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An Analysis of the Determinants of Cross-Border Real Estate Development Flows

Bushnell, Catherine; CBRE (catherine.bushnell@cbre.com)
McAllister, Patrick; University College London (p.mcallister@ucl.ac.uk)
Nanda, Anupam; University of Reading (a.nanda@reading.ac.uk)
Ro, SeungHan; University of Reading (s.ro@reading.ac.uk)

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Abstract

This paper investigates the scale and drivers of cross-border real estate development in western and central and eastern Europe (CEE). Drawing upon existing literature on the integration of international real estate markets, we make some inferences on expected patterns of cross-border real estate development from this literature review. The paper draws upon a transactions database in order to assess the penetration of national markets by international real estate developers. The determinants of cross-border transaction flows are modeled as a function the range of economic and real estate variables. Whilst western European markets tend to be dominated by local developers, much higher levels of market penetration by international real estate developers are found in the less mature markets of central and eastern Europe. Empirical modelling based on gravity model specifications reveal the importance of size of the economies, distance between countries, extent of globalization and EU membership as significant determinants of cross-border real estate development flow.

Keywords: Real Estate development, Cross-border flows, Gravity model.

JEL Classifications: F14, O19, R12, C31.

Introduction

Whilst there has been a relatively substantial literature on trends, costs and benefits of cross-border real estate investment, there has been comparatively little analysis of the extent and patterns of cross-border real estate development (see Lizieri, 2009 for a comprehensive review of the literature on international real estate investment). However, despite a dearth of empirical evidence, it appears to be a stylised fact that international real estate development markets are highly segmented. Even more so than real estate portfolio investment, development has been characterised as a 'local phenomenon' where locally embedded real estate development organisations tend to dominate local markets due to privileged access to localised information and political networks (Bardhan and Kroll, 2007). In addition to costs generated by information asymmetries, non-domestic developers are further disadvantaged by the further costs of operating at a distance and the added costs associated with legal, institutional, cultural and languages differences. However, it is also possible to identify firm, industry and country specific case studies of cross-border real estate development which suggest that the extent of segmentation may be contingent.

Cross-border real estate development can be analysed in terms of foreign direct investment (FDI). Like any other firm assessing cross-border business opportunities, real estate development organisations are faced with a broadly sequential series of decisions. First, should the firm invest in non-domestic markets? Second, if yes, which markets should the firm invest in? Third, how should the firm invest in non-domestic markets? Dunning's OLI model analyses the (mode of) market entry decision as a function of the balance of ownership, location and internalization advantages (Dunning, 1993). Ownership advantages are the most relevant for evaluating the first decision. Essentially, the key issue is whether the firm possesses competitive advantages in potential host markets related to branding, technology, management know-how and economies of scale or scope. Location advantages are associated with inherent relative attributes of the host market. These can be cheaper production costs, proximity, familiarity, access to expert knowledge, market demand etc. Finally, the mode of market entry is likely to depend on the existence of internalization advantages. These are benefits generated by self-production as opposed to partnership or joint venture. Internalization advantages seem less relevant for real estate development firms for whom joint production in collaboration with external consultants and contractors is common. However, there may be certain categories of real estate development firm that need to enter non-domestic markets and find it optimal to retain their real estate production model.

There are a number of obvious additional costs mainly related to information and knowledge deficits facing a non-domestic real estate developer compared with investing overseas or developing locally. As the Dunning OLI model suggests, however, for a real estate developer to expand outside their home market, they should have a competitive advantage over local companies.[1] These advantages may include experience (skills, knowledge), capital, capacity, economies of scale, relationships and reputation or brand. In Dunning's framework, there should be net ownership advantages. Apart from instances of the Winner's Curse or information asymmetries, an overseas developer may be the highest bidder for a real estate development opportunity because of an ability to achieve higher rents and capital values for the completed development or because they can execute a scheme at lower cost. In either scenario, their valuation of a potential development opportunity will be higher than that of a local developer. *A priori*, the OLI framework generates different expectations about the extent and nature of cross-border real estate development between different maturities of real estate market.

For generic real estate products e.g. offices, logistics between mature markets, it is difficult to identify sources of OLI advantages for non-domestic developers. In an Australian context, Coiacetto (2006, 426) pointed to the advantages that incumbent firms have in local markets arguing that real estate development was characterised by numerous "semi-permeable, exogenous and endogenous entry barriers that are highly variable but tending to rise". Given information and knowledge advantages of local developers, non-local developers are unlikely to have superior access to capital, skills etc. that can outweigh this 'head start'. Hence, the OLI framework implies that cross-border real estate development between mature markets is more likely to occur between similar and/or neighbouring markets where information and knowledge disadvantages may be less. It seems reasonable to infer that cross-border real estate development between mature real estate markets will be more likely to involve specialist or niche products. For example, operators may be 'exporting' and expanding a unique and/or innovative real estate product e.g. leisure or retail format, which has not yet been established in other mature markets. In the absence of large oligopolistic firms meeting existing demand in immature markets, 'trade flows' for generic retail, office or industrial development are more likely to occur *from* mature *to* immature markets. This is essentially because non-domestic developers from mature markets are more likely to have ownership advantages in terms of access to/cost of capital, experience, knowledge, relationships and reputation that can outweigh the information and knowledge advantages that local operators may have concerning market and political/regulatory conditions.

[1] It is also possible that engaging in cross-border business may be motivated by potential diversification benefits.

Drawing upon a unique data set of commercial real estate office transactions, this paper investigates the scale and drivers of cross-border real estate development. The remainder of the paper is organised as follows. In the section below, we review the literature related to the growing international integration of real estate markets and discuss the limited work on cross-border real estate development. We draw some inferences on expected patterns of cross-border real estate development from this literature review. This is followed by an empirical study of cross-border flows of transactions involving real estate developments and developers. The determinants of cross-border transaction flows are modeled as a function the range of economic and real estate variables. Finally conclusions are drawn.

Literature Review

When analysing patterns of international market integration in any industry, it is hard to avoid the term 'globalisation'. Although stated over a decade ago, Budd's (1998, 663) suggestion that globalization was an "inchoate and incomplete process" still remains pertinent. Focusing on the real estate development industry, Wood (2006) draws upon a body of work emphasising that globalization has been a contingent and, in some sectors, provisional phenomenon. The business service providers that support the real estate development sector have been internationalising and, to varying degrees, consolidating over the last two decades (see D'Arcy, 2009). For instance, the changing configuration of the architecture 'industry' and the internationalization of the supply chain for building design production provides one example of how many professional services (e.g. legal, cost consultants, banking) that support real estate development have evolved. In addition to the highly globalized activities of 'signature architects', companies like SOM (Skidmore, Owings and Merrill) provide a strong model of a transnational architectural practice. On a lesser scale, Fosters and Partners have been able to operate across the globe whilst operating mainly from central London (McNeill, 2009). Over a decade ago, Tombesi (2001) pointed out that routine architectural design production tasks were increasingly being off-shored. In the real estate services sector, the 'big four' (Jones Lang Lasalle, Cushman Wakefield, CBRE and DTZ) operate across all the major markets.

The evidence from broader investment markets suggests that real estate direct *investment* may be a lagging globalizer. Albeit over a decade ago, McAllister (1999) identified an extreme level of home country bias with only half of UK investing institutions having *any* real estate assets outside the UK. Whilst there can be little doubt that this has changed in the last meantime, the real estate institutional investment sector has remained relatively segmented compared to other asset classes. A recurring theme in the research on international real estate

investment is the perceived barriers presented by information costs and asymmetries. As discussed below, this is echoed in the literature on international real estate development. Below, whilst some of the literature on cross-border real estate investment is reviewed, it is worth bearing in mind that creating real estate assets through development is an inherently more complex process that acquiring existing and managing existing assets.

In the 1990s, there emerged a large, if now ageing, body of research on the costs and benefits of international real estate investment (see McAllister, 1999 for a review). Diversification and improved returns (relative to domestic market) were the two key factors. International diversification enables investors to reduce the unsystematic risk of investing in one economy. However, there is evidence that many international institutional real estate investors viewed direct international real estate investment as a return play. Johnson, Worzala and Lizieri (2002) found that the most important set of factors mentioned by respondents concerned returns and yields. Push factors were also important in explaining capital flows. Where the size of the domestic market is small relative to investable capital, large scale real estate investors (such as the Japanese and Swedish investing institutions in the late 1980s) sought to obtain higher returns outside their domestic markets.

However, this body of research also highlighted the additional risks and costs faced by investors in non-domestic real estate markets. An international real estate developer faces disadvantages when competing with domestic firms. These are essentially information costs, cultural barriers to understanding the market institutions and their operation, the increased cost of information acquisition, monitoring costs and the risk of adverse currency movements. Non-domestic developers will inevitably have a certain, if variable, degree of geographical and psychological remoteness from international markets. They will lack local knowledge and expertise. This may result in poor timing of development, additional costs and poor scheme selection. In the parlance of the Dunning framework, they have relative ownership disadvantages.

Eichholtz *et al* (1998) found that domestic real estate companies with a domestic focus tended to provide better risk adjusted returns than internationalised real estate companies. They argued that weaker performance of diversified companies reflects information asymmetries between local and international investors in direct real estate markets and that non-domestic have higher information costs. However, they also found that the larger companies through economies of scale are able to reduce the costs of information and, consequently, increase their access to private information. The empirical survey-based studies tend to confirm the importance of information costs (see Baum, 1995).

As noted above, although there has been little systematic empirical investigation of patterns of cross-border real estate development activities, there has been a body of work that can probably be best described as thick description. A recurring theme in the literature is the importance of local networks in the development process. One body of work has focused on the transition of commercial real estate markets in Central and Eastern European (CEE) cities in the 1990s. For instance, Sykora, Kamenicky and Hauptmann (2000, 63) observed that "foreign property developers became very influential actors in commercial property development in Prague". In the CEE markets it was clear that "informal relationships" were important (see Keivani, Parsa and McGreal, 2001, 2473). Very similar themes are repeated for China. Hsing (2005, 177) emphasizes the importance of local network pointing out the "developers' knowledge of local markets and communities and the connections with local politicians are crucial in gaining a competitive advantage". He makes the revealing point that, due to high levels of regulation and the highly localized nature of regulation, very few large Chinese development companies have been successful outside their home *region* within China. As a result, it was argued that foreign developers need "well-connected local partners" (Hsing, 2005, 178).

Many of these themes are echoed in Wood's (2006) paper that uses Columbus, Ohio as a case study to investigate the extent of international market integration in the US commercial real estate sector. He interprets real estate development as an economic sector that provides a cautionary note on the limits of globalization. Wood (2006) draws upon the new economic geography with its emphasis on the importance of the creation and circulation of knowledge and concludes that the dominant mode of organization for real estate development remains one of local firms embedded in particular metropolitan markets. However, overlooking the nature of the case study itself, Wood (2006) also had a rather narrow concept of real estate development companies as hollow and lean organizations that tend to employ few staff, are capital intensive who undertake only limited, but inherently speculative, stages of the real estate production chain directly.

Many of the issues discussed above emerge in the literature on international construction contracting. Ofori (2003) identified the importance of local operators' information and knowledge advantages and existing networks of strategic allies, suppliers and subcontractors. The result was "an extremely hard wall" for non-local operators (Huovinen and Kuras, 1994, 441). A range of firm-specific (reputation, scale, experience, expertise) and national advantages (proximity, cultural and/or historic relationships and existing economic relationships) were identified as being the key elements to creating a competitive advantage in

the host markets. Another strand of the research has focused on variations in methods of market entry (see Ling, Ibbs and Cuevo, 2005). Gunhan's (2005) research on US contractors indicated that track record, specialist expertise, project management capability were the most important firm-specific advantages when a new market was entered. Most closely related to this paper, Chen (2008) examined the determinants of market entry mode as a function of host country related factors. Chen (2008) attempted to model the variations in permanent, localized market in contrast to mobile, non-localised market entry in terms of a range of factors – colonial and cultural links, common languages, host market attractiveness *inter alia*. He found that international contractors tended to use permanent market entry to gain local knowledge, command new capabilities and to establish local networks. However, to our knowledge, there are no studies of the relative cross-border flows of construction orders between international markets. Below, we draw on a unique database of real estate transactions to investigate patterns of cross-border real estate development within the European Union (EU) and Central and Eastern Europe (CEE).

Data

Essentially due a lack of net ownership advantages, it has been suggested above that, for the development of generic real estate assets, there would be relatively low levels of FDI by real estate developers between mature real estate markets. In contrast, it was argued that FDI into generic asset classes in the real estate development sector was more likely to flow from mature to immature markets. To investigate this issue empirically, we draw upon CBRE's real estate transactions database to look at sales by developers and use this as an indicator of source of development activity in the various markets. We focus particularly on the differences between mature western European markets (EU-15) and the relatively immature central and eastern European (CEE) markets. It is expected that the latter will have much higher levels of market penetration by non-domestic developers compared to western European markets.

The investment transaction database is constructed from CBRE's internal survey of their European office network. These are mainly located in the capital cities with some of the larger markets having a number of offices e.g. Germany. This survey has been conducted every six months since 2005. CBRE's locally-based personnel draw on public sources, press releases and informal networks to create a database of transactions in the national commercial real estate investment market. Deal-by-deal information is collated and the buyers and sellers are categorized using a set of standard CBRE definitions. The investor categories include; institutional funds, property companies, other collective vehicles and private investors. These are then sub-divided further to include, for example, insurance companies, REITs and

developers (a company which carries out development as their main activity and who do so for onward sale). The objective of the survey is to capture all commercial investment deals (including forward sales by developers) of €1m or more. Prices are recorded in both local currency and in euro.

It is important to acknowledge potential selection bias in studies of this nature. In research on economic convergence, over two decades ago De Long (1988) emphasised that there is a strong tendency towards sample selection bias in empirical studies. Essentially he argued that such studies tended to focus on countries for which large data sets are available.

> "Long run national accounts are luxuries. Nations likely to have the historians and archives necessary to construct such accounts are nations that have converged" (De Long, 1988, 1141)

In the same vein, data on real estate transactions is much more likely to be monitored in countries where real estate transactions are occurring. This is where the major real estate advisory firms have their offices and deploy their resources. This is the case with the CBRE data. It is likely that countries with low or no transaction flows are less likely to be included in their records. As a result, the data is not symmetric in the sense that whilst 'imports' are recorded for some markets, 'exports' are not. For instance, there are records of sales by foreign developers in Poland, Romania, Croatia and Bulgaria. However, presumably because they are negligible, there are no separate records of sales by Polish, Romanian etc. developers in other markets. In addition, records for large non-European developers are also provided. For instance, again presumably because they are major operators, data on sales of real estate developments by US and Australian developers is recorded. However, no data is provided for sales by foreign developers into these markets. Further, the data is for sales of completed assets by developers. It is, therefore, recording when developers are exiting a scheme and, given development timescales, will be a lagging indicator of market activity. It is also possible that there may systematic differences in the propensity of foreign and local developers to sell the assets once a development has been completed. Finally, it is probably misleading to characterize this cross-border real estate development activity as a flow. Given the large lots typically involved in commercial real estate, it is important to bear in mind that flows are extremely lumpy. Nevertheless, whilst the data is far from perfect, it is worth reminding ourselves that it remains the one of the few pieces of evidence that are available.

Summary Statistics

The summary data are presented in Table 1 and a more detailed breakdown can be found in Appendix 1. In total, approximately €129 billion of real estate sales by developers was recorded. Probably, the most striking feature of the detailed data in Appendix 1 is the fact that out of 468 pairs of countries, 344 (76%) record no transactions involving non-domestic developers. *Prima facie,* this supports Wood's (2006) argument that, lack of access to local knowledge networks constitutes a major barrier to cross-border real estate development. However, the data also suggests that there are significant clusters of cross-border real estate development flowing from mature European and US markets to central and eastern Europe.

As expected, EU-15 countries accounted for the vast majority (€103 billion) of the sales. Table 1 illustrates clearly the impact that the financial crisis has had on transaction volumes which fell dramatically in the EU-15 and CEE markets after 2007. It also clearly shows that non-domestic developers have accounted for a considerably larger proportion of market activity in CEE compared to Western Europe. Sales by non-domestic developers in the CEE region between 2005 and June 2011 amounted to 57% of the total transactions by value compared with just a 20% share in the EU-15 region.

Table 1: Total Sales by Development Companies 2005-2011 (€ millions)

Region	Developer origin	2005	2006	2007	2008	2009	2010	2011*
EU-15	Domestic	8,891	18,020	23,389	11,465	6,618	9,976	4,134
	Non-domestic	2,091	5,128	6,147	1,262	1,256	3,449	788
	Non-domestic %	19%	22%	21%	10%	16%	26%	16%
CEE	Domestic	649	2,225	3,372	1,785	418	1,437	1,056
	Non-domestic	2,085	3,607	3,690	1,862	499	1,354	1,486
	Non-domestic %	76%	62%	52%	51%	54%	49%	58%

- Until end of June 2011 only

Turning to individual national markets, Figure 1 presents the results on the proportion of real estate sales by non-domestic developers relative to total sales. The broad pattern of much higher levels of market penetration in CEE markets is confirmed. Of the large western European markets, it is interesting to note that the UK has the highest level of market penetration by non-domestic developers. There is certainly scope for examining the origin of

Figure 1: Percentage of Non-Domestic Developer Sales 2005-2011

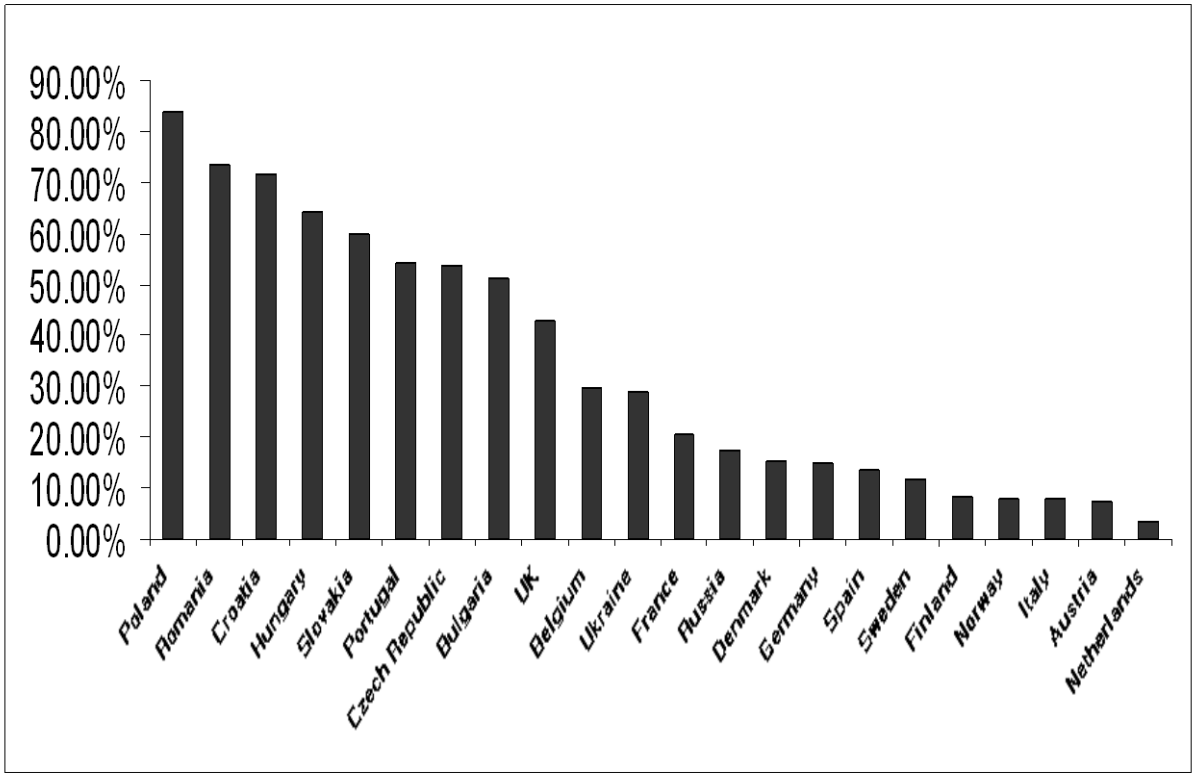
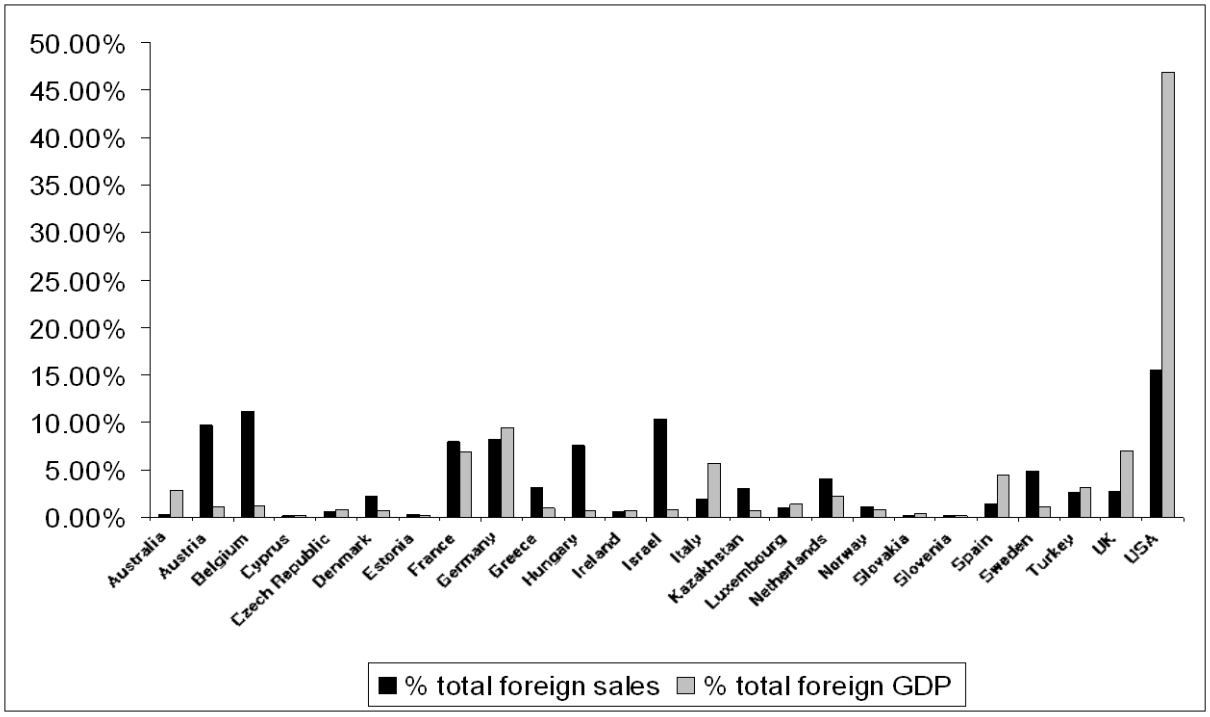


Figure 2: Percentage of Non-Domestic Developer Sales in European Markets by Country of Origin 2005-2011



non-domestic development organisations in detail. However, firstly we present the findings at the broad CEE level.

Clearly it is to be expected that, all else equal, in absolute terms large economies will 'export'more real estate development than small economies. In order to partly control for these effects, Figure 2 includes both the percentage of sales by non-domestic developers classified by country of origin beside the proportion of the GDP that the country accounts for. For instance, in Figure 2 we can see that developers of American origin accounted for just over 15% of total sales in the period but that US GDP accounted for just over 46% of the total GDP (in PPP terms as of April 2011) of the countries included in the graph. France and Germany's representation in CEE markets seems to be broadly commensurate with the size of their economies. In contrast, development firms from a number of countries seem to be highly represented. From the EU-15, Austria, Belgium, Denmark, Sweden and Netherlands account for high levels of development sales activity relative to the size of the economies. Development companies from Italy, Spain and the UK seem notably under-represented with this metric. Within the CEE markets, Hungary also stands out as an 'exporter' of real estate development to other CEE markets. Another notable source of development is Israel.

The most active largest cross-border developers were, what can be labelled as, diversified developers in that they tend to hold large portfolios of real estate assets as well as engaging in large-scale development. The three largest were major US real estate corporations – Tishman Speyer, Hines and Prologis. Consistent with the initial descriptive data, major developers also included Multi-Corporation from the Netherlands, TK Development from Denmark, Skanska from Sweden, Ghelamco from Belgium and GTC from Israel. No companies from the largest European (German, British, French, Spanish or Italian) economies were listed in the largest 10. Below we investigate the patterns identified above more formally.

As the data suggest, there are notable differences in the scale of market penetration between CEE and EU markets. Foreign real estate development companies from 17 different nationalities were recorded as having sold assets in Poland. The comparable figures for maturer EU markets are in stark contrast. Six individual nationalities are identified for the UK of which three are not in the EU (USA - €2560m, UAE - €272m and Australia - €99m). The other three are Netherlands (€1505m), Ireland (€821m) and Italy (€125m) Whilst the Scandanavian and Benelux countries tend to be large exporters of real estate development, the data suggest that they import relatively small amounts and mainly from their neighbours. In Sweden, 'imports' from only two countries are recorded – the UK (€127m) and Denmark (€336m). Similarly, Denmark 'imported' real estate development from only two countries –

Sweden (€253m) and Israel (€7m). The comparable figures for Romania (16 different nationalities) and the Czech Republic (11 different nationalities) are consistent with quite different market structures in terms of the extent of internationalisation of real estate development industries in these markets.

Empirical Model

A well-established empirical framework often used to explain international trade flows is the so-called gravity model. There is a huge literature with theoretical and empirical studies around the idea of gravity model. The basic model implies: bilateral trade flows depends on size of the economy (i.e. GDP) and distance between the two countries.

$$IF_{IJ} = C_0 \frac{G_i G_j}{D_{ij}} \tag{1}$$

Where IF_{ij} is the bilateral trade flow; G_i and G_j are the size of two economies; D_{ij} is the distance between the two countries; and C_0 is a constant. The flow between two markets is asssumed to be related to a number of variables about the host and country of origin. The two core variables included in such models are sizes of the economies i.e. GDP (all else equal it is expected that larger economies should have higher levels of trade) and distance (usually a proxy for information asymmetries and/or transport costs). A host of characteristics at the country level in the form of continuous and dummy variables are commonly included in the regression specifications. The gravity model is usually expressed in semi-log specification. For our purpose, we propose the following model:

$$\begin{aligned}\log(\textit{sales in receiver country})_i &= C_0 + \beta_1 \textit{Contiguous} + \beta_2 \log(\textit{distance}) + \beta_3 \textit{Comlang} + \\ &\beta_4 \textit{Colony} + \beta_5 \log(\textit{GDP of developer origin}) + \beta_6 \log(\textit{GDP of export market}) \\ &+ \beta_7 \textit{KGlobIndex} + \beta_8 \textit{GRETI} + \beta_9 \textit{SAME} + \beta_{10} \textit{EUR0MEM} + \beta_{11} \textit{ORIGEUMEM} + \varepsilon_i\end{aligned} \tag{2}$$

Contigouous is a dummy variable set to indicate one if two countries share a border. *Distance* is the CEPII distance between two countries weighted to take into account distance between major cities and population densities into account. Both variables are trying to control for the effect of space of trade flows. The standard expectation in trade flow models is that distance has a negative effect. *Comlang* is a dummy variable set to indicate one if two countries share a common language. It is expected that the effects of this variable should be positive since

language differences are likely to be a portmanteau variable capturing a range of cultural and instiutional similarities. *SAME* is a dummy variable set to indicate one if two countries were previously a single country. *Colony* is a dummy variable set to indicate one if two countries have a colonial history. Both variables are controlling for the likelihood of the legacy effects of common institutional frameworks and linkages that may persist from historic colonialism of union. *GDP* is the national GDP in US dollars as of 2010. It is expected that, all else equal, countries with larger GDP will 'export' more real estate development. *KGlobIndex* is the KOF Globalization Index which is a composite metric of how the level of globalization of a country based upon a matrix of 23 different dimensions of globalization in 2010. *GRETI* is the JLL Global Real Estate Transparency Index which is a based on 83 factors to calculate a composite index of real estate market maturity covering 97 international markets in 2010. Both variables will tend to capture the maturity of a market. It is expected that the markets and economies with low levels of maturity will have higher levels of market penetration by non-domestic developers. *EUMem_R* indicates if receiver country is a European Union member. *EUROMEM* is a dummy variable set to indicate one if a country is a member of the Eurozone. *ORIGEUMEM* is a dummy variable set to indicate one if a country was one of the original six members of the EU.

Preliminary Results

Preliminary regression results (based on equation 2) indicates some of the expected relationships hold. Table 2 presents the results of the model specification using various samples. Despite the number of statistically significant coefficients, the explanatory power of the models are quite low. For all models, GDP of the developer country of origin has a statistically significant and positive effect on the level of sales by non-domestic developers in the host country. This is consistent with the expectation that real estate development flows tend to flow from richer to poorer markets. Also as expected, distance matters and has negative effect on the level of sales in the host country. All else equal, the greater the distance between countries, the lower the level of market penetration by an 'exporting' country. This result is consistent across all countries. Being a former colony of the donor country also has a positive effect on cross-border development flows. However, this variable is not significant when Australia nad US are excluded from the analysis. Albeit that a substantial majority of countries are in the EU, EU membership also has significantly positive effect on cross-border development flows. The KOF globalisation index has a negative realtionship on the sales in the host country i.e the higher the globalisation index, the lower the level of sales by non-domestic developers in the host country. This is consistent with the descriptive statistics that indicated the strongest flows have been from mature, western markets to less mature markets in central and eastern Europe. However, a number of

variables did not exhibit the expected coefficeints. For instance, all else equal, there was no statistically significant positive effect of sharing a border or having a common language on sales of assets by non-domestic developers. Further, the level of real estate market transparency as measured by GRETI is also insignificant in most models. This may be due to the fact that the it is highly positively correlated (0.71) with the globalisation score. It is only

Table 2 Gravity Model - Various Samples

DepVar=log(sales in host country)	*Model I All*	*Model II Excluding US and Aus*	*Model III Excluding CEE Countries*	*Model IV Only CEE Countries*
Intercept	0.733	4.589 **	2.963	10.471
	(0.39)	(2.29)	(1.44)	(0.22)
(Log) GDP – origin	0.578 ***	0.404 ***	0.367 ***	0.556 ***
	(7.32)	(5.10)	(4.83)	(2.75)
(Log) GDP – host	0.029	-0.122	-0.007	0.132
	(0.24)	(-0.98)	(-0.06)	(0.03)
(Log) Distance	-0.491 ***	-0.778 ***	-0.496 ***	-1.246 ***
	(-4.42)	(-5.47)	(-3.34)	(-3.78)
Globalisation score	-0.032 ***	-0.041 ***	-0.032 ***	-0.088
	(-2.84)	(-3.51)	(-2.66)	(-0.53)
Transparency score	-0.002	-0.151	-0.354 **	-1.025
	(-0.01)	(-0.97)	(-2.1)	(-0.24)
Former Colony	0.555 **	0.203	-0.107	0.811
	(1.98)	(0.77)	(-0.45)	(1.44)
EU Member	0.553 ***	0.474 ***	0.151 **	
	(6.62)	(5.77)	(2.19)	
Contiguous	0.061	0.046	0.166	-0.212
	(0.44)	(0.34)	(1.14)	(-0.69)
Common language	0.012	0.002	0.087	
	(0.06)	(0.01)	(0.51)	
Adjusted R^2	0.203	0.182	0.169	0.253
Observations	556	514	394	120

Note: *, **, *** indicates significance at the 10%, 5.0% and 1.0% levels, respectively. t-statistics are reported in parentheses.

The mostly mature markets in non-CEE regions of the Europe are more closely integrated, networked and can boast of a transparent and competitive development sector. In a sample excluding CEE countries in Table 6, we find that distance, globalisation index and transparency index show expected signs and effects - all exert negative feedbacks on sales in the receiver country.

Conclusion

Compared to many other forms of economic activity, real estate development is atypical. Normally involving complex networks of external suppliers, it is intensely localised and highly transitory often producing, for the commercial sector in particular, bespoke and heterogeneous products. However, similar to many other business sectors, it requires the creation of relationships with local regulatory and political bodies and a network of suppliers. Perhaps, the closest comparator in terms of business sector is cross-border construction contracting. Of the major investment classes, there can be little doubt that real estate has been a lagging globaliser. Markets have remained comparatively segmented due to the costs associated with diversification and information asymmetries. It has been suggested that the limited scale of cross-border real estate development, in particular, provides an exemplar of the limits to globalization. However, there has been very little empirical research on its scale.

As an economic activity, it can be analysed within the well-established Dunning framework for foreign direct investment. This models the key determinants of the market entry decision as the nature and existence of ownership, locational and internalisation advantages. The extent of OLI advantages is contingent upon the type of developer, the specific real estate sector and the maturity of the real estate market. It is argued that the nature of OLI advantages is variable between mature and immature real estate markets. Given disadvantages for non-domestic developers created by knowledge deficits, cross-border real estate development between mature markets is more likely to occur through development-to-operate. Non-domestic developers tend to have ownership advantages associated with experience, reputation and relationships. The lack of competition in the host market is the key location advantage. In contrast, for more generic real estate assets such as offices and logistics, it is difficult to identify any substantive OLI advantages for non-domestic developers from mature markets when entering other mature markets. The CBRE data was focussed on developers-to-sell. It is consistent with this expectation in that, since 2005, sales of offices by developers in mature European markets have been dominated by local developers.

The fact that zero was recorded so frequently for the level of sales by non-domestic developers suggest that cross-border real estate developerment of generic real estate is fairly

limited. However, the data were also consistent with the expectation that non-domestic developers-to-sell would have a higher level of market penetration in immature markets. Compared to western European markets, the CEE real estate office sales by developers were dominated by US, Israeli and other EU developers. Whilst US developers accounted for the highest proportion of office sales, they also accounted for almost half of the GDP of the countries represented. French and German developers also accounted for substantial proportions of transaction volumes but the proportions were in line with the size of their economies. This pattern is consistent with the argument that non-domestic developers have substantial ownership advantages when entering immature markets.

More formal modelling of the determinants of cross-border real estate development flows supports some of the inferences from the descriptive statistics. Most significantly, the negative relationship between distance and sales by non-domestic developers indicates that distance is alive and kicking as a barrier to market entry in real estate development markets. The fact that there is a significant negative relationship between the globalisation of a national market and the level of market penetration by non-domestic developers is also supportive of the expectation that cross-border development is likely to occur in immature markets.

This paper has presented some initial, ableit the first, data on patterns of cross-border real estate development activity. Since the span of real estate development activity is wide, there is considerable scope for more focussed, perhaps qualitative, research on individual markets or sectors. Moreover, the most significant limitation of the data set is selection bias. Essentially, the data was collected European markets in which flows where institutional grade real estate was being transacted with a degree of transparency. Notable omissions include Russia, Ukraine and Belorussia. The data is also euro-centric. It would be interesting to examine similar data for other regional economic groups such as GCC, ASEAN and NAFTA.

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Appendix 1 Value of Real Estate Assets Sold by Non-Domestic Real Estate Developers 2005-2011* (expressed in nominal €)

Developer Origin	To Australia	To Austria	To Belgium	To Bulgaria	To Croatia	To Czech Rep	To Denmark	To Finland	To France	To Germany	To Greece	To Hungary	To Ireland	To Israel	To Italy	To Netherlands	To Norway	To Poland	To Portugal	To Romania	To Russia	To Slovakia	To Spain	To Sweden	To Switzerland	To Turkey	To UK	To USA
Australia	-	0	0	0	0	0	0	0	95	0	NR	0	NR	NR	0	0	0	0	0	30	0	0	0	0	0	NR	99	NR
Austria	NR	-	0	112	63	463	0	0	0	39	NR	324	NR	NR	0	0	0	277	0	56	0	96	0	0	0	NR	0	NR
Belgium	NR	0	-	0	0	300	0	0	50	0	NR	60	NR	NR	0	0	0	801	0	296	0	104	0	0	0	NR	0	NR
Bulgaria	NR	NR	NR	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Croatia	NR	NR	NR	NR	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Czech Rep	NR	0	0	0	0	-	0	0	0	0	NR	0	NR	NR	0	0	0	0	0	0	0	80	0	0	0	NR	0	NR
Denmark	NR	0	0	0	0	175	-	75	0	24	NR	0	NR	NR	0	0	20	141	0	0	0	0	0	336	0	NR	0	NR
Finland	NR	0	0	0	0	0	0	-	0	75	NR	0	NR	NR	0	0	0	0	0	0	0	0	0	0	0	NR	0	NR
France	NR	0	0	0	0	0	0	0	-	430	NR	0	NR	NR	0	0	0	878	26	197	55	19	198	0	0	NR	0	NR
Germany	NR	156	30	117	0	175	0	23	0	-	NR	159	NR	NR	0	45	0	678	0	39	0	0	0	0	53	NR	0	NR
Greece	NR	0	0	12	0	0	0	0	0	0	-	0	NR	NR	0	0	0	0	0	432	0	0	0	0	0	NR	0	NR
Hungary	NR	0	0	0	110	16	0	0	0	0	NR	-	NR	NR	0	0	0	170	0	541	0	245	0	0	0	NR	0	NR
Ireland	NR	0	32	0	0	0	0	0	13	108	NR	0	-	NR	0	0	0	46	0	31	0	2	0	0	0	NR	821	NR
Israel	NR	0	0	134	0	164	7	0	0	123	NR	0	NR	-	0	0	0	933	0	253	16	0	0	0	0	NR	0	NR
Italy	NR	0	125	0	81	0	0	0	14	0	NR	0	NR	NR	-	13	0	64	0	112	10	0	0	0	0	NR	105	NR
Netherlands	NR	60	837	32	0	159	0	0	718	1,470	NR	144	NR	NR	155	-	0	139	463	117	0	0	642	0	0	NR	1,505	NR
Norway	NR	0	0	0	0	0	0	0	0	0	NR	0	NR	NR	0	0	-	158	0	0	0	0	0	0	0	NR	0	NR
Poland	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Portugal	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	NR	NR	NR	NR	NR	NR	NR	NR	NR
Romania	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	NR	NR	NR	NR	NR	NR	NR	NR
Russia	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-	NR	NR	NR	NR	NR	NR	NR
Slovakia	NR	0	0	0	0	0	0	0	0	0	NR	0	NR	NR	0	0	0	11	0	0	0	-	0	0	0	NR	0	NR
Spain	NR	0	0	0	0	0	0	0	101	0	NR	0	NR	NR	0	0	0	175	84	14	0	0	-	0	0	NR	0	NR
Sweden	NR	0	48	0	0	78	253	155	0	52	NR	110	NR	NR	0	0	36	478	0	0	39	0	0	-	0	NR	0	NR
Switzerland	NR	0	0	0	0	0	0	0	0	0	NR	0	NR	NR	0	0	0	0	0	0	0	0	0	0	-	NR	0	NR
Turkey	NR	0	0	0	0	0	0	0	0	0	NR	0	NR	NR	0	0	0	164	0	0	201	0	0	0	0	-	0	NR
UK	NR	0	38	34	0	110	0	0	152	404	NR	0	NR	NR	16	0	0	153	0	84	0	0	36	127	0	NR	-	NR
USA	NR	0	40	9	0	380	0	0	2,713	1,764	NR	80	NR	NR	123	200	0	1,242	0	159	359	0	93	0	0	NR	2,560	-

*NR – Not recorded