

- RESEARCH ARTICLE -

FOREIGN DIRECT INVESTMENT, FOREIGN PORTFOLIO INVESTMENT AND HOUSE PRICES: THE CASE OF EUROPEAN UNION COUNTRIES

Deniz GÜVERCİN¹ & Adem GÖK^{2,3}

Abstract

In the literature, there are few studies analyzing the impacts of foreign direct investment and foreign portfolio investments on house prices. We employed quarterly data for 20 EU countries over the 2007-2013 period in order to examine the separate impacts of foreign direct investment and portfolio investment on the house prices for the period of post-financial crisis. The results of Panel Vector Auto Regression indicate that foreign direct investment negatively affects house prices, and foreign portfolio investment positively affects house prices. Also, the results indicate that increase in house prices lead to decrease both foreign direct investment and foreign portfolio investment. Moreover, results also indicate that foreign direct investment and portfolio investments are substitutes rather than complements.

Keywords: Foreign Direct Investment, Foreign Portfolio Investment, House Prices, Panel VAR.

JEL Codes: C33, F21, F32.

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DOĞRUDAN YABANCI YATIRIMLAR, YABANCI PORTFÖY YATIRIMLARI VE KONUT FİYATLARI: AVRUPA BİRLİĞİ ÜLKELERİ ÜZERİNE⁴

Öz

Literatürde, doğrudan yabancı yatırımların ve yabancı portföy yatırımlarının konut fiyatlarına etkisini inceleyen sınırlı sayıda çalışma bulunmaktadır. Finansal kriz sonrası doğrudan yabancı yatırımları ve yabancı portföy yatırımlarının konut fiyatlarına etkisini incelemek üzere; 20 Avrupa Birliği üyesi ülkeye 2007-2013 dönemine ait 3 aylık veri kullanılmıştır. Panel VAR tahmin sonuçları, doğrudan yabancı yatırımlarının konut fiyatlarını negatif etkilediğini ve yabancı portföy yatırımlarının ise konut fiyatlarını pozitif etkilediğini göstermektedir. Panel VAR tahmin sonuçları konut fiyatlarındaki artışın hem doğrudan yabancı yatırımları hem de yabancı portföy yatırımlarını negatif yönde etkilediğini

¹ Doç. Dr., Taşkent Uluslararası Westminster Üniversitesi İşletme ve İktisat Fakültesi İktisat Bölümü, Taşkent ÖZBEKİSTAN, dguvercin@wiut.uz, <https://orcid.org/0000-0001-6158-3877>

² Doç. Dr., Kırklareli Üniversitesi İktisadi ve İdari Bilimler Fakültesi İktisat Bölümü, Kırklareli TÜRKİYE, adem.gok@klu.edu.tr, <https://orcid.org/0000-0002-3786-2507>

³ Corresponding author.

⁴ Makalenin genişletilmiş Türkçe özeti, çalışmanın sonunda yer almaktadır.

göstermektedir. Ayrıca, sonuçlar doğrudan yabancı yatırımların ve yabancı portföy yatırımlarının tamamlayıcı değil ikame olduğunu göstermektedir.

Anahtar Kelimeler: *Doğrudan Yabancı Yatırımlar, Yabancı Portföy Yatırımları, Konut Fiyatları, Panel VAR.*

JEL Kodları: *C33, F21, F32.*

Bu çalışma Araştırma ve Yayın Etiğine uygun olarak hazırlanmıştır.

1. INTRODUCTION

In developed countries, house prices exhibit ups and downs over the past forty years. Particularly, after the late 1980s, house prices have positively sloped long-run trends across countries. Countries that mostly experienced rise in house prices also experienced increase in foreign capital inflows.

International capital inflows impact house prices through different channels. Capital might flow into the residential sector by directly affecting the house supply, cost of foreign exchange by affecting the cost of imported intermediate goods used in the sector, and cost of capital in the sector. Moreover, capital inflows might increase demand for the house by reducing the cost of credit and increasing household wealth (i.e. economic growth). As argued by Ahearne et al. (2005), house prices are pro-cyclical, which moves together with real GDP, consumption, investment, inflation, and current account balances, which might shed light on the autocorrelation between house prices and capital inflows.

Moreover, rising house prices might be resulted from demographic transformation or financial regulations. Population growth would increase the house demand while aging of the population would decrease it (Capozza et al., 2002, Droes et al., 2017, Takats, 2012). Financial regulations such as easing constraints on household borrowing increased house demand and resulted in house price surge after the late 1980s (Girouard and Blöndal, 2001). Additionally, construction costs and land-use restrictions might put upward pressure on house prices (Poterba et al., 1991).

The foreign portfolio investment (FPI), which is made by buying equity and debt securities, provides ownership status without controlling the domestic firms. Foreign direct investment (FDI) is made by buying a company or expanding the business in a host country, which provides ownership with the control of the domestic firm. The foreign direct investment would have different implications on the house prices than foreign portfolio investment mainly due to its differential impacts on the economy and the different channels through which it operates.

Foreign portfolio investment might affect the macroeconomic fundamentals depending on the financial development, particularly stock market development, within the country (Durham, 2004). By providing foreign savings, foreign portfolio investment would affect the investment level in the country, which might translate into wealth improvements in the short

run. However, if the country does not have developed financial institutions to deal with large amounts of foreign investments, then the sudden stop of capital inflow leads to the dramatic drops in exchange rates and asset prices, which deteriorates macroeconomic fundamentals including economic growth, real exchange rate, and interest rates (Calvo, 1998).

Foreign portfolio investment might flow into the countries following the rise in asset prices, which is triggered by credit expansion or might lead to asset bubbles, particularly in countries with low saving rates and shortage of stores of value (Caballero and Krishnamurthy, 2006). Foreign portfolio inflows decrease the cost of equity, which might increase the number of projects in the country contributing to the domestic investment. Moreover, monetary authorities sterilizing the impact of the foreign portfolio inflows on foreign exchange rates through monetization would increase asset prices and then, the credit expansion leads to an economic boom (Kim and Yang, 2009). On the other hand, consumption boom and current account deficit prompted by large capital inflows would increase the level of inflation and uplift expectations about the depreciation of national currency, which triggers sudden outflows.

Foreign portfolio investments, particularly ones that are moving with market sentiments, generate boom and bust cycles, and fluctuations in asset prices might affect house prices as well. Foreign capital inflows generating capital gains would increase the value of collaterals and credits, and decrease the credit constraints, which determines the house demand and house prices. Additionally, foreign portfolio investment might pour into the residential investment projects affecting the house supply and land prices (Sachs and Woo, 2000).

1.1. Literature Review

Tomura (2010) showed that the expectation driven fluctuations in house prices occur only if the economy is open to foreign capital flows. Yiu and Sahminan (2015) showed the positive effect of portfolio investment on house prices in five Asian economies. Feng et al (2012) report that a 10% increase in hot money (which is also known as FPI net flows) increases Chinese local housing returns by 0.2 % in the post- 2003 sample and 0.4 % in the full sample.

Moreover, a rise in house prices might promote capital inflow particularly foreign portfolio investment investing in securitized debt instruments which would increase house prices more, leading to house price bubbles (Jara and Olaberria,2013).

Foreign direct investment in the long term is a more stable form of capital inflows relative to foreign portfolio investment. (Levchenko and Mauro, 2007). Moreover, an increase in FDI may decrease the volatility of FPI by providing long term and persistent economic welfare improvements and by raising expectations about the macroeconomic fundamentals in the economy (Gozgor and Erzurumlu, 2010) which would also smooth boom-bust cycles in the economy that are amplified by foreign portfolio investments.

FDI increases economic growth (Alfaro et al., 2010; Borenzstein et al., 1998), generates technological spillover (Blömström et al., 1999), increases competition (Fortainer, 2007), increases skilled and unskilled labor employment (Bailey and Driffield, 2007; Waldkirch et al., 2009), improves financial development (Alfero et al., 2004) in the host country. Even

though there is a consensus in the literature that the (Stiglitz, 2000) FDI contributes to the economic stability while foreign portfolio investments contribute to the instability, there is evidence in the literature that surge in FDI to the financial sector might be connected with macroeconomic instabilities in receiving countries (Ostry et al. 2010).

Foreign Direct Investment might affect house prices due to an increase in foreign purchases of residential property in the receiving country (Huang et al., 2014; Guest and Rohde, 2017; Rodrigues and Bustillo, 2010) or by investing in real estate projects affecting house supply in the receiving country. Moreover, FDI increases employment (Bailey and Driffield, 2007; Waldkirch et al., 2009) and improves financial development (Alfero et al., 2004) and improves expectations about households' long-term purchasing power, which is positively affecting both house demand and house supply. Additionally, currency appreciation through FDI inflows (Babekey et al., 2008) would decrease the (imported) construction costs, and labor cost (through productivity spillovers) which would result in higher house supply.

Feng et al. (2012) show that a 10 % increase in FDI leads to an increase in local housing returns of 7 % in the post-2003 sample and returns of 5 % in the full sample. Choy et al. (2013) using data for Guangdong cities over the period of 2001-2009 argue that FDI inflows lead to a very modest increase in house prices. Standish et al. (2006) using data for the period of 1974-2003 for South Africa argue that a one percent increase in FDI inflows leads to a 0.12 % increase in residential property prices.

The study contributes to the literature by evaluating the dynamic relations between FDI, FPI and house prices, where most studies in the relevant literature failed to undertake it. Because FDI and FPI mostly differ due to their stability and the horizon of the impact the differential treatment of those in their impact on house prices is necessary for policy implications which are undertaken by the current study.

This study empirically evaluates whether house prices are affected by portfolio investment and foreign direct investment and whether these two forms of capital flows are substitute or complements, for the 20 European countries over the period of 2007 -2013. The deepening integration between European Union members and co-movements in institutional structures and economic variables and trends include financial integration, monetary policy, financial innovations, and housing market fundamentals. On the other hand, Panel VAR methodology allows country-specific heterogeneities and the investigation of the dynamic impacts of country-specific shocks.

The paper is structured in the following way. The next section presents data and variables used in the study, which is followed by the econometric methodology and the last section provides and discusses the key findings of the paper.

2. METHOD

2.1. Data and Variables

The analysis covers European Union countries especially 20 EU countries due to data availability over the period 2007Q1-2013Q4. The variables which are used in the analysis are as follows;

- House: It is the quarterly house price index (2015=100) data that is taken from Eurostat (2018).
- FDI: It is the quarterly foreign direct investment (FDI) inflows data taken from OECD (2018) (million).
- FPI: It is the quarterly foreign portfolio investment inflows data taken from Eurostat (2018). (thousand)

Table 1. Summary Statistics

| Variables | Obs | Mean | Std. Dev. | Min | Max |
|-----------|-----|---------|-----------|--------|--------|
| House | 540 | 96.96 | 17.59 | 56.27 | 163.29 |
| FDI | 540 | 5176.44 | 13036.17 | -40817 | 111231 |
| FPI | 540 | 998.26 | 910.90 | 2.63 | 3600 |

Source: Authors' Own Calculations

Notes: FDI and Portfolio are in million USD.

2.2. Unit Root Test

According to Table 2, FDI is I(0) meaning that the variable is stationary at the level, FPI and house are I(1) meaning that the variables are stationary at their first difference.

Table 2. Second Generation Pesaran Unit Root Test

| Variables | Level | | First Difference | |
|-----------|----------|---------|------------------|---------|
| | Constant | Trend | Constant | Trend |
| House | -1.709 | -2.405 | -4.382* | -4.853* |
| FDI | -4.502* | -4.531* | | |
| FPI | -1.868 | -2.266 | -4.501* | -4.952* |

Source: Authors' Own Calculations

Notes: The numbers are the CIPS* values. Null hypothesis is that the variable has unit root. * denotes that p-value is less than 0.01.

2.3. Panel Vector Auto Regression (Panel VAR) Model

Since we expect a two-way relationship between any pair of FDI, FPI and house prices, we need to estimate a system of three simultaneous equations.

Since all of the three variables are endogenous, we use panel VAR model for the estimation. Panel VAR allows for unobserved individual heterogeneity and treats all of the variables as endogenous (Love and Zicchino, 2006). We tested the maximum lag length up to four lags and found that the optimal lag-length is one. Hence, we specified a first order panel VAR model as follows;

$$y_{it} = \Gamma_0 + \Gamma_1 y_{it-1} + f_i + d_{c,t} + e_t$$

where y_{it} is a three-variable vector including FDI, FPI and House (Love and Zicchino, 2006).

Fixed effects, f_i are introduced to allow for individual heterogeneity and country-specific time dummies, $d_{c,t}$ are introduced to capture aggregate country-specific macro shocks (Love and Zicchino, 2006). Since fixed effects are correlated with the regressors due to the existence of lags of the dependent variables, we used the mean-differencing procedure to eliminate fixed effects, which otherwise would create biased coefficients (Love and Zicchino, 2006). Instead of first differencing, forward mean differencing (Helmert procedure) is used as a method of mean-differencing (Love and Zicchino, 2006). Helmert procedure only removes the forward mean, which is the mean of all future observations that are available for each country-year (Love and Zicchino, 2006). Helmert procedure preserves the orthogonality between transformed variables and the lags of regressors, so we can use lagged regressors as valid instruments for estimation of the coefficients with System GMM (Love and Zicchino, 2006).

Cholesky decomposition of the Panel VAR assumes that the variables appearing earlier in the systems are more exogenous than the ones appearing later (Love and Zicchino, 2006; Abrigo and Love, 2016).

Instead of Panel VAR estimation results with resulted coefficients and their standard errors, impulse-response functions (IRF) are presented as main tools of panel VAR analysis. Because IRF presents the overall effect of one variable on another variable. IRF present the response of one variable to the shock given to another variable while taking all other shocks given to all other variables equal to zero (Love and Zicchino, 2006). We ordered the variables according to Granger causality analysis to define which variables are more exogenous than the others. Confidence intervals in impulse response functions are generated by Monte Carlo simulations with 1000 trials in order to calculate the standard errors of IRF (Love and Zicchino, 2006).

Finally, variance decomposition presents the magnitude of the total effect, which indicates the percent of the variation in one variable that is explained by the shock given to another variable, which is accumulated over time. The total effect accumulated over 10 quarters for each variable is reported by variance decomposition tool of Panel VAR analysis (Love and Zicchino, 2006). We used the Stata package, which was developed by Abrigo and Love (2016) for the analysis.

3. RESULTS

Table 1 justifies using Panel VAR technique since there exists two-way relationship between any two of the variables since each variable Granger causes to the other variable. Since all variables Granger cause other variables, they are all endogenous in other words, we arbitrarily ordered variables as dfpi, fdi and dhouse.

Table 3. Granger Causality Test

| Variables | dhouse | fdi | dfpi |
|-----------|--------|-------|-------|
| dhouse | | 0.000 | 0.000 |
| fdi | 0.000 | | 0.000 |
| dfpi | 0.000 | 0.000 | |

Source: Authors' Own Calculations

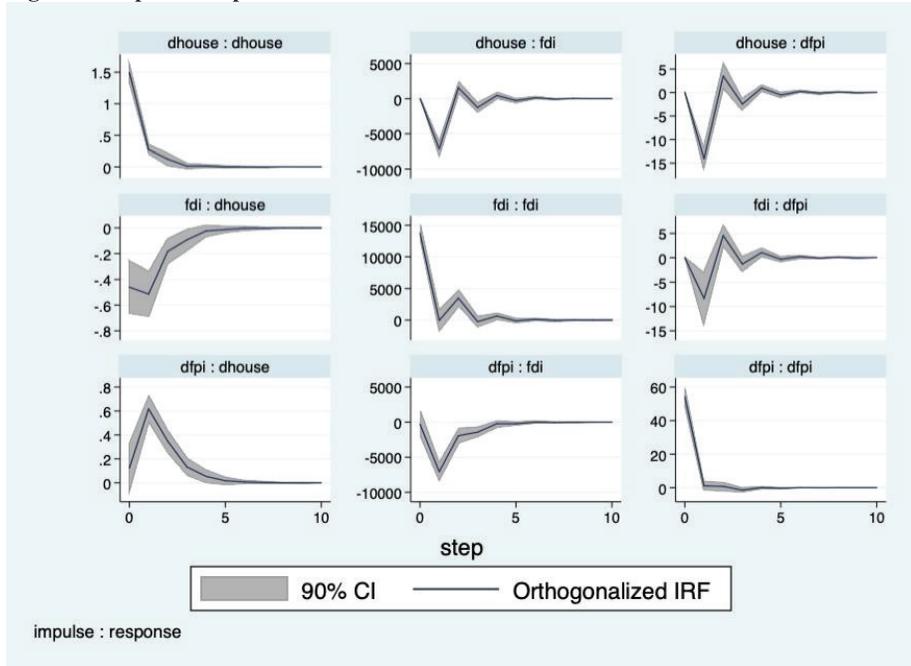
Notes: The numbers are the Prob > chi2 values. Null hypothesis is that the column variable does not Granger-cause row variable.

According to impulse response functions in Figure 1, one standard deviation shock given to house prices (dhouse) has a positive significant effect on itself until the end of second quarter. We may refer to that as self-reinforcing housing prices in the sense that past levels of housing prices become significant determinant of current level of housing prices. One standard deviation shocks given to FDI inflows (fdi) has a negative significant effect on house prices (dhouse) until the end of third quarter. Hence increase in FDI inflows decreases house prices. One standard deviation shock given to FPI inflows (dfpi) has positive significant effect on house price (dhouse) until the end of fourth quarter. Hence, increase in FPI inflows increases house prices.

One standard deviation shock given to FDI inflows (fdi) has a positive significant effect on itself until the end of third quarter. We may refer to that as self-reinforcing FDI in the sense that past levels of FDI inflows become significant determinant of current level of FDI inflows. One standard deviation shock given to house prices (dhouse) has a negative significant effect on FDI inflows (fdi) until second quarter. Hence increase in housing prices decreases FDI inflows. One standard deviation shock given to FPI inflows (dfpi) has a negative significant effect on FDI inflows (fdi) until the end of fourth quarter. Hence increase in FPI inflows decreases FDI inflows.

One standard deviation shock given to FPI inflows (dfpi) has a positive significant effect on itself until the end of first quarter. We may refer to that as self-reinforcing FPI in the sense that past levels of FPI inflows become significant determinant of current level of FPI inflows. One standard deviation shock given to house prices (dhouse) has a negative significant effect on FPI inflows until the end of second quarter. Hence increase in housing prices decreases FPI inflows. One standard deviation shock given to FDI inflows (fdi) has a negative significant effect on FPI inflows (dfpi) in first and first half of second quarter. The negative significant effect turns into positive significant effect in the third quarter. Hence increase in FDI inflows first decreases FPI inflows and then increases FPI inflows.

Figure 1. Impulse Response Function



Notes: Number of observation is 160.

According to variance decomposition at a horizon of ten quarters in Table 2, house prices (dhouse) forecast error variance is attributed mostly to its own shock by 80.2 %. FDI inflows (fdi) and FPI inflows (dfpi) explain 5.7 % and 13.9 %, respectively of total variation in house prices (dhouse).

FDI inflows (fdi) forecast error variance is attributed mostly to its own shock by 61.4 %. House prices (dhouse) and FPI inflows (dfpi) explain 23.1 % and 15.3 %, respectively of total variation in FDI inflows (fdi).

FPI inflows (dfpi) forecast error variance is attributed mostly to its own shock by 89.9 %. House prices (dhouse) and FDI inflows (fdi) explain 4.4 % and 5.6 %, respectively of total variation in FDI inflows (fdi).

Table 4. Variance Decomposition

| Variables | dhouse | fdi | dfpi |
|-----------|--------|-------|-------|
| dhouse | 0.802 | 0.057 | 0.139 |
| fdi | 0.231 | 0.614 | 0.153 |
| dfpi | 0.044 | 0.056 | 0.899 |

Source: Authors' Own Calculations

Notes: Percent of variation in the row variable (10 periods ahead) explained by column variable.

4. DISCUSSION

Additional to being the durable good, the house has collateral value affecting the credit expansion and is also used for bubble assets. Therefore, the bubble in the housing sector would generate amplifications and repercussions to the macroeconomy through bubble dynamics. The interest of the study is by focusing on the nature of FDI and FPI to analyze their impacts on the housing market which would provide certain implications about foreign investment's role in bubble formation and dynamics aftermath of mortgage crisis for European Union member countries. Moreover, the study also sheds light on the substitution/complementary relations between FDI and FPI in the European Union member countries.

The results of impulse response analysis show that FPI positively and FDI negatively affect house prices, and house prices negatively affect both FDI and FPI. These results indicate that FPI generates upward pressures for house prices, however, which do not feedback on FPI. Therefore, in the study period, there is no evidence for the house price bubble formation through FPI inflows. Additionally, FDI by providing long-run economic welfare would impact house supply leading to a decline in house prices thus contributing to the stock of house and stability in the house prices. Therefore, policies focusing on increasing the level of FDI in the country should be strengthened since it has contributions to the stability of house prices directly and through its negative impact on the level of FPI.

The results show that FPI positively affects house prices while FDI negatively affects it. These results show that the short-run capital investments; FPI, mostly raise expectations about house prices leading to a rise in house demand. The result might stem from the market sentiment generated by an increase in FPI or due to an increase in assets that might be used for collateral for mortgage credits. On the other hand, in the long run, FDI contributes to the decrease in house prices. The result might stem from FDI's positive contribution to the stock of houses in the country or due to currency appreciation resulted from FDI inflows, which decrease construction costs. Moreover, FDI generates long run persistent income stem rather than transitory and cyclical returns generated by FPI, thus its inflow provides strong signals for the housing market leading to an increase in house supply.

Additionally, results show that increase in house prices decrease both FDI and FPI. The result might indicate that foreign capital movements react against house price rise by not trading housing market sentiments. The negative reaction of foreign capital investments to house prices might stem from the expectation of recession following the house price rise in particular if it co-moves with credit expansion and consumption boom.

The results also indicate that FDI and FPI substitutes rather than complements. FPI which does not face liquidity problems can easily leave the market in the presence of fluctuations or deterioration in the macroeconomic fundamentals such as exchange rate and inflate rate (Goldstein and Razin, 2006). However, FDI providing stable income streams in the long run

by contributing to technology and skill stock in the country that would contribute to the economic stability would not be easily liquidated in the case of systemic shocks. Therefore, FPI contributing to the economic instability would decrease the incentive FDI's to enter the market. On the other hand, FDI by increasing expected the long-run income level might decrease the appeal of portfolio investments as the bubble generated in the capital markets can be used to domestic stores of value (Caballero and Krishnamurthy, 2006). Moreover, it can also be claimed that the FDI by enabling economic stability decreases boom-bust cycles in asset prices and the inflow and outflow of FPI.

CONCLUSION

The current study aims to uncover the dynamic interrelations between FDI, FPI, and house prices in the context of the European Union over the period of 2007 Q1-2013 Q4. The Panel VAR empirical technique is selected to model the dynamic co-movement of the variables by accounting for the country-specific heterogeneities.

The results indicate that FPI generates upward pressures for house prices, however, which do not feedback on FPI. Hence, there is no evidence for the house price bubble formation through FPI inflows.

Additionally, FDI by providing long-run economic welfare would impact house supply leading to a decline in house prices thus contributing to the stock of house and stability in the house prices. Hence, policies focusing on increasing the level of FDI in the country should be strengthened since it has contributions to the stability of house prices directly and through its negative impact on the level of FPI.

Moreover, FDI generates long run persistent income stem rather than transitory and cyclical returns generated by FPI thus its inflow provides strong signals for the housing market leading to an increase in house supply.

The negative reaction of foreign capital investments to house prices might stem from the expectation of recession following the house price rise in particular if it co-moves with credit expansion and consumption boom.

The results also indicate that FDI and FPI substitutes rather than complements. It can also be claimed that the FDI by enabling economic stability decreases boom-bust cycles in asset prices and the inflow and outflow of FPI.

DOĞRUDAN YABANCI YATIRIMLAR, YABANCI PORTFÖY YATIRIMLARI VE KONUT FİYATLARI: AVRUPA BİRLİĞİ ÜLKELERİ ÜZERİNE

1. GİRİŞ

Gelişmiş ülkelerde konut fiyatları son kırk yılda yükseliş ve düşüşler göstermektedir. Özellikle, 1980'lerden itibaren ülkeler arasında konut fiyatları uzun vadeli pozitif eğimli

trendlere sahip olmuştur. Konut fiyatlarında yükseliş yaşayan ülkeler aynı zamanda yabancı sermaye girişlerinde de yükseliş yaşamışlardır.

Uluslararası sermaye girişleri konut fiyatlarını çeşitli kanallar üzerinden etkilemektedir. Sermaye konut sektörüne akarak, doğrudan konut arzını ve döviz kurunun maliyetini etkileyerek ithal edilen ara malların maliyetini ve konut sektöründe kullanılan sermayenin maliyetini etkiler. Dahası, sermaye girişleri kredi maliyetlerini düşürerek ve hane halkı servetini ekonomik büyüme sayesinde artırarak konut talebini artırabilir. Diğer taraftan, Ahearne ve diğ. (2005) tarafından belirtildiği üzere konut fiyatları konjonktürle yani tüketim, yatırım, enflasyon ve cari hesap dengesi ile aynı yönlü hareket ettiği için, konut fiyatları ve sermaye girişleri arasındaki otokorolesyona ışık tutabilir.

Tamura (2010), konut fiyatlarındaki beklentiye dayanan oynaklıkların ekonomi ancak yabancı sermaye girişlerine açık olması durumunda geçerli olduğunu ortaya koymuştur.

Makale, literatürdeki bir çok çalışmanın ele almadığı, doğrudan yabancı sermaye yatırımı girişleri ve yabancı portföy yatırımı girişleri, konut fiyatları arasındaki dinamik ilişkiyi Büyük Kriz sonrası Avrupa Birliği ülkeleri için analiz ederek literatüre katkı sağlamaktadır.

2. YÖNTEM

Finansal kriz sonrası doğrudan yabancı yatırımları ve yabancı portföy yatırımlarının konut fiyatlarına etkisini incelemek üzere; 20 Avrupa Birliği üyesi ülkeye 2007-2013 dönemine ait 3 aylık veri kullanılmıştır. Analizde kullanılan değişkenler şunlardır;

- House: Eurostat (2018)'den alınan 3 aylık konut fiyatları indeksi (2015=100)
- FDI: OECD (2018)'den alınan 3 aylık doğrudan yabancı sermaye girişleri (milyon)
- FPI: Eurostat (2018)'den alınan 3 aylık yabancı portföy yatırımı girişleri (bin)

Birim kök test sonuçlarına göre, FDI'nın I(0), FPI ve House'un ise I(1) olduğu bulunmuştur. Yani FDI düzeyde durağan iken, FPI ve House birinci farkları alındığında durağan olmaktadır.

Üç değişken arasında çift yönlü ilişki bulunduğu için değişkenlerinin tümünün endojen olduğu sonucuna varılmış ve dolayısıyla Panel VAR tekniğiyle üç eşanlı denklem tahmin edilmiştir. Modelin optimal gecikme uzunluğu test edilmiş ve optimal gecikme uzunluğunun 1 olduğu bulunmuştur. Dolayısıyla tahmin edilecek model şu şekildedir;

$$y_{it} = \Gamma_0 + \Gamma_1 y_{it-1} + f_i + d_{c,t} + e_t \text{ (Love ve Zicchino, 2006)}$$

Denklemden y_{it} 3 değişkenli vektör olup House, FDI ve FPI'yı içermektedir. Basit etkiyi gösteren f_i ülkelerin bireysel heterojenliğine izin verilmek için modele dahil edilmiştir. Zaman kukla değişkeni $d_{c,t}$ ülkelere özgü makro şokları göstermektedir (Love ve Zicchino, 2006).

Katsayı ve standart sapmayı gösteren tahmin sonuçları yerine, Panel VAR'ın başlıca aracı olan etki-tepki fonksiyonları kullanılmıştır. Etki-tepki fonksiyonları bir değişkene verilen şokun diğer değişkende meydana getirdiği tepkiyi gösterirken, diğer tüm değişkenlere verilen

şokları sıfıra eşitler (Love ve Zicchino, 2006). Etki-tepki fonksiyonlarındaki güven aralıkları Monte-Carlo simülasyonu ile 1000 deneme için oluşturulmuştur.

Panel VAR'ın sunduğu bir diğer araç varyans dekompozisyonudur. Varyans dekompozisyonu, bir değişkene verilen bir şokun diğer bir değişkendeki varyansın yüzde kaçını açıkladığını gösterir.

3. BULGULAR

Etki tepki fonksiyonları sonuçlarına göre, konut fiyatları, doğrudan yabancı sermaye yatırımı girişleri ve yabancı portföy yatırımı girişleri kendi kendini güçlendiren değişkenler olduğu yani, geçmiş değerlerinin şu anki performanslarını açıklamada pozitif anlamlı olduklarını göstermektedir. Ayrıca, doğrudan yabancı sermaye yatırımı girişlerindeki artışın ev fiyatlarını düşürdüğü ve yabancı portföy yatırımı girişlerindeki artışın ev fiyatlarını artırdığı bulunmuştur. Konut fiyatlarındaki ve yabancı portföy yatırımı girişlerindeki artışın doğrudan yabancı sermaye girişlerini azalttığı bulunmuştur. Son olarak, konut fiyatlarındaki artışın yabancı portföy yatırımı girişlerini azalttığı ve doğrudan yabancı sermaye yatırımı girişlerindeki artışın ilk önce yabancı portföy yatırımı girişlerini ilk iki çeyrekte önce azalttığı daha sonraki çeyrekte ise artırdığı bulunmuştur.

Varyans dekompozisyonu analizine göre, her 3 değişkene ait tahmini hata varyansı en büyük oranda kendilerine verilen şoklarla açıklanmaktadır. Konut fiyatlarındaki tahmini hata varyansının 5.7%'sini doğrudan yabancı sermaye yatırımı girişleri ve 13.9%'sini yabancı portföy yatırımı girişleri tarafından açıklamaktadır. Doğrudan yabancı sermaye yatırımı girişlerindeki tahmini hata varyansının 23.1%'ini konut fiyatları ve 15.3%'ünü yabancı portföy yatırımı girişleri tarafından açıklamaktadır. Son olarak, yabancı portföy yatırımı girişlerindeki tahmini hata varyansının 4.4%'ü konut fiyatları ve 5.6%'sı doğrudan yabancı sermaye yatırımı girişleri tarafından açıklanmaktadır.

4. TARTIŞMA

Konut durağan bir mal olmasına rağmen, teminat değeri olduğundan kredi genişlemesine yol açmakta ve varlık balonu olarak kullanılabilir. Dolayısıyla, konut sektöründe oluşan balon, balon nedeniyle oluşan dinamikler neticesinde makro ekonomide amplifikasyonlara ve geri tepmelere neden olmaktadır. Çalışma, doğrudan yabancı yatırımların ve yabancı portföy yatırımların konut piyasasındaki etkilerini analiz ederek yabancı yatırımların konut piyasasındaki balonların oluşumuna nasıl etki ettiğini ve Büyük Kriz'in (ipotez krizi) sonrasında Avrupa Birliği üye ülkelerinde oluşan dinamikleri açıklamaya çalışmaktadır.

SONUÇ

Analiz neticesinde, yabancı portföy yatırımı girişlerindeki artışın konut fiyatları üzerinde yukarı yönlü baskı yapmasına rağmen, bu baskının tekrar yabancı portföy yatırımı girişleri üzerinde bir geri besleme etkisi oluşturmadığı bulunmuştur. Dolayısıyla çalışmada yabancı portföy yatırımı girişi kaynaklı bir konut fiyatı balonu oluşumu gözlenmemiştir. Ayrıca, doğrudan yabancı sermaye yatırımı girişlerindeki artışın konut arzını artırarak konut

fiyatlarında düşüşe yol açarak konut stokunu ve konut fiyatlarındaki istikrarı güçlendirdiği bulunmuştur. Dolayısıyla, doğrudan yabancı sermaye yatırımı girişini artıran politikalar izlenmelidir çünkü doğrudan yabancı sermaye yatırımı girişlerin artması doğrudan konut fiyatlarında istikrarı güçlendirmekte ve dolaylı olarak da yabancı portföy yatırımı girişlerini azaltmaktadır. Doğrudan yabancı sermaye yatırımı girişleri ve yabancı portföy yatırımı girişleri arasında bulunan karşılıklı ilişki, bu iki değişkenin tamamlayıcı değil ikame olduğunu göstermektedir.

REFERENCES

- Abrigo, M. R., & Love, I. (2016). Estimation of panel vector autoregression in Stata. *Stata Journal*, 16(3), 778-804.
- Ahearne, A. G., Ammer, J., Doyle, B. M., Kole, L. S., & Martin, R. F. (2005). House prices and monetary policy: A cross-country study. *International finance discussion papers*, 841.
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of international economics*, 64(1), 89-112.
- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2010). Does foreign direct investment promote growth? Exploring the role of financial markets on linkages. *Journal of Development Economics*, 91(2), 242-256.
- Babecky, Jan, Philip Du Caju, Theodora Kosma, Martina Lawless and Julian Messina (2008), "Downward Wage Rigidity and Alternative Margins of Adjustment: Survey Evidence from European Firms," unpublished manuscript, Wage Dynamics Network.
- Bailey, D., & Driffield, N. (2007). Industrial policy, FDI and employment: still 'missing a strategy'. *Journal of industry, competition and trade*, 7(3-4), 189-211.
- Blomström, M., & Sjöholm, F. (1999). Technology transfer and spillovers: Does local participation with multinationals matter? 1. *European economic review*, 43(4-6), 915-923.
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? 1. *Journal of international Economics*, 45(1), 115-135.
- Caballero, R. J., & Krishnamurthy, A. (2006). Bubbles and capital flow volatility: Causes and risk management. *Journal of Monetary Economics*, 53(1), 35-53.
- Calvo, G. A. (1998). Capital flows and capital-market crises: the simple economics of sudden stops. *Journal of Applied Economics*, 1(1), 35-54.
- Capozza, D. R., Hendershott, P. H., Mack, C., & Mayer, C. J. (2002). *Determinants of real house price dynamics* (No. w9262). National Bureau of Economic Research
- Choy, L. H., Ho, W. K., & Mak, S. W. (2015). On FDI-led growth and the price of residential properties in Guangdong. *Journal of housing and the built environment*, 30(1), 39-51.
- Droes, M., & van de Minne, A. (2016). *Do the Determinants of House Prices Change over Time? Evidence from 200 Years of Transactions Data* (No. eres2016_227). European Real Estate Society (ERES).
- Durham, J. B. (2004). Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth. *European economic review*, 48(2), 285-306.
- Eurostat (2018). Database. <http://ec.europa.eu/eurostat/data/database> (Accessed on April, 18, 2018)
- Feng, L., Lin, C. Y., & Wang, C. (2017). Do Capital Flows Matter to Stock and House Prices? Evidence from China. *Emerging Markets Finance and Trade*, 53(10), 2215-2232.
- Fortanier, F. (2007). Foreign direct investment and host country economic growth: Does the investor's country of origin play a role. *Transnational Corporations*, 16(2), 41-76.
- Girouard, N., & Blöndal, S. (2001). House prices and economic activity, OECD Working Paper.

- Gozgor, G. & Erzurumlu, Y. O. (2010): *Causality relations between foreign direct investment and portfolio investment volatility*, Middle Eastern Finance and Economics No. 8 , pp. 172-178.
- Guest, R., & Rohde, N. (2017). The Contribution of Foreign Real Estate Investment to Housing Price Growth in Australian Capital Cities. *Abacus*, 53(3), 304-318.
- Huang, J. T., Hwang, Y. N., & Lo, K. T. (2014). *The Role of Foreign Direct Investment in Shanghai's Real Estate Price—Culprit or Scapegoat?* (No. 2014-02). Asian Growth Research Institute.
- Jara, A., & Olaberría, E. (2013). *Are All Capital Inflows Associated with Booms in House Prices?: An Empirical Evaluation*. Central Bank of Chile.
- Kim, S., & Yang, D. Y. (2009). Do capital inflows matter to asset prices? The case of Korea. *Asian Economic Journal*, 23(3), 323-348.
- Levchenko, A. A., & Mauro, P. (2007). Do some forms of financial flows help protect against “sudden stops”? *The World Bank Economic Review*, 21(3), 389-411.
- Love, I., & Zicchino, L. (2006). Financial development and dynamic investment behavior: Evidence from panel VAR. *The Quarterly Review of Economics and Finance*, 46(2), 190-210.
- OECD (2018). Statistics. <http://stats.oecd.org> (Accessed on April 18, 2018)
- Ostry, J. D., Ghosh, A. R., Habermeier, K., Chamon, M., Qureshi, M. S., & Reinhardt, D. (2010). Capital inflows: The role of controls. *Revista de Economía Institucional*, 12(23), 135-164.
- Poterba, J. M., Weil, D. N., & Shiller, R. (1991). House price dynamics: the role of tax policy and demography. *Brookings Papers on Economic Activity*, 1991(2), 143-203.
- Rodríguez, C., & Bustillo, R. (2010). Modelling foreign real estate investment: The Spanish case. *The Journal of Real Estate Finance and Economics*, 41(3), 354-367
- Sachs, J. D., & Woo, W. T. (2000). Understanding the Asian financial crisis. *The Asian financial crisis: Lessons for a resilient Asia*, 13-43.
- Stiglitz, J. E. (2000). Capital market liberalization, economic growth, and instability. *World development*, 28(6), 1075-1086.
- Takáts, E. (2012). Aging and house prices. *Journal of Housing Economics*, 21(2), 131-141.
- Tillman, P (2013). Capital inflows and asset prices: Evidence from emerging Asia. *Journal of Banking and Finance*, 37, 717–729.
- Tomura, H. (2010). International capital flows and expectation-driven boom–bust cycles in the housing market. *Journal of Economic Dynamics and Control*, 34(10), 1993-2009.
- Yiu, M. S., & Sahminan, S. (2015). Global liquidity, capital inflows and house prices in ASEAN economies. HKIMR Working Paper No. 14/2015
- Waldkirch, A., Nunnenkamp, P., & Alatorre Bremont, J. E. (2009). Employment effects of FDI in Mexico's non-maquiladora manufacturing. *The Journal of Development Studies*, 45(7), 1165-1183.

APPENDIX

List of Countries

| | | | |
|----------------|---------|-------------|----------------|
| Austria | Finland | Italy | Slovakia |
| Belgium | France | Luxembourg | Slovenia |
| Czech Republic | Germany | Netherlands | Spain |
| Denmark | Hungary | Poland | Sweden |
| Estonia | Ireland | Portugal | United Kingdom |

| KATKI ORANI / CONTRIBUTION RATE | AÇIKLAMA / EXPLANATION | KATKIDA BULUNANLAR / CONTRIBUTORS |
|--|---|--|
| Fikir veya Kavram / <i>Idea or Notion</i> | Arastırma hipotezini veya fikrini olusturmak / <i>Form the research hypothesis or idea</i> | Deniz GÜVERCİN |
| Tasarım / <i>Design</i> | Yontemi, olcegi ve deseni tasarlamak / <i>Designing method, scale and pattern</i> | Adem GÖK |
| Veri Toplama ve Isleme / <i>Data Collecting and Processing</i> | Verileri toplamak, duzenlenmek ve raporlamak / <i>Collecting, organizing and reporting data</i> | Adem GÖK |
| Tartisma ve Yorum / <i>Discussion and Interpretation</i> | Bulguların degerlendirilmesinde ve sonuclandirilmasında sorumluluk almak / <i>Taking responsibility in evaluating and finalizing the findings</i> | Deniz GÜVERCİN Adem GÖK |
| Literatur Taraması / <i>Literature Review</i> | Calısma icin gerekli literaturu taramak / <i>Review the literature required for the study</i> | Deniz GÜVERCİN |