Real estate market in the Czech Republic – case study of Olomouc and Zlín region

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Abstract

This paper is embedded into the issue of regional real estate market situation of the Czech Republic. The paper uses Olomouc and Zlín region as a case study and examines the period 2007 to 2017. The main objective of the paper is to reveal whether or not the real estate markets of chosen regions pass through the "golden age" in current economic expansion of the Czech economy. The evaluation is based on official data of the Czech Statistical Office and the Czech National Bank. Thus, indicators about real estate market, regional and national economy and monetary policy are employed. Concept of the paper follows, among other, the threat of real estate bubble birth and bursting in current Czech environment.

Keywords: Real Estate; Market; Bank Rate; Regional Economy; the Czech Republic

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1. Introduction

Real estate market in the Czech Republic pasts through a turbulent development in last years. Thus, prices of real estate are rising since economic crisis recovery after year 2010. The supply and demand on real estate market are searching for new equilibrium; people are able and compliant to pay higher prices; mortgages are affordable even though rising bank rates. Moreover, the whole economy raises significantly, including GDP or incomes. It is possible to say that real estate market witnesses the "golden age" nowadays.

On the other hand, there are some risks hidden behind. Thus, the Czech National Bank tries to cool down the warming economy using its monetary policy tools. Affordability of mortgages was customized to avoid pay back inability. Additionally, the question of possible real estate bubble bursting is on the table.

Considering abovementioned ideas, the paper examines the situation of the Czech real estate market when uses the Olomouc and Zlín region as a case study. The main objective of the paper is to provide information about regional real estate market and its development in years 2007 to 2017. The paper focuses on the question whether or not there exists rise of real estate market during the last years in Olomouc and Zlín regions.

Structure of the paper is designed as follows:
- first part focuses on theoretical framework of the real estate market issues
- second part introduces methodology
- third part examines the results of empirical analysis of the real estate market of Olomouc and Zlín regions from broader perspective
- the final part of the paper concludes

2. Theoretical framework

The second chapter of the paper focuses on theoretical fundamentals of real estate market issue. Let us start with some fundamental paradigms and characteristics of the real estate markets, given by scholars. Gatzlaff and Tirtifoğlu (1995) provided relatively detailed review of theoretical works about real estate markets and their efficiency. According to this review, they postulated following statements:

- Real estate represents crucial part of national wealth and changes on the real estate markets influence significantly national and regional economy (also Shuping 2006). Regarding this, Govil and Rashmi (2013) mention market globalization issue, which results into ideas about influencing economies between countries by the changes on particular real estate market as well.
- The most remarkable part of the households' wealth lays in real estates. Thus, the relevance and importance of real estate market for the economy is intensified.
- Works focusing on real estate market research employ the issue of its efficiency. Efficiency, understood from economic theory viewpoint, is state of art when another allocation of sources does not bring increase of one´s utility without simultaneous decrease of other´s utility (see, e.g., Grossman and Stiglitz 1976). The general efficiency assumption, used in economic theory, seems to be inappropriate for the real estate market. Among others, Gau (1987) points that efficiency on the real estate market is oxymoron from the real estate market nature. Moreover, Gatzlaff and Tirtifoğlu (1995) stress the need of segmentation of the real estate market when examining its efficiency and distinguishing long and short time-period. Gatzlaff and Tirtifoğlu (1995) and Gau (1987) also agreed the problem of relevant data accessibility.

The issue of prices on the real estate markets explored, among others, Genesove and Mayer (1993). Because of the specifics of the real estate market and doubtable issue of efficiency, they concluded following remarks:

- It exists significant variation in volumes of realized transactions and prices on the real estate market over time. This variation is much higher than in case of other macroeconomic values (e.g., unemployment or inflation).
- Similarly to Stein (1993) or Case and Shiller (1988), there is positive correlation between real estate prices and amount, in contrast to general economic theory (e.g., Grossman and Stiglitz 1976). Case and Shiller (1988) provide explanation in fact, that real estate owners are less likely to sell them for low prices.
- The price and amount of real estate on the market is additionally influenced by unique character of particular real estate objects.
- Lastly, mention also idea about influence and price of information on the real estate market, when Levitt and Syreson (2008) stress this point.

The behaviour of real estate market subjects is affected by their experience with real estate transactions (Genesove and Mayer 1993). Stein (1993) mentions difference between behaviour of people who buy the first real estate object and people who are already owners of any. Englehardt (1992) adds that behaviour of real estate subjects and intended realization of real estate market transactions impact their behaviour on the other markets of national economy. To give an example, the intended real estate purchase causes decrease of current consumption of the subject on other markets (e.g., clothes or electronics market).

Trends on real estate market are connected to economy development, like was mentioned above. In time of economic expansion, the issue of real estate bubble and its bursting often occurs (e.g., Case and Shiller 2003). Real estate bubbles can be defined as excessive

public expectations about future real estate prices increase, which result into their real growth. Thus, real estate bubbles are affected by expectations of real estate market subjects about future expenses and real estate affordability (e.g., Zhou and Sornette 2008). Research of Case and Shiller (2003) about real estate bubbles pointed at several facts:

- Media significantly contribute to the speculations about real estate bubbles. Such speculations can create the uneven environment on the real estate markets and cause real crisis.
- Not only expectations about future real estate prices plays its role in real estate bubble birth. The risk perception is other important contribution. In this regard, real estate subjects tend to perceive current risks related to real estate purchase to be lower than it would be in the future (because of expected price increase). Thus, the current risks connected with pay back capability tends to be underestimated.
- Another issues contributing to real estate bubble birth are market sustainability and actual strength of future expectations and its capability to motivate real estate transactions realization.
- There is a strong interconnection between real estate bubbles birth and bursting on one hand and trends in wage levels and bank or interest rates levels.
- Real estate bubble bursting occurs when the expectations about future real estate prices increase. After that, the actual prices of real estate fall down, bank interest and real value of mortgages rise and real estate value falls. This can cause severe economic problems.

Zhou and Sornette (2003) add to the discussion about real estate bubbles that they can but do not have to affect interconnected national economies – like real estate market and economic crisis in the United Kingdom between 2000 and 2003, which did not have the straightforward impact on the US economy. Additionally, Shuping (2006), examined the real estate market bubble and consequent crisis which affected only particular regional economies in China, but not national economy as a whole. Let us note one closing remark to the real estate bubbles issue – many authors stress that the identification of real estate bubble is uneven between researchers and depends on research design (e.g., Zhou and Sornette 2008 or Case and Shiller 2003).

3. Methodology

In this chapter, applied methodology is introduced. For real estate market analysis and evaluation of its state of art, the Olomouc and Zlín regions we use as a case study. The main objective of this paper is to evaluate whether or not there is a positive development of real estate market in particular regions, in accord with current economic expansion and welfare.

Evaluation employs relevant and officially reachable statistical data from the Czech Statistical Office (CSO hereafter) and the Czech National Bank (CNB hereafter). Next, time-series analysis examines the development of real estate market in period 2007 to 2017. The following text introduces the indicators construction and relevance of their utilization.

First employed indicators – number of finished and initiated flats - evidences the development on real estate market on the supply side. Thus, data about finished and initiated flats are collected from CSO for period 2007 to 2017 and for both regions.

Next, the indicator of real estate market price index is analysed. For the construction of the index, the average prices of real estate in total are used. Value of the index in year 2010 is taken as a basis. The index is constructed for Olomouc and Zlín region, additionally for the Czech Republic as a whole for comparison. Consequently, real estate market price indexes were constructed for particular types of real estate as well. Repeatedly, data from CSO about real

estate prices were taken. This indicator shows the change of equilibrium on the real estate market and affordability of real estate for consumers.

Time-series data about average wages and GDP growth in Olomouc and Zlín regions were analysed next. Data were taken from CSO for period 2007 to 2017. Interconnection between regional and national economy and real estate market justifies evaluation of these indicators. Wage level and GDP growth influence the purchase power of households, their affinity to create savings and likeliness of firms or public sector to invest into real estate infrastructure.

Purchase power or likeliness of real estate investments are related also to bank rates and their development. In this regard, we employed data about bank rates in period 2014 to 2017. Because there is no difference between bank rates based on regions, the data for the Czech Republic from CNB were taken. The decomposition on banks and saving institution was used to provide broader insight into the issue.

Finally, the data about numbers of real estate agents on the market of Olomouc and Zlín regions were analysed. Thus, the indicator expresses the market saturation, market opportunities supply and its potential to attract new market agents. Values of the indicators in particular regions were compared to the average number of real estate market agents in regions of the Czech Republic. To avoid influence of outliers, Prague was excluded from the construction of average real estate market agents indicator.

4. Real estate market analysis

This chapter of the paper examines the relevant indicators related to real estate market in Olomouc and Zlín regions. The analysis is developed for both regions between years 2007 and 2017. Additionally, the analysis looks at some indicators which are important for real estate market and which are the same for the Czech Republic as a whole, like bank rates or GDP growth predictions.

The first part of the analysis focuses on the realization of new flat building. Figure 1 shows the situation of the Zlín region, with decomposition to initiated and finished flat building in particular years. The initiated flat building curve has a "U" shape with enormous increase in year 2017. Finished flat building follow the development of initiated flat building with anticipated delay.

Figure 1: New flat building; Zlín region, 2007 - 2017
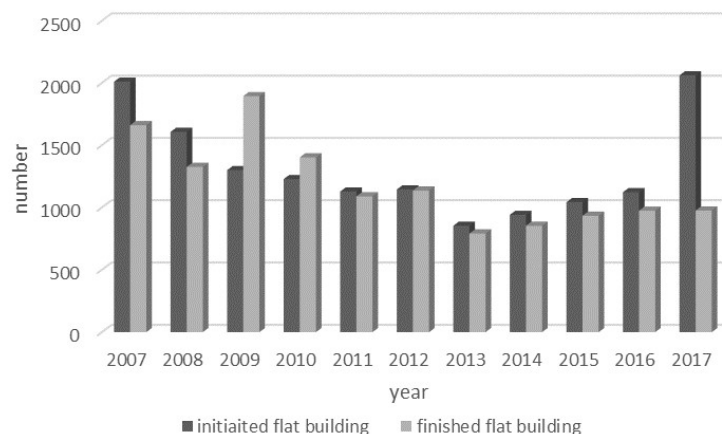
Source: own elaboration based on CSO data

Figure 2 gives the same information about new flat building in case of Olomouc region. Again, there is relatively high increase of initiated flat building from year 2015, the strongest in last year of evaluation. The development of finished flat buildings again follows the development of initiated flat building in past. The total number of new flat buildings in Olomouc region is slightly higher than in Zlín region (see also figure 1).

Figure 2: New flat building; Olomouc region, 2007 - 2017
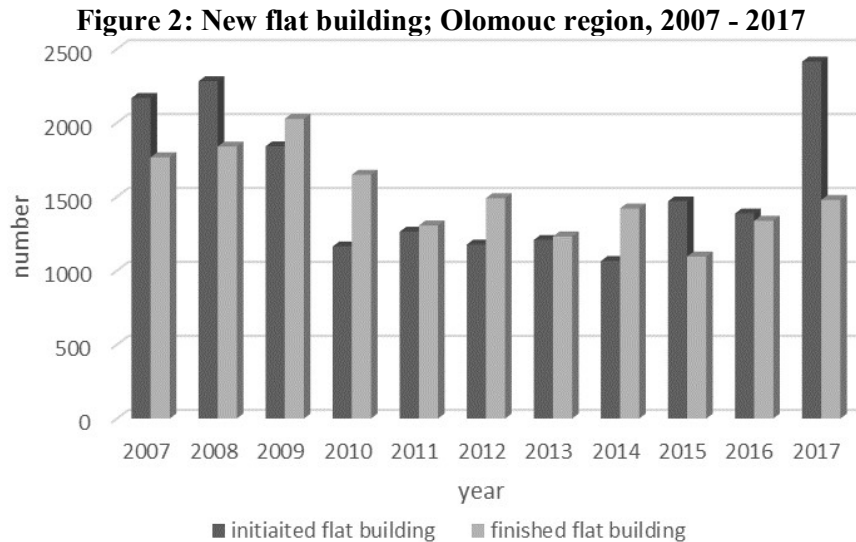
Source: own elaboration based on CSO data

Next part of real estate market analysis aims on real estate prices in particular regions. For this paper´s purpose, figure 3 introduces information about overall real estate prices. The prices are expressed as index of market prices of real estate. The evaluation employed data from year 2011 to eliminate the influence of economic crisis after 2008. Particular lines in figure 3 represent index values for Olomouc and Zlín region, compared to its value for the whole Czech Republic. It is obvious, that market price of real estate are raising significantly in last years. The growth pace is uprising as well. Real estate price index is lower in case of Olomouc region, compared to Zlín region, although the initial situation in 2011 was similar. The curve representing real estate price index of Zlín region is more similar to overall index of the Czech Republic.

Preceding information is extended in table 1. This table mentions average price of real estate, distinguished by the type of real estate. Repeatedly, there is provided information about Olomouc and Zlín region and accordingly about the Czech Republic as a whole. Table 1 contains evaluation of two years – 2011 and 2016. The most remarkable increase in prices can be observed in case flats. Zlín region reaches 11% growth, Olomouc region even 23% growth. Average price of family houses decreased between the two years in Olomouc region, average price of flat buildings decreased in both regions. The overall real estate prices are slightly lower in both regions, compared to the Czech Republic average.

Figure 3: Real estate market price index; Czech Republic and Olomouc and Zlín region, 2011 - 2016
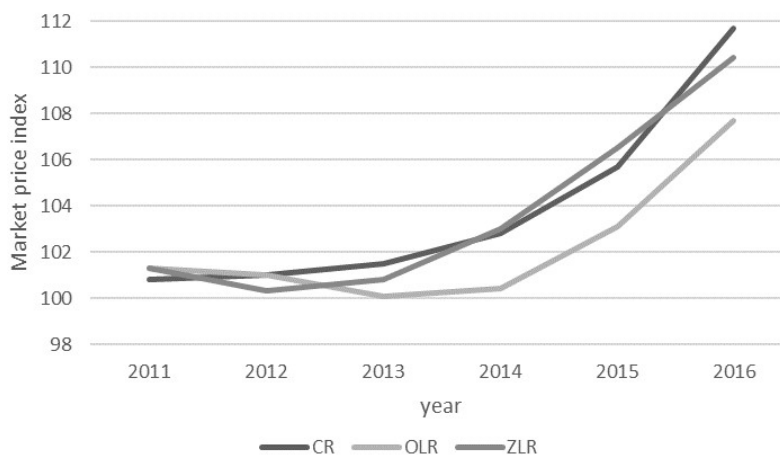
Note: CR – the Czech Republic, OLR – Olomouc region, ZLR – Zlín region
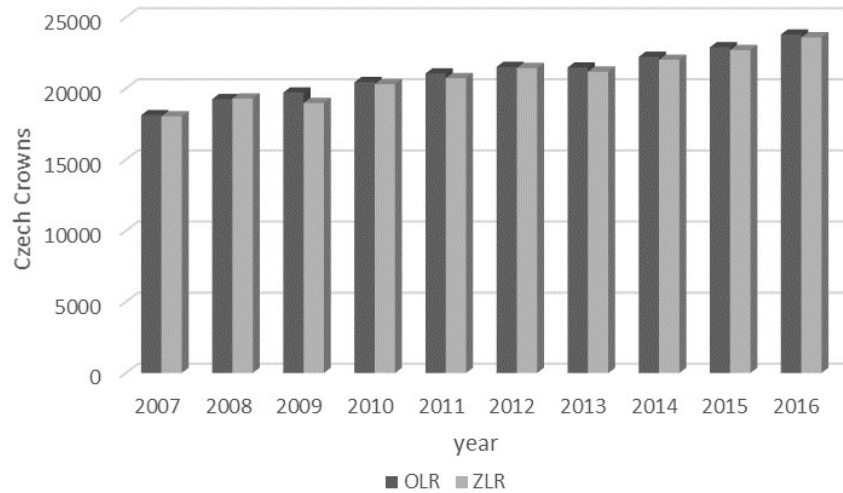Source: own elaboration based on CSO data

Table 1: Average real estate prices according to type; the Czech Republic and Olomouc and Zlín region, 2011 and 2016

Area	Year 2011					Year 2016				
	Total	Family houses	Flats	Flat buildings	Land	Total	Family houses	Flats	Flat buildings	Land
CR	111.7	108.6	115	108.1	113.6	100.8	102.1	99.8	101.1	100.3
OLR	107.7	99.4	122.3	89.5	111	101.3	102.9	99.2	100.4	104
ZLR	110.4	111.1	111.7	96	109.8	101.3	102	100.4	103.7	100.8

Note: CR – the Czech Republic, OLR – Olomouc region, ZLR – Zlín region
Source: own elaboration based on CSO data

The real estate market situation is driven significantly by national and regional economy development. Considering this point, the next part of this chapter evaluates chosen macroeconomic indicator. Figure 4 draws up the issue of average wages in Olomouc and Zlín region. Whole ten-year period indicates average wages growth. This is truth for both regions. It can be observed slight decrease only in year 2009 in Zlín region and in year 2013 in both regions, which could be caused by economy shocks in these years. In general, Olomouc region indicates higher average wages than Zlín region.

**Figure 4: Average wage; Olomouc and Zlín region, 2007 - 2016**

Note: OLR – Olomouc region, ZLR – Zlín region
Source: own elaboration based on CSO data

Regional GDP development is introduces in figure 5. Thus, the regional GDP of Zlín region is higher than in Olomouc region for the whole period. This is remarkable, compared to the average wage level in these regions (see figure 4). Positive economy development of the Czech Republic mirrors also rapid growth pace in regional GDP of both regions.

**Figure 5: Regional GDP; Olomouc and Zlín region, 2007 - 2016**
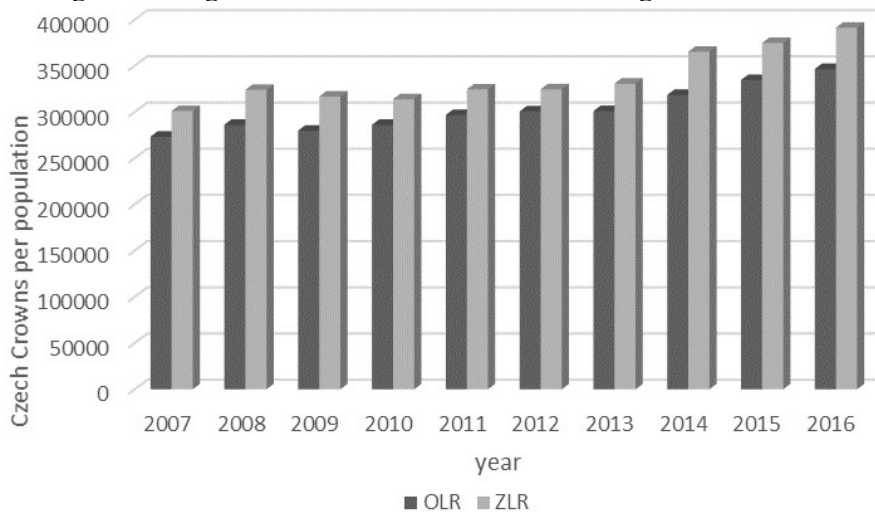
Note: OLR – Olomouc region, ZLR – Zlín region
Source: own elaboration based on CSO data

Crucial is the impact of interest rates on real estate market. It plays role either in real estate pricing, either in mortgages and loan prices, respectively affordability, or in the real value of households assets. Keeping these points in mind, figure 6 gives an information about bank rates development either in case of banks and either in case of saving institutions. Attention is paid for period 2014 – 2017. Figure 6 indicates higher bank rates in case of saving institutions,

compared to banks; however, the gap is closing during time. On the other hand, saving institutions drives the bank rates down, while banks broke this trend in year 2017.

Figure 6: Bank rates; the Czech Republic, 2014 - 2017
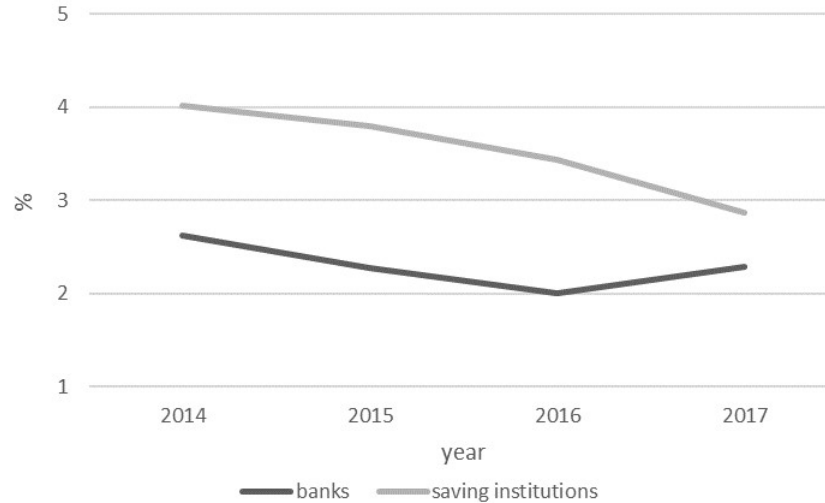
Source: own elaboration based on CNB data

Final part of this chapter focuses on the number of real estate market agents in particular regions. This issue is connected with ideas about size and saturation of real estate market and with its health and ability to attract market subjects' attention. The numbers from Olomouc and Zlín region are compared to the average of all Czech regions. Prague was excluded from the analysis, because of its role as an outlier. From figure 7 is noticeable, that number of real estate market agents is under the average of the Czech Republic, even after Prague exclusion. Total number of real estate market agents is relatively higher in Zlín region.

Figure 7: Real estate market agents; Olomouc and Zlín region, 2017
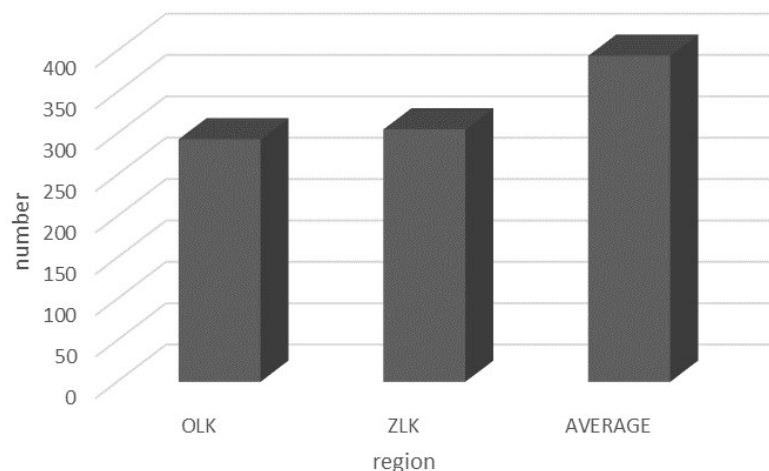
Source: own elaboration based on CSO data and real estate agents websites

5. Conclusion

Based on previously introduced analysis of the real estate market of Olomouc and Zlín region, this chapter provides conclusion of the main findings. Conclusions can be summarized as follows:

- Building of the new flats indicates positive situation on real estate market of Olomouc and Zlín regions. In this regard, especially the number initiated buildings in last year of the evaluation shows that the real estate market will be saturated on the supply side.
- Current numbers of finished flat also indicates that the high demand could be satisfied in the near future.
- Positive prognoses about the numbers of real estate and market readiness could be disrupted by the threat of real estate bubble bursting. This threat is mentioned either by economic and real estate specialists. We witnessed similar processes in past as well. On the contrary, the future economic prognoses of national and international authorities remains optimistic. In addition, the policy of the Czech National Bank reflects the required changes by interest and bank rates and monetary policy modifications.
- Real estate market is significantly dependent on international, national and regional economy and its development. According to analysed macroeconomic indicators of national and regional economy, it can be concluded positive climate stimulating also real estate market. GDP growth and growth of average wages affects the purchase power of households, stimulates savings accumulation and creates investment possibilities. All these processes have positive impacts on real estate market as well. Households are more likely to invest into real estate and have better access to mortgages and loans. Firms are more likely to invest into new infrastructure, which includes also real estates.
- Abovementioned positive tasks related especially to real estate demand pressure on increase of bank rates. This growth cool down possible warming of the economy. On the other hand, it could be an obstacle for market subjects to reach mortgages and loans to purchase on the real estate market. Although this fact, it seems that the positive economic trends outweighs the possible negative influence of increasing bank rates. Moreover, more expensive mortgages and loans, and government restriction about maximum share of mortgage on total real estate price doesn´t seem to slow down the purchase likeliness.
- In addition to introduced facts, table 2 adds information about the perspective of the Czech National Bank about bank rates and GDP growth for years 2018 and 2019. The economy seems to continue positive development when prognosis about GDP promises high pace over 3 percentage points each year. Together with GDP growth, it is relevant to expect also average wage growth and growth of purchase power of real estate market subjects. In case of bank rates, the Czech National Bank promise continual growth that raise even 1.7 % in 2019. This can be perceived as protection against economy warming.
- Growth of economy, its potential and purchase power, and growth of real estate market create opportunity for real estate agents activity in Olomouc and Zlín region. Because the numbers of real estate agents in both regions are under average of the Czech Republic, it is relevant to expect continual saturation of the market in future.

Table 2: GDP and bank rate growth prognosis

Indicator	2018	2019
GDP growth	+ 3.6 %	+ 3.2 %
Bank rate	+ 0.9 %	+ 1.7 %

Source: own elaboration based on CNB data

Considering all the findings of realized analysis, it is possible to conclude that the real estate market in Olomouc and Zlín region goes through "golden age" nowadays. The economy is going well on regional, national and international level as well. All the positive processes related to this development overweigh the possible negatives. The public policies and actions of the Czech National Bank prevent the real estate bubble bursting. Regarding these findings, the paper fulfils its objective, defined in relevant chapter above. For further research, there is a space for evaluation of the situation on other regional real estate markets in the Czech Republic. Also, it would be interesting to provide the information about real estate market in other European, respectively non-European, economies.

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