Amsterdam School of Real Estate

Composition and Performance of Dutch Institutional Real Estate Portfolios

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Abstract:

In this report, the composition and the performance of the real estate portfolio of the forty biggest Dutch institutional investors have been analyzed. Instead of relying on data from indices or data from public sources, this report uses data provided by the investors themselves. We received data of 23 funds with an aggregate real estate portfolio of almost 100 billion euros at the end of 2016.

The main finding is that sector specialization is not observed, as all funds invest in different sectors. Geographical specialization is more apparent. In terms of performance, bigger funds outperform the smaller ones. Furthermore, there is substantial dispersion in observed returns. In this sample with data for the 2010-2016 period, the risk-adjusted return of investing in private (unlisted) funds is highest, closely followed by listed real estate securities.
A limitation of this study is that lagging and smoothing effects are not discussed in this report.

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1. Introduction

Since the 1960's, Dutch pension funds and insurance companies allocate a portion of their investments to real estate. Over time a number of performance indicators have been developed for various implementation forms of real estate that provide an indication of the characteristics hereof. However, the actual investor performance achieved from real estate portfolios typically is not always reported in annual reports of the institutional investors. Therefore, it is also hard to deduct what factors drive the observed performance and to establish a possible gap between observed investor returns and the market returns as provided by various benchmarks. There is a wide variety of implementation strategies employed by institutional investors and the variance of returns consequently is quite high. The relevance of this is obvious to those involved in allocating, monitoring and analyzing real estate investment performance.

In 2013, the Vereniging van Institutionele Beleggers in Vastgoed, Nederland (IVBN) commissioned a paper that aimed to offer a better insight in the performance and composition of the real estate portfolio of 36 Dutch institutional investors (pension funds and insurance companies) with a real estate portfolio of at least 250 million euros each. The approach followed in this paper was different from the approach followed in the majority of academic literature. Instead of using index data, the paper relied on data provided by the institutional investors themselves. This allowed for a more thorough analysis of the composition of their real estate portfolio and performance. It also took into account the practicalities of investment, looking at net returns rather than gross asset returns. Key challenge in the analysis, however, is that various data sources might have implemented different calculation methodologies and definitions, which might lead to comparisons that are not like-for-like.

This paper provides a follow-up of the earlier conducted research by Mosselman (2013), although even more attention will be devoted to the characteristics that explain the differences in observed portfolio composition and performance. The report aims to increase the transparency of the real estate market further, by offering an in-depth insight on the observed differences in real estate performance by institutional investors.

Following Mosselman (2013), forty Dutch institutional investors with a real estate portfolio of at least € 250 million are approached, using a ranking list based on annual reports composed by Hanff (2016). These institutional investors are asked to provide information on the composition of their real estate portfolio (in terms of size, regions, sector and implementation form. Based on these data, the empirical research was conducted.

The paper continues as follows. Section 2 offers a literature review, in which the importance of this study is explained. Section 3 deals with the setup of the empirical model. Section 4

describes the results of this model, as well as the analysis and discussion of these results. Section 5 discusses the limitations of our research. Section 6 provides a conclusion and debates implications for future research and portfolio composition.

2. Background

As an asset class, real estate became relevant in the portfolios of Dutch institutional investors from the 1960's. Institutional investors gradually moved beyond the traditional and conservative investment holdings largely focused on government debt and used the demand for both commercial real estate and housing stock to build their portfolios. Initially, portfolios were rather small but particularly the growth of the institutional portfolios over time have led to portfolios with substantial size. Figure 2.1 shows the size of real estate holdings over the 1980-2016 period and relates the size of total real estate holdings to the total investments of Dutch institutional investors.

Figure 2.1: **Size of real estate holdings of institutional investors over time**
Real estate portfolio in € bn. (left-hand scale) and proportion of total (right-hand scale) 1980-2015

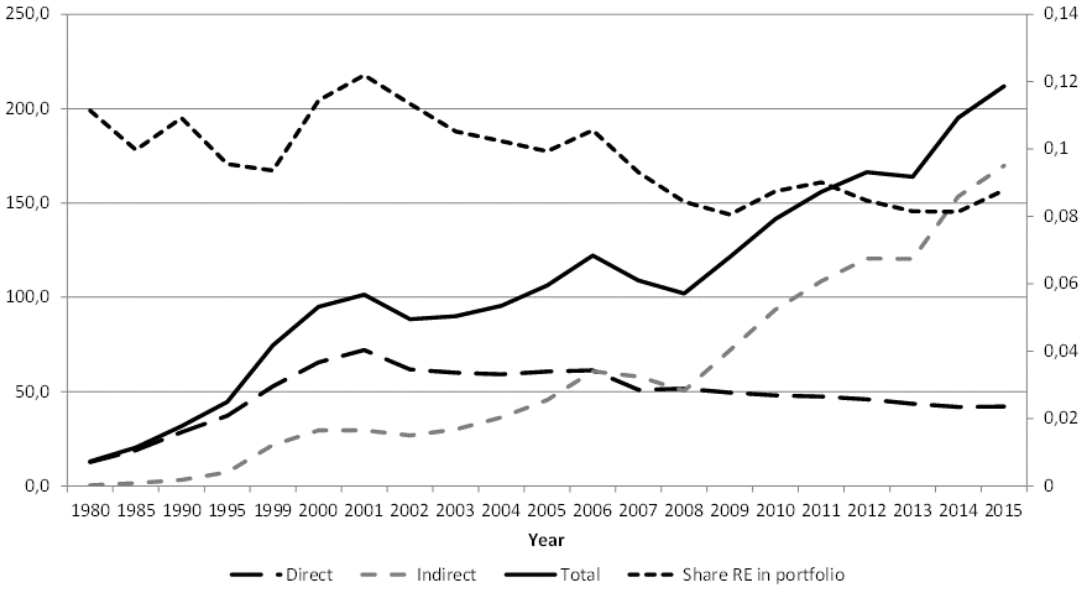


Figure 2.1 shows that the direct real estate holdings (physical buildings) have been fairly constant in nominal terms at around € 50 billion since 2008 (left axis), but indirect real estate holdings have tripled in the past 10 years (left axis). This indicates that indirect real estate investments became increasingly important for Dutch institutional investors over the years. This coincides with the trend of institutional investors to diversify their holdings geographically.

Even though the average implementation style has changed quite dramatically over time, the allocation to real estate in the portfolio of Dutch institutional investors has been quite stable over time and is within a 8-12% range of the total investment portfolio (right axis). Deviations have been a reflection of movements in other assets rather than changes in the allocation to real estate. This is evidenced e.g. by the rise in the allocation in the 2000-2001 period during the

dotcom bubble and subsequent crash, in which the drop in share prices of common equities led to a temporarily increased allocation to real estate.

As was already noted by Mosselman (2013), there is substantial heterogeneity in composition and size of institutional real estate holdings between investors. Particularly the degree to which institutional investors decide to invest outside of their home territory and the way in which they implement this decision has seen widely different solutions. This variety in implementation choices has increased even further in recent years with some investors deciding to invest globally and through various different structures, ranging from JV's and club deals to real estate securities whereas others have retrenched and chose to focus more locally. This suggests that a closer look at the size and composition of individual real estate portfolios could offer very useful insights. The differences in size and composition are likely to offer an explanation for the substantial variations in the performance of these real estate holdings, increasing the transparency of the real estate investment market.

A number of literature streams is relevant to this paper. Particularly the work done on international diversification and the impact of implementation style on performance are key to this study. We discuss these two strands of literature below.

International diversification and transparency

The notion of the importance of international diversification particularly for real estate investments has been explored since data on international real estate investment returns became available in the early 1990's. Most of the studies done in this area rely on real estate securities data, as this data is public and readily available.

Early work by Eichholtz (1996) suggests that especially real estate investments, due to their micro-location dependence offer lower correlations between markets than other asset classes. This supports the rationale of investing internationally. A study by Eichholtz, Koedijk & Schuin (1998) looks at the diversification benefits of real estate in a global context. Using real estate securities data, the authors find that returns between continents show low levels of correlation, suggesting that it is attractive for institutional investors to diversify their investment even on a global scale. We will therefore look for evidence of intercontinental diversification in this paper.

Especially for international real estate investment, transparency is a key issue in explaining the composition and performance of the real estate portfolio. Eichholtz, Gugler & Kok (2011) found that foreign real estate investors experienced a lower investment performance of their real estate portfolio in the period 1996-2007 than domestic investors had. However, as time progressed, the performance of foreign and domestic converged. The authors argue that this was a result of an increased transparency and an increase in the economic integration between

countries. The authors thus assert that an improved transparency increases the performance of foreign real estate investors. Moreover, it decreases administrative costs of investing in a foreign country, since the costs for information gathering are lower as transparency increases. Lastly, improved transparency in a given country could attract additional foreign investors, which would in turn would improve the efficiency of the real estate sector in this country (for example by reducing the costs of capital). Concluding, transparency seems to be a vital condition for an efficient real estate sector (Eichholtz et al., 2011).

Liow, Zhou & Ye (2015) obtain a similar finding. These authors find that the correlation between international securitized real estate markets has been increasing since 1995, indicating that the investment performance of real estate in different countries has been converging. The researchers argue that this increasing correlation is explained by globalization and an increase in economic integration between countries. Moreover, the size of the performance differential between countries is highly dependent on the efficiency and maturity differential of the real estate market in both countries. If two countries both have an efficient and mature real estate market, the real estate performance differential is likely to be limited. We explore this in this paper by evaluating how Dutch institutional investors allocate to various parts of the world.

One of the main questions this document intends to answer is whether the composition and strategy behind the real estate portfolios is in line with what would be expected from academic literature. Pagliari (2017) considers a very long dataset and finds that an allocation of 10-15% of the mixed-asset portfolio to real estate is well-suited for most investors. From figure 2.1, it seems that the share of real estate holdings of Dutch institutional investors is slightly below the suggested share in Pagliari (2017). He also finds that private and public real estate have a similar performance in the long-run. This finding is consistent with earlier work by the author (2005) in his seminal paper Public Versus Private Real Estate Equities: A More Refined, Long-Term Comparison. This notion also has been confirmed for selective European markets by Hoesli and Oikarinen (2016). Thus, we would expect institutional investors to show similar performance on their listed and private fund holdings.

In terms of composition of the investment portfolio, Mueller & Mueller (2003) found that including both private and public real estate leads to a more efficient portfolio (based on the Efficient Portfolio Theory of Markowitz) in the short-run. The need to include both real estate classes decreases in the long-run as private and public real estate have a similar long-run performance. However, as the researchers rightly note, most portfolio managers report results on a quarterly basis, making the portfolio performance in the short-run most relevant for their work and decisions. Mueller & Mueller (2003) observe an allocation to real estate of between 5-10% within their dataset.

3. Setup of the empirical model

As was discussed earlier, the sample size of the study includes the forty largest Dutch institutional investors, with a real estate portfolio of at least € 250 million. The total real estate portfolio of these forty investors amounts to € 130.6 billion n December 2016. In 2016, the aggregate size of real estate holdings of all Dutch institutional investors is estimated at € 211.9 billion (CBS, 2017). The real estate holdings of the forty largest institutional investors are therefore equal to 61.6% of total investments. Responses from 23 funds were obtained, with an aggregate real estate portfolio valued at € 98.1 billion in 2016. This equals 75.0% of the real estate holdings of the 40 institutions approached (about 46% of the total size observed by the CBS). We therefore contend that this report captures a significant and representative share of the market.

The participants provided a detailed dataset on the geographical and sectoral split of their real estate portfolio. Also, the respondents filled in a questionnaire containing qualitative questions on their strategy, management and evaluation criteria. This data provides the input to study the key drivers of performance. Even though transparency in the market is improving, confidentiality of individual participants' data remains an important issue to the institutions contributing to the study. In order to ensure that the presented data in this paper cannot be attributed to individual investors, some constraints are imposed in the presentation of the data. Portfolio compositions do not show the names of the individual institutions. Moreover, reported performances are always (weighted) averages of at least three investors, in which no investor has a share above 60%.

4. Results

Because this papers' primary aim is to offer an update on the earlier research conducted by Mosselman (2013), most results will be presented in the same way as the results have been presented this paper. However, it should be noted that one should be careful in making comparisons between this study and the study of Mosselman (2013) as not all participants that participated in the earlier study participated in this study. On the other hand, the majority of the funds participated in both studies.

A second aspect that makes comparison between both studies somewhat difficult is that the data requests of both studies differ to some extent. The amount of data requested in this study is substantially higher, in order to generate a more in-depth analysis. A trade-off associated with this more detailed data request is that it has prompted fewer funds to participate in this study. In this study, 23 funds are participating while in the study of Mosselman (2013), 38 funds were participating. However, the reduction in the number of participants is also attributable to consolidation in the underlying market. This is supported by the size of the total assets under management of the 23 funds, which has increased.

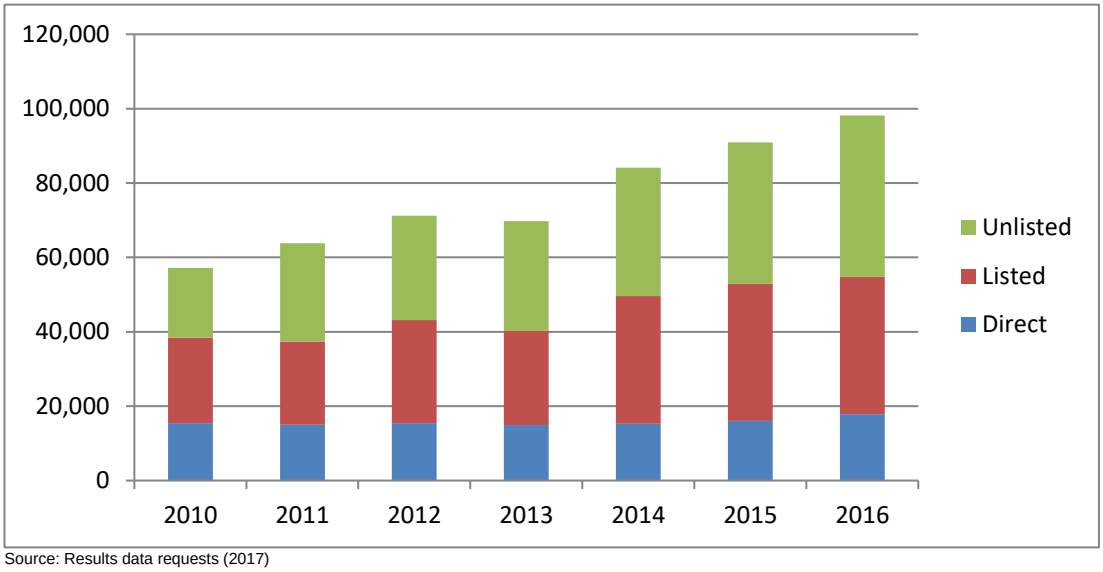
In the following paragraphs, we look at the evolution of the real estate portfolios within the dataset over the sample period. Subsequently, we look at allocations over implementation forms, regions and sectors.

4.1 Time series data

4.1.1 Asset type

Figure 4.1 shows the (average) composition of the real estate portfolio in the period 2010-2016, by asset type.

Figure 4.1: Composition of real estate holdings, by form of implementation (in € millions)

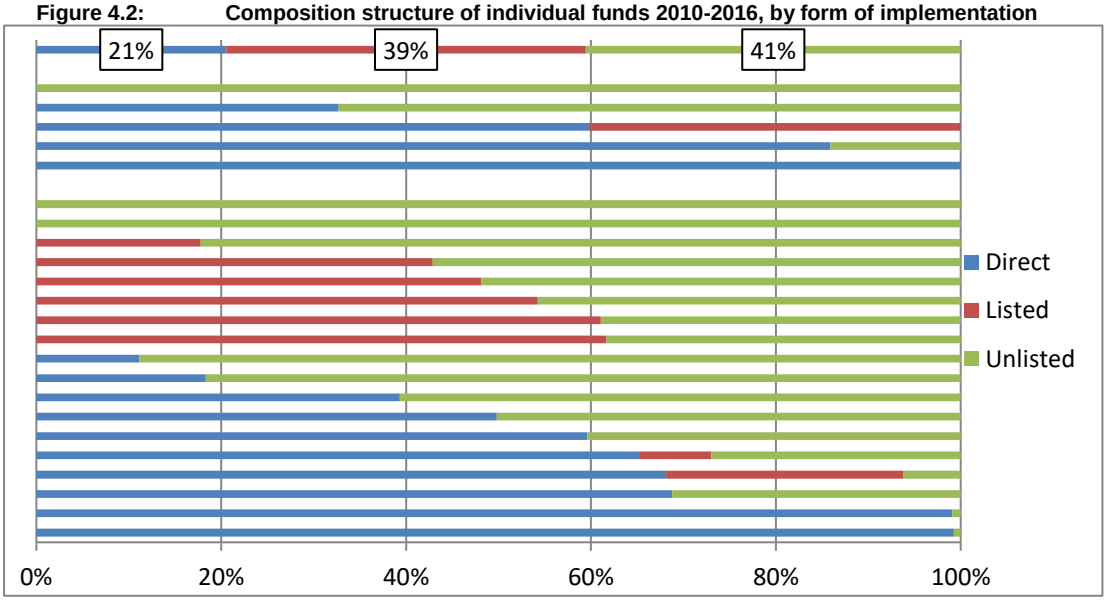


Source: Results data requests (2017)

What can be observed from this figure, is that the direct real estate portfolios have remained fairly constant over sample period, at an average of about € 1 billion. Because direct real estate is often associated with a long-term holding period, the marginal changes in composition are as expected. Fluctuations are mainly attributable to movements in the valuation of the portfolio assets. This is also reflected in the share of listed real estate in the portfolio. This is quite volatile, as returns have fluctuated substantially. A last thing that can be concluded from this figure is that the average real estate holdings increased over the sample period. This is in line with the general growth of the investment portfolios of institutional investors over the timeframe involved and in line with the stability in the allocation to real estate.

Figure 4.2 shows the composition structure to asset types of the individual funds, as an average over the period 2010-2016. The upper bar denotes the (weighted) average composition of the funds. The five bars at the top of the graph represent the composition of insurance companies, and the lower eighteen bars represent the composition of pension funds.

Figure 4.2: Composition structure of individual funds 2010-2016, by form of implementation



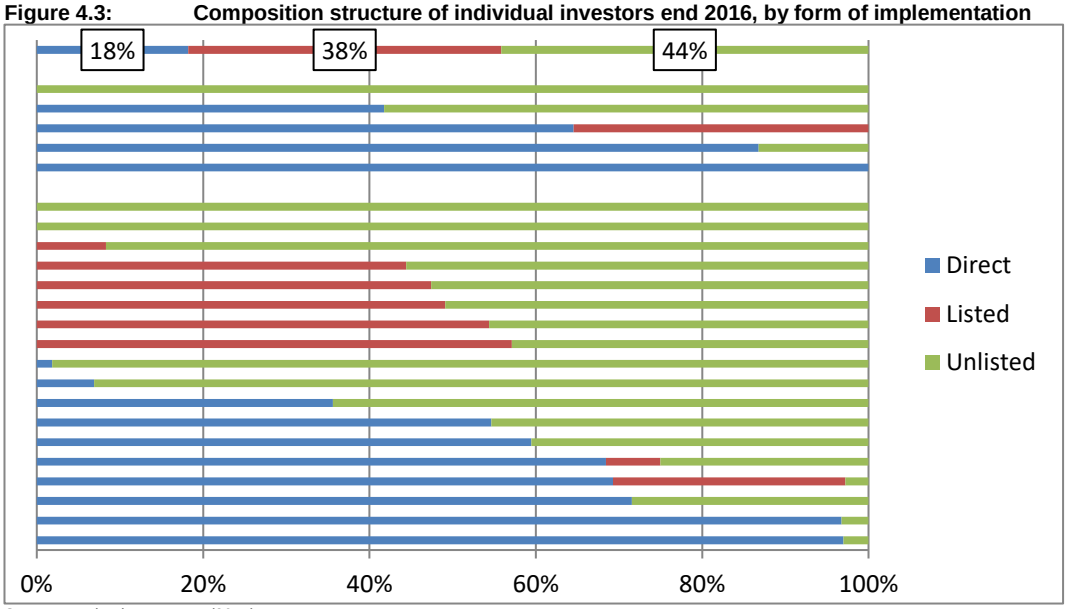
Source: results data request (2017)

From this figure, it can be observed that almost all investors invest in unlisted real estate. The number of investors that participates in listed real estate is smaller. However, because the size of the listed real estate in the total real estate portfolio over the years is quite large (see Figure 1), the funds that participate in listed real estate are often the bigger ones. This is to some degree counterintuitive, as the listed real estate market potentially allows smaller institutions to achieve diversification easier.

Comparing the composition of pension funds with the composition of insurance companies, there seems to be no clear difference in their investment decision (towards the form of implementation). However, the sample size is too small to make general claims.

Next to the composition over the sample period, the composition in the last year offers some additional insights. The composition in 2016, by form of implementation, is shown in Figure 4.3.

Figure 4.3: Composition structure of individual investors end 2016, by form of implementation



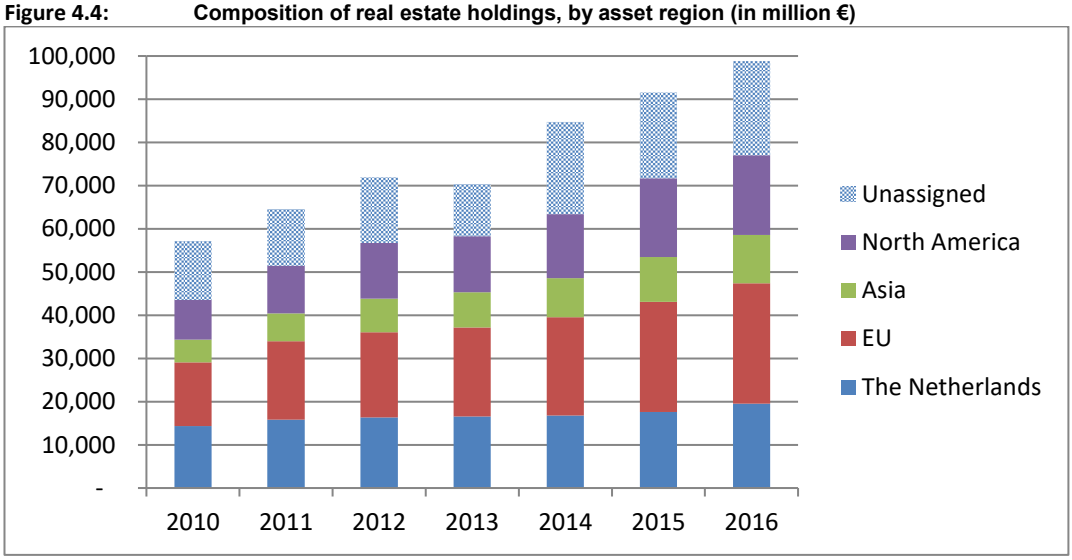
Source: results data request (2017)

The data and Figure 4.3 lead us to conclude that over the years, the participants allocated a higher share towards their unlisted (private) portfolio, at the expense of the allocation towards the direct form of implementation composition. The share of the real estate portfolio allocated to the listed implementation form in 2016 is slightly smaller than the share in the total sample period.

4.1.2 Geography

Figure 4.4 shows the composition of the real estate portfolio in the period 2010-2016 split up by region. Not every respondent has allocated its total real estate portfolio to a specific region. This share is presented in Figure 4.4 with a blue, pattern-filled bar.

Figure 4.4: Composition of real estate holdings, by asset region (in million €)

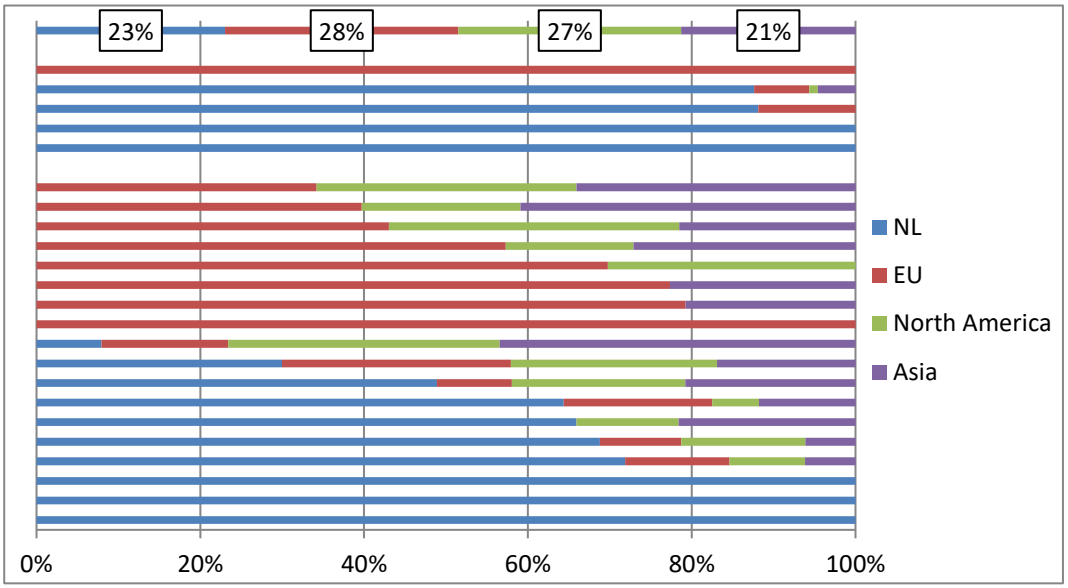


Source: results data request (2017)

From this figure we find that the size of Dutch real estate in the asset portfolio has remained fairly constant. However, since nominal total real estate holdings have been increasing over the years, Dutch real estate becomes a less important driver of the overall real estate investment performance. Over the period 2010-2016, the size of North American real estate holdings has been increasing substantially. This is reflective of the recovery of the real estate market in the US from the financial crisis, which particularly hit the housing market in this country.

Figure 4.5 shows the geographical allocation of the individual investors as a (weighted) average over the sample period. The upper bar represents the (weighted) average composition of all participants. The five bars in the top of the graph, as before present the composition of insurance companies, the eighteen bars below represent the composition of pension funds. From this figure, it can be noted that insurance companies (in this sample) are more likely to hold domestic assets. Also, the second largest region where these insurance companies invest is the European market. There is only one insurance company that has a share of its real estate portfolio allocated to a region outside Europe. This insurance company has a share of 1% of its real estate portfolio allocated to North American real estate. The picture for pension funds is more diverse. In general, pension funds are more geographically diversified. This is in line with literature suggesting that intercontinental diversification is desirable.

Figure 4.5: Composition structure of individual investors 2010-2016, by asset region

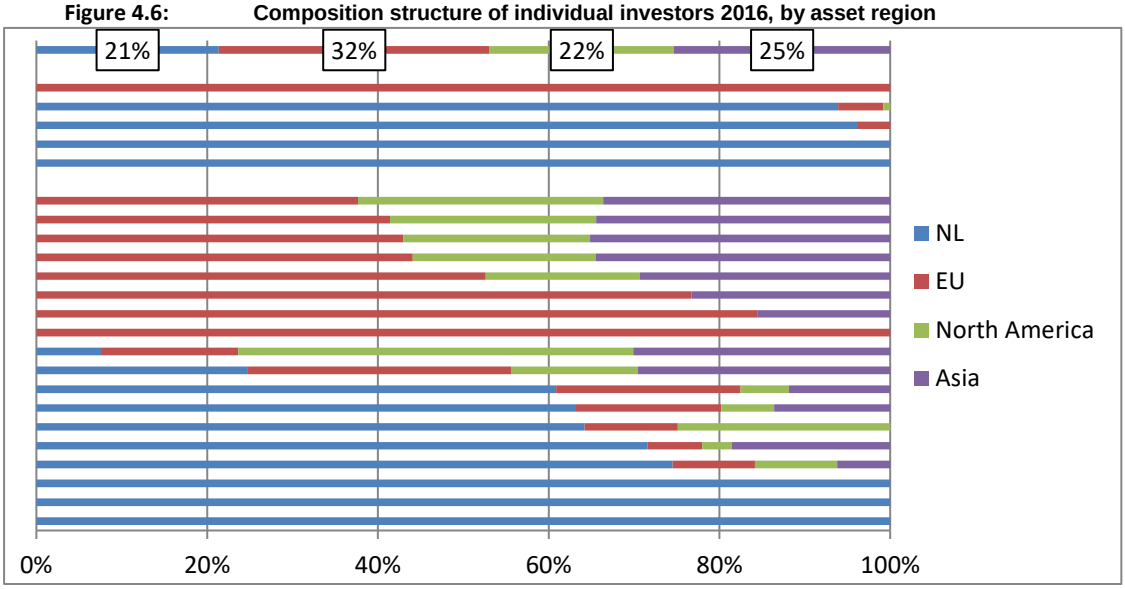


Source: results data request (2017)

As Figure 4.5 illustrates, almost all funds invest in Dutch real estate (often with a large share). At the same time, most institutions have a relatively small absolute amount of Dutch real estate holdings (see Figure 4.1). This implies that primarily smaller funds invest in Dutch real estate. The rationale might well be that smaller investors have chosen to continue the home bias due to perceived information advantages and potential costs of international diversification in terms of expertise. The 'information costs' of investing in the home market can be expected to be lower than the 'information costs' of investing in foreign real estate markets. Because these information costs are high for small funds (relative to the size of the investment choose to make), it makes sense that they primarily invest on the home market. Additionally, larger investors might be confronted with the limitations the home market offers in terms of product availability. They find it harder to achieve the portfolio size that meets their requirements in the home market and have ventured abroad earlier on to achieve their required investment volumes.

Besides the (money-weighted) average composition of the portfolio over the sample period, a closer look on the composition in the last year of the sample period (2016) offers some additional insights. Figure 4.6 represents the allocation of the real estate portfolio broken down by region. This figure indicates that in 2016, participants had a more internationally oriented real estate portfolio, as the share of the real estate portfolio invested in the Dutch market is 21%, against the 23% over the whole sample period (2010-2016). On the other hand, a higher share of the real estate portfolio is allocated towards European real estate.
What is also noteworthy from Figure 4.6, is the shift from real estate holdings in North America towards real estate holdings in Asia in 2016.

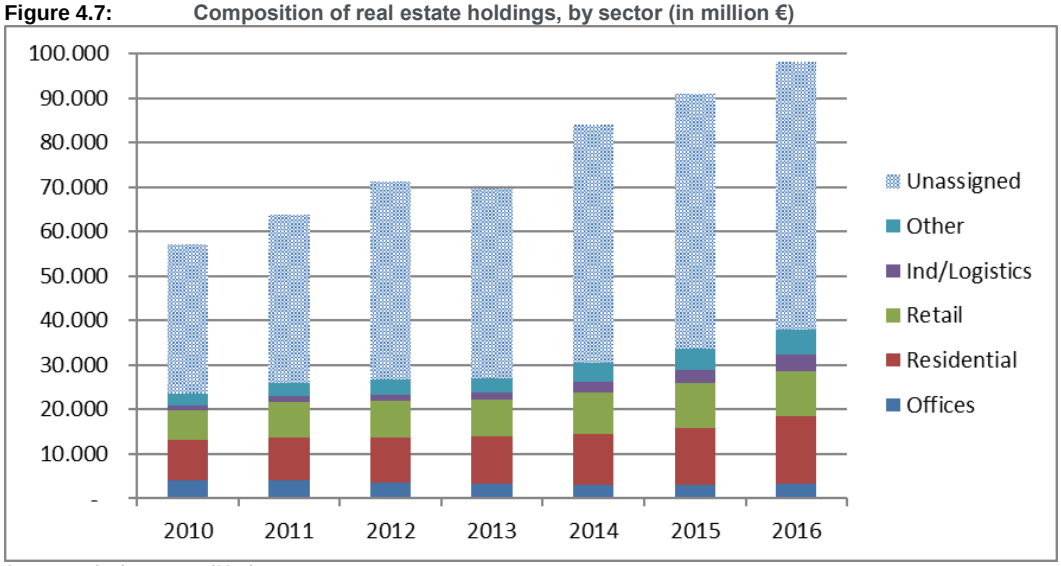
Figure 4.6: Composition structure of individual investors 2016, by asset region



4.1.3 Sector

Figure 4.7 shows the (weighted average) composition of the real estate portfolio in the period 2010-2016, by sector. A substantial part of the total real estate portfolio of participants has not been assigned to a sector. The amount of the portfolio of the respondents that has not been allocated to a sector is represented by a blue, pattern filled, bar.

Figure 4.7: Composition of real estate holdings, by sector (in million €)

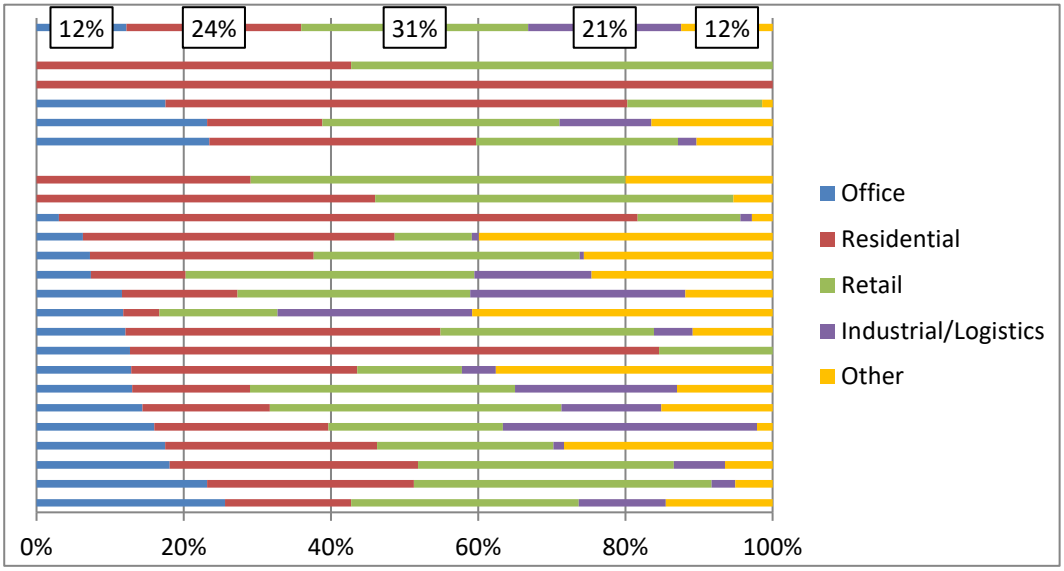


Source: results data request (2017)

The sector allocation of Dutch institutional real estate portfolios has not changed dramatically over the sample period. The two sectors that remain the anchors of the institutional portfolios are the residential and retail sectors. Even though the sentiment surrounding these sectors has changed through time, we do not (yet) see clear evidence of changing perceptions in these sectors. The reason for the bias to these sectors has been the long-term stability of the two sectors, which are generally seen to be less risky than other real estate sectors. Changes that took place largely pertain to the office and logistic sectors. The figure illustrates that the size of real estate holdings in the office market has been declining somewhat over the sample period.

Figure 4.8 provides the sector allocation of the individual funds, as an average over the period 2010-2016. The upper bar represent the (weighted) average composition of all participants. The five bars below represent the composition of insurance companies; the eighteen bars below represent the composition of pension funds.

4.8: Composition structure of individual funds 2010-2016, by sector

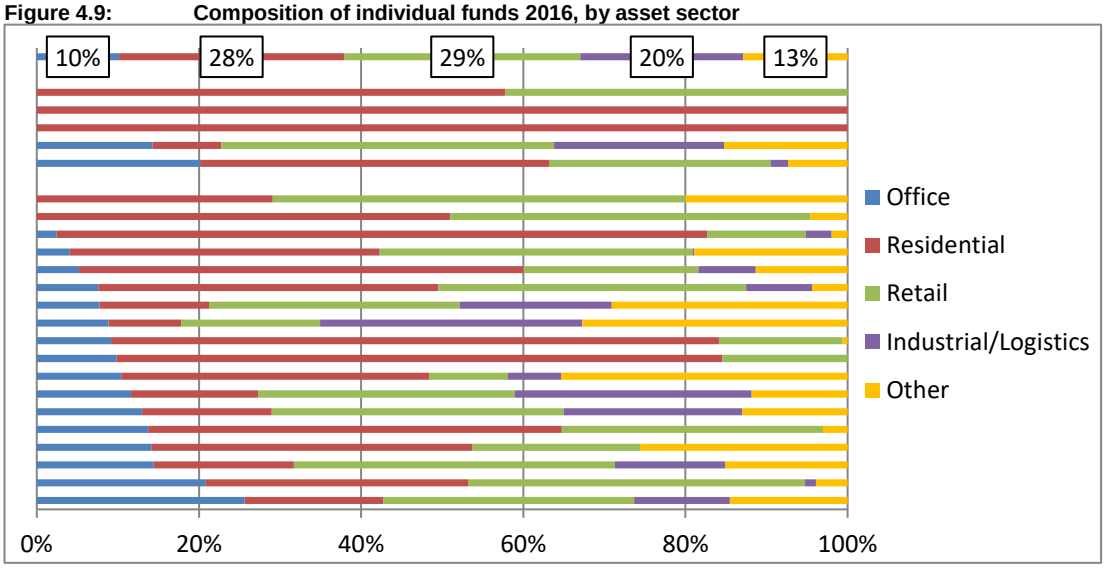


Source: results data requests (2017)

All investors invest in residential assets, and all but one invest in retail. Judging from the figure, sector diversification appears more pervasive in the institutional landscape than geographic diversification. This consensus in part might be related to the availability of product, but might also be by design. Particularly in the indirect markets, most fund and company strategies do have a sector specialization. The results therefore suggest that the allocations to sectors are conscious choices of investors in portfolio construction rather than a byproduct from investment in diversified structures. From this picture, there seems to be no general difference between pension funds and insurance companies. However, the sample size is limited.

A closer look on the composition in the last year of the sample period (2016) offers some additional insights.

Figure 4.9: Composition of individual funds 2016, by asset sector



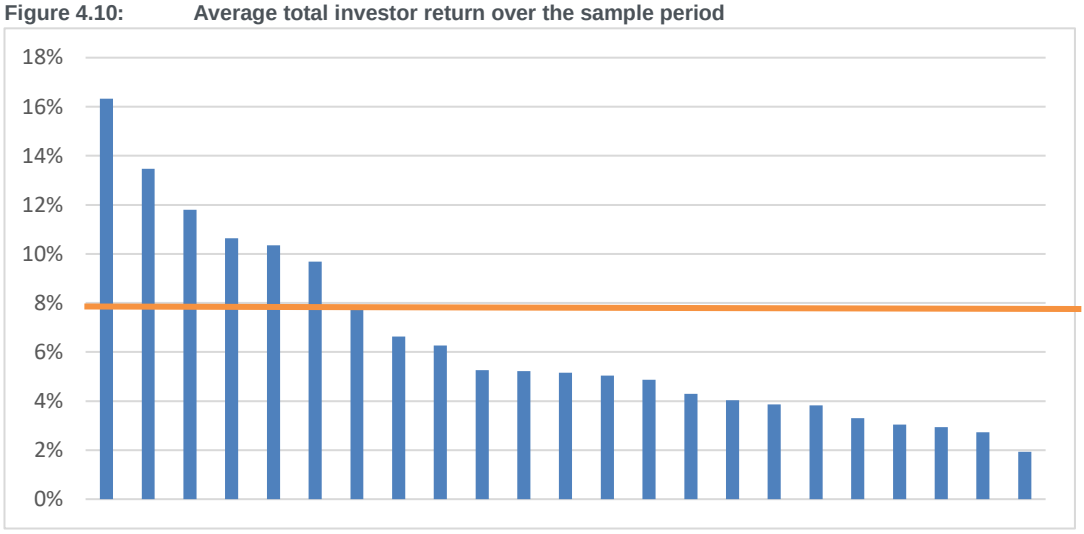
Source: results data requests (2017)

The figure evidences that over the years a smaller share of the real estate portfolio has been allocated to the office-market, as the average allocation in the sample period is above the 2016 allocation. The share of the residential real estate portfolio of institutional investors has grown in the sample period. The share of assets allocated to the other sectors remained fairly constant over the years.

4.2 Investment performance

The overall performance of the 23 investors that participated in this study for the sample period is presented in Figure 4.10. The orange line denotes the equally weighted annualized average total return in the sample period. On average, the Dutch institutional investors have achieved a 6.5% annualized total (unweighted) return over the sample period. Returns from one investor to the other diverge substantially, however.

Figure 4.10: Average total investor return over the sample period



Source: results data requests (2017)

The degree of variation in performance between institutional investors that all operate from the same jurisdiction is remarkable. The fund with the strongest performance reports an eight times higher return than the fund with the weakest performance over the sample period. A possible explanation for this finding is that it is a reflection of the difference in use of the various implementation forms coming out of the global financial crisis as time lags in valuation occurred.

The table below gives a more detailed insight in the performance of the funds in the sample period 2010-2016.

Table Error! No text of specified style in document.**1: Summary performance statistics, broken down by**

	Time period	Average holdings (in € millions)	Unw. Avg. return	Weight. Avg. return	Standard Error	Sharpe ratio	Number of observations
Type							
Direct	*2010-2016*	15.728	2.6%	3.9%	6.1%	0.29	96
Listed	*2010-2016*	2.490	11.7%	14.4%	13.0%	0.83	30
Unlisted	*2010-2016*	31.224	6.8%	9.5%	6.5%	0.93	144
Sector							
Office	*2010-2016*	3.507	2.2%	3.3%	6.8%	0.21	97
Retail	*2010-2016*	11.225	4.8%	5.5%	5.7%	0.70	116
Residential	*2010-2016*	8.705	4.0%	5.4%	3.8%	0.83	111
Ind/Logistics	*2010-2016*	2.070	5.2%	10.6%	8.1%	0.54	74
Region							
NL	*2010-2016*	16.720	3.3%	4.2%	4.3%	0.58	82
EU	*2010-2016*	21.327	5.5%	9.3%	7.5%	0.63	117
Asia	*2010-2016*	2.229	10.0%	10.6%	12.4%	0.79	73
North America	*2010-2016*	3.891	14.0%	16.3%	9.8%	1.40	83
implementation and allocation							

Source: results data requests (2017). This table presents the performance of the sample institutions over the period 2010-2016. Total returns are provided by implementation form, both equally and AuM weighted. Standard errors are provided, as well as the Sharpe ratio. Sharpe ratios are

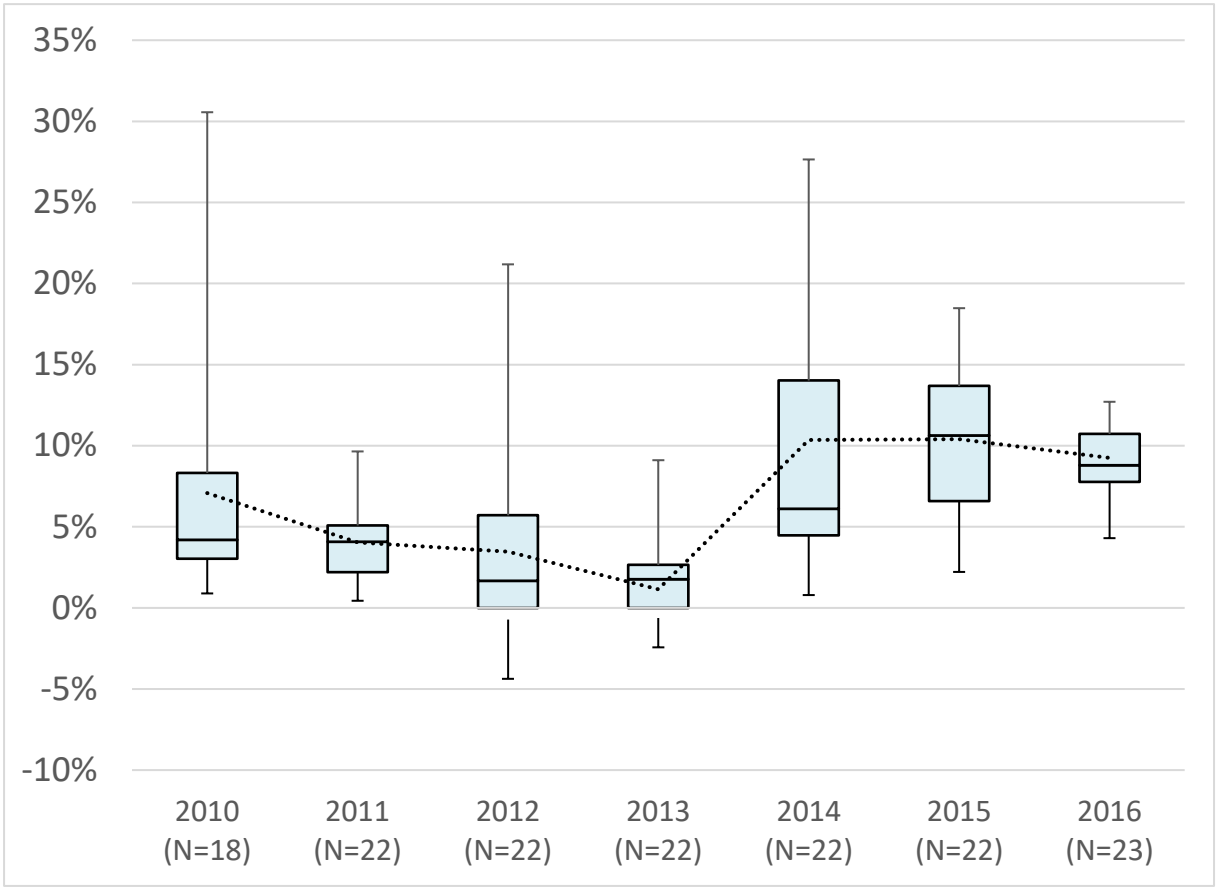
calculated using the average 1-year euribor rate as a proxy for the risk free rate. For the investments in Asia and North America, the average 1-year T-bill rate has been used as a proxy for the risk-free rate.

Table 4.1 presents the results of the different implementation forms, broken down in a number of ways. Non-listed real estate shows the highest Sharpe ratio of 0.93, slightly higher than for listed real estate. However, the difference is statistically insignificant. This is in line with the Pagliari findings that there is no significant performance difference between implementation forms. As expected the difference in the Sharpe ratio for both implementation forms is mainly the result of the difference in observed variance of returns, which is substantially higher for listed real estate than for unlisted funds. This is obviously due to the difference between the transaction based returns of listed real estate versus the appraisal based returns for private real estate. Observed returns on listed real estate in the portfolios included are 4.9% per annum higher than for unlisted real estate in this sample. Direct real estate clearly lags in terms of the Sharpe ratio observed. We speculate that this might be due to (a combination of) the preference of institutions to hold domestic assets in the direct form and international assets indirectly and the possibility of a difference in leverage applied between direct and indirect investments. However, the latter factor appears to be of minor importance as the volatility of the unlisted investments is in line with that of the direct investments. This in turn highlights the preference for core investments by institutional investors.

Turning to the difference in performance for sectors, the variation between the observed performance is lower. Residential investments have the highest Sharpe ratio because of the lowest observed volatility within this sector. This again is in line with expectations and literature. The last important finding in this table is that it indicates that the size of the investor seems to matter. The weighted performances for all region, sector, and types are higher than the unweighted performance. This persistent finding is evidence that bigger funds are achieving better performance than the smaller participants in the study.

If we take a closer look at the yearly performance of investors, an interesting picture emerges. Figure 4.11 displays the (annual) total return of the institutional investors in this study.

Figure 4.11: Annual total return of institutional investors in this study



Source: results data requests (2017)

The dotted line denotes the average (unweighted) performance of the institutional investors. The horizontal line in the rectangle presents the median performance. The upper and lower edge of the rectangle provide the first and the third quartile. The upper and lower thin black lines provide the 'extreme values', the strongest performance and the weakest performance in a year.

The performance range of the sample varies substantially, particularly in the earlier years directly after the global financial crisis. Over 2016, the performance of the real estate portfolio of the institutional investors converged to a much tighter range.

5. Limitations

This paper uses data provided directly by the institutional investors that have been willing to provide data on their real estate holdings and the performance thereof. This in itself could introduce a selection bias, as out of the 40 investors surveyed only 23 provided data. However, since the coverage of the sample is almost half of the total market as estimated by the Dutch Central Statistics Bureau (CBS), we do believe that the sample is sufficiently representative to base conclusions on. At the same time, however, we had to rely on the data and are therefore unable to check the calculation methodology behind the numbers in great detail. This implies that there is an underlying assumption that the data has a high degree of comparability. Even though all institutions operate in the same jurisdiction and have roughly the same reporting requirements, we have to acknowledge the fact that differences in underlying measurement can exist. One particular area that would be of interest to explore is the degree to which leverage is influencing performance. In the current setup, we currently lack the data to investigate this and it would therefore something to explore in future studies. Besides leverage, we ignore the currency hedging policies that the institutions have applied. This means that our findings come with a health warning.

6. Conclusions and implications

In this report, almost 100 billion euros of investments in real estate by Dutch institutional investors have been analyzed, capturing more than 46% of all real estate investments by Dutch institutional investors. This report therefore captures a significant share of the market.

According to our sample, real estate continues to form an important part of institutional investment allocations. Real estate investments have been growing in line with the investment portfolios of institutions as percentage allocations have been stable. At the same time, the trends towards indirect investment and geographical diversification have continued. Smaller institutions appear to have more of a home bias, probably prompted by the fear of information costs exceeding the benefits of (international) diversification. At the same time, however, the data shows that larger institutions enjoy higher (risk adjusted) returns. As for implementation forms, indirect real estate shows risk-adjusted performance substantially higher than direct real estate in the sample period. Sharpe ratios of listed and non-listed real estate are quite close, with non-listed performing coming in first and listed just below. We furthermore conclude that during the sample period regional returns realized by the participants in this study have shown higher correlations than some of the older literature suggests. It might well be that this is due to the monetary environment in most countries around the world in the aftermath of the global financial crisis. We therefore expect that this is time-varying. It also illustrates that the sample period has idiosyncrasies in terms of the recovery of the real estate investment market in this particular period. It is therefore highly recommended to repeat the study with an even longer data sample.

One has to be careful in drawing general conclusions from this report. In this paper, the forty largest institutional investors have been approached. Because these are the largest funds, these funds make better use of their size in diversification. The smaller funds are more likely to have a home bias, and are therefore less able to reap the benefits from international diversification. A study by Nijskens, Klapwijk & Buitelaar (2017) also takes into account the smaller funds.

A conclusion that we also draw upon the research undertaken is that in spite of the increasing transparency it continues to be a challenge to get institutions to submit data. We thank the participants that have provided us with the data to do this important research and we hope that we can follow up on the study in future years so we can benefit from the lessons learned by the industry.

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