Is there a pricing difference between domestic and foreign investors in the real estate market?

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Executive summary

Due to the growing globalization and integration of financial markets in the past three decades, recently published papers and reports provide evidence that the traditional home-biased focus of real estate investing is starting to change (IPD, 2014). The increasing globalization of real estate over the past decade is reflected in global investment volumes. The greatest proportion of cross-border activity takes place within Europe, including the Netherlands, where the past few years have been remarkable for the commercial real estate market. In 2014, over 9 billion Euros were invested in the Netherlands, compared to 5 billion in 2013 and 4 billion in 2012. The number of transaction investments from foreign investors such as PATRIZIA, Lone Star and Round Hill Capital was significant in 2014 and accounted for 1.7 billion Euros (ABN AMRO, 2015).

This paper studies the transaction price differences of domestic and foreign investors in the Randstad office market. The results of the multiple regressions indicate that domestic and foreign investors have an impact on transaction prices in real estate, whereby foreign investors pay a higher price in comparison to domestic investors. This study shows that for most investors in the Randstad office market, the advantages in terms of diversification and favorable returns outweigh the disadvantages. The large share of cross-border investments proves that the expected returns are sufficient to compensate foreign investors for the increased risk of investing abroad.

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1. Introduction

Due to the growing globalization and integration of financial markets in the past three decades, recently published papers and reports show evidence that the traditional home-biased focus of real estate investing is starting to change (IPD, 2014). The increasing globalization of real estate over the past decade is reflected in global investment volumes. In the five years prior to 2006, cross-border investments tripled to a level of US $116 billion, which amounts to 20% of all property investments worldwide (Hobbs et al. 2007). The greatest proportion of cross-border activity takes place within Europe, including the Netherlands, where the past few years have been remarkable for the commercial real estate market. In 2014, over 9 billion Euros were invested in the Netherlands, compared to 5 billion in 2013 and 4 billion in 2012. The number of transaction investments from foreign investors such as PATRIZIA, Lone Star and Round Hill Capital was significant in 2014 and accounted for 1.7 billion Euros (ABN AMRO, 2015). In the period of 2004 – 2012, the Dutch real estate market was dominated by Dutch investors, in this period they were responsible for 70% of the acquisitions. In the years of 2013 and 2014, the investors demand has shifted from domestic to foreign parties, and made cross-border investors responsible for 66% of the total investment volume. In the next five years, cross-border activity is set to exceed 50% of transactional activity annually. According to a recently published report by JLL, the global aging population will drive the cross-border real estate transaction volume to surpass one trillion by 2020 (JLL, 2016).

The main drivers of this increasing trend towards foreign real estate investments are diversification advantages and return expectations. Researchers like Conover, Friday and Sirmans (2002) provide evidence that foreign real estate should have a significant weight in international portfolios, which is confirmed by more recent studies of Aussant et al. (2014) and Baker and Chinloy (2014). These papers show that by investing globally, investors achieve diversification benefits of reduced volatility in overall performance in ways that could not be obtained locally. Cross-border investment activity is also driven by aggressive pricing in domestic markets, the reduction of political, institutional and cultural barriers and the increased transparency of the global real estate industry (Hoesli et al., 2004; D'Arcy and Keogh, 1999).

Despite the reduction of these barriers, many real estate investors have remained home-biased due to the risks that cross-border investment involves (Fuerst, Milcheva and Baum, 2013; Daude and Stein, 2007). The fact that investors go cross-border also implies risks such as institutional barriers, political risks, legal and tax-related issues, currency risk, increased liquidity problems and informational disadvantages (Eichholtz, Gugler and Kok, 2011; Dhar and Goetzmann, 2006). These risks are enhanced by characteristics specific to real estate, such as its immobility, heterogeneity and complexity. This increases the level of risk and makes real estate even more vulnerable to these risks, which partly explains why real estate investment has historically been mainly a local affair in comparison to other investment vehicles (Eichholtz, Gugler and Kok, 2011).

These advantages and disadvantages have an impact on the pricing of domestic and foreign investors in the real estate market. In the case where the diversification benefits and favorable return expectations outweigh the risks involved in cross-border investment, it is assumed that foreign investors are willing to pay a premium to achieve diversification benefits. In the case where the level of institutional barriers is relatively high and the advantages do not outweigh the disadvantages, it is assumed that foreign investors push down the price and are only willing to purchase for a discount. The expected returns should be sufficient to compensate investors for the increased risks of investing abroad.

An important difference in this context between domestic and foreign investors is the fact that their strategies and outlooks on the market may differ. A real estate investor with an international portfolio has a completely different market view in comparison to investors that only invest in their home country, even if they look at the same kind of properties. Investment decisions are made according to current expectations, current business constraints and the strategy of the investor and his preferences in terms of location and asset characteristics (Klimczak, 2010; Lieser and Groh, 2011). An organization's real estate decisions will be effective if such decisions support the firm's overall business objectives. This

result can only be achieved by explicit consideration of how adding the particular asset to the portfolio will support the real estate strategy (Nourse and Roulac, 1993). Researchers and practitioners identify three broad strategies in direct real estate investment. First of all is a 'core strategy', which is the least risky and mainly based on the quality and predictability of the rental income. The use of debt to finance real estate is often limited and the investor characteristically has a long investment horizon (Sirmans and Worzala, 2003). Core properties are the most liquid, least leveraged and most recognizable properties in real estate portfolios. The 'value-added' strategy is more risky in comparison to the core strategy. This strategy has a clear focus on value growth, mostly based on an increase in occupancy rates. Investors make greater use of debt and the Internal Rate of Return (IRR) should be about 10%. The 'opportunistic' strategy implies a significantly higher risk: the emphasis is on achieving indirect yield by improving cash flow, and the acquisition and sale of assets at the right time within the cycle of the market. The IRR is aimed at more than 10%, for which investors use a financial leverage, which can result in a debt share of 70%.

In the past few decades research has focused on home asset bias and diversification benefits. Researchers examined price differences between foreign and domestic investors, although this literature is limited. Nguyen, Van der Krabben and Samsura (2014) explored the opportunities of foreign and domestic investors in Ho Chi Minh City, while Jung, Huynh and Rowe (2013) examined the dynamics of the nationalities of investors in the development market. Dewenter (1995) investigated the market for stocks and bonds in this context. However, the difference between this and prior research is that the relationship between nationality and transaction price has never before been examined for commercial real estate in this region. This is therefore one of the first papers to address this relationship and to provide clarification through a multiple regression to answer the central question of whether there is a pricing difference between domestic and foreign investors in the real estate market. The rest of the paper is structured as follows. The literature review gives an overview of the relevant literature, while the data and methodology section elaborates on the dataset, variables and methodology. The results section present the outcomes of the regression, which includes the reflection of experts' opinion through interviews. Lastly, the conclusions and recommendations are identified in the final chapter.

2. Literature review

In the past three decades, several issues have been identified as direct and indirect drivers of the relationship between the nationality of investors and the pricing of real estate. First, there is a wide range of risks that accompany cross-border investment. Institutional differences between countries and regions can lead to major risks. Throughout the years, the research of Geurts and Jaffe (1996) is extensively applied for further examination. They examine the specific legal-political and socio-cultural factors that impact the risk/return relationship for institutional investors. Four categories are applied, which span the various risks regarding the institutional framework for investors diversifying abroad: risk assessment, property rights, socio-cultural factors and foreign investment variables. Using data from the World Competitiveness Reports published by the Institute for Management Development and World Economic Forum (1989, 1993), Geurts and Jaffe (1996) identify these institutional variables to be considered in future work in international real estate portfolio analysis. Several possible factors are discussed in order to empirically test the proposition that certain institutional framework considerations may be useful and important, for the explanation and prediction of expected rates of return on international assets. It turns out that there is a direct relationship between political risk and socio-cultural factors: if the level of political risk is high, the investment level will be low, given the required risk premium. Another interesting finding is that legal institutions may be an important factor to consider, despite being disregarded in asset pricing models for numerous years. Institutional risk is an integral part of the economic activity of markets over the world. This high level of impact is considered a major barrier to foreign investors, which may impact the pricing of real estate.

Many studies apply the research of Geurts and Jaffe (1996) by analyzing their institutional framework and examining whether to conform to the framework and potentially add variables of impact. The studies of La Porta et al. (1998, 2000a, 2002) follow and clearly demonstrate the importance and the great differences between countries of the legal institutions underpinning international markets for international investments. More recently, Lieser and Groh (2013) have used panel real estate investment data for 47 countries worldwide, covering the period from 2000 to 2009. They examine the principles of international commercial real estate investment by looking at socio-economic, demographic and institutional characteristics. Their results claim that besides economic growth, urbanization and demographics, a lack of transparency within the legal framework, socio-cultural challenges, administrative burdens of doing real estate business, and political instabilities discourage international real estate investors.

Fuerst, Milcheva and Baum (2013) investigate the determinants of cross-border capital flows towards direct real estate markets. They examine how existing institutional, regulatory and real estate barriers affect cross-border real estate inflows and outflows in a sample of 24 developed and emerging countries, and whether investors find targets with lower barriers and regulatory arbitrage in the real estate market. Regarding exchange rate risk, they claim that currency hedging is expensive and difficult to achieve, and that real estate investment vehicles are therefore rarely fully hedged (Lizieri et al., 1998). This problem leaves investors exposed to considerable currency risk. Fuerst, Milcheva and Baum (2013) do not find evidence of significant cross-border institutional arbitrage in the real estate market. However, the real estate market is found to be the most important driver of cross-border flows. Overall they claim that easy access to financial markets, a good economic environment and transparent real estate markets may reinforce real estate outflows.

Froot and Stein (1992) also examine exchange rate risks and focus on the connection with foreign direct investment that arises when integrated global capital markets are subject to informational flaws. These imperfections, like unfavorable exchange rates, lead external financing to be more expensive in comparison to internal financing. On the other hand, a deprecation of the domestic currency can lead to foreign acquisition of certain domestic assets. The results of Fontagne et al. (2001) suggest that investors obtain the best risk-return trade-off from their home country assets due to the influence by exchange rate fluctuations. Building on the preference for long-term capital inflows into developing countries, they reevaluate the decision of an exchange-rate system by integrating the determinants of multinational firms' locations. The results show that the volatility of exchange rates is detrimental to direct real estate

investment and its impact of misalignments. Other researchers confirm that exchange rate risk should be considered in real estate investment: Hoesli et al. (2003) state that as investments are considered, appropriate consideration has to be given to the issue of currency risk hedging. According to D'Arcy and Keogh (1999) fiscal regimes, differences in valuation standards and different property market conventions can hinder foreign investment. Notably, some of these barriers to real estate investment not only affect foreign investors but also domestic investors. A lack of transparency and uncertainty regarding opportunities for financing tend to impede domestic investment as well. Therefore, in countries that score poorly in terms of transparency and other institutional factors, lower capital flows are expected from both domestic and foreign investors.

Besides the array of risks, cross-border investment could also be beneficial because of the portfolio diversification it implies. Friedman (1970) provided the first evidence that besides other investment vehicles, investing in real estate would improve portfolio diversification due to the low correlation between real estate returns and returns from stocks and bonds (Curcio, 1983). Additionally, financial assets and real estate seem to have different reactions to changing economic conditions. The results of Ibbotson and Siegel (1984) show that during the period of 1974 until 1982, U.S. real estate was an excellent hedge against domestic inflation due to the correlation coefficient, demonstrating that mixed-asset diversification adds efficiency to a portfolio by reducing the specific systematic risk. Besides the potential risk reduction achieved by adding real estate to a mixed-asset portfolio with stocks and bonds, diversification benefits can also be achieved by mixing assets across geographic boundaries. Both of these strategies hold that these investments offer diversification potential in case there is a low correlation with the other assets in the investor's portfolio (Ziobrowski, 1991; Geltner and Miller, 2007). Wilson and Zurbruegg (2003) add to this argument by claiming that the more markets are integrated, the fewer benefits from diversification will materialize as these same markets are affected by the same economic and financial stimuli.

However, according to Cheng et al. (1999), previous research has offered little evidence in supported by foreign real estate investment. Most of the academic literature suggested that foreign real estate yields investors in mixed-asset portfolio no tangible benefits in terms of diversification gains. Cheng et al. (1999) claim that all of these studies were done on the basis of point estimates, wherein they only solve for one single unique optimum composition of a portfolio. Therefore, earlier research gave the impression that foreign real estate is never optimal. The research of Cheng et al. (1999) shows through bootstrap simulation that although foreign real estate is not likely to provide investors with significant diversification benefits, substantial amounts of foreign real estate can be favorable to the investor's portfolio. Conover, Friday and Sirmans (2002) go on to examine whether foreign real estate exists in a segmented market and whether foreign real estate can provide any diversification benefit beyond that obtainable from foreign stocks. The dataset they use encompasses the stock market crash of 1987 and shows that foreign real estate has a lower correlation with U.S. stocks than foreign stocks do. This lower correlation is also shown to be stable through time as foreign real estate has a lower correlation with U.S. stocks throughout almost the entire time period of the research. They conclude that foreign real estate has a significant weight in efficient international portfolios.

In the past few years, numerous researchers have confirmed these findings concerning the gains in diversification benefits via cross-border real estate investment. According to Aussant, Hobbs, Liu and Shepard (2014), the traditional home-biased focus of real estate investment is beginning to change. Real estate investors have begun to understand the role of real estate in a multi-asset-class and geographically spread context, which tends to increase the demand for international real estate, facilitatiing the decline of real estate home bias. In their research, they use the Barra Integrated Model (BIM) and the Barra Private Real Estate Model (PRE2) for insight into the drivers of risk and return in the international real estate market. Aussant, Hobbs, Liu and Shepard (2014) conclude that the diversification benefits of investing cross-border can significantly reduce the risk of real estate exposure. As with any type of investment, the implications vary between countries and from investor to investor. These trends, complemented by the increased availability of real estate platforms through which real estate investment can take place, can further erode the home bias focus that has, until recently, played a major role in the real estate investment market. Baker and Chinloy (2014) agree that by investing globally, investors

achieve the diversification benefits of reduced volatility in overall performance in ways that could not be obtained locally. Note that the previously discussed institutional barriers could also be used as an advantage in terms of cross-border investment if applied as diversification benefits in the real estate portfolio.

A range of recent studies point to a growing appetite for foreign real estate. This is mainly driven by the benefits of diversification, as well as by the aggressive pricing of domestic markets, particularly in the US, Canada and Australia (Aussant, Hobbs, Liu and Shepard, 2014). Furthermore, political barriers have been gradually reduced in the past few years. The liberalization of capital markets in numerous countries has increased the economic and political burden to create financial instruments that are acceptable to foreign investors (Falkenbach, 2009). Also, these benefits have been complemented by the increasing options for investors in foreign real estate, with a series of more robust and better-governed options in terms of investment (Aussant, Hobbs, Liu and Shepard, 2014). Together with the increased transparency of the global real estate industry, these factors have leveled the playing field for international property investors (Eichholtz, Gugler and Kok, 2011; La Porta et al. 2000b). Farzanegan and Fereidouni (2014) add that the effect of real estate transparency on foreign real estate investment is dependent on its interaction with the level of income, suggesting that the higher the level of income in the host country, the higher the effect.

A number of studies have focused on the advantages and disadvantages of foreign investment as well as describing the growing trend of the past decades towards cross-border investment. According to Lambson, McQueen and Slade (2004), there are differences in the prices that in-state counterpart's pay in comparison to out-of-state real estate buyers in the United States. They developed a model capable of illustrating a premium if out-of-state buyers have high search costs and biased beliefs about prices or an unusually short window of time to purchase. The results show that out-of-state buyers pay a statistically significant and economically important premium for apartment complexes in the Phoenix area. They also provide evidence consistent with the premium being compelled by high search costs, biased beliefs and haste associated with out-of-state buyers. Regarding stocks and bonds, academic research provides different results in comparison to real estate, although this differs per region. Dewenter (1995) claims that in the U.S. chemical and retail industries, contrary to results in several papers in the years before there is no significant difference in within-industry mean takeover premium levels. However, there is evidence that the sensitivity of takeover premium levels to standard transaction characteristics does differ across buyers: foreign investors pay more than domestic investors in a hostile transaction, but pay less when there are rival bidders. The results also indicate that the market's reaction to the nationality of the purchaser is closely tied to the transaction's characteristics.

Nguyen, Van der Krabben and Samsura (2014) explore the opportunities of foreign and domestic investors in the commercial real estate market in Ho Chi Minh City. Their findings show that in this region there is not yet a level playing field for foreign and domestic investors, mainly due to the different property rights regime for both groups of investors, which is especially related to land lease conditions. They also find that both groups invest in different type of categories of commercial real estate. However, this does not lead to reduced foreign investment in the real estate market of Vietnam. Jung, Huynh and Rowe (2013) examine the dynamics among foreign and domestic developers market, indicating that the transition and privatization process in Vietnam is still moving in the real estate market. According to their research, transnational property development is increasing foreign investors have a significant impact on the local landscape, especially in emerging countries. Other findings are that foreign developers tend to cluster together and have a higher pricing than neighboring domestic projects; and that in terms of real estate projects, developers locate their investment on the periphery. For foreign investors, the land closer to the city center is more complicated in terms of politics, property rights and other institutional barriers. Therefore, it is less risky for them to invest in newly developed areas, where potential of growth is high and ownership less complicated. Due to a comparative lack of social network and understanding of the local market, they are also driven to locate further from the existing urban areas. Jung, Huynh and Rowe (2013) shows that the tendency to invest further away from the city center is stronger for foreign developers than for their domestic counterparts.

According to the academic literature, there is a relationship between the nationality of the investor and the pricing of real estate. The multiple regressions of these research show whether there is a correlation between the independent and dependent variables, and whether this relationship is positive or negative. The relationship with the control variables is also explained. The hypothesis clarifies the central question 'Is there a pricing difference between domestic and foreign investors in the real estate market?'

H0 = There is *no relationship* between the nationality of investors and the transaction prices per square meter in the Randstad office market

H1 = There is *a relationship* between the nationality of investors and the transaction prices per square meter in the Randstad office market

3. Data and methodology

The fact that the Netherlands is currently attracting a great deal of interest from foreign investors makes the office market of the Netherlands a relevant and interesting market to examine in further detail. Within the office market of the Netherlands, the Randstad area is analyzed. This is because the Randstad is representative for the Dutch office market since it contains the country's largest cities, has a population almost 50% of the total Dutch population, and the region hosts a wide range of economic activities with 45% of total employment, where almost half of the total GDP of the Netherlands is generated (Liu, 2012). Bontje and Burdack (2005) claim that together with the Paris metropolitan area, the Randstad region can be seen as the most advanced region in Europe in terms of the development of a polycentric regional structure, in which new economic centers emerge as competitor and complements to the central cities. In the Randstad, the economic boom of the 1990s supported the emergence of large-scale office complexes. Around the airport Schiphol and the South Axis, large concentrations of financial, IT, transport and logistics activities can be found (Bontje and Burdack, 2005).

The Randstad office market is one of the most suitable regions in the Netherlands to examine in this context due to the increasing cross-border investment in this area. In the Netherlands, since 2013 and 2014, foreign investors were responsible for over 66 percent of the total transaction volume, making the Netherlands the European country with the largest share of foreign investors (CBRE, 2015; ABN AMRO, 2015). This makes the examination of this relationship in this particular region and time period with this unique dataset a valuable contribution to the existing academic literature.

Furthermore, a significant share of the office market transactions of the Netherlands is in the Randstad, as shown in the figure below. Figure 1 shows the transactions in the Netherlands from 1995 until July 1st 2015 with a distinction between the Randstad and the rest of the Netherlands. This provides evidence that a large share of transactions were in this region, which makes the Randstad the most interesting and relevant region to examine in the Netherlands, for this research. The focus will be solely on the four cities in the Randstad: Amsterdam, Rotterdam, Utrecht and The Hague.

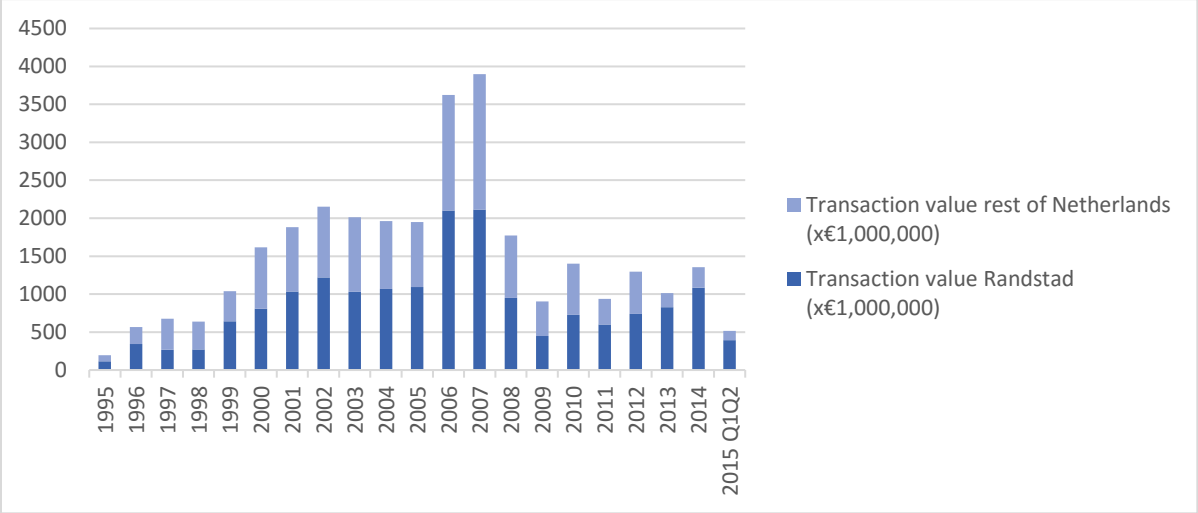

Fig. 1 Transaction value Randstad office market versus rest of The Netherlands (source: VTIS BTIS)

Remarkable for the Dutch office market is that in the past few years foreign investors predominantly seem to have a core strategy. When investing in offices, investors are particularly keen on the Netherlands due to an attractive risk/return ratio compared to other international top locations. In the past few years, the largest share of foreign investors in the office market are German investors (ABN AMRO, 2015). There are several possible explanations for the fact that German investors are interested

in the office market of the Randstad. The investment climate for prime offices in terms of pricing and returns is more favorable in the Netherlands than in Germany. The spreads of real estate valuations are currently at 300 basis points (BPS) versus the German 10 year-bond yield. Dutch real estate yields are also trading at a spread that is at least 100 BPS higher than Germany, and the fiscal climate of the Netherlands is favorable for German investors. Furthermore, the geographic location is advantageous and the institutional framework is similar, which increases the transparency and stimulates cross-border investment (Hoesli et al., 2004; D'Arcy and Keogh, 1999). Moreover, currency risk is no longer an issue for German investors when acquiring Dutch properties.

The Netherlands has a beneficial investment climate for foreign investors. Strong points of the Dutch economy in terms of investment are the highly developed communication and transport infrastructures and the highly skilled, productive and multilingual labor force. Furthermore, the geographic location is strategic and the political macro-economic environment is stable. On the other hand, possible downsides of the Dutch economy include the relatively high cost of labor and complicated regulations (Santander Trade, 2015). Besides the stable economic and political situation, the prospects for the credit market are positive, meaning that there are possibilities to finance with debt, and the difference between the initial yield and the interest rate is advantageous in comparison to other European cities. The main driver at this point is the low interest rate, which results in the beneficial risk premium (IPD and Reuters, 2014). Investing in commercial property has never before been this attractive relative to government bonds. Now that the bulk of the devaluation in the market seems to have passed, the Netherlands will enjoy the full attention of foreign parties. When investing in offices, investors are particularly keen on the Netherlands due to an attractive risk/return ratio compared with other international top locations (ABN AMRO, 2015).

The large share of foreign investors has an impact on the Randstad office market, both positive and negative, depending on the perspective of the stakeholder. Some domestic investors see the increasing interest of foreign investors as a threat, since in general they have a stronger financial position and therefore might be seen as a competitor for the same properties. On the other hand, the foreign capital flow brings several opportunities for Dutch players. First, the investors can bring extra liquidity, especially if they invest in non-prime office locations. This may allow established investors to withdraw their capital and reinvest it elsewhere. Foreign investors can also add value to the existing real estate market by reducing vacancy levels and by renovating properties. Another opportunity is to establish partnerships and combine the local knowledge from Dutch players with the strong financial position of foreign investors to realize the growth ambitions of both of them. The strong financial position of foreign investors can mean that in times of economic downturn, they do not step back as rapidly as domestic investors. Figure 2 shows the year-on-year change of the transaction prices per square meter from domestic and foreign investors, in the Randstad office market (VTIS BTIS, 2015). The weighted moving average (MA) is applied to filter out price errors, which might otherwise give a distorted view. The real GDP growth rate is added, which was negative around 2009, 2012 and 2013, which is marked by the boxes. The graph shows that in comparison to domestic investors, the transaction prices that foreign investors pay are less volatile, including in times of recession. The stronger financial position described above might explain this. Others argue that when it comes to the Dutch real estate market, foreign investors have more confidence in general, which can also lead to the fact that foreign investors do not back out as rapidly as domestic investors in times of an economic downturn.

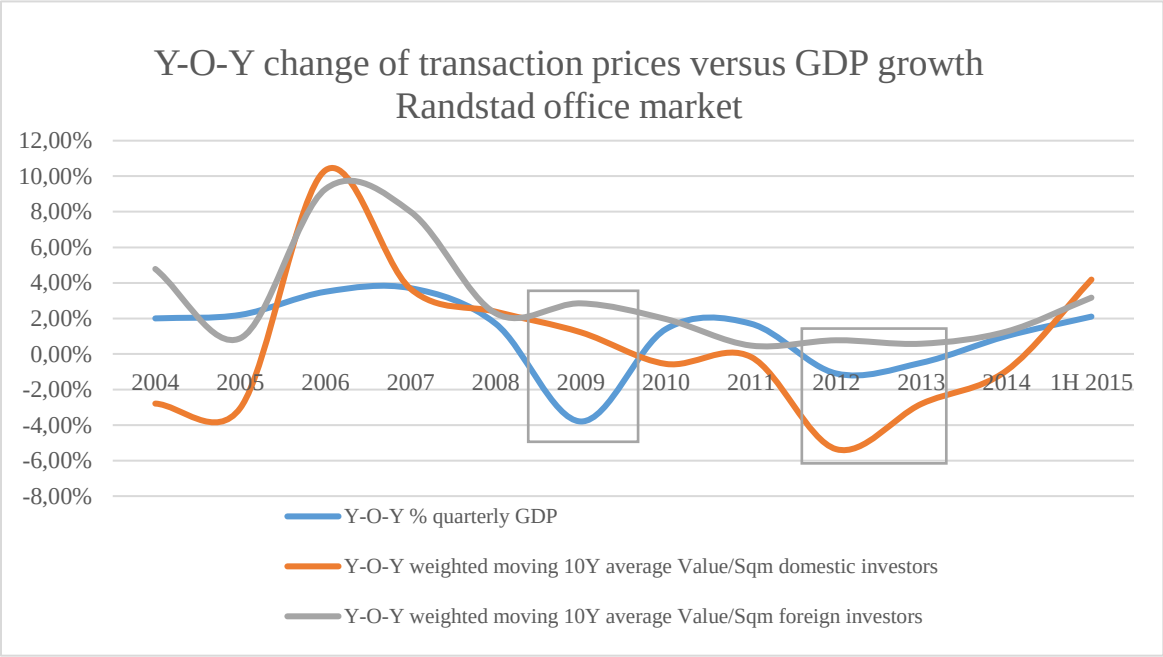

Fig. 2 Transaction price per square meter domestic and foreign investors versus GDP growth (VTIS BTIS, 2015)

Fakton Capital and the Amsterdam School of Real Estate have provided access to the unique 'VTIS BITS' dataset, which contains all investment transactions in the Netherlands from 1986 until July 1st 2015. VTIS BTIS is a Dutch abbreviation that means rental and investment transactions. These transactions are frequently updated and obtained from multiple reliable sources such as Vastgoedjournaal, PropertyNL and agencies such as CBRE, JLL and DTZ. The dataset contains numerous useful variables that are applied in the current study wherein Dutch office transactions are analyzed for the Randstad area from 1995 until July 1st 2015. An overview of the numbers of transactions and total transaction volume by type of real estate of the complete dataset can be found in Appendix 4.

The dependent variable for this study is the transaction price per square meter. To make this a reliable and relevant study, the unreliable and missing variables are removed. This results in a reduction of the data, leaving 684 office investment transactions in the Randstad office market with a total value of almost €16.2 billion and 6.5 million square meters (see the appendix for this data selection). Remarkable is the fact that domestic investors are predominant in terms of the number of transactions throughout the years, in contrast to the total value of transactions, in which foreign investors are most prominent. This may suggest that foreign investors buy larger properties or that they over-pay for the properties.

The independent variable for the regression is the nationality of the investor, whereby a dummy is created between domestic and foreign investors. The appendix provides an overview of all the nationalities of the investors from the 684 transactions that are analyzed, showing that German investors are clearly predominant in this investment market in comparison to other foreign investors.

Besides the application of the nationality as the independent variable and the transaction price as the dependent variable, several location and asset characteristics are applied as control variables. The main criterion for the selection of these control variables is their academic relevance. These variables are suspected to exert influence on the correlation between the dependent and independent variables. Furthermore, this selection depends on the availability of the data and the possibility of arranging or ranking these objectively. During the search for the determinants of the transaction price in academic literature, it was found to be difficult to find variables that fulfil the second and third criterion. The literature provides several determinants of the transaction price, which are applied as control variables,

although in many cases they are not present in the data. Examples include the yield and rental growth: due to a large amount of missing data (almost 60%), these variables are omitted from the regression. Furthermore, for some determinants it is not possible to distinguish between domestic and foreign investors or they are too subjective, as in the case of the level of institutional barriers. To control for differences in location, the four cities in the Randstad are examined: Amsterdam, Rotterdam, The Hague and Utrecht. The control variables represent the determinants of the transaction price. Investors evaluate these location and asset characteristics and based on their strategy and investment preferences, decide whether to invest in the particular asset (French, 2001; Glassman & Riddick, 2001).

Their judgment influences the pricing of the offices and therefore, these control variables have an impact on the dependent variable. First of all the condition of the office building is tested and the dummies are accordingly labeled new, seasoned or existing. Existing buildings are those older than two years, new buildings are less than two years old and seasoned means that the building is renovated. Second, the square meters of the office building are given. Third, the location of the office building is used as a control variable. The distinction is made between the four cities of the Randstad and the core and non-core regions, and this selection is supported by JLL and DTZ research reports. The ranking for these locations can be found in Appendix 4. Fourth, the year of the transaction is analyzed and lastly, the buyer's category is given, whereby the distinction is made between private and institutional investors. See Appendix 4 for additional tabulations concerning the control variables. Table 1 also provides an overview of the variable codes and the description of the variables. A logarithm is created for the dependent variable and the square meters in order to make these normally distributed. The normally distributed graphs can be found in Appendix 1.

Table 1 Overview of variables

Variable code	Description of variable
Dependent variable	
Log TPsqm	Logarithm of transaction price (€) per square meter, exact purchase price for the office, according to the sources of VTIS BTIS
Independent variable	
ID_Investor	Nationality of investor
Domestic	Nationality: Dutch investor
Foreign	Nationality: Foreign investor (all nationalities besides Dutch)
Control variables	
Condition office building	
Existing	Year built > 2 years
New	Year built < 2 years
Seasoned	Renovated building
Log_Sqm	Logarithm of square meters office building (Gross Lettable Area)
City of transaction	
The_Hague	The Hague
Amsterdam	Amsterdam
Rotterdam	Rotterdam
Utrecht	Utrecht
Region of transaction	
Non_Core	All regions except for the 8 core regions
Core_Region	All core regions in the Randstad:
South_East	Amsterdam, Southeast
Beatrixkwartier	The Hague, Beatrixkwartier
NwCenter_Hague	The Hague, New Center
Center_Rotterdam	Rotterdam, Center
Center_Utrecht	Utrecht, Center
Old_South	Amsterdam, Old South
Canal_District	Amsterdam, Canal District
South Axis	Amsterdam, South Axis
Year of transaction	
1995 - 2014	1st of January until 31st of December
1H 2015	First half of 2015 - 1st of January until 30th of June
Year1995-2007	Pre-crisis period
Year2008-2015	Post-crisis period
Private	
Asset_Man	Asset manager
Developer	Developer
Private_Equity	Private equity
Public	Public body
Institutional	
Bank	Bank
Inst_Investor	Institutional investor
Insurance_Comp	Insurance company
Pension_Fund	Pension fund

Table 2 provides an overview of the descriptive statistics of the dependent, independent and control variables.

Table 2 Descriptive statistics

Panel A – Continuous variables Variable	Mean	Standard Deviation
Log_TPsqm	7.602943	.5740723
Log_Sqm	8.423211	1.283846
Panel B – Yearly Observation **Year**	**Proportion in the Sample**	**Observations**
Year1995	0.88%	6
Year1996	4.97%	34
Year1997	4.82%	33
Year1998	3.07%	21
Year1999	4.68%	32
Year2000	7.75%	53
Year2001	6.58%	45
Year2002	5.85%	40
Year2003	4.68%	32
Year2004	4.97%	34
Year2005	7.02%	48
Year2006	8.92%	61
Year2007	9.80%	67
Year2008	5.41%	37
Year2009	2.63%	18
Year2010	3.36%	23
Year2011	3.36%	23
Year2012	3.22%	22
Year2013	3.51%	24
Year2014	2.92%	20
Year2015	1.61%	11
Panel C – Binary and dummy variable frequency **Variable**	**Proportion in the Sample**	**Observations**
ID_Investor		
Domestic	54.53%	373
Foreign	45.47%	311
Existing	76.52%	515
New	18.28%	123
Seasoned	5.2%	35
The_Hague	19.01%	130
Amsterdam	51.75%	354
Rotterdam	17.84%	122
Utrecht	11.40%	78
Non_Core	46.01%	365
Core_Region	53.99%	304
South_East	7.69%	52
Beatrixkwartier	6.95%	47
NwCenter_Hague	3.4%	23

Center_Rotterdam	3.25%	22
Center_Utrecht	1.92%	13
Old_South	4.73%	32
Canal_District	12.87%	87
South Axis	4.14%	28
Private	25,11%	171
Asset_Man	6.02%	41
Developer	6.02%	41
Private_Equity	11.45%	78
Public	1.62%	11
Institutional	71,89%	485
Bank	6.75%	46
Inst_Investor	34.36%	234
Insurance_Comp	1.62%	11
Pension_Fund	28.49%	194

The following steps show the process of the empirical portion of this research project. First, the variables are examined separately through data analysis in Stata. In the case that variables are not normally distributed, a logarithm is created (see Appendix 1). Second, scatter plots and cross tabulations are created from the variables, showing whether the correlations are positive or negative. Third, the correlation coefficient is calculated (see Appendix 2), which shows that there is no multicollinearity. Lastly, the multiple regressions are conducted and the results are interpreted and connected to previous literature. Two multiple regressions are applied. The first regression makes the distinction between the four cities in the Randstad, with Rotterdam as the base category. The second regression only makes the distinction between core and non-core regions, as stated by JLL and DTZ (see Appendix 4). The non-core regions are used as the base category. These two regressions are separated to avoid multicollinearity. Besides the normality and the multicollinearity, the multivariate analysis is checked for linearity and homoscedacity. Thirdly, another regression makes the distinction between two periods: pre-crisis from 1995 until 2007, and post-crisis from 2008 until 2015. With the pre-crisis period as the base category, this regression shows whether the results are sensitive to different market cycles.

The empirical model for the multiple linear regressions is as follows:

$$lnY_{it} = \propto + \beta_1 x_{1t} + \cdots + \beta_k x_{kt} + u_t \quad (1)$$

lnY_{it}	Dependent variable: Logarithm of transaction price per square meter
$\propto$	Constant
$\beta 1$	Parameter of the independent variable
$x1t$	Independent variable: Nationality of investor
βk	Parameters of the control variables
xkt	Control variables
ut	Error term
$t = 1,2, \dots, T$	Annual time periods 1995 – 1H2015

Furthermore, interviews are held with experts to seek their opinion on the results and to validate the rationalization of the observed pricing difference between domestic and foreign investors. These experts are selected based on their extensive experience with domestic and foreign investors in the Dutch real estate market. The first expert is Sacha Hoek, advisor at Fakton Capital, an experienced consultancy boutique in the area of real estate transaction services, capital market and mergers & acquisitions. The second expert is Arie van der Aart, founding partner at DUQER. Arie has over 20 years of experience in the real estate investment- and development market. The knowledge of these experts is linked to a wide range of international real estate investors. The interview with Sacha Hoek took place at July 11th, 2016 and with Arie van der Aart at July 28th, 2016. Both of the interviews were in Amsterdam. The results of this research are reflected on the personal views of the interviewees and processed into the next chapter. The framework of questions for the interviews can be found in Appendix 5.

4. Results

The results of the regression models are presented in table 3.

Table 3 Results multiple regressions

Log TPsqm	Model 1: Multiple regression with city dummies		Model 2: Multiple regression with region dummies		Model 3: Multiple regression pre- and post-crisis	
Variables	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E
ID_Investor	.212**	.0465	.227**	.0445	.216**	.045
Existing	-	-	-	-	-	-
New	.308**	.042	.326**	.041	.329**	.054
Seasoned	.0743	.095	.059	.093	.026	.090
Log_Sqm	-.077**	.019	-.068**	.018	-.045**	.018
The_Hague	.111*	.055	-	-	.108	.064
Amsterdam	.285**	.048	-	-	.327**	.054
Rotterdam	-	-	-	-	-	-
Utrecht	.061	.057	-	-	.122	.075
Non_Core	-	-	-	-	-	-
Core_Region	-	-	.288**	.036	-	-
Year1995	-	-	-	-	-	-
Year1996	-.006	.119	.022	.119	-	-
Year1997	-.011	.121	.022	.121	-	-
Year1998	.043	.138	.043	.138	-	-
Year1999	.279*	.125	.279*	.125	-	-
Year2000	.411**	.117	.411**	.117	-	-
Year2001	.550**	.133	.550**	.134	-	-
Year2002	.499**	.129	.499**	.129	-	-
Year2003	.702**	.124	.702**	.124	-	-
Year2004	.658**	.116	.658**	.116	-	-
Year2005	.577**	.119	.577**	.119	-	-
Year2006	.710**	.118	.710**	.118	-	-
Year2007	.862**	.114	.862**	.114	-	-
Year2008	.802**	.119	.802**	.119	-	-
Year2009	1.002**	.189	1.002**	.189	-	-
Year2010	.718**	.163	.718**	.163	-	-
Year2011	.529**	.144	.529**	.144	-	-
Year2012	.418*	.181	.418*	.181	-	-
Year2013	.497**	.155	.497**	.155	-	-
Year2014	.601**	.206	.600**	.206	-	-
Year2015	-	-	-	-	-	-
Year1995-2007	-	-	-	-	-	-
Year2008-2015	-	-	-	-	.503*	.212
Institutional	.279**	.053	.271**	.051	.251**	.058
Private	-	-	-	-	-	-
_cons	7.249**	.170	7.155**	.177	7.013**	.247
Obs	670		670			670
F statistic	22.11		22.41			18.41
Prob > F	0.000		0.000			0.000
R-squared	0.406		0.426			0.218
Adj R-squared						
Root MSE	.447		.439			.506

****,** * denote statistical significance at 1% and 5% level respectively

The dependent variable is transformed into a logarithm. As expected, the results from the regression are evidence to reject the null-hypothesis, therefore it shows that there is a relationship between the nationality of the investor and the transaction price per square meter in the Randstad office market. This is in line with the literature, which names numerous phenomena that might cause this relationship and have an impact on the pricing of domestic and foreign investors. First of all, Geurts and Jaffe (1996) show that there are various risks regarding cross-border investment, such as property rights and sociocultural factors. La Porta (1998, 2000a, 2002) adds to this that there are large differences between countries concerning legal institutions, and Lieser and Groh (2013) provide evidence that a lack of transparency and administrative burdens deter international real estate investors. The interviewees also argue that there are a couple of large risks that foreign investors have to face while investing in the Randstad office market. First of all, they claim that these risks are related to the uncertain profitability- and solvency outlook of Dutch office tenants, since this meaningfully determines the credit risk and counterparty risk that investors will be exposed to going forward when investing in the Dutch commercial business space. Secondly, the relatively low asset quality of Dutch offices in general is a risk for investors. During the decade, the Dutch office market has been suffering from development disease, which results in marked oversupply and caused that many offices have seen little to no maintenance spending or upgrading capex. This could negatively impact the pricing for such assets. Thirdly, due to the volatility in the overall capital markets, especially in fixed income and equities, a large stream of capital has been directed towards alternative assets since 2012, including real estate. As such, prices have in some instances gotten ahead of themselves, which could lead to a situation that future fundamental improvements are somehow already priced into some Dutch office locations. If the fundamentals in pockets of the Randstad happen to disappoint for one reason or another, the downward risk on pricing could be of substantial impact (S. Hoek, personal communication, July 11, 2016).

The results from Model 1 show that there is a significant and positive relationship between the dependent and independent variables. It shows that in terms of the transaction price, foreign investors pay 21.2% more in comparison to domestic investors in the context of these variables for this particular dataset. All the years that show significant relationships are positive, which is evidence that for these years, foreign investors paid higher prices than their domestic counterparts. Furthermore, this model distinguishes differences between the four cities in the Randstad, with Rotterdam as the base category. The results show that the transaction prices in The Hague and Amsterdam have a significant and positive relationship.

There are several possible explanations for the examined pricing difference between foreign and domestic investors. First of all, the data analysis shows that the past few years, foreign investors predominantly seem to have a core strategy and focus on the prime offices at the top locations (ABN AMRO, 2015). In comparison to the other properties in the examined region, these properties are presumably more expensive. Additionally, the focus for core properties might have a direct relationship to the risks of cross-border investment. This shows that due to the riskiness of foreign investment, foreign investors might prefer real estate in the core segment since these assets are less risky. This is confirmed by the interviewees, which claim that in the current phase of the economic and real estate cycle, foreign investors are mostly interested in core assets and value add assets in the Dutch office market. Core assets are mostly in scope in Amsterdam, Rotterdam and Utrecht. Value add assets can be more broadly spread within the Randstad region, whereby B-grade assets on A-grade locations are generally more favorable than A-grade assets on B-grade locations. This implies that foreign investors will remain picky when it comes to selecting investing opportunities in the Dutch office market. Given that prices have risen in both the core and value add segments, this process has become more complicated though. Nonetheless, opportunities are probably still present, but it will be important for foreign investors to be able to enter into off-market transactions rather than participating in broad tender procedures. The latter processes are not very time efficient and drive prices up too much, which could lead to foreign investors deciding to not participate (S. Hoek, personal communication, July 11, 2016). Furthermore, the interviewees argue that foreign investors are more focused on larger properties and large scale properties. Which is driven by the fact that in general, foreign investors have a stronger financial position in comparison to domestic investors (A. van der Aart, personal communication, July 28, 2016).

The absence of local knowledge and presence has an impact in this context. First, this might lead cross-border investors to a core strategy, also to avoid risks. Secondly, the absence of knowledge of the market can directly lead to overpaying for a property. Another explanation for the pricing difference between domestic and foreign investors might be the fact that the perspective of the foreign investor differs from that of the domestic investor. International investors compare assets in the Netherlands to other properties and yields in Europe, so in their estimation, the acquisition of offices in the Netherlands may be more favorable. Another explanation of the pricing difference might be the diversification benefits described earlier, since foreign investors might be willing to pay a premium to gain benefits from diversifying their portfolios. The interviewees also point out the risks that comes along with the absence of local knowledge and presence for foreign investors. They argue that the value of a property is not solely based on the rental price, but also on risks in terms of vacancy and alternative use of the building. Often, due to a lack of experience and creativity, local brokers are not capable to provide proper guidance to foreign investors through the Dutch real estate market (A. van der Aart, personal communication, July 28, 2016).

The second regression only makes the distinction between core and non-core regions as stated by JLL and DTZ (see appendix 4). The non-core regions are used as the base category. This regression shows that the pricing difference between domestic and foreign investors is 22.7%, which proves that for the variables applied in this regression, foreign investors also pay a higher transaction price. The core regions have a significant and positive relationship. The table below shows that based on the number of transactions, domestic investors invest more in non-core regions, and foreign investors in core regions.

Table 4 Data summary core versus non-core region investments

Variable	Proportion in the Sample Non-core region	Proportion in the Sample Core region	Total
ID_Investor			
Domestic	50.3%	49.7%	100.00%
	59.5%	50.1%	
Foreign	40.9%	59.1%	100.00%
	40.5%	49.9%	
Total	100.00%	100.00%	

Although previous research in this context has been done on other regions and for other types of properties, the results of the regressions are in line with Dewenter (1995), Lambson, McQueen and Slade (2004) and Nguyen, van der Krabben and Samsura (2014). For multiple reasons, such as higher search costs, upwardly biased beliefs about prices and different property rights, they all note that foreign investors pay more for real estate assets than domestic investors do. The findings of Jung, Huynh and Rowe (2013) are contrary to the regression results of the current study. Their research claims that the tendency of foreign investors is to invest further away from the city center to overcome complications in terms of politics and property rights. For Amsterdam and The Hague this may seem party untrue, since the city center is not completely identical to the core office areas of the cities.

There are several significant relationships in terms of the control variables. These results show that these variables have an impact on the transaction price. In both regressions, the newness of buildings is significantly and positively correlated with the transaction price. In regard to the square meters, both regressions show a significant and negative relationship, which means that for smaller office buildings, the transaction price per square meter is higher than for larger office spaces. Concerning the investment preferences the interviewees claim that, given the large amount of capital that international investors generally are looking to deploy in the global real estate sector, such investors tend to look for large assets since it is easier to, execute ten deals of 100 million euro than to chase a hundred deals of 10 million

euro each. They argue that the actual investor preference is very much determined by time efficiency and asset pricing (S. Hoek, personal communication, July 11, 2016).

The yearly observations show significant results from 1999 until 2014, which shows an increase in the transaction price per square meter. The annual increase in average transaction prices is examined and confirmed by numerous researchers throughout the years such as Sirmans and Worzala (2003) and Hoesli et al. (2004). The decrease in the coefficients in the years 2012, 2013 and 2014 can be explained by the financial crisis (Foster and Magdoff, 2009; Shiller, 2012; Brown and Ainley, 2009). The results show that it took about two or three years before the financial crisis had an impact on the transaction prices. Due to the illiquidity and the high transaction costs of real estate, as well as the high costs of gathering and interpreting information, real estate sale prices and appraisals typically reflect changes in market conditions and fundamentals slowly rather than instantaneously. Furthermore, the interpretation of decentralized information on heterogeneous real estate transactions prevents investors from quickly digesting and acting on market news (Fu, 2003). These high information- and transformation costs, along with the heterogeneity and complexity of real estate, result in a time lag between the economy and the real estate market (Kliesen, Owyang and Vermann 2012). The regression also examines the relationship between the transaction prices paid by institutional investors and private investors. The fact that this relationship is significant means that the type of investor has an impact on the transaction price of real estate properties.

The third model makes a distinction between two periods: pre-crisis from 1995 until 2007, and post-crisis from 2008 until 2015. With the pre-crisis period as the base category, the regression shows that there is a significant and positive relationship with the post-crisis period. The other results are comparable to the other two models in terms of the significance of the variables. Therefore, all regression models show significant relationships between the dependent and independent variables. The interviewees also argue that they notice a pricing differences between domestic and foreign investors in the Randstad office market. They state that the phenomenon was mostly visible in the period 2012-2015, when the Dutch investors were fairly absent and foreign investors were actively buying. This is again in line with the results from this research. Currently, it looks as if foreigners are looking to materialize the implicit profits that have been built by their historic acquisition spree, whilst the Dutch investors are looking to pick these up now that the outlook for fundamental improvements tends to improve. It looks as if foreign investors are adopting a more anti-cyclical investment approach compared to Dutch investors. The latter investors tend to allocate their capital to Dutch offices in the Randstad on the basis of their longer-term investment horizon. International investor generally look for an investment horizon of 3-7 years and as such determine pricing dynamics accordingly (S. Hoek, personal communication, July 11, 2016; A. van der Aart, personal communication, July 28, 2016).

5. Conclusions and recommendations

This paper studies the transaction price differences for domestic and foreign investors in the real estate market. The impact of the nationality of the investor on the transaction price is examined for the Randstad office market, concerning transaction prices between 1995 and July 1st 2015. The results indicate that the null hypothesis can be rejected and that domestic and foreign investors therefore have an impact on transaction prices in real estate.

This paper is one of the first to prove that foreign investors pay more in comparison to domestic investors for offices in the Randstad. The direct link with the risks of cross-border investments and the benefits of diversification and expected returns has also never been addressed in this context before. The literature review shows that foreign real estate investment involves several risks that should be considered. Institutional barriers along with characteristics specific to real estate, such as the heterogeneity and immobility of property, contribute to a risky market in terms of foreign investment. This study provides evidence that for most investors in the Randstad office market, it seems that the advantages in terms of diversification and favorable returns outweigh the disadvantages. This seems the case up front, although after sales, the yield of investment will prove if this was actually the case. The large share of cross-border investments might be evidence that the expected returns are sufficient to compensate foreign investors for the increased risk of investing abroad.

There are multiple opportunities for further research. It would be interesting to examine the similar relationship between domestic and foreign investors and thereby focus on another type of real estate, such as the residential market. This market currently attracts a great deal of interest from foreign players. In the past few years, investment companies such as PATRIZIA, La Salle Investment and Round Hill Capital have acquired large Dutch residential property portfolios. The projected structural sales of housing corporation stock will give these foreign investors opportunities to acquire more assets. Another possibility is to examine another region in Europe, like Finland, Italy or Spain, where the share of foreign investors in the total transaction volume has grown. UK and Sweden might be less relevant in this aspect since the share of foreign investors is limited and has declined in recent years. Local knowledge of the region to be examined is important in this context.

The interest of investors in core, value-added and opportunistic assets can also be interesting to investigate for further research. Researchers argue that the noticeable interest from foreign investors towards the core segments might change in the coming years. According to JLL (2015), this interest is slowly shifting to value-added and opportunistic investment products. One possible explanation is that investors are more confident that the economy will continue to recover, and they see opportunities to improve the value of their investments. When confidence in the economy grows, investors are willing to take on more risks. However, the current scarcity in core properties could also be a contributing factor to the changing preference towards value-added and opportunistic assets.

There were a couple of limitations with this research. First of all, the fact that the real estate market is not transparent, which results in the fact that there are limitations concerning the availability of the data and the insecurity whether the data is reliable. Furthermore, it would have been valuable to elaborate on the benefits of diversification. It would therefore be necessary to have insight into the complete portfolios of the investors. From this study it is not possible to argue whether the transactions in the Randstad are acquired to achieve diversification benefits.

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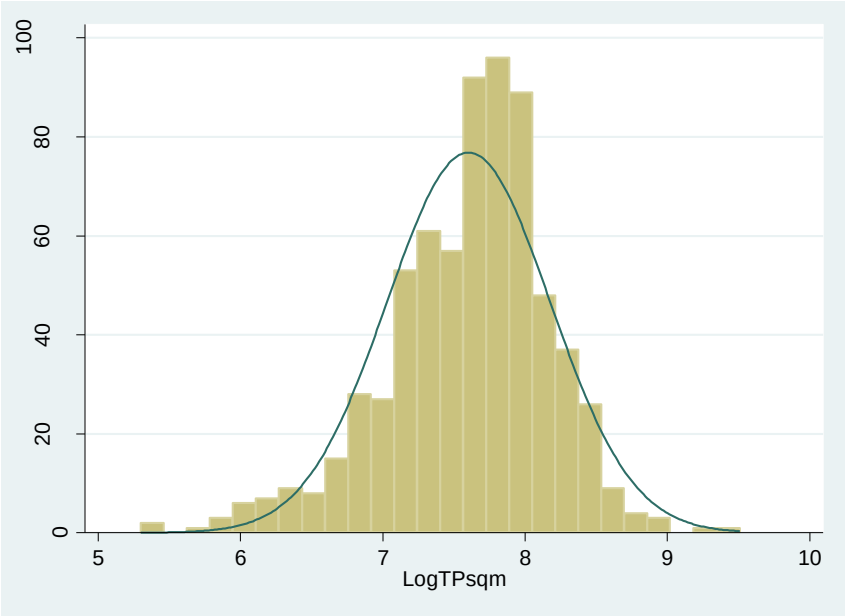
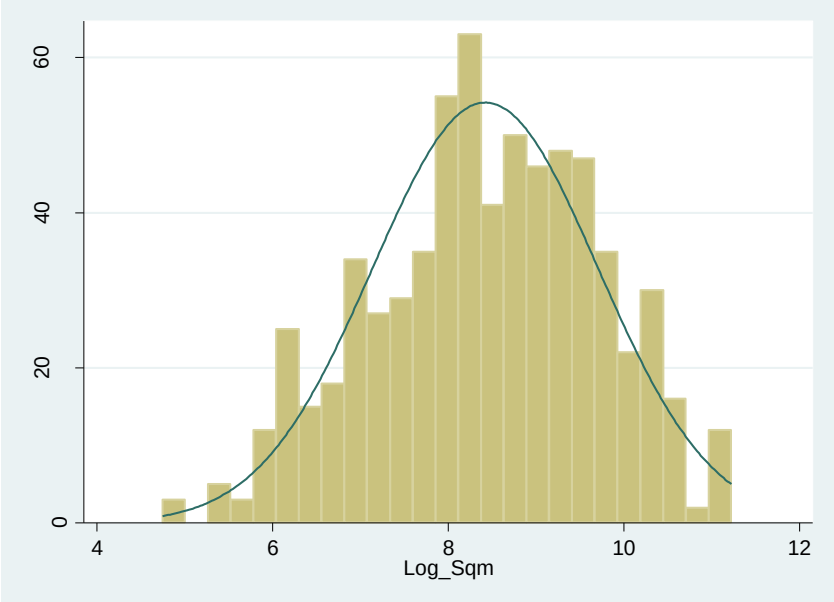
Appendix 1 Logarithms





Appendix 2 Correlation matrix

	LogTPsqm	ID_Investo	Existing	New	Seasoned	Log_Sqm	The_Hagu	Amsterda	Rotterdam	Utrecht	Non_Core	South_East	Beatrixkwa	NwCentre	Centre_Rot	Centre_Utr	Old_South	Canal_Dist	Zuidas	Assetmana	Bank	Developer	Inst_Inv	Insurance	Other	Owner	Pensionfun	Pr_Equity	Public
LogTPsqm	1,00	0,28	-0,21	0,25	-0,04	0,11	-0,08	0,26	-0,21	-0,06	-0,24	-0,03	-0,02	0,09	-0,09	-0,06	0,20	0,11	0,29	-0,02	0,07	-0,25	0,14	0,03	-0,13	0,02	0,12	-0,18	-0,02
ID_Investor	0,28	1,00	-0,16	0,23	-0,09	0,41	-0,02	0,15	-0,10	-0,09	-0,05	0,14	-0,02	0,01	0,02	-0,10	-0,02	-0,10	0,19	-0,21	0,27	-0,22	0,22	0,00	-0,11	0,00	0,08	-0,23	-0,12
Existing	-0,21	-0,16	1,00	-0,86	-0,42	-0,27	-0,01	0,02	0,02	-0,04	-0,06	-0,04	0,06	-0,09	0,02	0,08	0,07	0,13	-0,13	0,07	-0,03	0,10	-0,04	-0,04	0,01	-0,03	-0,09	0,09	0,04
New	0,25	0,23	-0,86	1,00	-0,11	0,30	0,02	-0,02	-0,03	0,05	0,09	0,06	-0,07	0,08	-0,02	-0,06	-0,07	-0,17	0,10	-0,12	0,04	-0,12	0,06	0,06	-0,06	0,04	0,13	-0,11	-0,06
Seasoned	-0,04	-0,09	-0,42	-0,11	1,00	-0,01	-0,01	0,01	0,02	-0,02	-0,03	-0,04	0,02	0,03	0,00	-0,03	-0,02	0,05	0,06	0,06	-0,01	0,03	-0,03	-0,03	0,08	-0,01	-0,06	0,03	0,02
Log_Sqm	0,11	0,41	-0,27	0,30	-0,01	1,00	0,04	0,05	-0,04	-0,08	0,07	0,13	-0,10	0,21	0,02	-0,14	-0,27	-0,16	0,22	-0,21	0,14	-0,07	0,09	0,04	-0,14	-0,02	0,17	-0,20	-0,06
The_Hague	-0,08	-0,02	-0,01	0,02	-0,01	0,04	1,00	-0,51	-0,23	-0,18	-0,08	-0,14	0,56	0,38	-0,09	-0,07	-0,11	-0,19	-0,10	-0,07	-0,04	0,00	0,06	0,08	-0,09	-0,03	-0,02	0,03	0,03
Amsterdam	0,26	0,15	0,02	-0,02	0,01	0,05	-0,51	1,00	-0,47	-0,37	-0,27	0,28	-0,28	-0,20	-0,19	-0,14	0,21	0,37	0,20	0,03	0,03	-0,07	0,05	0,01	-0,04	0,05	-0,02	-0,03	-0,02
Rotterdam	-0,21	-0,10	0,02	-0,03	0,02	-0,04	-0,23	-0,47	1,00	-0,17	0,26	-0,13	-0,13	-0,09	0,39	-0,06	-0,10	-0,18	-0,09	0,04	-0,03	0,02	-0,05	-0,06	0,08	-0,03	0,01	0,02	0,00
Utrecht	-0,06	-0,09	-0,04	0,05	-0,02	-0,08	-0,18	-0,37	-0,17	1,00	0,22	-0,10	-0,10	-0,07	-0,06	0,38	-0,08	-0,14	-0,07	0,00	0,03	0,09	-0,09	-0,05	0,08	-0,02	0,04	-0,02	-0,01
Non_Core	-0,24	-0,05	-0,06	0,09	-0,03	0,07	-0,08	-0,27	0,26	0,22	1,00	-0,32	-0,30	-0,21	-0,20	-0,15	-0,24	-0,42	-0,22	0,01	0,00	0,07	-0,04	0,07	-0,01	-0,06	0,02	-0,07	0,07
South_East	-0,03	0,14	-0,04	0,06	-0,04	0,13	-0,14	0,28	-0,13	-0,10	-0,32	1,00	-0,08	-0,06	-0,05	-0,04	-0,06	-0,11	-0,06	-0,07	0,12	0,02	0,03	-0,04	-0,02	-0,02	-0,01	-0,05	-0,04
Beatrix	-0,02	-0,02	0,06	-0,07	0,02	-0,10	0,56	-0,28	-0,13	-0,10	-0,30	-0,08	1,00	-0,05	-0,05	-0,04	-0,06	-0,11	-0,06	-0,07	-0,05	-0,05	0,06	-0,04	-0,05	-0,02	0,03	0,05	-0,04
NwCentre	0,09	0,01	-0,09	0,08	0,03	0,21	0,38	-0,20	-0,09	-0,07	-0,21	-0,06	-0,05	1,00	-0,03	-0,03	-0,04	-0,07	-0,04	-0,01	-0,02	-0,05	0,05	-0,02	-0,03	-0,01	0,04	-0,04	-0,02
Centre_R	-0,09	0,02	0,02	-0,02	0,00	0,02	-0,09	-0,19	0,39	-0,06	-0,20	-0,05	-0,05	-0,03	1,00	-0,02	-0,04	-0,07	-0,04	-0,04	-0,01	-0,01	-0,01	-0,02	0,07	-0,01	0,02	0,02	-0,02
Centre_U	-0,06	-0,10	0,08	-0,06	-0,03	-0,14	-0,07	-0,14	-0,06	0,38	-0,15	-0,04	-0,04	-0,03	-0,02	1,00	-0,03	-0,05	-0,03	0,07	-0,04	0,01	-0,10	-0,02	0,11	-0,01	-0,06	0,17	-0,02
Old_South	0,20	-0,02	0,07	-0,07	-0,02	-0,27	-0,11	0,21	-0,10	-0,08	-0,24	-0,06	-0,06	-0,04	-0,04	-0,03	1,00	-0,09	-0,04	0,07	-0,06	-0,03	-0,04	0,03	-0,04	-0,01	0,03	0,06	-0,03
Canal_District	0,11	-0,10	0,13	-0,17	0,05	-0,16	-0,19	0,37	-0,18	-0,14	-0,42	-0,11	-0,11	-0,07	-0,07	-0,05	-0,09	1,00	-0,08	0,08	0,02	-0,02	-0,04	-0,05	0,06	0,06	-0,06	0,05	0,02
Zuidas	0,29	0,19	-0,13	0,10	0,06	0,22	-0,10	0,20	-0,09	-0,07	-0,22	-0,06	-0,06	-0,04	-0,04	-0,03	-0,04	-0,08	1,00	-0,05	0,01	-0,05	0,10	-0,03	-0,04	0,13	0,01	-0,07	-0,03
Assetmanager	-0,02	-0,21	0,07	-0,12	0,06	-0,21	-0,07	0,03	0,04	0,00	0,01	-0,07	-0,07	-0,01	-0,04	0,07	0,07	0,08	-0,05	1,00	-0,07	-0,06	-0,18	-0,03	-0,04	-0,01	-0,15	-0,09	-0,03
Bank	0,07	0,27	-0,03	0,04	-0,01	0,14	-0,04	0,03	-0,03	0,03	0,00	0,12	-0,05	-0,02	-0,01	-0,04	-0,06	0,02	0,01	-0,07	1,00	-0,07	-0,20	-0,03	-0,05	-0,01	-0,17	-0,10	-0,03
Developer	-0,25	-0,22	0,10	-0,12	0,03	-0,07	0,00	-0,07	0,02	0,09	0,07	0,02	-0,05	-0,05	-0,01	0,01	-0,03	-0,02	-0,05	-0,06	-0,07	1,00	-0,19	-0,03	-0,04	-0,01	-0,16	-0,09	-0,03
Inst_Inv	0,14	0,22	-0,04	0,06	-0,03	0,09	0,06	0,05	-0,05	-0,09	-0,04	0,03	0,06	0,05	-0,01	-0,10	-0,04	-0,04	0,10	-0,18	-0,20	-0,19	1,00	-0,09	-0,13	-0,04	-0,47	-0,26	-0,09
Insurance	0,03	0,00	-0,04	0,06	-0,03	0,04	0,08	0,01	-0,06	-0,05	0,07	-0,04	-0,04	-0,02	-0,02	-0,02	0,03	-0,05	-0,03	-0,03	-0,03	-0,03	-0,09	1,00	-0,02	-0,01	-0,08	-0,05	-0,02
Other	-0,13	-0,11	0,01	-0,06	0,08	-0,14	-0,09	-0,04	0,08	0,08	-0,01	-0,02	-0,05	-0,03	0,07	0,11	-0,04	0,06	-0,04	-0,04	-0,05	-0,04	-0,13	-0,02	1,00	-0,01	-0,11	-0,06	-0,02
Owner	0,02	0,00	-0,03	0,04	-0,01	-0,02	-0,03	0,05	-0,03	-0,02	-0,06	-0,02	-0,02	-0,01	-0,01	-0,01	-0,01	0,06	0,13	-0,01	-0,01	-0,01	-0,04	-0,01	-0,01	1,00	-0,03	-0,02	-0,01
Pensionfund	0,12	0,08	-0,09	0,13	-0,06	0,17	-0,02	-0,02	0,01	0,04	0,02	-0,01	0,03	0,04	0,02	-0,06	0,03	-0,06	0,01	-0,15	-0,17	-0,16	-0,47	-0,08	-0,11	-0,03	1,00	-0,23	-0,08
Pr_Equity	-0,18	-0,23	0,09	-0,11	0,03	-0,20	0,03	-0,03	0,02	-0,02	-0,07	-0,05	0,05	-0,04	0,02	0,17	0,06	0,05	-0,07	-0,09	-0,10	-0,09	-0,26	-0,05	-0,06	-0,02	-0,23	1,00	-0,05
Public	-0,02	-0,12	0,04	-0,06	0,02	-0,06	0,03	-0,02	0,00	-0,01	0,07	-0,04	-0,04	-0,02	-0,02	-0,02	-0,03	0,02	-0,03	-0,03	-0,03	-0,03	-0,09	-0,02	-0,02	-0,01	-0,08	-0,05	1,00

Appendix 3 Tabulations of the data selection

Table 5 Final selection data

Domestic investors				Foreign investors			
Year	Number of transactions	Value of transactions (x1,000,000)	Total square meters	Year	Number of transactions	Value of transactions (x1,000,000)	Total square meters
1995	5	12.3	9,750	1995	1	18.2	12,400
1996	19	43.4	44,725	1996	15	258.2	158,044
1997	13	34.5	44,660	1997	20	168.5	109,745
1998	11	43.7	60,195	1998	10	188.0	111,440
1999	17	87.1	59,970	1999	15	510.8	247,660
2000	32	334.4	136,370	2000	21	406.6	191,265
2001	29	524.8	253,822	2001	16	392.7	162,280
2002	21	530.8	250,717	2002	19	559.3	180,840
2003	17	259.9	120,263	2003	15	671.9	233,168
2004	20	244.9	147,777	2004	14	665.0	216,490
2005	32	332.2	220,989	2005	16	710.8	288,405
2006	33	611.1	202,197	2006	28	1,399.5	434,471
2007	35	477.6	204,920	2007	32	1,462.4	408,048
2008	19	247.0	117,264	2008	18	632.9	210,657
2009	13	163.6	74,820	2009	5	245.8	86,952
2010	13	121.7	46,890	2010	10	573.5	200,075
2011	10	45.2	32,438	2011	13	527.0	195,211
2012	14	213.4	174,232	2012	8	511.0	146,285
2013	8	87.5	71,499	2013	16	663.8	216,715
2014	7	85.3	78,254	2014	13	876.3	254,527
1H2015	5	39.3	27,625	1H2015	6	243.6	68,021
	373	4,539.6	2,379,377		311	11,685.7	4,132,699

Table 6 Transactions Randstad office market per nationality 1995 – 1H2015

Nationality investor	Number of transactions	Transaction value (x€1,000,000)	Total square meters
Netherlands	373	4,539.6	2,379,377
Germany	177	7,560.7	2,650,612
England	19	859.2	273,310
United States	16	674.3	246,357
Switserland	14	659.1	199,336
Ireland	27	648.6	206,387
France/Germany	5	215.5	71,500
Sweden	14	208.6	148,340
Belgium	5	160.1	81,352
Israël	7	151.5	54,692
Austria	11	146.0	66,775
China	1	109.0	N/A
Luxemburg	1	90.0	31,000
Czech Republic	5	89.5	63,445
Singapore	1	51.0	12,500
Kuwait	2	14.3	6,600
Canada	1	14.1	4,000
Hungary	1	13.8	6,275
Australia	1	7.2	4,918
Denmark	1	6.4	3,000
Liechtenstein	1	4.2	1,000
Japan	1	2.7	1,300
Total	684	16,225	6,512,076

Appendix 4 Additional tabulations

Table 7 Overview complete VTIS BTIS dataset, all transactions 1986 – 1H2015

Type of real estate	Number of transactions	Transaction value (x€1,000,000)	Total square meters	Average transaction value per sqm
Office	4,853	33,399.2	19,346,529	1,726.4
Retail	3,798	3,905.2	2,305,217	1,694.1
Commercial building	3,498	8,301.3	18,396,235	451.3
Mixed commercial	920	2,568.4	3,983,368	644.8
Shopping center	618	9,398.0	4,816,977	1,951.0
Other	242	1,111.8	897,570	1,238.7
Total	13,929	58,684.0	49,745,896	1,179.7

Table 8 Selection for core- and non-core regions

Core regions (name as used in thesis)	Regions in VTIS BTIS (name as used in dataset) > 10 transactions from 1995 – 2015	JLL Ranking office locations 2014	DTZ Factsheets offices 2014
Amsterdam, Southeast	Amsterdam Arena	Rank 4	4th in Amsterdam
	Bullewijk Amstel III, Amsterdam		
	Bullewijk Meibergdreef, Amsterdam		
The Hague, Beatrixkwartier	Bezuidenhout, The Hague	Rank 3	Top 3 The Hague
The Hague, New Center	Benoordenhout, The Hague	Rank 2	Top 3 The Hague
	Centrum Noord / Willemspark, The Hague		
	Centrum The Hague		
Rotterdam, Center	Centrum Rotterdam	Rank 7	Top 3 Rotterdam
Utrecht, Center	Centrum Utrecht	Rank 5	Top 3 Utrecht
Amsterdam, Old South	Concertgebouwbuurt, Amsterdam	Rank 12	Top 3 Amsterdam
	Oud Zuid, Amsterdam		
Amsterdam, Canal District	Grachtengordel, Amsterdam	Rank 8	Top 3 Amsterdam
	Oude Binnenstad, Amsterdam		
Amsterdam, South Axis	South Axis, Amsterdam	Rank 1	Top 3 Amsterdam
	Brainpark, Rotterdam	-	-
	Papendorp, Utrecht	-	-
	Prins Alexander, Rotterdam	-	-
	Teleport, Amsterdam	-	-

Appendix 5 Questions for interviews

Interviews:

1) Sacha Hoek at July 11th, 2016 in Amsterdam
2) Arie van der Aart at July 28th, 2016 in Amsterdam

- What are the largest risks that foreign investors have to face while investing abroad/in the Randstad office market? Please name three different type of risks, why those?

- What makes the Randstad office market attractive for foreign investors and why is this area more attractive than the markets outside the Randstad?

- What kind of differences do you notice between domestic and foreign investors in terms of perspective and type of strategy (core, value-added, opportunistic)? Which factors influence those?

- What kind of differences do you notice between domestic and foreign investors in terms of investment preference (location, type of real estate, size of real estate etc)? Which factors influence those?

- Do you think there is a pricing difference between domestic and foreign investors in the Randstad office market?