

A Global Perspective on Pension Fund Investments in Real Estate

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Studies of real estate performance usually analyze property indexes, investigate individual buildings, or address listed property companies (REITs). Outcomes of such studies can help explain the risk–return profile and diversification benefit of real estate, but for a typical institutional investor, those aspects are just part of the equation when allocating capital to real estate. To gain exposure to real estate, there are often multiple layers of investment management and costs between the investor and the assets, and thus the true performance of real estate investments at the level of the institutional investor may be different from what empirical studies on the performance of real estate suggest.

Using the CEM global database on pension fund investment—the largest database on pension fund investments, covering almost 900 pension funds over a period of 20 years—enables us to investigate real estate investments through the lens of the institutional investor. The database provides rich information regarding the choices that pension funds all over the world make in their real estate investments, both strategically and in terms of practical implementation. Moreover, the database allows us to show the implications of these choices for both investment costs and performance. The contribution of our study is to provide deep insights into real estate's contribution to pension fund performance, taking into account the costs of investment choices.

Most importantly, we are able to compare different investment styles and approaches to and study what these deliver for the bottom line of pension funds. Our study shows that large pension funds have significantly lower costs and higher benchmark-adjusted performance than small funds and that US pension funds have higher costs and disproportionately lower performance than their global peers. Our results also suggest that external management of real estate investments is expensive and generally does not add value in terms of performance.

We first discuss our main data source and provide some key statistics regarding the magnitude of global pension fund real estate investments. We then show how pension funds invest in real estate and subsequently demonstrate what that means for costs and performance. The article ends with a short summary and a discussion of the implications for pension funds investing in real estate.

GLOBAL PENSION FUNDS AND REAL ESTATE

This article is based on data from CEM Benchmarking Inc. of Canada, the broadest available database of pension fund investments globally (Andonov et al. [2012]). It covers some 880 pension funds in the United States, Canada, Europe, and Australia/New Zealand. We have data for the period from

1990 through 2009. CEM provides information about allocation, benchmarks, investment style and approach, costs, and performance, both in absolute terms and relative to a self-declared benchmark.

Exhibit 1 provides more information about the number of pension funds in the database. The exhibit clearly shows that US and Canadian pension funds are dominant in the database, with a combined total of 780 out of 884 funds. This has to do with CEM's North American roots and the fact that it started targeting funds from Europe, Australia, and New Zealand at a later stage. In Europe, the funds reporting to the database are quite large, with over US\$23 billion in assets, on average. With 5,406 total observations, the average pension fund is in the database for about six years.

EXHIBIT 1

CEM Pension Fund Database

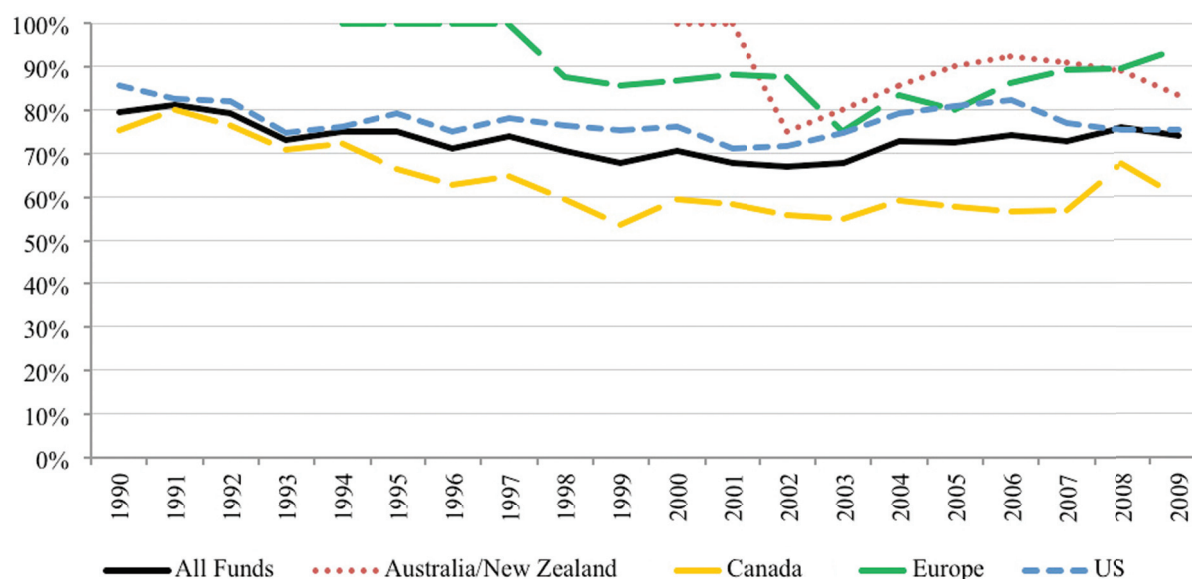
	# Funds	# Observations	Size in US\$ Billion
US	536	3,139	9.84
Canada	244	1,879	3.62
Europe	86	319	23.64
Aus/Nzd	18	69	7.13
Total	884	5,406	8.26

The asset allocation of the global pension fund industry is dominated by the allocations to stocks and bonds, but the importance of alternative assets is increasing over time. In 2009, stocks, bonds, and cash accounted for 47.1%, 36.9%, and 2.5% of pension fund portfolios, respectively, while the remaining 13.5% were invested in alternative assets. Real estate is the most important alternative asset class, with an average allocation of 5.1% in 2009, followed by private equity (3.6%), hedge funds (2.9%), and other alternative assets (1.8%).

Indeed, nowadays most pension funds invest in real estate, in some form. The solid line in Exhibit 2 shows the percentage of pension funds in the CEM database that invest in real estate. This percentage is rather stable and varies over time between 70% and 80%. Pension funds in the United States are about as likely as the global average to invest in real estate, but Canada's funds are clearly less likely to invest in real estate; in 2009, only 60% did, compared to 75% of US funds that year. Funds from Australia/New Zealand and especially from Europe have a greater allocation to real estate: 95% of the European pension funds reporting to CEM in 2009 invest in the asset class. This may partly be explained by the fact that only the larger European pension funds report to CEM.

EXHIBIT 2

Percentage of Pension Funds Investing in Real Estate (by region)



During the 1990–2009 period, pension funds' real estate holdings increased substantially to more than US\$320 billion in 2009 (the financial crisis dampened a significant part of the value, which was some US\$370 billion in 2008). In line with Pagliari et al. [2005], we find that pension funds favor private real estate investments over investments in property shares (REITs). In 2009, the pension fund holdings in direct real estate were more than US\$240 billion, which is almost equal to the total market value of the NCREIF Property Index in that year. The holdings of pension funds in listed property companies, such as REITs, were equal to US\$74 billion (US\$85 billion in 2008). These property shareholdings correspond to more than 11% of the FTSE EPRA/NAREIT Global Index in 2009.

HOW PENSION FUNDS INVEST IN REAL ESTATE

The main reasons to add real estate to investment portfolios include: 1) diversification and reduction of the overall risk of the portfolio; 2) hedging against inflation; and 3) delivering steady cash flows to the portfolio (i.e., rental income). Within the mean–variance framework, Hudson–Wilson et al. [2005] find that real estate fulfills most of investors' expectations, even though Brounen et al. [2010] and Chun et al. [2000] conclude the opposite when accounting for pension fund liability obligations.

Once pension funds have decided to invest in real estate, they have to translate the strategic allocation into practical implementation. Real estate exposure can be built up in many ways, involving different degrees of separation between the pension fund and the ultimate real estate assets. Andonov et al. [2013] provide a schematic graph of the different approaches to real estate investment for a pension fund, which we reproduce in Exhibit 3. The first choice a fund has to make is whether to gain direct exposure to buildings or to build it up indirectly through listed property companies.

If the fund decides to gain direct exposure, there are three main ways to make the selection of properties: internally, externally, or through fund-of-funds, involving zone, one, or two management layers between the pension plan and the asset. Pension funds that opt for the indirect investment method can select property shares in-house or can hire external managers to execute the stock selection, putting one or two management

layers between the plan and the property assets that ultimately deliver the cash flows. It is of interest that pension funds from different regions seem to make these key choices in very different ways.

If pension funds decide to invest in real estate, they almost always choose the direct route for at least part of their portfolio: The percentage of funds investing in direct real estate over time is very close to the percentage of funds investing in real estate that we previously showed in Exhibit 2.

Indirect real estate investments are far less common: Exhibit 4 shows the percentage of funds investing indirectly by region, starting in 1990.¹ In the early 1990s, the global property share market was not yet very developed, so we focus our attention on the last 10 years. The solid line provides the average for all pension funds, and shows a slowly upward sloping trend: indirect real estate investment is gradually gaining ground, and approximately 30% of global pension funds held shares in listed property companies in 2009. However, the variation across regions is substantial. The United States stays close to the global trend, while Canadian funds seem less inclined to invest in listed real estate: Only 15% invested in property shares in 2009. That contrasts sharply with Europe and Australia/New Zealand, where more than half of the pension funds are actively investing in indirect real estate.

Indirect real estate seems particularly suited for smaller pension funds: Even with relatively small investments, it is possible to build up well-diversified property exposure through listed property companies at a global scale. Direct real estate, on the contrary, is lumpy and requires more intensive management, especially when investments are executed internationally, so it seems a better fit for larger funds.

In Exhibit 5, we investigate whether and how pension funds of different size groups invest in real estate. We divide the pension funds in the CEM database into size quintiles based on total asset value. The results are not very surprising as to whether pension funds invest in real estate at all: Of the smallest quintile (\$336 million of assets under management, on average), about half of the funds invest in real estate, while that percentage increases to 91% for the largest quintile (\$33 billion of assets). Given the lumpiness and management intensity of real estate relative to stocks and bonds, that makes intuitive sense. However, these drawbacks do not hold for indirect real estate. It is therefore surprising that of

EXHIBIT 3 **How Pension Funds Invest in Real Estate: The Institutional Marketplace and the Investment Process**

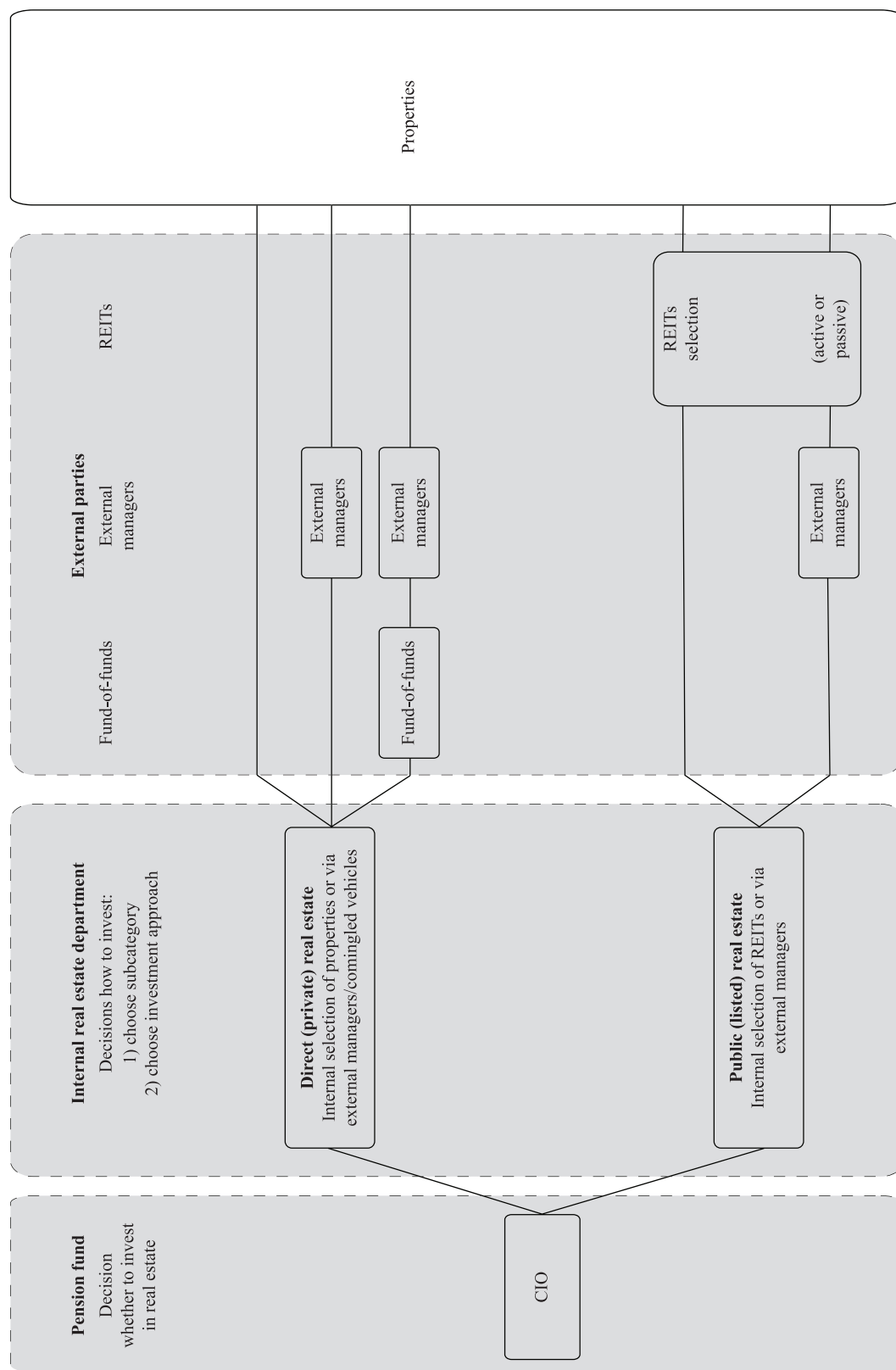


EXHIBIT 4

Percentage of Pension Funds Investing in Indirect Real Estate

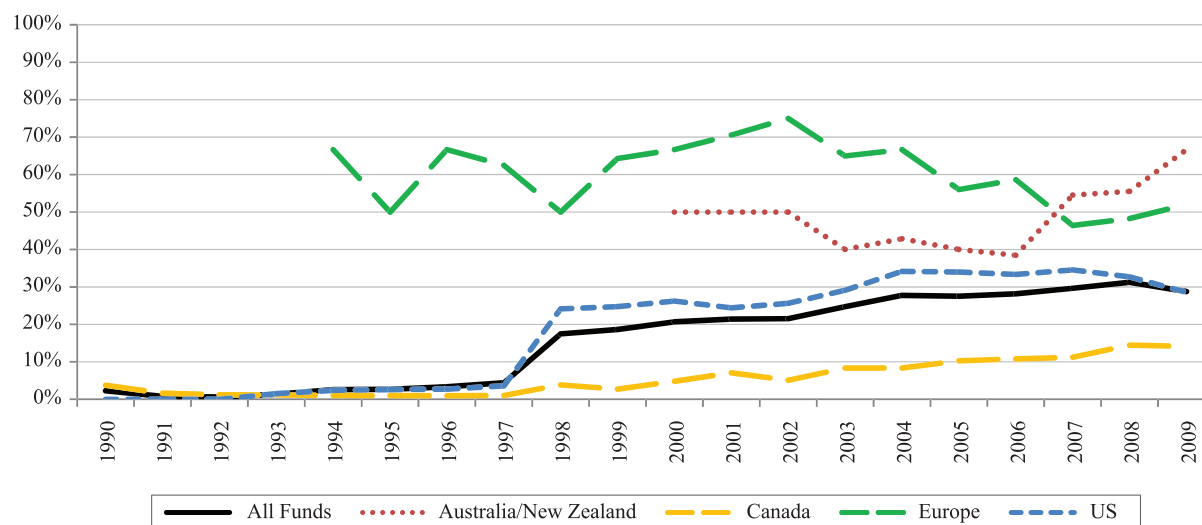
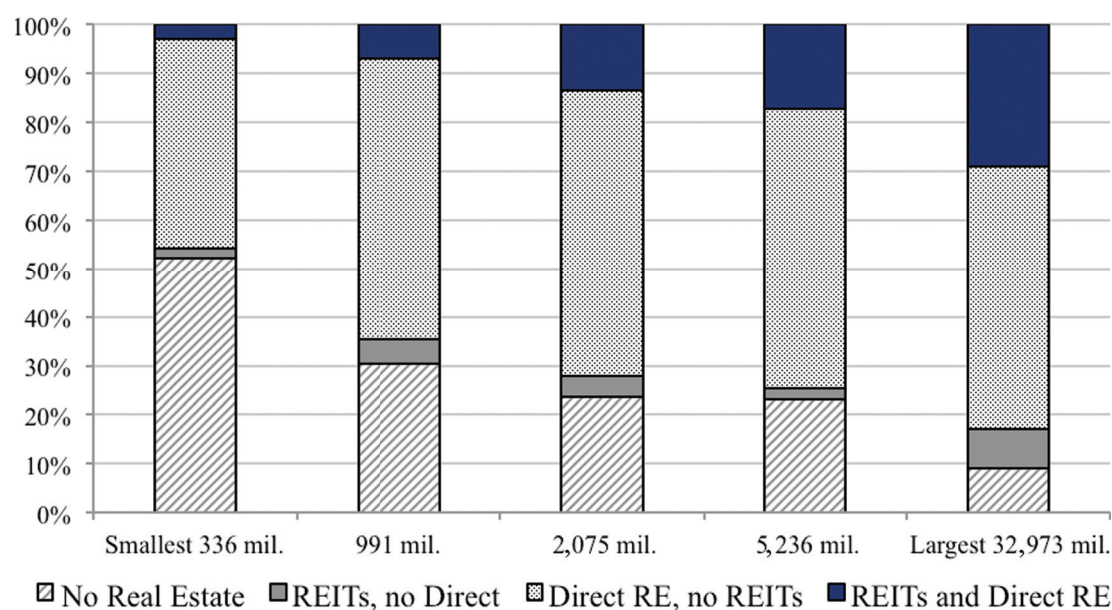


EXHIBIT 5

Whether and How Funds Invest in Real Estate (per size quintile)



the smallest pension funds investing in real estate, less than one-fifth invest indirectly. For every subsequent quintile, the percentage of indirect real estate investors increases, reaching about 40% for the pension funds in the largest quintile. This is counterintuitive, with

important implications for the performance of pension fund investments in real estate, as we will show.

The other choice pension funds have to make when implementing their real estate strategy is whether to opt for internal management, external management, or

both.² Here, we observe substantial differences between US funds and their foreign peers. Panel A of Exhibit 6 shows the percentage of pension funds that invest in real estate through internal management. This appears to be quite exceptional in the United States, as only about 10% of funds invest internally. That percentage is quite stable over time, reaching 15% at most, in 2002 and 2003. Among pension funds outside of the United States, internal real estate asset management is much

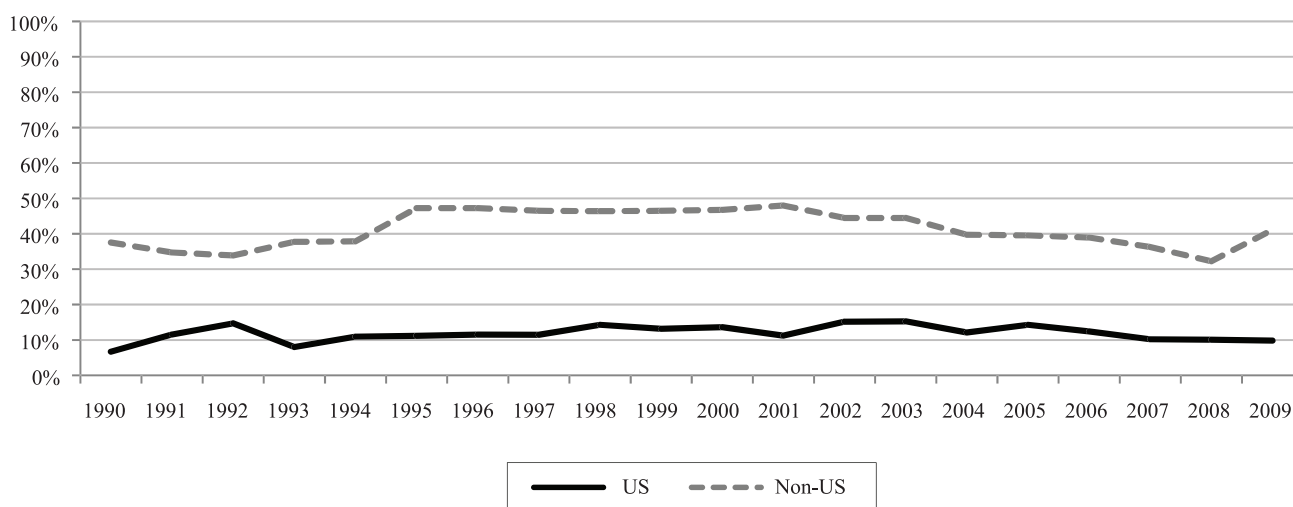
more common, with around 40% of funds choosing this approach.

Of course, this implies that almost all US pension funds that invest in real estate retain external managers: Consistently 95% of US pension funds have externally managed real estate portfolios, implying that even if these funds partly manage their real estate portfolio internally, they may still hire an external manager to look after the remainder of the real estate investments.

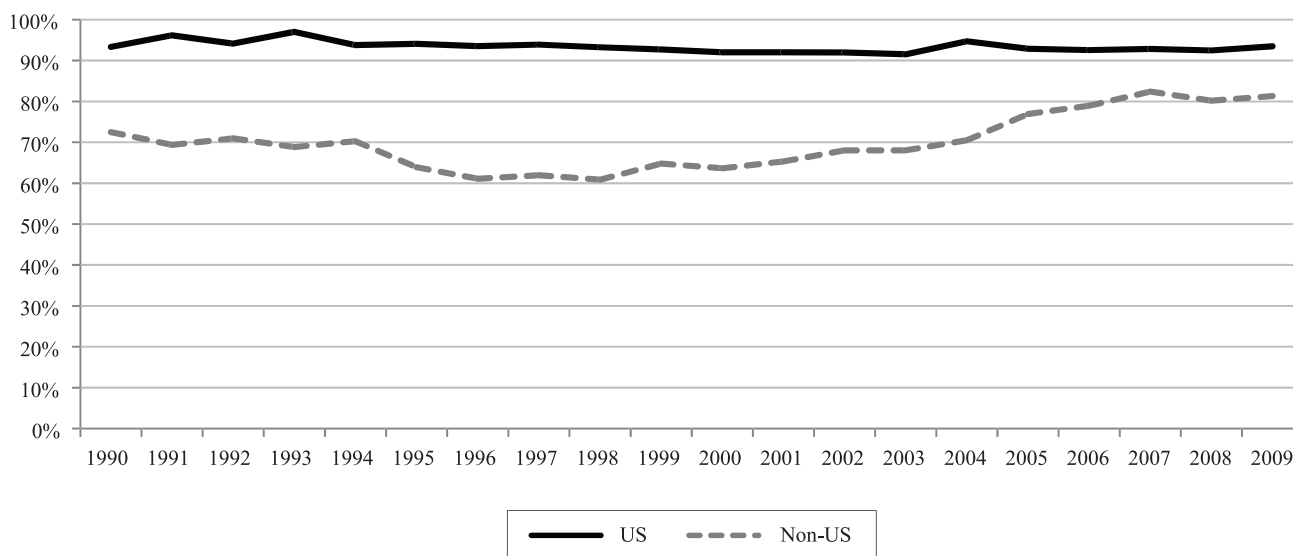
EXHIBIT 6

Percentage of Pension Funds Investing Internally and Externally in Real Estate

Panel A: Percentage of funds investing internally in real estate



Panel B: Percentage of funds investing externally in real estate



Pension fund size is unlikely to be an explanation for this: US pension funds are, on average, larger than those in Canada and Australia/New Zealand.

External management used to be far less popular in the rest of the world, but it is gaining ground, and the percentage of pension funds using external management in real estate has increased from 60% in the late 1990s to 80% in 2009. As one would expect, the smallest pension funds that invest in real estate are most likely to use external management, and as the funds increase in size, the likelihood of using internal management for at least part of the portfolio goes up. However, even of the funds in the largest quintile, 60% opt exclusively for external management, and a further 20% combine internal and external management. So, we conclude that external management is clearly dominant in the real estate investments of the global pension fund industry, no matter whether institutional investors are small or large. The next section investigates the implications of this finding for costs and performance.

COSTS AND PERFORMANCE

From the perspective of the participants in a pension plan, the only valid reason to put additional layers of intermediation between the plan and the cash flow producing assets is that these layers add value in terms of net returns. We use this section to explore whether that is the case in pension fund real estate investments. We first study the gross and net returns and the net benchmark-adjusted returns for the overall real estate allocation and for the different subcategories and investment approaches.³

Exhibit 7 shows that real estate has generated a gross annual return of 7% for the 20 years since 1990. Net of costs, this was 6.19% annually, and the benchmark-adjusted return was, on average, -0.70%.

When we address the performance of direct and indirect real estate separately, we observe that direct real estate investments have generated a net return of 5.88% and have, on average, underperformed benchmark. The difference between gross and net annual returns has been 82 basis points, on average. Indirect real estate has done better for pension funds in three ways: the gross return was higher (10.92%), the cost wedge between gross and net was lower (29 basis points), and the benchmark-adjusted return was positive (although not statistically significant).

Looking at investment approach, we find that internal management has been superior to external management and especially to fund-of-funds. The internal approach had a gross annual average return of 7.77%, of which 7.51% was actually delivered to the pension plan, so annual costs were only 16 basis points.⁴ Internal mandates also outperformed their benchmarks, on average. So the average performance of internal mandates is quite reasonable.

Turning to the added value of external managers, the results are less favorable. It's no surprise that the cost wedge between gross and net returns is higher than for the average internal mandate: 84 basis points, on average.⁵ This implies that it would be difficult for external managers to beat the net return of internal benchmarks, even if they would be able to extract a superior gross return from the real estate assets. However, it turns out that the average annual gross return on external mandates is almost a full percent lower than for internal

EXHIBIT 7

Pension Fund Performance in Real Estate

	All Assets	Subcategory		Approach		
		REITs	Direct RE	Internal	External	FoF
Gross returns	7.00 [9.41]	10.92 [10.21]	6.70 [8.40]	7.77 [11.20]	6.82 [9.17]	6.72 [7.85]
Net returns	6.19 [9.43]	10.63 [9.70]	5.88 [8.54]	7.51 [11.21]	5.98 [9.31]	4.95 [7.86]
Net benchmark-adjusted returns	-0.70 [9.35]	0.52 [10.80]	-0.86 [10.11]	0.90 [10.85]	-0.98 [9.42]	-5.38 [15.42]

Note: We present the time series averages of cross-sectional mean returns in percentages for the 1990–2009 time period (for fund-of-funds 1995–2009). Standard deviations of the returns are in brackets.

mandates, and the annual net performance difference is 153 basis points. On average, external managers underperform their benchmarks by 98 basis points, but due to the large variation in that performance, this is not statistically significant.

For fund-of-funds, the picture is even worse. Average annual costs equal 177 basis points, and average gross returns are lower than that of external managers. So, even before costs, their selection efforts do not seem to add value, on average. The net result is that the average fund-of-funds manager annually underperforms the benchmark by 5.38%, although the variance in performance is so large that this underperformance is not statistically significant. This evidence strongly suggests that pension funds should be careful when allocating assets to real estate fund-of-funds.

The previous section showed substantial differences in real estate investment approach between US and foreign pension funds and between small and large pension funds. We therefore analyze the consequences of these choices in terms of costs and performance. Again, we divide the pension fund sample into quintiles, but now we base these quintiles on the size of their real estate investments. We perform this analysis separately for US and non-US funds, and then calculate average annual asset management costs and net benchmark-adjusted returns for each of the resulting groups of pension funds. The first column of Exhibit 8 shows the average value of the real estate portfolio for the funds in that particular quintile, but we focus the discussion on the subsequent columns in the exhibit.

In terms of costs, Exhibit 8 clearly shows large advantages to scale: for US pension funds, the average annual costs are about twice as high for the funds in the smallest quintile as for those in the largest quintile, and this difference is statistically significant, with a *t*-value of 5.42. Costs decrease monotonically if we go from smaller to larger quintiles, but the difference is especially significant between quintiles 1 and 2: Being small is expensive, and being very small is very expensive.

For non-US funds, we also observe significant advantages to scale, but costs are at a very different level compared to what US pension funds are paying. In four out of five quintiles, the foreign funds pay less than half of what their US peers pay for their real estate investments. The difference is highly significant in all quintiles. In other words, real estate investments for small pension funds are expensive, especially in the United States.

But of course, it is possible that the high costs are justified by better performance. However, the right-hand side of Exhibit 8 shows that the returns to scale are also obvious in the benchmark-adjusted returns: For US funds there is a monotonic increase in net return if we go up in quintiles, with a 1.70% average underperformance for the smallest quintile and a 0.43% average outperformance for the largest quintile. The difference is highly significant, with a *t*-value of -3.29. For non-US pension funds, we also find a generally positive relation between real estate portfolio size and performance. The difference in performance between the smallest quintile and the largest quintile is even larger, and the statistical significance a bit stronger.

EXHIBIT 8

Regional Effects and Economies of Scale in Investment Costs and Performance

Quintiles Based on Real Estate Assets, Size	Average Real Estate Assets, Size (in mil. US\$)	Investment Costs (in basis points)			Net Benchmark-Adjusted Returns (in percent)		
		US	Non US	<i>t</i> -Test	US	Non US	<i>t</i> -Test
Smallest	12.96	132.95	64.77	4.87***	-1.70	-0.80	-1.34
2	51.88	92.17	60.49	6.55***	-1.68	0.14	-1.99**
3	132.45	88.32	42.65	14.79***	-1.29	0.59	-2.39**
4	359.74	87.31	37.05	12.43***	-0.81	-0.30	-0.61
Largest	2,835.29	66.56	29.50	15.23***	0.43	2.66	-2.76***
<i>t</i> -Test		5.42***	9.88***		-3.29***	-4.09***	

Note: The *t*-test row presents a *t*-statistic of the difference in costs and net benchmark-adjusted returns between the lowest and highest quintile. The *t*-tests columns measure the difference in costs and net-benchmark-adjusted returns between US and non-US pension funds belonging to the same quintile. We report significance levels with *, **, and ***, which correspond to 0.10, 0.05, and 0.01, respectively.

For pension plans in the United States, the higher costs are reflected in a lower net performance than their foreign peers: On average, they underperform in each of the quintiles, although the performance difference is not always statistically significant. The non-US funds in the largest quintile seem to outperform their benchmarks.

CONCLUSIONS

We document that large and small pension funds invest in real estate using strongly contrasting channels. Indirect real estate is mostly favored by larger pension funds in combination with allocations to direct real estate. Smaller pension funds mostly ignore indirect real estate investments and focus on direct real estate investments only. Moreover, larger pension funds are more likely to invest internally, whereas smaller funds are more likely to invest through external managers or fund-of-funds. These choices have consequences: We find that larger pension funds generally have lower costs and better performance in real estate investment.

This may be due to larger funds obtaining cost advantages, but it is also possible that larger pension funds can assert more negotiating power in real estate investments, which could lead to access to more favorable investment opportunities at lower costs. Larger funds can also commit more resources to monitor external real estate investment managers or even establish internal divisions, which is positively linked to performance.

Another notable finding of this study is that US pension funds perform relatively poorly. They face significantly higher costs than their peers in Canada, Europe, and Australia/New Zealand, and their performance is weaker. This cannot be explained by size: On average, the US pension funds in the sample are relatively large. Part of the weaker performance can probably be explained by the fact that they are much less likely to opt for internal management than their foreign peers.

In a well-known article, Lakonishok et al. [1992] show that institutional investors tend to put more intermediaries between themselves and their assets after a period of bad performance. According to Lakonishok et al. [1992], despite higher costs and lower returns, pension funds will prefer investing through external management and fund-of-funds, as a way to shift responsibility for potentially poor performance to the external

manager, and even to shift the responsibility for poor selection of managers to the fund-of-funds manager. Especially for US pension funds that have experienced dismal real estate performance during the financial crisis of 2008–2009, the LSV trap is wide open. However, this article suggests that additional layers of real estate investment management are costly and are generally not associated with better performance for pension funds. So, the first practical implication of this article is for pension funds to avoid disintermediation and to aim for the shortest possible investment chain. There are many large pension funds whose size would enable them to choose internal management but that currently use external managers. Our results suggest that they should reconsider the choice for external management.

The second clear lesson for pension funds relates to size. Our article shows that size matters: Large pension funds face lower costs and generally perform better. This is both due to a greater reliance on internal management and likely also to a better bargaining position vis-à-vis external managers. That is good news for large pension funds, but the question is how smaller pension funds can profit from this knowledge. The first, and easiest, way to do so is for smaller funds to rely much more on investments in REITs and other listed property companies. The global property share market is large and provides liquid and low-cost access to property exposure all over the world. Moreover, listed property companies almost always have internal management, reducing the conflict of interest inherent in externally managed real estate funds.

Another way for smaller pension funds to exploit the findings in this article is by teaming up with other pension funds to create internally managed real estate entities together. In the Netherlands and Canada, there is significant experience with this approach. For example, in 2000, the pension funds of KLM (Royal Dutch Airlines) and Hoogovens (Dutch Steelworks, currently Tata Steel) bundled their real estate portfolios into one entity, Altera, which is internally managed: The shareholders own both the assets and the management. That keeps costs low: Altera charges 30 basis points, while the standard fee for externally managed funds in the Netherlands is over 100 basis points. Since then, 26 other Dutch pension funds have become shareholders, often by swapping their direct real estate assets for a stake in the fund. This creates additional advantages of scale.

A third practical implication holds mainly for US pension funds. Our study clearly shows that US funds have significantly higher costs than their global peers in any size group. This seems to be caused by their greater reliance on external managers, and Andonov et al. [2013] show that these external managers are more costly in the United States than elsewhere, especially in direct real estate. Cost-cutting and tougher negotiations with external managers should be a priority for US pension funds if satisfactory performance on their real estate investments is to be attained.

Last, and maybe most fundamentally, pension funds would be well advised to consider the practical implementation issues of real estate investment when deciding whether to invest in real estate in the first place. Our results suggest that a pension fund that is not able to opt for the internal approach and not willing to invest indirectly should seriously reconsider any allocation to real estate at all, given the relatively poor net returns generated by external managers and fund-of-funds, even if the theoretical return–risk trade-off for real estate seems favorable.

ENDNOTES

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¹REIT investments are reported separately in the CEM database. CEM explicitly asks pension funds to split REIT investments from the (small-cap) equity mandate. In the case of passive index investments, some pension funds may not be able to filter out REITs, and our results may thus slightly understate actual allocations to REITs. But small-cap investments do not account for a very large part of pension fund portfolios, and passive investments in small-cap equity represent less than 15% of the total small-cap equity assets, so any underestimation is likely to be small.

²In the CEM database, internal management means that the buy–sell decisions for the individual properties are made within the organization (including wholly-owned subsidiaries). When outsourcing the investment decision, institutional investors can directly select the external managers (funds) or invest via fund-of-funds. External investing also incorporates real estate limited partnerships. Separate

accounts at the external managers are classified as external management.

³In the CEM database, pension funds declare their benchmarks, which are usually market indexes (for example, the NCREIF Index or the FTSE/NAREIT Index for US real estate investments). Benchmark returns can also be a combination of multiple indices, weighted by the asset allocation. The advantage of using self-declared benchmarks is that these benchmarks more precisely reflect the allocation and risk exposure of the real estate allocations. For example, if a fund is exposed to office buildings in the United States, benchmarking its returns against the NCREIF Office Index is more appropriate than using the broader NCREIF Property Index.

⁴In addition to the transaction costs involved in the properties, internal investment costs include compensation and benefits of employees managing internal portfolios and support staff, related research expenses, and allocated overhead costs.

⁵CEM's definition of external investment costs capture the management fees paid to investment consultants and external money managers. The performance fees, carried interest (fees that are a portion of returns exceeding a hurdle rate), and rebates (the limited partners' share of certain fee income realized by the general partner in connection with the fund, such as break-up, monitoring, and funding fees) are directly subtracted from the gross returns and are not incorporated in the cost figures. External investments costs also include costs for internal staff, whose sole responsibility is overseeing the external investments in real estate assets. Similarly, for fund-of-funds, cost figures capture the base management fee paid to both the fund-of-funds manager and the underlying managers, but they do not include performance fees and carried interest on either layer.

REFERENCES

- Andonov, A., R. Bauer, and M. Cremers. "Can Large Pension Funds Beat the Market? Asset Allocation, Market Timing, Security Selection, and the Limits of Liquidity." Working paper, Yale University, 2012.
- Andonov, A., P. Eichholtz, and N. Kok. "Value Added from Investment Managers in Private Markets? An Examination of Pension Fund Investments in Real Estate." Working paper, Maastricht University, 2013.
- Brounen, D., M. Prado, and M. Verbeek. "Real Estate in an ALM Framework: The Case of Fair Value Accounting." *Real Estate Economics*, Vol. 38, No. 4 (2010), pp. 775–804.

Chun, G., B. Ciochetti, and J. Shilling. "Pension-Plan Real Estate Investment in an Asset-Liability Framework." *Real Estate Economics*, Vol. 28, No. 3 (2000), pp. 467-491.

Hudson-Wilson, S., J. Gordon, F. Fabozzi, M. Anson, and S. Giliberto. "Why Real Estate?" *The Journal of Portfolio Management*, Vol. 31, No. 5 (2005), pp. 12-21.

Lakonishok, J., A. Schliefer, and R. Vishny. "The Structure and Performance of the Money Management Industry." *Brookings Papers on Economic Activity. Microeconomics*, 1992, pp. 339-391.

Pagliari, J.J., K. Scherer, and R. Monopoli. "Public versus Private Real Estate Equities: A More Refined, Long-Term Comparison." *Real Estate Economics*, Vol. 33, No. 1 (2005), pp. 147-187.

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