

**THE EFFECT OF FDI ON FOREIGN REAL ESTATE INVESTMENT: EVIDENCE FROM EMERGING ECONOMIES**

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**ABSTRACT**

The purpose of this paper is to examine the effects of foreign direct investment in other sectors (FDI) on foreign investment in real estate sectors (FREI) in emerging economies after controlling other relevant determinants of FREI. Applying the panel data technique, this paper uses related observations from 16 emerging economies to investigate the relationships between FDI and FREI. Our analysis shows that countries with higher level of FDI in other sectors attract greater amounts of FREI.

***Keywords:** Foreign Real Estate Investments, Foreign Direct Investment, Panel Data Analysis, Emerging Economies*

**INTRODUCTION**

This study focuses on the effects of foreign direct investment in other sectors (FDI hereafter) on foreign real estate investment (FREI). The question of the relationship between FDI and FREI has only recently started to be addressed in the empirical literature. For example, Moshirian and Pham (2000) found that U.S. FDI in real estate abroad is positively correlated with U.S. FDI in manufacturing and banking abroad. In other words, their results implied that expansion of U.S. investment in the form of manufacturing and banking contributes to U.S. investment in real estate abroad. More specifically, Moshirian and Pham (2000) applied the follow-the-client hypothesis to justify the relationship between these two variables as follow: firstly, “as U.S. companies invest in certain countries, trade and investment associated with their activities may provide opportunities for private U.S. investors and companies to invest in real estate in the countries where the U.S. manufacturers and bankers are operating” (pp.66). Secondly, “U.S. manufacturers and banks invest in foreign real estate not necessarily for the higher rate of return that they expect to receive, compared with that from the U.S., but rather because of the necessity of being able to invest in manufacturing or banking in foreign countries” (pp.67). Similarly, Hines (2001) documented that as industrial and financial firms expand their operations overseas, they require properties (industrial, commercial, residential real estate) by acquisition or lease that fit their particular corporate needs (such as carrying on their international business and house their employees). He et al. (2009) also argued that foreign investors in real estate industry follow their customers (such as international business personnel) to the host economies. In particular, they found that foreign investors were attracted to China’s real estate industry due to the demand created by foreign enterprises. Likewise, Bardhan and Kroll (2007) noted that major U.S. real estate service firms and residential real estate brokerage firms follow U.S. multinational companies in developing countries in order to provide residential real estate services for expatriate population. He and Zhu (2010) found that foreign direct investors in real estate sector favored Chinese cities with more international tourists and more foreign investments. It is because both international tourists and foreign managers in foreign companies prefer to stay in hotels or apartments that provide offices (or easy access to them), accommodation, and eating facilities meeting Western standards.

While there have been some time-series and conceptual papers published in this area, no empirical study has examined the relationship between these two variables by applying panel data set from a large sample of countries. Advantage of using panel data is that they usually give the researcher a large number of data points, increasing the degrees of freedom and reducing collinearity among independent variables, therefore improving econometric estimate efficiency. In addition, panel data allow researchers to test a number of important economic questions that cannot be addressed using time series or cross sectional data sets (Chuang and Wang, 2009).

To establish FDI in other sectors as a major determinant of FREI, this study investigates the relationship between these two variables focusing on emerging economies. It is because emerging economies account for two-thirds of the world's population and over 20% of the world's GDP. Representing a diverse group of economies and societies, these markets are an important testing ground for existing theories, models and concepts of economics (Emeraldinsight, 2011). Our result reveals that the higher level of FDI inflows to the host country will lead to greater amount of FREI.

The rest of this paper is presented as follows. Section 2 provides some stylized facts for the FDI and FREI in emerging economies. Section 3 provides the theoretical understanding regarding the relationship between FDI and FREI. In Section 4, besides the FDI factor, we identify the factors that will be relevant for our econometric investigation, drawing from the empirical and theoretical literature. Section 5 describes the data sources, presents the econometric methodology and analyses the empirical results. Section 6 concludes this paper.

## **FDI AND FREI IN SELECTED EMERGING ECONOMIES: STYLIZED FACTS**

This section sets the scene for the empirical analysis that follows by presenting some stylized facts for FDI and FREI in selected emerging economies.

FREI has grown considerably in most of the emerging economies in recent years. For example, FDI inflows into China's real estate market accounted for 10-15 percent of total FDI from the middle of 1990s to 2009 (He et al., 2009). In 2007, real estate ranked second only to India's computer software industry in attracting FDI (Economist Intelligence Unit, 2008). In Lebanon, the 32 percent rise in FDI inflows in 2008 was mainly driven by real estate (UNCTAD, 2009). FDI registered in Vietnam's real estate sector was only US\$ 8.1 billion from 1988 to 2006. However, it reached to US\$33 billion in 2008 which accounted for 54 percent of total FDI in 2008, compared to 22 percent in 2006 (Thien Thu and Perera, 2010). Popov (2010) noted that the largest part of foreign investment in Serbia went into the real estate sector: 12% of the total. More evidences on the recent surges of FREI in emerging economies can be seen in Table 1.

Table 1. Foreign real estate investment inflows in selected emerging economies (millions of US dollars)

Country	2001	2004	2007
Hungary	71.8	285.3	649.3
Poland	126.5	844.2	2,363.4
Slovakia	55.8	157.8	601
Greece	0.5	8.4	149.8
Turkey	0	40	449
Czech	256	656.3	1,680
China	5,136.5	5,950.15	17,088.7
Israel	166.7	795.8	1,564.2

Source: OECD Statistics, National Bureau of Statistics of China and Ministry of Finance of Israel

Similarly, during 2000-2008, FDI inflows rose rapidly across the emerging and developing economies (see Figure 1). In fact, over the 9 years from 2000 to 2008, FDI inflows rose 20 percent in these countries.

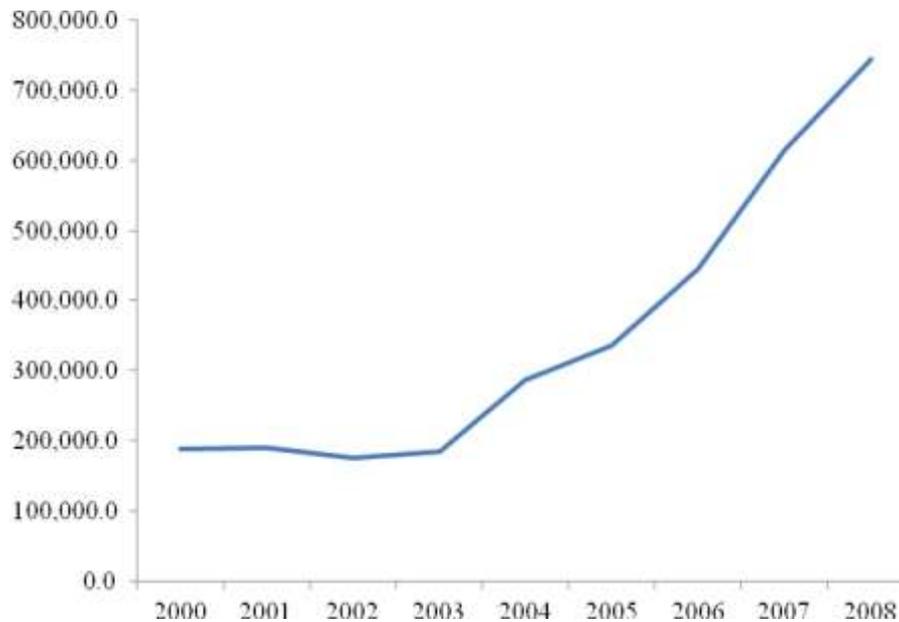


Figure 1. FDI inflows in developing and emerging economies: 2000-2008 (US\$ million)  
Source: Global Market Information Databases (GMID)

Based on the above statistics, it can be observed that increases in FREI has gone with continues increase in FDI in recipient countries. Thus, it is expected that the growth in FREI in emerging economies has been stimulated by the increased amount of FDI in other sectors.

## CONCEPTUAL DISCUSSION

As mentioned earlier, some existing studies have applied “the following the client hypothesis” to understand the determinants of international real estate investment (Moshirian and Pham, 2000; Bardhan and Kroll, 2007; He et al., 2009; Kundu and Contractor, 1999). This hypothesis implies that foreign investors in real estate industry may follow their customers to the host economies.

For example, Kolstad and Villanger (2008) argue that some types of service industries (particularly producers’ services such as finance, business, and transport) follow their clients abroad. Kundu and Contractor (1999) found that more foreign enterprises in a host country attract more foreign investors in hotel and real estate industry because foreign investors in real estate industry follow their customers to the host economy. Gaedeke (1973) identified that the following clients abroad is one of the critical factors influencing the overseas expansion for U.S. multinational service firms. Moshirian (1998) found that multinational banks follow their multinational customers abroad so that they can provide services for their customers’ foreign operations. Similarly, Ramasamy and Yeung (2010) showed that servicing home-based customers in host countries is an important reason for services FDI inflow. In other words, services FDI (including real estate) tends to follow manufacturing FDI. Based on the above argument, following the clients hypothesis is applicable as a means of measuring the most significant determinants of FREI.

## FACTORS AFFECTING FOREIGN REAL ESTATE INVESTMENT

In this section we set out the variables that we will consider for our empirical analysis. This choice will be guided by two considerations: the relevance of the variables in question from a theoretical and empirical perspective and the availability of data. Given the aim of our empirical analysis, an obvious variable to include is FDI. We hypothesize that FDI should have a positive effect on FREI.

In previous studies, higher real estate price has been recognized as one of the main determinants of FREI. For example, He et al. (2009) found that the heightening housing prices significantly stimulate the inflow of FDI in China's real estate industry. In other words, they argue that foreign direct investors in real estate respond to returns to capital when choosing locations in China. Likewise, Rodríguez and Bustillo (2010) showed that house price is an important factor explaining FREI in Spain. Thus, in this study, one would expect to see that higher real estate price has a positive relationship with FREI.

Market size is one of the most important factors in explaining FREI. He et al. (2009) argued that a higher per capita GDP would create a higher demand for real estate properties, therefore attracting more FDI in the real estate industry (because more local demands and larger market size would create higher revenues for foreign real estate investors). Rodríguez and Bustillo (2010) also showed that GDP per capita (as the purchasing power of the consumer of real estate services) had the strongest effect on foreign real estate investments. Falkenbach (2009) documented that market size is an important factor in attracting foreign investors to the host country's real estate market (because market size reflects availability of investment possibilities). Similarly, in their study on OECD countries, Gholipour and Masron (2011) found a positive and significant relationship between market size and FREI. Based on previous studies, it is hypothesized that market size is a significant determinant of FREI.

Several studies found that host locations which have established infrastructural systems tend to attract a greater amount of services FDI. For example, Ramasamy and Yeung (2010) showed that infrastructure development is an important determinant for services FDI. Similarly, Anop (2010) found a significant relationship between the level of road infrastructure and inward FDI in real estate. It is argued in the Jones Lang LaSalle (2009) report that developed infrastructure is one of the main criteria for long term investors in the Middle East and North Africa (MENA) countries' real estate sector. Chin et al. (2006) studied the factors that are of importance in attracting local and international investments in Southeast Asian property markets. Their results indicate that levels of public infrastructure (as well as other factors such as sound financial economic structure, strength and stability of the economy) were found important for foreign investors. Therefore, a reliable infrastructure system (e.g. electricity, number of telephones and road) is expected to have a positive relationship with FREI.

Previous studies have noted that the level of political stability (generally measured by the composite of internal conflict, external conflict, religious and ethnic tensions) in the host countries is an important determinant of aggregate FDI as well as FDI in services (including real estate). The rationale for this is that political stability could affect investing behaviors. The risk premium incorporated in any investment plan and the location decision by foreign direct investors may be influenced by political stability (Busse and Hefeker, 2007). International real estate investors are unlikely to invest their resources in a country whose government is unstable and there are threats of civil unrest, terrorism and war. Hines (2001) stated that any threat of civil or military conflict and unstable political situations hinders the flow of capital into real estate sectors. Similarly, Lai and Fischer (2007) argued that real estate investments tend to be low-liquidity after investment is made; therefore foreign investors show certain concerns of political stabilities. On the basis of the above discussion, it is hypothesized that higher levels of political stability in host countries would attract greater amounts of FREI.

## **DATA, METHODOLOGY AND RESULTS**

The analysis comprises the period 2000 to 2008 for a sample of 16 emerging economies. The country sample can be found in Appendix A. The linkage between FDI and FREI is our particular concern. Included are all emerging economies for which data on all variables in the regressions are obtainable.

Table 2 Description of Dependent and Independent Variables

<i>Variables</i>	<i>Definition</i>	<i>Source</i>	<i>Expected sign</i>
FREI	Inflows of foreign direct investment in real estate sector in a country (millions of US dollars)	Central Banks, Statistical Centres and OECD Statistics	
FDI	FDI in other sectors	GMID	+
PRIC	Housing price index proxy for property prices	GMID	+
GDP	GDP proxy for market size	GMID	+
INFRAS	The numbers of internet users (per 1000 people) proxy for infrastructure	World Bank	+
POLI	Political stability	World Bank	+

The data on the variables come out from different sources (see Table 2). The data on FREI is obtained from a wide range of sources (such as Central Banks, Statistical Centers and OECD Statistics). Information on housing price index (proxy for property prices), GDP (proxy for market size) and FDI is taken from GMID. As a proxy for infrastructure, the numbers of internet users per 1000 people was used. Information on this variable was taken from the World Bank's World Development Indicators. Information on countries' political stability is taken from the Worldwide Governance Indicators (WGI) research project provided by the World Bank. They define political stability as "the likelihood that the government will be destabilized by unconstitutional or violent means, including terrorism" (Kaufmann et al., 2009). This indicator shows the country's percentile rank (0-100). Higher values thus indicate better political stability ratings.

In the present study, the panel data technique is applied to estimate the relationships between the explanatory variables and FREI. Since we face data limitation in terms of number of countries and time period therefore we apply panel data analysis. Panel data have several advantages over cross-sectional or time-series data. Hsiao (2003) and Klevmarcken (1989) list several benefits from applying panel data (cited in Baltagi, 2005): (1) Panel data can control for individual heterogeneity. Panel data suggests that individuals, firms, states or countries are heterogeneous. Time series and cross-section studies not controlling this heterogeneity run the risk of obtaining biased results. (2) Panel data give more informative data, more variability, less co-linearity among the variables, more degree of freedom and more efficiency. (3) Panel data are better able to study the dynamics of adjustment. Cross-sectional distributions that look relatively stable hide a large amount of changes. (4) Panel data are better able to identify and measure effects that are simply not detectable in pure cross-section or pure time-series data. (5) Panel data models allow researchers to construct and test more complicated behavioral models than purely cross-section or time-series data.

Two important panel models are the fixed effects model and the random effects model. In order to choose the fixed or random effects model for the equation estimation, this study applies the Hausman (1978) test because this test determines the preferred model. The statistics from the Hausman test suggests applying the fixed effects instead of the random effects model.

Given the earlier discussion, the following fixed effects panel data model is used for estimation.

$$\ln \text{FREI}_{it} = \beta_0 + \beta_1 \ln \text{FDI}_{it} + \beta_2 \ln \text{GDP}_{it} + \beta_3 \ln \text{INFRAS}_{it} + \beta_4 \ln \text{POLI}_{it} + \beta_5 \ln \text{PRIC}_{it} + e_{it} \quad (1)$$

where  $\text{FREI}_{it}$  stands for FDI inflows to real estate sector for country  $i$  in period  $t$ ,  $\text{FDI}_{it}$  denotes the FDI inflows to other sectors for country  $i$  in period  $t$ ,  $\text{GDP}_{it}$  represents the market size for country  $i$  in period  $t$ ,  $\text{INFRAS}_{it}$  denotes the infrastructure for country  $i$  in period  $t$ ,  $\text{POLI}_{it}$  represents political stability for country  $i$  in period  $t$ ,  $\text{PRIC}_{it}$  denotes the real estate price for country  $i$  and period  $t$  and  $e_{it}$  is an error term. As in most studies in the empirical literature on FDI flows, the logarithm for investment flows and other independent variables is used.

The regression results are shown in Table 3. The overall fit of the panel model is reasonable, taking the diversity of the country sample into account. The results show that FDI is positively associated with FREI, indicated by an estimated coefficient (0.3837) that is significant at the 1% level. It means that countries with higher level of FDI in other sectors would have greater amount of FREI. In other words, foreign real estate investors follow multinationals companies in emerging economies. This result is consistent with time-series and conceptual studies (e.g., Moshirian and Pham, 2000; Hines, 2001).

Table 3 Regression results of fixed effects estimation

<i>Dependent Variable: lnFREI</i>	
<i>Independent Variables</i>	Coefficients
lnFDI	0.3837*** (3.3207)
lnINFRAS	-0.0615 (-0.6419)
lnGDP	0.0430 (0.3852)
lnPOLI	-0.2017 (-0.9622)
lnPRIC	0.1413* (1.6465)
Constant	2.6258 (1.8142)
R <sup>2</sup>	0.3091
S.E. of Reg.	0.9962

Notes: Significance at the 1%, 5%, and 10% levels, respectively, is denoted by \*\*\*, \*\*, and \*; t-values reported in parentheses.

In addition, as the Table 3 indicates, heightening property prices significantly stimulate the inflow of FREI in emerging economies, concurring with other similar studies (e.g., Rodríguez and Bustillo, 2010; He et al., 2009). This finding implies that foreign investors in emerging economies' real estate sectors pursue local profit opportunities because they favor locations with higher property prices.

On the other hand, other factors do not have significant association with FREI. In particular, although the coefficient for GDP has positive signs, meaning that an increase in this factor is positively associated with higher FREI, but is not significant. This result is not consistent with He et al. (2009) and Falkenbach (2009) who found that larger market size attract greater amounts of FREI.

## CONCLUSION

This paper empirically investigates the relationship between FDI in other sectors and FREI for selected emerging economies over the period of 2000-2008, with the fixed effects panel data approach. The obtained results suggest that there is a positive and significant association between FDI and FREI.

This finding implies that FDI would contribute to the internationalization of FREI in emerging economies. Moreover, policymakers in emerging economies would expect the entrance of more foreign real estate investors and developers in their countries during the period of expansion of FDI.

Ultimately, the results of the study should be considered in light of its limitations, which also point to some issues for future research. The number of 16 emerging market economies in our sample is one of the

study's limitations. Given the data constraints, results should be viewed with caution and hence data from more countries is needed to fully investigate this relationship and to improve our understanding. Additionally, the present study only considered the aggregate FREI for analysis. For future research, it may be useful to examine the relationship between FDI and FREI by using disaggregate data from various types of real estate such as residential, industrial and commercial real estate.

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#### **Appendix A.** Country sample

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Bulgaria, China, Croatia, Czech, Estonia, Hungary, Israel, Latvia, Lithuania, Mexico, Philippine, Poland, Romania, Slovakia, South Korea, Thailand

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