AN ANALYSIS OF THE EVOLUTIONS OF REAL ESTATE MARKET AND PURCHASING POWER WITHIN THE EUROPEAN UNION

Ciprian Șipoș
Associate Professor, Ph.D., West University of Timisoara, Romania
ciprian.sipos@e-uvt.ro

Alexandru Buglea
Professor, Ph.D., West University of Timisoara, Romania
alexandru.buglea@e-uvt.ro

Abstract: The paper analyzes to what extent the evolution of the real estate market in the EU countries is influenced by the purchasing power of the citizens of those countries. This analysis is based on the developments of GDP per capita, purchasing power parities, House Price Index and production in construction in period 2008 - 2013 in the EU countries and is structured on three research hypotheses.

The first research hypothesis assumes that purchasing power, quantified both by GDP per capita and through purchasing power parities, significantly influences the House Price Index. The second hypothesis assumes that purchasing power significantly influences the production in construction and the third hypothesis assumes that the House Price Index significantly influences the evolution of production in constructions.

Testing these hypotheses result in a complex influence: the evolution of GDP per capita significantly influences the evolution of House Price Index, and the price index at his turn influences the evolution of production in construction. There was no significant correlation between the purchasing power and production in construction.

Finally, is made a grouping of EU countries into four categories according to all indicators analyzed and are discussed the prospects of Real Estate market developments in the EU countries.

Keywords: Real Estate Market, purchasing power, House Price Index, production in construction

JEL classification: R31, R32

1. Introduction

Profitable investments can be made at any time, both in times of crisis and the real estate peak periods, as they were in periods of 2006 - 2007. An old investor market, experienced, knows that property price increases inevitable, just a matter of time. Those who lose get to this point because of unwise decisions. In the long term, prices of real estate have always increased. In the long term, real estate has proven to be one of the most stable in terms of investment. But it's true that sometimes you better invest in a property or another, which makes the difference

in profit. Loss is defined as someone investing in a property in peak period and wishes or is forced by circumstances to make an exit in a time when prices were low.

The financial crisis was a real awakening to the understanding that we still live with cyclical capitalist crises. Simultaneously, it has given the opportunity to examine the role of nation-states in relation to real estate markets at level of cities, regions, national and international relations. This theme reflects upon the reality of political and institutional power at a time of financial crises like this one and examines contemporary urban theories that have long left out capitalist crises and minimized the role of national economies in the framework of globalization (Fujita, 2011: pp. 265-271).

Liquidity in real estate markets is variable over time. Therefore, indices of changes in market value that are based on asset transaction prices will systematically reflect inter-temporal differences in the ease of selling a property (Fisher et al., 2003: pp. 269-303). Not only does a geographical perspective throw important light on the nature and dynamics of the recent financial crisis, the latter in turn should give impetus for a more general research effort into the analysis of bubbles and crashes (Ron, 2011: pp. 587-618).

The indicator used at European level to track the developments in housing prices is called the House Price Index (HPI). He summarizes, based on a methodology of Eurostat, the evolution of acquired property prices, both new and existing ones, regardless of the destination and the previous owners (Eurostat, 2014). The European HPI is calculated based on all HPI nationwide using an aggregation based on weighted average GDP of the countries concerned to values expressed in purchasing power parity standard. Besides this important indicator, real estate market can be illustrated by another indicator named production in construction which can include the total of the construction sector or only building construction and civil engineering.

Based on these indicators, further is made an analysis of the influence of the purchasing power of the citizens of EU countries on the evolution of the real estate market prices. This analysis consider the evolutions of GDP per capita, purchasing power parities, House Price Index and production in construction in the period 2008 - 2013 in the EU countries.

2. The interdependences between purchasing power, House Price Index and Production in construction within the EU

The analysis of interdependences between purchasing power, House Price Index (HPI) and production in construction in the EU countries is structured on three research hypotheses:

- Hypothesis 1: purchasing power, quantified both by GDP per capita and by purchasing power parities, significantly influences the House Price Index;
- Hypothesis 2: purchasing power significantly influences the production in construction;
- Hypothesis 3: the House Price Index significantly influences the evolution of production in constructions.

To analyze these three research hypothesis was considered annual data of all indicators for the period 2008 - 2013 for 28 EU countries. Were excluded periods for which data were not available. The source of data used in this research is Eurostat.

Regarding the Hypothesis 1, were conducted two ways of analysis. The purchasing power is quantified in first stage by GDP/capita and in the second stage by purchasing power parities (PPPs).

The correlation between GDP/capita and HPI is reflected by the following:

Table 1. The influence of GDP/capita on HPI within EU

Regression Statistics	
Multiple R	0,47633
R Square	0,22689
Adjusted R Square	0,212303
Standard Error	3,242895
Observations	55*

ANOVA

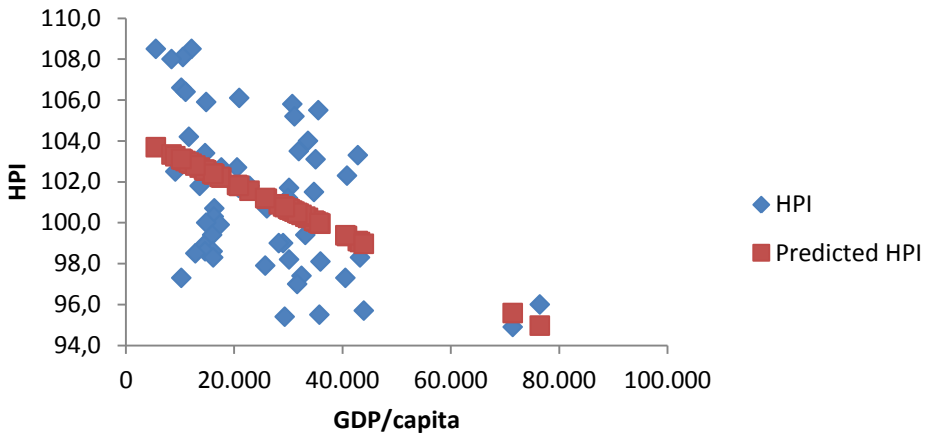
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	163,5745	163,5745	15,55428	0,000237
Residual	53	557,3673	10,51636		
Total	54	720,9418			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	104,3676	0,910442	114,634	3,48E-65
GDP/capita	-0,00012	3,12E-05	-3,94389	0,000237

* The reduced number of observations is caused by the unavailability of HPI data in many EU countries
Based on data provided by Eurostat

The correlation between GDP/capita and HPI can be also reflected with the following chart:

Chart 1. The correlation between GDP/capita and HPI within EU



Based on data provided by Eurostat

It can be observed a significant correlation between GDP/capita and HPI, which shows that there is a strong influence of purchasing power on evolution of real estate prices. It is very interesting to note that the correlation is negative which means that falling prices of real estates in the period 2008 – 2013 are more pronounced in the EU countries with higher

purchasing power. This situation is mainly due to high gaps between prices of real estate within the EU. Prices of properties in developing countries are much higher than prices in less developed countries of the EU. As a result, the price trend is different between these two groups of countries. The fall was greater in countries with higher prices of real estates and in countries with lower prices of real estates, the fall was lower.

The correlation between purchasing power parities (PPPs) and HPI is reflected by the following results:

Table 2. The influence of PPPs on HPI within EU

Regression Statistics	
Multiple R	0,070349
R Square	0,004949
Adjusted R Square	-0,0052
Standard Error	13,66217
Observations	100

ANOVA

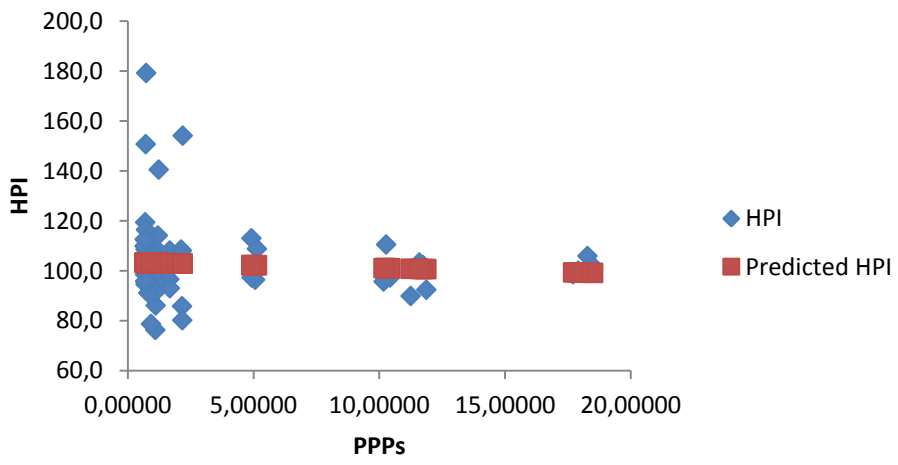
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	90,97762	90,97762	0,487411	0,486738
Residual	98	18292,17	186,6548		
Total	99	18383,15			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	103,3638	1,626994	63,53056	1,89E-81
PPPs	-0,22805	0,326645	-0,69815	0,486738

Based on data provided by Eurostat

The correlation between PPPs and HPI can be also reflected with the following chart:

Chart 2. The correlation between PPPs and HPI within EU



Based on data provided by Eurostat

Regarding the purchasing power parities, the influence on HPI is very low. In this case, it cannot be revealed a significant relationship between the purchasing power of the citizens of a country and the evolution of the real estate market prices.

After analyzing these correlations it can be said that the Hypothesis 1 is only partially confirmed.

The Hypothesis 2 which assumes that purchasing power significantly influences the production in construction is analyzed through the correlation between GDP/capita and Production in construction (annual data, adjusted by working days, provided by Eurostat). The correlation between GDP/capita and Production in construction is reflected by the following results:

Table 3. The influence of GDP/capita on Production in construction within EU

Regression Statistics	
Multiple R	0,296243
R Square	0,08776
Adjusted R Square	0,0769
Standard Error	5,487391
Observations	86

ANOVA

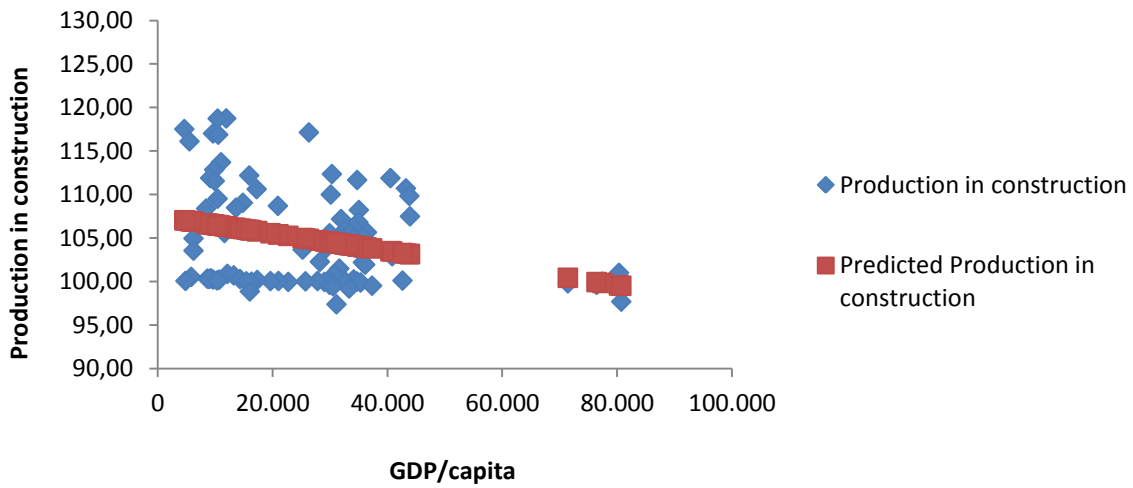
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	243,3318	243,3318	8,081036	0,005614
Residual	84	2529,363	30,11146		
Total	85	2772,694			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	107,4757	1,096797	97,99047	2,2E-88
GDP/capita	-9,9E-05	3,48E-05	-2,84272	0,005614

Based on data provided by Eurostat

The correlation between GDP/capita and Production in construction can be also reflected with the following chart:

Chart 3. The correlation between GDP/capita and Production in construction within EU



Based on data provided by Eurostat

It can be observed that the influence of GDP/capita on Production in construction is similar to the influence seen in the case of HPI. Here is also a negative correlation, but slightly weaker

than in the first case. Similar with the HPI situation, we can see that falling of production in construction on the period 2008 – 2013 is more pronounced in the EU countries with higher purchasing power. In the EU countries with lower purchasing power, the fall was lower.

After analyzing the correlation between GDP/capita and Production in construction it can be said that the Hypothesis 2 is confirmed.

The Hypothesis 3 which assumes that the House Price Index significantly influences the evolution of production in constructions is analyzed by correlation between HPI and Production in construction within EU in the period 2008 – 2013:

Table 4. The influence of HPI on Production in construction within EU

Regression Statistics	
Multiple R	0,80075
R Square	0,6412
Adjusted R Square	0,637539
Standard Error	15,36701
Observations	100

ANOVA

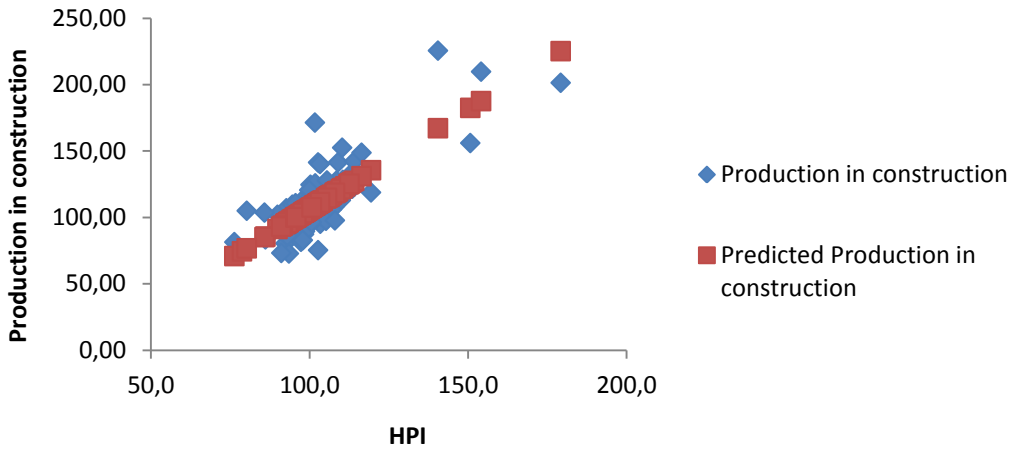
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	41356,68	41356,68	175,1326	1,54E-23
Residual	98	23142,2	236,1449		
Total	99	64498,89			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-43,6507	11,7462	-3,71616	0,000337
HPI	1,499902	0,113339	13,23377	1,54E-23

Based on data provided by Eurostat

The correlation between HPI and Production in construction can be also reflected with the following chart:

Chart 4. The correlation between HPI and Production in construction within EU



Based on data provided by Eurostat

In this case, it can be seen a very strong and positive relationship between HPI and Production in construction. Multiple R from the Table 4 has a very high value, which shows that the volume of construction in the EU has heavily depended on the evolution of property prices. In countries where the HPI greatly decreased after the crisis also registered significant decreases in the volume of constructions.

After analyzing the correlation between HPI and Production in construction it can be said that the Hypothesis 3 is strongly confirmed.

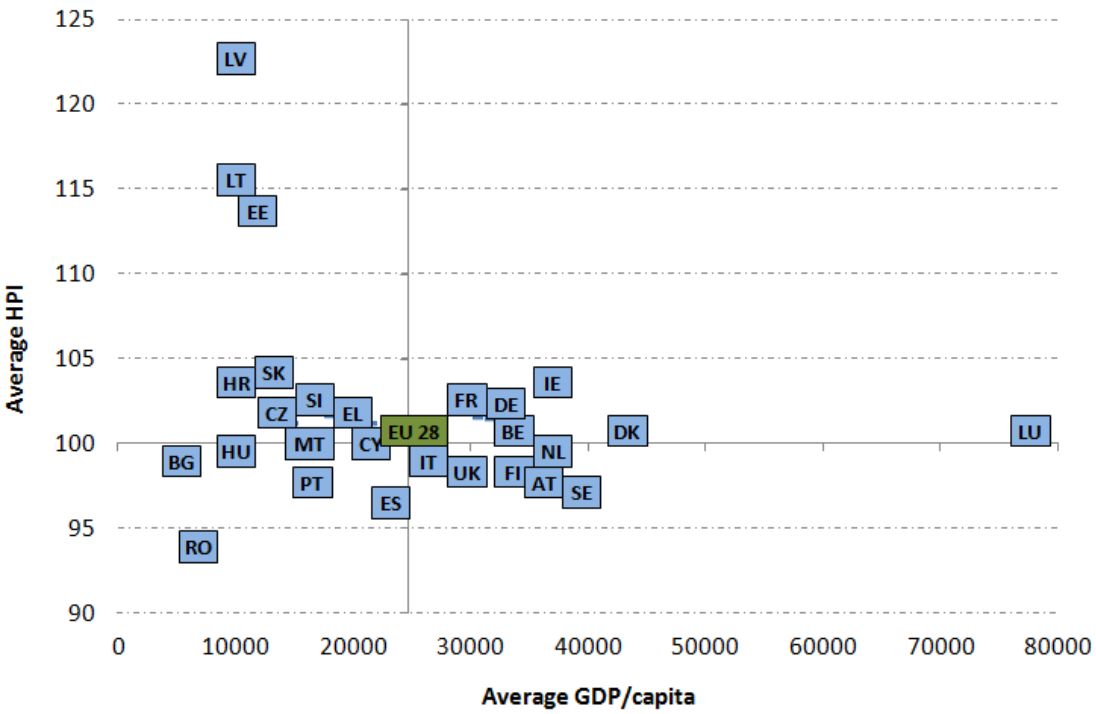
In these conditions, after analyzing these three research hypotheses it can be observed that purchasing power given by GDP/capita significantly influences House Prices Index, which, at his turn, has a very strong influence on Production in constructions.

3. Grouping of the EU countries according to purchasing power, House Price Index and Production in construction

In the final part of the work is made a grouping of the EU countries according to purchasing power given by GDP/capita, respectively, HPI and Production in construction. The data used for this grouping represent arithmetic averages for each of these three indicators for each country over the period 2008 - 2013.

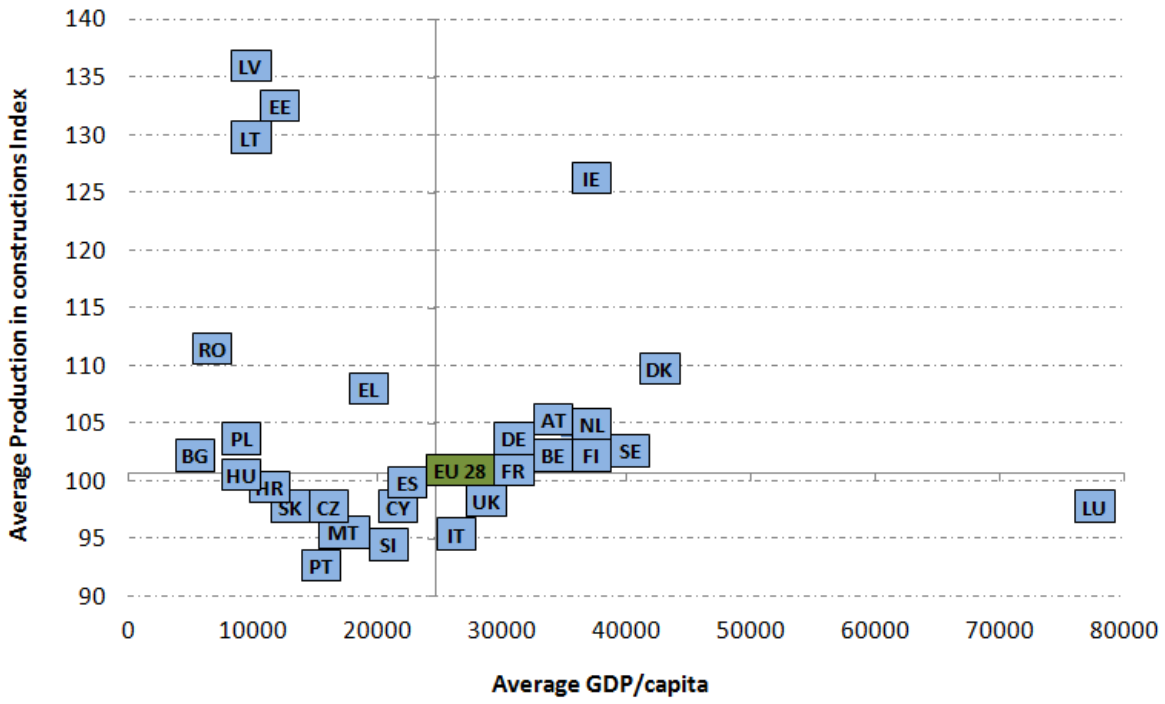
The results of grouping can be synthetically presented in the following two charts:

Chart 5. Grouping the EU countries according to purchasing power (GDP/capita) and House Price Index*



*For Poland the HPI data are unavailable for entire period of 2008 - 2013
Based on data provided by Eurostat

Chart 6. Grouping the EU countries according to purchasing power (GDP/capita) and Production in constructions



Based on data provided by Eurostat

Looking to charts 5 and 6 can made a grouping of the EU countries. The centre of this grouping is given by the EU averages for the period 2008 - 2013: 24680 Euro/inhabitant for GDP/capita; 100.08% for House Prices Index and 100.76% for Production in construction Index. The resulted groups of countries are as follows:

- Group 1: Low purchasing power and High HPI and high Production in construction Index: Latvia, Estonia, and Lithuania;
- Group 2: Low purchasing power and moderate or low HPI and Production in construction Index: East European Countries, Malta, Cyprus, Greece, Spain, and Portugal;
- Group 3: developed countries (high purchasing power) with moderate high HPI and Production in construction Index: Ireland, France, Germany, Belgium, Denmark, and Luxembourg
- Group 4: developed countries (high purchasing power) with low average HPI and moderate Production in construction Index: Italy, UK, Austria, Netherlands, Finland, and Sweden.

The group 1 is very distinctive in the entire EU because of very high average HPI and Production in construction Index in the period 2008 – 2013. The Baltic countries practically haven't been touched by the housing crisis. Both prices and volume of constructions increased significantly from year to year in the analyzed period.

The group 2 is the “normal” group of the Eastern European countries, excepting Baltic countries, which add Malta, Cyprus, Greece, Spain and Portugal. Here are the countries with low or moderate purchasing power and low or moderate HPI and Production in construction Index. To note the very poor position of Romania regarding the HPI corroborated to a pretty good position of Production in construction Index.

The group 3 contains the developed countries (high purchasing power) with over EU average values of HPI and Production in construction Index. Basically, the values of HPI and Production in construction Index are pretty close to EU 28 averages.

The group 4 is given by the developed countries, with high purchasing power but with low performance of real estate markets (noticeable the poor situations especially for Italy and the UK).

4. Conclusions

The real estate crisis has affected all European countries. Notably however, the very good position of Baltic countries with very high average HPI and Production in construction Index. The average values of EU 28 for HPI and Production in construction Index show a stagnating prices and volume of constructions in the period 2008 - 2013.

Most EU countries had moderate performance of real estate markets. However, it should be noted that developed countries were strongly affected by the housing crisis. A possible cause is the huge gaps in prices on the real estate markets between developed countries and countries with low purchasing power.

Analyzing that three research hypotheses presented in the paper, it can be observed that in the EU countries, the purchasing power significantly influences House Prices Index, which, at his turn, have a very strong influence on Production in constructions.

The real estate market in Europe could unlock only after one or two years, the most pessimistic analysts say, while the developers hope more optimistic that at the end of this year to show signs of recovery in sales and prices. Most still expect the price stagnation, their calculations based mainly on developments in the last period.

However in Europe, there are currently strong demand from players such as pension funds and insurance companies, all targeting similar products, namely high quality properties established markets. But opportunities are rare and some investors are prepared to look beyond the main markets. Such transactions are office markets of London, Paris, Frankfurt and Hamburg, here is the center of interest in cross-border investors. This trend is beginning to expand in the UK, but also in cities in Central Europe, such as Prague and Warsaw.

There is also an activity of companies taking advantage of current market conditions, negotiating and making deals. Some German open-end funds out assets for sale, and a number of real estate companies continue to restructure their portfolios, bringing some assets on the market. It remains to be seen how and when banks and government entities will put considerable active market in Europe. A number of high value portfolio offers have recently

been completed, giving signals in order to improve the perception of the market and the business alike.

5. References

1. Case, Bradford, and Susan Wachter, 2005. "Residential real estate price indices as financial soundness indicators: methodological issues." *BIS paper* 21: 197-211.

2. Clayton, Jim, Greg MacKinnon, and Liang Peng, 2008. "Time variation of liquidity in the private real estate market: An empirical investigation." *Journal of Real Estate Research* 30.2: 125-160.

3. Fisher, Jeffrey & Gatzlaff, Dean & Geltner, David & Haurin, Donald, 2003. "Controlling for the Impact of Variable Liquidity in Commercial Real Estate Price Indices," Real Estate Economics, *American Real Estate and Urban Economics Association*, vol. 31(2): 269-303

4. Gatzlaff, D., & Holmes, C., 2013. „Estimating transaction-based price indices of local commercial real estate markets using public assessment data." *The Journal of Real Estate Finance and Economics*, *46*(2): 260-281.

5. Martin, Ron, (2011), The local geographies of the financial crisis: from the housing bubble to economic recession and beyond, *Journal of Economic Geography*, 11, issue 4: 587-618

6. Kuniko Fujita, 2011. "The global financial crisis, state regime shifts, and urban theory," *Environment and Planning A*, Pion Ltd, London, vol. 43(2): 265-271

7. * * * Eurostat, 2014