American Research Journal of Humanities & Social Science (ARJHSS)
E-ISSN: 2378-702X
Volume-02, Issue-10, pp-29-36
October-2019
www.arjhss.com

Research Paper **Open Access**

Var Model For Short-Run Endogenous Factors In Real Estate Market: Case Of Albania

Llesh LLESHAJ[1], Alban KORBI[2]
[1)]*PhD in Statistics, Lecturer in Department of Finance, Faculty of Economy, University of Tirana,*
[1)]*PhD (docent) in Finance, Vice Dean and Lecturer, Faculty of Economy, University of Tirana,*
**Corresponding Author: Llesh LLESHAJ[1]*

ABSTRACT: This study analyzes the most important endogenous factors that determine the price of housing in the city of Tirana (the capital city of Albania). Due to population size, population density, economic level, level of housing construction, etc . Tirana Housing Price Index is representative of this market in Albania.The focus of this paper is to analyze the economic factors, with data series 2002-2018 (with 3-month frequency). The analysis used is based on the Unrestricted Vector Auto-regression (VAR) method and the statistical significance analysis of the parameters. According to this analysis, the Tirana Housing Market Price Index has statistically significant positive and negative correlations with the past price trends also statistically significant positive relation with: EUR / ALL exchange rate, Remittance and Index construction condition.

Key words: house price index, VAR model, price factor analysis.

I. INTRODUCTION

Real estate market is affected by so many factors. The degree level of these factors is subject of different markets and regions, national or international as well (Car.2009). Although, the development of the real estate market of a country on its own, is affected by the development of other markets, to and from which there is a cultural or economical interaction, especially this is remarkable in a legal or governmental issue perspective (Clois and Joan, 2009)

The performance of house prices affects the well-being of families and their ability to borrow mortgages, which can have significant macroeconomic consequences. Housing market analysis today faces several challenges:

- the housing market is a market of highly heterogeneous and non-liquid products, where the cost of information is high;
- the real estate market is very specific and characterized by an inelastic supply in the short-run, and frequent development, creating opportunities for wrong decision-making;
- the housing market is one of the markets with high government intervention, mainly in terms of territory management or social policies. As a consequence, developments in this market, and in particular the supply of this product, are strongly influenced by the country's legal regulations.

Actually, the Albanian real estate market is characterized by a high level of informality, since post-communist period (1990) till now. The only study regarding the real estate market is referring to buying or renting the dwellings as this is focused only locally. The only official institution that publishes the index of prices and rents of dwellings in Tirana (capital city of Albania) is Bank of Albania. According to Kristo and Bollano (2012), it is difficult to study the prices of dwellings in Albania, due to the following reasons:

- The buying of a dwelling is mainly the highest expenditure of a family, so the transactions of this type are timely rare.
- It is very difficult to find two identical dwellings in a time difference.
- If a "basket" of dwellings will be fixed in a certain time, further changes in a dwelling, such changes as the building of another public or private facility near the dwelling or any qualitative change will direct to a variability of the price.

The variability of dwelling prices surely affect the welfare of families as well as their ability to borrow in order to invest in residential estate, having a further affect in macro economy.The official data on the housing market

throughout Albania are missing, they are recorded in the form of time series 2002-2018 (with a 3-month frequency) for the housing market index, only for the city of Tirana (capital of Albania). The study therefore analyzes this city. However by itself the degree of concentration: of the economy; population; level of housing construction, etc .; Tirana Housing Price Index is a very good representative of this market nationally.

II. LITERATURE REVIEW

Theoretical and empirical studies have resulted that a high increased level of credit portfolio, accompanied with a sensitive increase of dwelling prices is one of the most consistent and warning indicator of future financial crisis (Borio and Lowe, 2002). Some comparative studies among countries with different economical and financial development (Tsatsaronis and Zhu, 2004;Annt2005; Egert and Mihaljek, 2007), concludes that the elasticity coefficients of changes in dwelling prices toward main factors sensitively varies according to country's measure, its financial markets development and the period of the study as well. Egert and Mihaljek (2007), while comparing Central East European Countries and OECD ones, analyzed that besides the abovementioned factors, the dynamic of the dwelling' prices is affected by some specific ones such as: the lack of the institutionalization of the dwelling markets; the limited supply of the new dwellings in the moment of the market liberalization; the improvement of the qualitative of the dwellings; the increased demand of nonresidents etc. As far as individuals is concerning, buying of a dwelling, is considered as one of the biggest investments in a lifetime (Glindro, Subhanij, Szeto and Zhu, 2008). One the other hand, referring to business entities, the buying of a real estate, is considered as one of the most important decision within their budget capital (Gitman and Zutter, 2012). In this context, the variability of the prices and rents of the real estates is considered as very important information which affects the consumers', businesses' and decision makers' behaviors. Some other studies in the field of real market estates, such as Hilbert et.al. (2008); FTI Consulting (2012) mention 4 main group factors that affect the demand and supply of the market: economic factors; governmental factors; geo – climate factors; and socio-demographic factors.

Main economic factors are (Minsk, 1982; Kindlerberger, 1978; Valverde and Fernandez 2010; Suljoti, 2014; Ibrahimaj and Mattarocci, 2014):

The Unemployment level or the employment one, (in a local of national context) indicates the potential of a country to generate the individual income, affecting this way the demand for real estate.

The personal income level shows the ability of the individuals to invest in real estates (for dwellings or business use). This is measured mainly by the average level of wage, and is considered as a key element of the real estate demand.

Construction costs are considered as the main factor of determining the real estate supply. This factor is considered in determining the initial price of these real estates and in Albania this is measured by the "Construction cost index" published by INSTAT. This index is focused on the direct costs of the construction (material costs, wages expenditures, machinery costs, transport costs, electricity costs etc.) and indirect ones.

Credits, is another supply factor (when credits is demanded by the construction companies) and demand factor (when credits is asked by individuals, as a financial tool to buy his/her real estate). Kindlerberger (1978) and Minsky (1982) have analyzed the role that credits have in the price of dwellings history. So, if the credits are in terms of cheap conditions, this will affect the behavior of real estate markets in these countries. In Albania, this can be measured either due to the value of the credits dedicated to buying dwelling estates or business estate , or due to the multiplication of the real estate credits published by the Bank of Albania or Statistical Reports. This can be measured as well by analyzing the facilitated or limited conditions published by the second level banks in the country.

Interest rate: the same as the credits is the factor of demand as well as the factor of the supply. Interest rates are an important factor of residential' investments decision, sensitively influencing the demand for real estate. The measurement of the effects that interest rate have, can be analyzed through crediting rates of the economy. In Albanian case, the financing of the real estate for dwelling or services intentions has the lowest credit rates, compared with other credit rates for other intentions. (Bank of Albania, Statistical report, 2005-2015).

Treasure bonds rates. In Albania the interest rates of treasure bonds,12months' maturity terms, represent the essential quota, from which it is indexed each credits rates or other deposits in second level banks. This means that this rate is considered as the initiation phase of every change in interest rates even for the long term individual credits, which in 90% of the cases is destined for buying dwelling estate. Since in the beginning 2012 and ongoing, this rate has been considerably deduced, while the interest rate of credits in banking sector has not reflected this kind of deduction, this one has remained in the almost sustainable situation (Bank of Albania, Statistical Reports 2005-2015).

Remittances: In Albania, the remittances are a key factor as far as domestic demand is concerning. Since 2013 and ongoing, the remittances level has decreased compared to its level in GDP (Bank of Albania, Statistical Reports 2005-2015). Even though, it doesn't exist any statistical indicator to show us which part of

remittances that enters Albania is destined to the real estate market and which portion of it goes to consumption. Considering this explanation, it is not clear enough to judge for the correlation of this variable with real estate market trend, for all the post-communist period in Albania.

Exchange rate is another important demand factor (domestic currency is ALL) and supply factor; due to the fact that the majority of construction materials are imported in Albania. (General Custom Directorate, Albania 2002-2015). Referring to the internal reports of second level banks in Albania, such as: Raiffeisen Bank, National Commercial Bank, Credins Bank etc, the currency of the credits issued for real estate issues is not in national currency ALL, but manly it is in Euro (Manjani, 2014). As Euro, is the main currency used for exchange in real market estate in Albania, the exchange rate Euro/ALL, is considered to have an important impact in the real income level for all those buyers, whose monthly income are in ALL. During 2006-2010, the exchange rate Euro/ALL, has been considerably increased, but ongoing it has remained in a sustainable level within the interval 138-140, which means that the Albanian currency is constantly devaluated comparing with Euro, which means that Euro has become more expensive for Albanian buyers, whose income are in ALL (Bank of Albania, 2015).

Inflation: as an indicator of decreasing buying power, it affects the disposable income of individuals, so far the demand for real estate. Although, the investments in real estate, are considered as investments which deduct the effects of inflation either in the estate of individuals or businesses. In Albania, the inflation rate is kept stable with the parameters of 2-4% (Bank of Albania, Statistical Reports 2005-2015).

Financial services: are those services linked with: initial credit commissions for real estates, other commissions and tariffs, which refers to the payment for notary services due to buying –selling process.

III. METHODOLOGY OF STUDY

This study we will use the techniques and analysis of linear multiple regression by model VAR, with some macroeconomic independent variables and one specify dependent variable "house price index". The data are taken from official statistics published in statistical reports and institutional studies. These data represent a 3-month time series, for 2002 - 2018. The analysis will begin with finding significant statistical relationships of the unit root and VAR estimate.

ADF Test of Unit Root:

ADF Test of Unit Root. This test is the fundamental of testing the series and return to a stationary series. To realize this, we have used the Augmented Dickey-Fuller test (ADF). According to this test, we test whether a time series of data is influenced by its initial value, by the trend of time or by both simultaneously. The basic equation of ADF test linked with the constant and the trend is:

$$\Delta X_t = \lambda_0 + \lambda_{1t} + \lambda_{2t} X_{t-1} + \sum_{i=1}^{n-1} \lambda_i \, \Delta X_{t-1} + \varepsilon_t$$

This equation shows a time series (variable in the study) in the form of the first difference $\Delta X_t = X_t - X_{t-1}$ in the period *t*, where $\lambda_0$is the constant and *t* is the trend, with the null hypothesis, H_0: $\lambda_2 = 0$ (time series data is non stationary).

Unrestricted Vector Auto-regression (VAR):

Unrestricted Vector Auto-regression (VAR). Through this model we analyze endogenous links of the variables for each variable, meaning that each variable becomes a regression equation of the cross correlated type. The step of control for the connections in retrospect of endogenous values referring VAR model named lag and it is determined by the usable criteria: (1) AIC: Akaike information criterion and (2) SC: Schwarz information criterion. According to this criteria the best lag is 4 (1 year or 4 quarter). The base form of VAR equation with p-lag and k-dimensions (with independent variable X_j for $j = 1, 2, ..., k-1$) is:

$$\begin{cases} Y_t = \sum_{i=1}^{p} \alpha_{1i} Y_{t-i} + \sum_{i=1}^{p} \alpha_{2i} X_{1,t-i} + \cdots + \sum_{i=1}^{p} \alpha_{ki} X_{k-1,t-i} + \varepsilon_{1t} \\ X_{1t} = \sum_{i=1}^{p} \beta_{1i} Y_{t-i} + \sum_{i=1}^{p} \beta_{2i} X_{1,t-i} + \cdots + \sum_{i=1}^{p} \beta_{ki} X_{k-1,t-i} + \varepsilon_{2t} \\ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \\ X_{k-1,t} = \sum_{i=1}^{p} \lambda_{1i} Y_{t-i} + \sum_{i=1}^{p} \lambda_{2i} X_{1,t-i} + \cdots + \sum_{i=1}^{p} \lambda_{ki} X_{k-1,t-i} + \varepsilon_{kt} \end{cases}$$

Initially, we will identify the basic equation of the study and then this equation will be tested for all the residual problems. To evaluate the parameters will be used the usual small square method. If this assessment serves to

find conclusions with high statistical reliability, we will base on Central Limit Theorem or the Low of Large Numbers. A regression model is useful for economic analysis if complete the main conditions:
The first condition: The linearity should be accordin to parameters.
The second condition: Expected value of the term of error should be E (ε_i) = 0.
The third condition: Variance of of the term of error should be V(ε_i) = E(ε_i^2) = constant.
The fourth condition: Cov (ε_i; ε_j) = 0 for every i ≠ j.
The fifth condition: Nomulticolinearity, for every *i = 1, 2, ..., n.*

By completing all of these conditions, the model is regulated by all the immeasurable deviations and immeasurable casualties.

IV. EMPIRICAL ANALYSIS AND RESULTS

The analysis of this study is based on quarterly frequency of time series from 2002 to 2018.The meaning of the variables in the model and their description as well as the source of information is shown in the following table 1:

Table 1. Meaning and description of variables of the VAR model.

The variable code	*Description of the variable*	*Source of information*
Dependent variable:		
ICB	Housing Price Index in Tirana (Capital of Albania), measured in base index, year 2002 = 100.	Bank of Albania
Independent variables:		
IKN	Construction Cost Index (measured in % change, includes all types of direct and additional costs for construction).	INSTAT
KURS	Currency exchange rate EUR/ALL (the housing market has the price in Euros and the Albanian income in ALL).	Bank of Albania
CPI	Consumer Price Index (this indicator measures the level of inflation).	INSTAT
BTH	The treasury bill's yeild rate (measured in %, is the basic index of credit rating in the banking albanian system).	Bank of Albania
PUN	The unemployment rate (measured in%, shows the ability of citizens to repay mortgage loans).	INSTAT
REM	Remittances (the value in million Euro, shows the citizens' ability to purchase housing).	Bank of Albania

Source: Author's summary

After processing the data in Eviews 9, (the time series was transformed into stationaryby the first differences) using the VAR technique in identifying endogenous factors in explaining the dynamics of the housing price index in the city of Tirana (the capital of Albania), the results are as in the table 2, below:

Table 2: Statistical estimation of the model VAR

Dependent Variable: D(CMIM)				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.83043	26.79470	0.516163	0.6091
D(CMIM(-1))	0.338502	0.175887	1.924540	0.0627
D(CMIM(-2))	-0.197992	0.168366	-1.175960	0.2478
D(CMIM(-3))	0.244138	0.150008	1.627501	0.1129
D(CMIM(-4))	-0.522106	0.149003	-3.504004	0.0013
D(CPI(-1))	0.442936	1.068677	0.414472	0.6811
D(BTH(-2))	-1312.808	1020.443	-1.286509	0.2070
D(BTH(-3))	-157.3405	833.5701	-0.188755	0.8514
D(BTH(-4))	664.6610	943.6154	0.704377	0.4860
D(KURS(-1))	5.651885	3.317352	1.703734	0.0976

D(KURS(-2))	-0.594742	3.386066	-0.175644	0.8616
D(KURS(-3))	7.845162	3.609722	2.173342	0.0368
D(KURS(-4))	-2.060465	3.888163	-0.529933	0.5996
D(IKN(-1))	-1457.946	1197.974	-1.217010	0.2320
D(IKN(-2))	-867.0168	1737.300	-0.499060	0.6210
D(IKN(-3))	1083.041	1749.840	0.618937	0.5401
D(IKN(-4))	3470.110	1308.325	2.652331	0.0121
D(PUN(-1))	148.1772	1429.521	0.103655	0.9181
D(PUN(-2))	1243.274	1391.218	0.893658	0.3778
D(PUN(-3))	-197.0662	1583.071	-0.124483	0.9017
D(PUN(-4))	-1051.251	1536.296	-0.684276	0.4984
D(REM(-1))	0.645233	0.273131	2.362355	0.0240
D(REM(-2))	0.108341	0.328184	0.330122	0.7433
D(REM(-3))	-0.024732	0.279793	-0.088395	0.9301
D(REM(-4))	-0.122138	0.207333	-0.589091	0.5597
AR(1)	0.203163	0.193516	1.049850	0.3012
AR(2)	0.577651	0.193026	2.992610	0.0051
R-squared	0.675031	Mean dependent var		8.036900
Adjusted R-squared	0.426525	S.D. dependent var		57.82857
S.E. of regression	43.79250	Akaike info criterion		10.69753
Sum squared resid	65204.64	Schwarz criterion		11.63186
Log likelihood	-299.2748	Hannan-Quinn criter.		11.06370
F-statistic	2.716356	Durbin-Watson stat		1.846755
Prob(F-statistic)	0.003356			
Inverted AR Roots	.87	-.67		

Source: author's calculations in EViews 9.

This result is the final out-put of the VAR model, after adjusting any problematic residues of the model mentioned in the methodology of this study. The equation of the VAR model for estimating the change of the housing price index for the city of Tirana is:

$\mathbf{\Delta CMIM_t}$ = 13.83 + $\mathbf{0.34*\Delta CMIM_{t-1}}$ − 0.20*$\Delta CMIM_{t-2}$ + 0.24*$\Delta CMIM_{t-3}$ − $\mathbf{0.52*\Delta CMIM_{t-4}}$ + 0.44*ΔCPI_{t-1} − 1312.81*ΔBTH_{t-2} − 157.34*ΔBTH_{t-3} + 664.66*ΔBTH_{t-4} + $\mathbf{5.65*\Delta KURS_{t-1}}$ − 0.59*$\Delta KURS_{t-2}$ + $\mathbf{7.85*\Delta KURS_{t-3}}$ − 2.06*$\Delta KURS_{t-4}$ − 1457.95*ΔIKN_{t-1} − 867.02*ΔIKN_{t-2} + 1083.04*ΔIKN_{t-3} + $\mathbf{3470.11*\Delta IKN_{t-4}}$ + 148.17*ΔPUN_{t-1} + 1243.27*ΔPUN_{t-2} − 197.07*ΔPUN_{t-3} − 1051.25*ΔPUN_{t-4} + $\mathbf{0.65*\Delta REM_{t-1}}$ + 0.11*ΔREM_{t-2} − 0.03*ΔREM_{t-3} − 0.12*ΔREM_{t-4} + 0.2*ε_{t-1} + 0.58*ε_{t-1} + ε_t

From this equation we identify the endogenous links of the factors determining the price of dwellings:

Housing Price Index (CMIM): The dwelling price for the previous periods has a statistically significant positive relation (with a level of 10%) and a negative (with a level of 5%) with the value of its values:

- If the prices of 3 months earlier (preceding 3 months) increase, they will increase the housing price index for the current period. So if the 3-month index of the previous period will increase by 1% this will be accompanied by a 0.34% increase in the price index for the current period (under other unchanged conditions). This link shows that the housing market in Tirana is positively related to short terms behavior, in determining the price equilibrium

- If the prices of the period 1 year ago (the fourth quarter preceding) increase, they will cause a decrease in the housing price index for the current period. So if the 3-month index of the 1-year period will increase by 1% this will be accompanied by a 0.52% reduction in the price index for the current period (under other unchanged conditions). This link shows that the housing market in Tirana is closely linked to the 3-month price behavior of the previous year in determining the price equilibrium. This is justified by the fact that the increase of the price of this period has reached the point of saturation which has been found not to be absorbed by the demand. As a conclusion we can say that we have been in imbalance conditions continuously after the saturation point.

We conclude that the endogenous effect of the CMIM variable with its value is characterized by the short-term (trend) tendency of the preceding period, while the 3-month long-term prices (1 year or more) have the opposite trend . This fact makes the trend of housing prices in Tirana very dynamic and not stable in time. An influencing factor of the dynamics of the housing price index is the high informality associated with this market and the high level of liquidity in the economy, thus significantly reducing the efficiency of the controlling markets of monetary policy. The low efficiency of the monetary policy impact on price stability is also indicated by the lack of statistical significance of the consumer price index and treasury bill rate (as the interest rate indexed for credit in the banking system in Albania).

Euro / ALL (KURS) "exchange rate " Variable: The price of housing in the city of Tirana is influenced by the exchange rate as the transactions in the housing market are almost exclusively in the Euro currency (also influenced by the fact that mortgage loans from the banking system are almost exclusively in Euro currency). The exchange rate has a statistically significant positive relation (with a level of 10% for 3 months in retrospect and a level of 10% for 9 months in retrospective) with the price rise of the apartments. Changes in the exchange rate are important in the endogenous effects of the housing market for two reasons:

- The first reason is the direct impact of purchasing power, the income of individuals (wages, profits, etc.) are in LEKE currency whereas the loan or purchase price of the apartment is in Euro. This shows the positive statistic linkage of the house price with the exchange rate of the previous period (the previous 3 months). If the 3-month exchange rate will increase by 1% this will bring an increase of the price index by 5.65%.

- The second reason is the impact of the exchange rate on the purchasing power of construction companies, on building materials, reflected in the cost of construction. It is expected to have a delayed connection over a year or more of the cost of building housing, but it resulted 9 months, as construction companies' payments to their vendors are delayed by more than 3 or 6 months. If the third-quarter exchange rate will increase by 1% this will bring an increase of the price index by 7.85%. Related to this, the exchange rate has a higher impact on the cost of construction rather than on the final consumer price. This is justified by the greater elasticity of demand compared to the offer.

We conclude that the endogenous effect of the KURS variable in the housing price index maintains the economic principle of purchasing power of the builder and the final consumer. This variable strongly reflects its positive impact on the housing price trend (exchange rate is one of the main risks for construction companies that most of the purchases of raw materials are imported from countries of the European Union , reflecting in perspective the change of the price only as a result of exchange rate fluctuations especially in depreciating terms of the domestic currency).

Building Condition Index (IKN) Variable: The price of housing in the city of Tirana is also influenced by the construction cost index (this indicator is measured in percentage). This variable has a positive and statistically important link (with a 5% significance level) in the value of the housing price index. If the IKN variable a year ago increased by 1% (eg. from 2% to 3%), this will be accompanied by a 34.7 point increase in the house price index (the average value of the CMIM variable is 620 and the increase by 34.7 brings about an increase of 5.6% of the current housing price). Under normal market conditions, the impact of the IKN variable on the CMIM variable was expected to be overdue for 1 year or more, for the specifics that the housing market has.

Remittance variable (REM): The price of apartments in the city of Tirana is also influenced by remittances (this indicator is measured in million Euros). This variable has a positive and statistically important link (with a 5% significance level) in the value of the housing price index. If the REM variable of a previous 3 months would have increased by 1%, this would be accompanied by a current increase in demand from citizens for home purchase, under conditions that the bid is not very flexible, therefore in the 3-month period it will have an increase in the housing price index by 0.65%.

V. CONCLUSIONS

Real estate is considered one of the most discussed issues among researchers and experts in the economic field, both in microeconomic and macroeconomic aspects. The analysis of investments in real estate are complex because of the several factors which determine this market, such as: economic, governmental, social and demographic, geo-climatic factors etc.

The level of complexity in the real estate market in Albania is significantly higher because the purchase of a dwelling is considered the largest capital expense for Albanians. Notwithstanding this fact, this market is characterized by a high level of informality and lack of statistical data. The only official data on the housing and rental price index in Albania can be obtained by the publication of the Bank of Albania and the data are limited to the market in Tirana. There is no other official data available.

In this paper, three-month time series from 2002 to 2018 were analyzed to identify time lag factors affecting the price index of the Tirana city dwellings. According to the econometric analysis of the VAR model, the endogenous factors with a positive effect on the change of the housing price index are: EUR / ALL exchange rate; building conditions index; and remittances. Also, an endogenous bipolar impact has the retrospective index values. In near-term periods, the index's prevailing values affect its trend (positive link), whereas in earlier periods the indexes are trivial. In these circumstances, the housing market in Tirana is characterized by an unsurpassed price fluctuation, influenced by the high level of liquidity in the economy. A problematic phenomenon is the low efficiency of the monetary policy impact on the stability of the housing market price, which is indicated by the lack of statistical significance of the consumer price index and the treasury bill rate (as the interest rate indexed for credit in the banking system in Albania).

As we have been pointing out, the performance of housing prices is a specific market which is driven by many factors not only economic. As a conclusion we can say that the offer continues to remain inelastic despite the change of other factors. In this aspect it is to debate the over capital resources generated for this sector and there is an open debate on economic circles, and not only, of money laundering in this sector.
In our study were not included the quantitative analysis as a result of the lack of official data of those variables for this market. This involves limitation of this work so scientific discussion remains open in this regard.

REFERENCES

[1]. Agnello, L., & Schuknecht, L. (2011). Booms and busts in housing markets: Determinants and implications.
[2]. Ahmand, A., Kasim, R., & Martin, D. (2011). Factors Affecting Housing Development in Makama Jahun Area of Bauchi Metropolis, Nigeria. *25* (4).
[3]. Annett, A. (2005). House prices and monetary policy in the euro area. IMF Working Paper.
[4]. Bank of Albania. (2002, 2003, ..., 2018). Annual Report.
[5]. Bank of Albania. (2002, 2003, ..., 2018). Financial Stability Report.
[6]. Bank of Albania. (2002, 2003, ..., 2018). Supervision Annual Report.
[7]. Bank of Albania. (2002, 2003, ..., 2018). Monthly Statistical Reports
[8]. Bank of Albania. (2002, 2003, ..., 2018). Monetary Policy Annual Report
[9]. Blejer, M. (2006). Asset Prices, Globalisation and Implication for Monetary Policy.
[10]. Borio, C., & Lowe, P. (2002). Asset prices, financial and monetary stability: exploring the nexus. BIS Working Paper.
[11]. Car, M. (2009). Selection of factors influencing the residential property prices in Slovakia.
[12]. Clois, K., & Joan, K. (2009). Residential Housing. The Goodheart Willcox Company.
[13]. Dougherty, C. (2007). *Introduction to Econometrics* (bot. i 3nd Edition). Oxford Press.
[14]. Egert, B., & Mihaljek, D. (2007). Determinants of house prices in central and eastern Europe. BIS Working paper.
[15]. Feldstein, M. (2007). Housing, credit markets and the business cycle . NBER Working Paper.
[16]. FTI Consulting. (2012). Report: A study on understanding supply constraints in the housing market.
[17]. Glindro, T., Subhanij, T., Szeto, J., & Zhu, H. (2008). Determinants of house prices in nine Asia-Pacific economies. BIS Working Paper.
[18]. Goodhart, & Hoffman. (2002). Deflation, credit and asset prices.
[19]. Hilbers et. al. (2008). House price developments in Europe: A Comparison. IMF Working Paper.
[20]. Ibrahimaj, D., & Mattarocci, G. (2014). Sektori i Ndërtimit dhe Tregu i Pasurive të Paluajtshme: Evidenca nga Shqipëria. *Buletini i Bankës së Shqipërisë*.
[21]. Klimczak, K. (2010). Determinants of real estate investment. Economics & Sociology, Vol. 3, No 2, 2010, pp. 58-66
[22]. Kristo, E., & Bollano, E. (2012). Indeksi i Çmimeve të Banesave: Metodologjia dhe përdorimi. *Buletini i Bankës së Shqipërisë* .
[23]. Lawrence, J., Gitman, & Zutter, C. (2012). *Principles of Managerial Finance* (bot. i 13th edition). Prentice Hall.
[24]. Manjani, O. (2014). Vlerësimi i përcaktuesve të nivelit të euroizimit financiar në Shqipëri. *Buletini i Bankës së Shqipërisë*.
[25]. Plazzi, A., Valkanov, R. (2012). Forecastin real estate prices.
[26]. Ruzha, O., Voronov, V., &Tambovceva, T. (2013). Econometric models for the estimation of the commercial value of residential real estate objects in Latvia.
[27]. Sherwin, R. (1997). Hedonic Prices and Implicit Markets. *Journals of Political Economy* .
[28]. Smersh, G., Smith, M., & Schwartz, A. (2003). Factors Affecting Residential Property Development Patterns. *JRER, 25* (1), 62-75.

[29]. Suljoti, E. (2014). Një analizë kointegruese e përcaktuesve të çmimit të banesave. *Buletini i Bankës së Shqipërisë* .
[30]. Suljoti, E., & Hashorva, G. (2011). Çmimet e banesave dhe kredia hipotekare Analizë empirike për Tiranën. *Buletini i Bankës së Shqipërisë* .
[31]. Tsatsaronis, K., & Zhu, H. (2004). What drives housing price dynamics: cross-country evidence1. BIS Working Paper.
[32]. Valverde, S., & Fernandez, F. (2010). The relationship betëeen mortgage markets and housing prices: does financial instability make the difference?

Corresponding Author: Llesh LLESHAJ[1]
[1)]PhD in Statistics, Lecturer in Department of Finance, Faculty of Economy, University of Tirana,