Determinants of US investment in real estate abroad

Fariborz Moshirian *, Toan Pham

School of Banking & Finance, The University of New South Wales, Sydney, NSW 2052, Australia

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Abstract

The purpose of this paper is to analyse and discuss those factors which are contributing to the expansion of US FDI in real estate. The empirical results of this model of FDI in real estate show that as US foreign financial liabilities increase, there is an accompanying increase in its FDI in real estate. This result is consistent with the study by Russek, F., Ruffin, R., 1986. The role of foreign direct investment in US capital flows. Am. Econ. Rev. 76, 1127–1130, who showed that US FDI abroad is a substitute for US financial assets. Furthermore, the empirical results indicate that as returns from the US stock market decline, there are more incentives for US investors to invest in foreign real estate. The empirical results also show that US financial wealth, US FDI in manufacturing and banking and US bilateral trade contribute positively to the expansion of US FDI in real estate. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

Since the early 1980s, according to the World Investment Report (United Nations, 1997), world-wide flows of foreign direct investment (FDI) have grown at unprecedented rates, to reach a total outflow of about $420 billion in 1996. The annual average growth rate of FDI has been 33% between 1987 and 1996 which far exceeded that of merchandise exports (12%) and nominal GDP (12%).

* Corresponding author. Tel.: +61-2-9385-5858; fax: +61-2-9385-6347.
E-mail address: f.moshirian@unsw.edu.au (F. Moshirian)

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US FDI abroad is categorised into several industries. One of the categories of US FDI abroad is FDI in real estate, as opposed to FDI in manufacturing, banking, etc. While it is observed that US FDI in real estate is small, it has increased by more than four times over the period 1985–1997. There are five major countries in which the US has invested in real estate. These are Canada, the UK, Mexico, France and Italy. In 1997, almost 39% of the US FDI abroad in real estate was in the UK, 21% in Canada, 12% in Mexico, 3% in France and 3% in Italy.

Real estate investment has long been confined to markets with which investors are familiar. International diversification was not on the agenda as Webb (1984) found in a comprehensive survey of US institutional investors’ attitudes in the 1970s and early 1980s. They appeared to diversify only over different property types and regions within their home country. However, in the 1980s growing amounts of money were being invested abroad in many industries, including real estate. This is the first study of FDI in real estate which attempts to provide an analysis and an explanation for the determinants of US investment in real estate abroad over the period 1985–1995. The unpublished quarterly data on US FDI in real estate, manufacturing and banking make such a study possible. According to an unofficial definition of the US Department of Commerce, FDI in real estate covers investment by US private investors in real estate including domicile, commercial building 1.

The paper is structured as follows: Section 2 reviews some of the relevant literature in FDI; Section 3 proposes various factors which could determine US FDI in real estate; Section 4 models US FDI in real estate; Section 5 describes the sources of data and the methodology used in this paper; Section 6 reports the empirical findings; and Section 7 makes some concluding remarks.

2. Literature review

There have been a number of studies on FDI in general, in manufacturing, banking and insurance. However, there has not been a study of FDI in real estate. This section of paper intends to survey some of the most relevant FDI studies which are relevant to FDI in real estate 2.

Williams (1997) recently surveyed various established theories of FDI in the context of multinational banking. In this survey he discussed major FDI theories such as the international investment theory, the eclectic theory and the industrial organisation hypothesis; however, most studies of FDI have been based on the

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1 According to the US Commerce Department, US FDI abroad, regardless of their type and nature is defined as the ownership by a single US citizen (or an associated group of US citizens) of at least 10% of the voting stock of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise.

2 Agarwal (1980) surveyed the literature in the area of FDI in the 1960s and 1970s. Lizondo (1990) continued the work of Agarwal and incorporated most of the FDI studies from the 1980s in his article.
eclectic theory as a means of measuring the most significant determinants of FDI. Some studies of FDI have highlighted one or two as the main determinants of FDI abroad. For instance, studies by Cushman (1987), and Froot and Stein (1991) identified the effects of exchange rates on FDI as the main determinant factor for FDI abroad. Studies such as Nigh (1986) argued that the size of the market in the host country is the most significant factor for FDI abroad. Schneider and Frey (1985) considered the balance of payment as the most significant determinant of FDI abroad. Furthermore, some studies found more than one factor as the major determinants of FDI abroad. Studies such as Culem (1988) found that the host market size, the market growth rate, unit labor cost, trade flows and economies of scale are the major determinants of FDI abroad.

In addition to the above studies, some specific studies such as Goldberg and Johnson (1990) and Gross and Goldberg (1991) were made in the area of foreign banks' activities where a number of hypotheses such as cost of capital, market size, exchange rate, economic growth and trade were found as the major determinants of FDI in banking.

As can be seen from the above studies, most of the studies of FDI have selected certain factors as the most relevant contributors to the FDI abroad. This is consistent with the eclectic theory of FDI. In this study, as in the above studies, a number of factors which appear to be the most significant contributors to the expansion of US FDI in real estate as opposed to FDI in general or manufacturing will be identified.

3. Factors contributing to US FDI in real estate abroad

In this section, hypotheses based mainly on the eclectic theory will be used to estimate FDI in real estate. The first step is to select those factors which appear to be the main determinants of US FDI in real estate abroad on the basis of the recent literature about US FDI in general, manufacturing, banking and insurance abroad. The following factors have been selected for US FDI in real estate abroad: (1) US financial wealth, (2) returns from the US stock market, (3) US FDI in manufacturing and banking abroad, (4) US foreign financial liabilities, (5) US bilateral trade and (6) relative economic growth. The first four factors are specific to FDI in real estate, whereas the last three factors are general factors pertinent to FDI in general. The remaining part of this section will discuss the above factors.

3.1. Financial wealth

Existing income and wealth are the two major determinants of the likelihood of a country accumulating further foreign and domestic assets. A number of researchers including Branson and Hill (1970), Russekh and Ruffin (1986) and Ueda (1990) used wealth as a source of allocating financial assets between domestic and foreign assets. Russekh and Ruffin (1986) used wealth as one of the factors determining the amount of US foreign assets abroad. Furthermore, Ueda (1990)
showed that Japan’s wealth has been one of the major causes of expansion of her foreign financial assets. In this study, it is also assumed that US financial wealth is allocated between domestic and foreign assets. Thus, it is expected that US FDI in real estate abroad, as a component of US foreign direct investment, should be related to US financial wealth. The stock of financial wealth is allocated between domestic and foreign assets on the basis of various factors including expected domestic and foreign rate of returns. Thus, given the findings of Russekh and Ruffin (1986) about the relationship between US general FDI and her wealth, and the findings of Ueda (1990) in which a close link between financial wealth and the accumulation of foreign assets was observed, the first hypothesis to be tested is whether US financial wealth affects the expansion of US FDI in real estate abroad.

3.2. Returns from the US stock market

Another hypothesis to be tested is the relationship between US FDI in real estate and returns from the US stock market. It is expected that US FDI in real estate abroad is negatively related to contemporaneous returns from the US stock market. This is motivated by the finding of Warther (1985) that aggregate mutual fund flows into stocks and bonds are positively related to their concurrent returns and negatively related to their past returns. However, Warther (1985) finds that mutual fund investors induce permanent rather than transitory price changes indicating that fund investors do not merely create haphazard movements in security prices. They appear to trade on information or, at least, trade in the same direction as those who possess relevant information. Thus, investor sentiments do not seem so unsophisticated, contrary to the findings in a related work by Lee et al. (1991). In this study, it is argued that as returns from the US stock market fall, there are more incentives to invest abroad in real estate. Thus, the hypothesis to be tested is whether US FDI in real estate abroad is negatively correlated to returns from the US stock market. The Standard and Poor’s 500 Index is used as a proxy to measure returns from the US stock market.

3.3. US FDI in manufacturing and banking abroad

A positive relationship has generally been found between a bank’s foreign expansion and FDI from other industries, particularly manufacturing. The rationale for this, according to a number of researchers, is that multinational banks will follow their multinational customers abroad so that they can provide services for their customers’ foreign operations.

The theoretical justification of the follow-the-client hypothesis applied to banks is provided by Grubel (1977). Supporting evidence for this hypothesis is reported, amongst others, by Goldberg and Johnson (1990). In the case of FDI in real estate, one would assume that as US companies invest in certain countries, trade and investment associated with their activities may provide opportunities for private US investors and companies to invest in real estate in the countries where the US manufacturers and bankers are operating. Furthermore, one could also argue that
US 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 US, but rather because of the necessity of being able to invest in manufacturing or banking in foreign countries. Thus, one can assume that as the US manufacturers and bankers expand their operations abroad, their demand for investment in real estate in the host countries will increase. Thus, one of the hypotheses to be tested is whether FDI in real estate is positively correlated with FDI in manufacturing and banking.

3.4. **US foreign financial liabilities**

As Russekh and Ruffin (1986) argued, given that the United States is seen as one of the leading bankers in the world, they are able to exchange short-term liabilities for long-term assets. Their results support the notion that capital outflows (in the form of FDI) and capital inflows are mutually dependent. In addition, statistical data reported in the *Survey of Current Business* indicate a close relationship between foreign financial liabilities of the US (which have more than tripled during the period from 1985 to 1995), and US foreign assets (which have more than doubled during the same period).

From a practical point of view, international investment is less risky and more likely if the investors can identify a foreign exchange cash flow tied to the foreign asset to be acquired. For this reason, the US foreign liabilities, to the extent that they are assets held by foreigners, act as collateral on foreign investment thereby reducing the perceived riskiness of foreign investment and increasing the likelihood of such investments. Therefore, another empirical question to be addressed is whether US foreign financial liabilities are an important factor in contributing to US FDI in real estate abroad.

3.5. **US bilateral trade**

A proposed determinant of foreign direct investment in real estate is the amount of bilateral trade between the US and her most important partners in real estate. By measuring the strength of economic ties, bilateral trade may be a proxy for home country investment abroad. Empirical tests on FDI data in manufacturing for the US, Germany, Great Britain, and Japan support the premise that FDI and foreign trade are correlated. Jain (1986) found that in a sample of 46 countries the US share of total trade had a high degree of explanatory power with regard to its share of banking assets in these countries.

The importance of trade in determining the amount of FDI in real estate is incorporated in the current model through a measure of bilateral trade for the US. The relevant variable is constructed as the weighted average of bilateral exports and imports between the US and her major partners in which the US has FDI in real estate. The weight given to the sum of exports and imports with a given trading partner is given by that country’s share of US FDI in real estate. Given past empirical research on the effects of international trade on FDI in general, a positive coefficient is expected for the bilateral trade variable.
3.6. Relative economic growth

According to various publications of the Survey of Current Business on US FDI abroad, US investors invest more abroad during an economic slump in the US and they invest less abroad during an economic boom in the US. These observations are consistent with a number of researchers such as Schneider and Frey (1985), and Culem (1988) who argued that relative economic growth in the host countries encourages foreign investment in those countries. Thus, one would expect investors from the US to invest more in foreign countries’ real estate during an economic slump in the US. Therefore, one would expect relative economic growth between the US and her major partners in real estate to have some effects on the level of US FDI in real estate.

In order to account for an increasingly global financial economy as well as the importance of economic growth as a determinant of bank’s foreign expansion, Nigh et al. (1986) used the growth of US GNP relative to the growth of OECD countries. They found that higher relative economic growth encourages foreign banking investment. In agreement with their method this study will implement a relative economic growth variable which will be calculated as a ratio of the growth in GDP of the US over the weighted average growth of GDP in those countries in which the US has real estate. A positive relationship is expected if an increase in relative economic growth promotes increases in FDI in real estate abroad, that are greater than the investment in domestic real estate. Alternatively, a negative relationship is expected if domestic property market conditions dictate that an increase in relative economic growth makes investment in domestic real estate more likely than FDI in real estate abroad.

4. A model for US FDI in real estate abroad

Based on the previous discussions, the proposed model for US FDI in real estate abroad is as follows:

\[ B = f(W, S, M, A, T, G) \] (1)

where \( B \) is the stock of US FDI in real estate abroad; \( W \) is US financial wealth; \( S \) is the returns from the US stock market; \( M \) is the stock of US FDI in manufacturing and banking abroad; \( A \) is US foreign financial liabilities; \( T \) is US bilateral trade with her major trading partners in which the US has FDI in real estate; \( G \) is the relative economic growth between the US and those countries in which the US has FDI in real estate. The weight given to each foreign country is based on the share of US FDI in real estate in that country. The period covered is from 1985:I to 1995:IV. All variables are expressed in current US dollars.

In summary, the model for US FDI in real estate can be expressed as:

\[ B = a_0 + a_1 W + a_2 S + a_3 M + a_4 A + a_5 T + a_6 G \] (2)
with the following expected signs: $a_1 > 0$, $a_2 < 0$, $a_3 > 0$, $a_4 > 0$, $a_5 > 0$, $a_6 > 0$ or $a_6 < 0$.

5. Data and methodology

The model employed uses time-series data. The most important sets of data, i.e. quarterly capital outflows in real estate, banking and manufacturing were obtained for the purposes of this study from the International Division of the US Department of Commerce.

In this study, similar to the study by Moshirian (1997), US FDI in real estate, banking and manufacturing abroad are converted from a historical-cost basis to current values. This ensures that both dependent and independent variables are compatible with each other. For instance, the US FDI in real estate abroad for 1985:I is constructed on the basis of the book value of FDI in real estate in 1984 which has been corrected for the exchange rate variations and inflation of 1985:I. The result is then added to the quarterly capital outflows in real estate for that quarter.

Data relating to the independent variables are obtained from various issues of the Survey of Current Business and International Financial Statistics published by the IMF. The Standard and Poor’s 500 Index has been obtained from the Centre for Research in Security Prices.

Standard Ordinary Least Squares were used to estimate the parameters of Eq. (2). It was suspected that the US FDI in manufacturing and banking variables may be endogenous (in other words, this variable and US FDI in real estate abroad may have been inter-related), and so the instrumental variable (IV) procedure was then applied to account for any simultaneity bias problems.

Various diagnostic tests for heteroskedasticity were conducted, including White’s general heteroskedasticity test, and a test for Autoregressive Conditional Heteroskedasticity of order 1-ARCH(1). With regard to serial correlation, the standard Durbin–Watson test was used to test for first-order serial correlation. Higher order serial correlation was tested by the Breusch–Godfrey Lagrange Multiplier test for general autocorrelation (whether autoregressive or moving average). Lastly, the Jacque–Bera statistic was used to test for normality in the residuals.

Eq. (2) was then estimated by the Generalized Method of Moments (GMM). The GMM was intended to correct for any simultaneity bias problem associated with the use of endogenous variables as independent variables. In addition, if applied correctly, it accounts for general forms of heteroskedasticity and serial correlation as well as measurement errors in the explanatory variables. The GMM does not correct for non-normal residuals.

White’s heteroskedastic-consistent covariance matrix is used to correct the residuals for general (and unspecified) forms of heteroskedasticity. Use of the GMM was therefore not only based on possible simultaneity bias, but to correct for heteroskedasticity and serial correlation—this being dependent upon these problems being evident in the data. The optimal set of GMM estimates were then found by
minimizing the $J$-statistic. The optimal results for the GMM procedure are reported in Table 1. The high value for the adjusted $R^2$ and the low value of the $J$-statistics indicated that the model is well specified. Therefore, the following interpretation of the results is justified.

6. Empirical results for US FDI in real estate

The US financial wealth variable ($W$) is statistically significant with a positive sign. This result is consistent with the expectation that financial wealth is a contributor to the US investors’ decisions to invest in real estate abroad. This result is also consistent with the study by Russekh and Ruffin (1986) who showed that US financial wealth contributes to the expansion of FDI abroad.

Returns from the US stock market ($S$) is statistically significant with a negative sign. This result indicates that US investors respond to falls in returns from the US stock market by investing in real estate abroad. Indeed, data on US FDI in real estate indicate that after the share market crash of 1987, the capital outflows in the form of real estate in the first quarter of 1988 for the US were the highest over the sample period of this study.

US FDI in real estate is found to be positively correlated with US FDI in manufacturing and banking ($M$). The positive sign of the $M$ variable implies that expansion of US investment in the form of manufacturing and banking contributes to her investment in real estate abroad. This result also extends the findings of

Table 1  

<table>
<thead>
<tr>
<th>PRIVATE</th>
<th>OLS</th>
<th>IV</th>
<th>GMM, NMA = 10, Parzen</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a_0$</td>
<td>$-2127**$ (−5.5)</td>
<td>$-2181**$ (−5.1)</td>
<td>$-2175**$ (−18.1)</td>
</tr>
<tr>
<td>$W$</td>
<td>$0.15E-02$ (1.1)</td>
<td>$0.15E02*$ (2.2)</td>
<td>$0.15E-02**$ (8.4)</td>
</tr>
<tr>
<td>$S$</td>
<td>$-2.3$ (−0.75)</td>
<td>$-2.2$ (−0.75)</td>
<td>$-2.3**$ (3.3)</td>
</tr>
<tr>
<td>$M$</td>
<td>$0.42E02$ (1.3)</td>
<td>$0.40E02*$ (2.8)</td>
<td>$0.40E02**$ (3.5)</td>
</tr>
<tr>
<td>$A$</td>
<td>$0.26E08$ (0.49)</td>
<td>$0.25E08$ (0.57)</td>
<td>$0.25E08**$ (3.7)</td>
</tr>
<tr>
<td>$T$</td>
<td>$0.11$ (1.5)</td>
<td>$0.11$ (1.6)</td>
<td>$0.11**$ (10.9)</td>
</tr>
<tr>
<td>$G$</td>
<td>$11.1$ (1.3)</td>
<td>$11.1$ (1.2)</td>
<td>$11.0$ (1.4)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>$0.90$</td>
<td>$0.90$</td>
<td>$0.90$</td>
</tr>
<tr>
<td>DW</td>
<td>$0.89$</td>
<td>$0.89$</td>
<td>$0.89$</td>
</tr>
<tr>
<td>WHET</td>
<td>$36.9**$</td>
<td>$36.9**$</td>
<td>$36.9**$</td>
</tr>
<tr>
<td>JBb</td>
<td>$0.16$ (0.43)</td>
<td>$0.16$ (0.43)</td>
<td>$0.16$ (0.43)</td>
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<tr>
<td>$J$-statistics</td>
<td>0.38</td>
<td>0.39</td>
<td></td>
</tr>
</tbody>
</table>

*OLS, ordinary least square; IV, instrumental variable; GMM, generalised methods of moments; WHET, White test for heteroskedasticity.

Jacque–Bera test statistic for normality; P-value in parenthesis.

* Estimate is significantly different from zero at the 5% level. Student $t$-statistics are shown in parentheses.

** Estimate is significantly different from zero at the 1% level Student $t$-statistics are shown in parentheses.
previous studies such as Goldberg and Johnson (1990) who found that FDI in banking and manufacturing are complementary.

US foreign financial liabilities ($A$) are statistically significant with a positive sign. This result indicates that for the US, capital outflows and capital inflows are positively related to each other. As US foreign financial liabilities increase, there is an accompanying increase in her FDI in real estate. Therefore, an increase in US foreign financial liabilities can be interpreted as a greater capacity for the US to engage in foreign investment activities. This result is consistent with the study by Russekh and Ruffin (1986) who showed that US FDI abroad is a substitute for US financial assets.

The bilateral trade variable ($T$) is statistically significant with a positive sign indicating that trade activities between the US and her trading partners contribute to the expansion of US FDI in real estate in these counties. This result is also consistent with studies of FDI in manufacturing and banking where the trade variable was shown to be an important determinant of foreign investment. The relative economic growth variable is not statistically significant at the 5% level, indicating that the bilateral trade and the FDI in manufacturing and banking variables are more influential in determining the amount of FDI in real estate.

7. Conclusion

Real estate investment has long been confined to markets that investors are familiar with. US institutional investors did not appear interested in international diversification in the 1970s and early 1980s. During this time they only diversified with different property types and region within their own country. However, since 1985 FDI in real estate made by US investors has increased fourfold. The purpose of this paper was to analyse and discuss those factors which contributed to the expansion of US FDI in real estate over the period 1985–1995.

A model for US FDI in real estate has been proposed which is comprised of certain explanatory variables peculiar to FDI in real estate, as compared to FDI in general and/or FDI in manufacturing or banking. A number of hypotheses were made about the major factors contributing to the expansion of US FDI in real estate. The empirical results of this study’s model of FDI in real estate show that US financial wealth, US FDI in manufacturing and banking, US bilateral trade, foreign current account balance and US foreign financial liabilities contribute positively to the expansion of US FDI in real estate. Furthermore, the empirical results indicate that as returns from the US stock market decline, there are more incentives for US investors to invest in foreign real estate. Given some of the above factors which can be generalised as those factors that the US private investors consider as universally important factors in determining their amount of FDI in real estate, one would expect that, with better foreign market access and ‘right of establishment’ for investment in the ‘Post Uruguay Era’, US private investors (corporations and individuals) may increase and further diversify their investment in real estate over and above the current five major recipient countries of real estate investment from the US (i.e. the UK, Canada, Mexico, France and Italy).
References


