to the average offer prices of all sold flats in the first three quarters of 2007 were caused above all by big differences in Prešov Region (in the 3rd quarter of 2007) and Trenčín Region (in the 1st quarter 2007). The said differences can be also influenced by the fact that this analysis issues from a relatively small number of records on prices of flats sold in new buildings.

Conclusion

The CMN database is currently virtually one of the most suitable available data sources on housing real estate prices in Slovakia – despite certain methodological objections concerning mainly the statistical representativeness of the recorded data. The database represents a considerable qualitative shift in the hitherto offer of data on housing real estate prices in Slovakia.

The CMN application in the internet portal provides many possibilities for on-line data selections according to a number of preselected parameters. However, the current version of the CMN application also provides much more analytical possibilities than those provided by the access to the data of the original NARKS database. It would be very hard to perform an article like this one using the original database. The possibility of mutual confrontation of data from the new and original database is another strength, which also contributes to a higher quality of the collection and primary processing of residential property prices in Slovakia. A certain disadvantage of the current version of the CMN application is the relatively high labour-intensity of the selection of the necessary, more structured data, which could be solved by finishing of its analytical upgrade.

A comparison of the development of the prices of flats over the first three quarters of 2007 according to two data sources yielded the identification of slightly higher average flat prices for 1 m^2 according to data from the CMN database than according to data from the original NARKS database (by more than 1,200 SKK/m^2). Certain differences were detected when comparing the prices of flats both by regions and by the growth rates of the prices of flats, although the detected trends are quite similar. One of the acceptable reasons for the detected differences is a differing methodology when excluding extreme values of real estate price values in both databases (application of the 2š criterion in the case of CMN and of the 1š criterion in the case of NARKS). Therefore, more records with higher prices of flats get into the adjusted CMN database than into the NARKS database.

The CMN data imply that the average offer price of the sold flats reached the value of 37.882 SKK/m^2 in the first three quarters of 2007, which was more than 1,500 SKK more than the average realization price of the sold flats. This means that the average realization price was 4% lower than the offer price. The situation in the individual regions is quite different.

Around one fourth of the total number of flats offered for sale has been sold so far in 2007. Existing flats were the main group of traded flats, because the offer of sales of flats in new buildings represented only around 5.5% of the total number of flats offered for sale. The most offers and performed sales within Slovakia took place in Bratislava Region and the main flats to be traded in were predominantly 3-room flats and smaller flats. The average offer and realization prices of flats in Bratislava Region were almost 30% above the average of the whole of Slovakia in 2007.

The average price for 1 m^2 of floor space of the sold flats in new buildings in Slovakia reached the value of almost 46 thousand SKK in the first three quarters of 2007, which is more than 21% above the average offer price and more than 26% above the average realization price of all the sold flats.

A more detailed comparison of the sale prices of flats in Slovakia in 2007 according to offer prices, realization prices and unit prices of newly built flats for 1 m^2 has yielded an insufficient representation of selected objects in certain categories (above all the representation of newly built flats in the individual regions).

Použité zdroje:
1. www.cmn.sk
2. www.narks.sk