

# Three Decades of Global Institutional Investment in Commercial Real Estate

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## Three Decades of Global Institutional Investment in Commercial Real Estate

May 27, 2021

Alexander Carlo  
Piet Eichholtz  
Nils Kok

Alexander Carlo is a Ph.D. candidate in finance at Maastricht University in Maastricht, the Netherlands, [a.carlo@maastrichtuniversity.nl](mailto:a.carlo@maastrichtuniversity.nl).

Piet Eichholtz is professor of real estate and finance at Maastricht University in Maastricht, the Netherlands, [p.eichholtz@maastrichtuniversity.nl](mailto:p.eichholtz@maastrichtuniversity.nl).

Nils Kok is professor of real estate finance at Maastricht University in Maastricht, the Netherlands, [n.kok@maastrichtuniversity.nl](mailto:n.kok@maastrichtuniversity.nl).

### **Contact Information for the authors to whom the page proofs should be sent.**

Alexander Carlo: [a.carlo@maastrichtuniversity.nl](mailto:a.carlo@maastrichtuniversity.nl)

Piet Eichholtz: [p.eichholtz@maastrichtuniversity.nl](mailto:p.eichholtz@maastrichtuniversity.nl)

Nils Kok: [n.kok@maastrichtuniversity.nl](mailto:n.kok@maastrichtuniversity.nl)

# **Three Decades of Global Institutional Investment in Commercial Real Estate**

**May 27, 2021**

## **Abstract**

Alternative assets represent an increasing share of pension fund assets, and real estate is a cornerstone of that allocation. This paper investigates the trends in pension fund real estate investments over the last three decades, both in private and in public real estate, focusing on the performance of the asset class for the ultimate asset owners. The development of pension fund allocations to real estate differs across regions, with allocations increasing in Canada, stationary in the U.S., and shrinking in Europe. Just over 10% of the real estate exposure is through publicly listed vehicles. Within the real estate portfolio, the authors observe a continuing increase in the use of external fund managers. Investment costs are stationary, with pension funds in the U.S. structurally paying more to their external private real estate managers than their peers in Canada and Europe. Costs relating to public real estate are more equal across regions. In terms of performance, the authors observe rather stable total returns for both private and listed real estate over the last three decades, contrasting volatile performance of private equity and infrastructure. Intermediated investment management for private real estate is costly, leading to disproportionately lower net returns.

## **Key Takeaways**

1. Over the past three decades, real estate has cemented its position as the third-largest asset class in pension fund portfolios.
2. Current pension fund allocation to real estate is 8.3%, on average, with a 90/10 split between private real estate and public real estate (REITs).
3. Pension funds deploy a wide range of real estate allocation strategies, with intermediation growing in popularity over the past decades.
4. Real estate very much remains an actively managed asset class, with just 30% of the public real estate allocation managed passively (and 100% of private real estate managed actively).
5. Real estate has provided stable returns over the past decades, with gross returns similar to stocks, and net returns in between bonds and stocks.

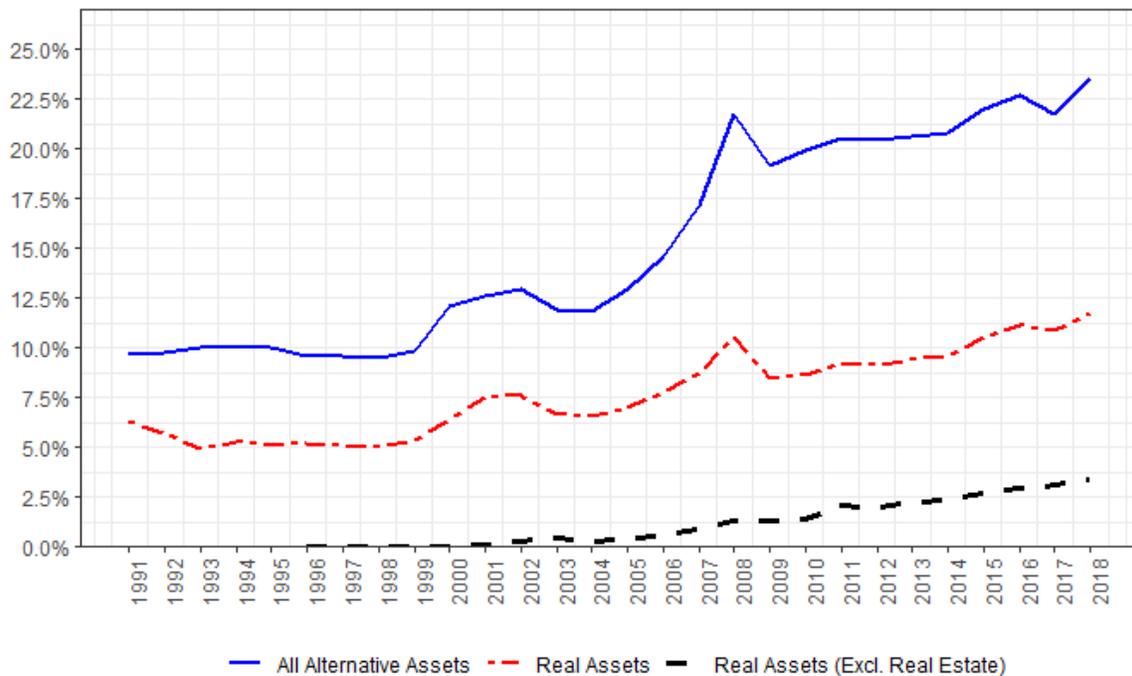
**Keywords: Pension Funds, Real Estate, Alternative Assets, Investment Performance**  
**JEL codes: G20, G11, G23**

For institutional investors, the last three decades can be heralded as a “private asset revolution,” especially during the last half of that era. Pension funds used to focus their capital allocation on public markets, including fixed income and equities, but that has changed fundamentally. Although Michael Jensen’s (1989) prediction on the “eclipse of the public corporation” did not become reality, investments in real estate, private equity, and alternative real assets like infrastructure and commodities, have become a regular item on the balance sheets of many pension funds.

Indeed, the CEM global database on pension fund investments—the largest such database, covering more than 1,100 pension funds over a period of 30 years—shows that the allocation to alternative asset classes has approximately tripled since inception of the database in 1991, growing from an average allocation of 9.7% to an allocation of 23.6% at the end of 2018 (see Exhibit 1). As of 2018, almost all pension funds in the CEM database invested in some form of alternative assets.

In the 1990s, “alternative assets” mostly consisted of real estate, with an average allocation of 5.3%, and the remainder of private equity and hedge funds, with a combined allocation of 4.5%. At the start of the century, pension funds began to invest in other real assets, including commodities, natural resources, and infrastructure. Fast-forward to December 2018, and the average allocation to real estate had increased to 8.3%, private equity and hedge funds to 11.8% (split between 7% in private equity and 4.8% in hedge funds), and other real assets to 3.4% (dominated by infrastructure, representing about a fifth, or 21.3%, of the allocation to real assets).

**Exhibit 1: Alternative assets as a percentage of pension fund assets**



Focusing on real estate, the largest alternative asset (and certainly the one with the longest history in pension fund portfolios), the three decades since 1990 have been momentous for institutional investment, not just in the U.S., but across the globe. With a greater institutional interest in the asset class has come an increasingly professional industry, with better data availability and performance measurement (as an illustration, see Geltner et al. (2014)). At the same time, the last decades have seen the evolution of a wide range of vehicles to gain exposure to real estate: The 1990s saw the development of the U.S. REIT market, rising from just 56 equity REITs and a market capitalization of USD5.6 billion in 1991 to 182 equity REITs with an aggregate market capitalization of USD1.2 trillion today. Equally, the 1990s saw the emergence of REIT-like vehicles for cost-efficient real estate investment all over the world, while the private side of the market grew to an aggregate USD10 trillion, offering institutional investors a plethora of choices with the development of vehicles such as fund-of-funds, joint ventures, co-investments, etc.<sup>1</sup>

The institutional allocation to real estate across the globe has changed significantly over the last three decades. Exhibit 2 provides information regarding the development of the allocation to the real estate asset class for pension funds from the U.S., Canada, and Europe, as well as the global average. The black line denotes the global average allocation of pension funds to real estate, relative to other asset classes, and shows a rise from 6.2% in the early 1990s to 8.3% in 2018. However, that increase shows several distinct ups and downs relating to market developments: for example, allocations went up to 9% during the global real estate boom until 2008, and then sharply declined when the bubble deflated.

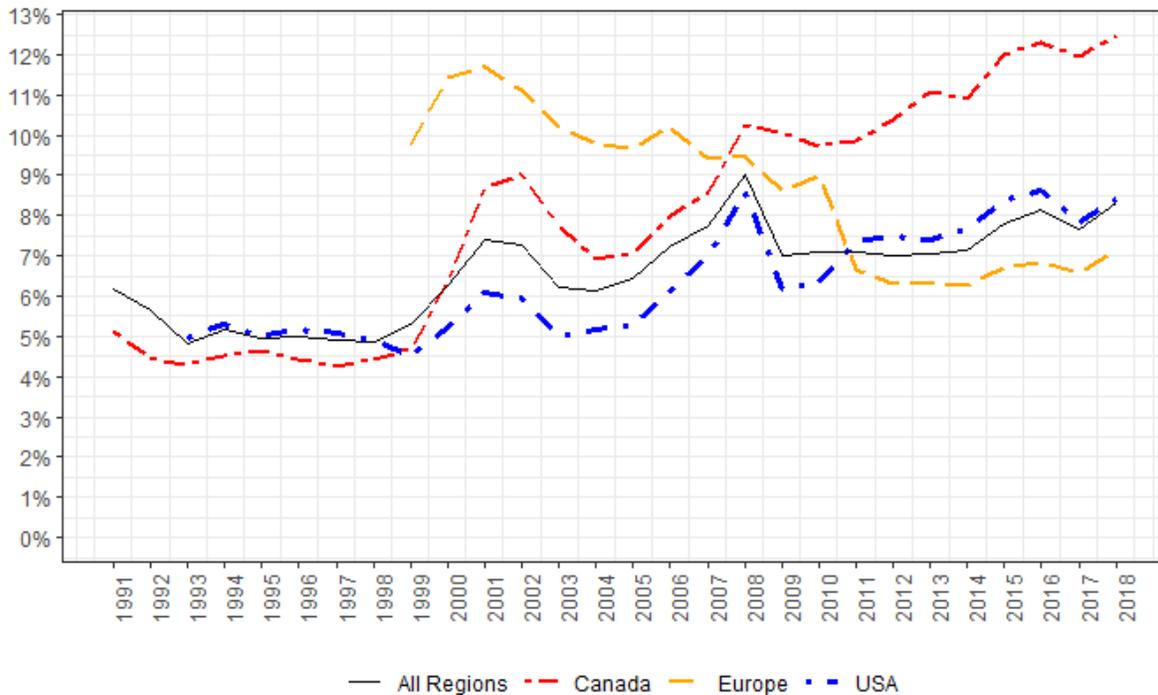
Exhibit 2 also shows that the global average allocation is the result of markedly different developments across the three regions. On average, the development of real estate allocation by U.S. pension funds tracks the global trend quite closely. During the first decade of the sample period, allocations to real estate by Canadian pension funds were very close to those in the U.S., but by 2000, Canadian pension funds began increasing their real estate allocation, and that trend became stronger after the global real estate crisis. Canadian pension funds now allocate 12.5% of their capital to real estate, on average. European pension funds are the clear outlier here: the average to real estate decreased from levels of 11.4% around 2000 to an allocation of about 7% during the last decade. This decrease partially represents the growth in the number of pension funds reporting to CEM, with early reporters having a larger allocation to real estate.

As the importance of alternative assets in pension fund portfolios has risen, and as real estate has cemented its position as the third-largest asset class in global institutional portfolios, questions arise around the choices that pension funds have made with respect to their real estate investments, and concerning the consequences of these choices for costs and performance.

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<sup>1</sup> See <https://www.msci.com/documents/10199/035f2439-e28e-09c8-2a78-4c096e92e622> and <https://www.reit.com/data-research/reit-market-data/us-reit-industry-equity-market-cap>

**Exhibit 2: Real estate as a percentage of pension fund assets (across regions)**



The contribution of this study is to understand the outcomes of allocation choices for the ultimate owners of assets -- endowments, pension funds and the like -- against the background of fundamental developments in the global real estate market such as the real estate boom that imploded in 2008-2009. Using the pension fund as the level of observation is fundamentally different from performance studies at the level of the asset, the investment vehicle, or the index, which have been the levels at which real estate performance studies have traditionally been conducted (see, for example, Hochberg and Mühlhofer (2017) and Arnold et al. (2019)).

## DATA ON GLOBAL PENSION FUND INVESTMENTS IN REAL ESTATE

For this study, we employ the CEM database, which to our knowledge is the broadest global database on pension fund investments, including information on investment styles, benchmarking choices, investment costs, and performance. The CEM database has been used before by Andonov et al. (2018) to study the role of pension fund governance on investment decision making, by Andonov et al. (2017) to assess the effect of liability discount rates on U.S. pension fund asset allocation, by Andonov et al. (2013, 2015) to study real estate investment practices by pension funds across the globe, and by Dyck and Pomorski (2011) to study the effect of size on performance in pension plan management.

CEM Benchmarking, a Toronto-based firm, assembles the pension fund investment data through an online data collection process, where participation is voluntary. The main incentive for pension funds to participate in the CEM data collection is to compare, contrast, and benchmark their cost and performance relative to their peers. Note that pension funds typically report every other year, not annually, and that some pension funds started reporting to CEM later in the sample

period, whereas others dropped out. Bauer et al. (2010) and Andonov et al. (2012) both address possible self-reporting bias, documenting no evidence that funds exit or enter the CEM database conditional upon their performance. One observation that the authors make is that smaller pension funds are more likely to exit the database.

The CEM database covers a total of 1,131 pension funds across multiple regions, over the 1991-2018 time period. The total assets held by pension funds reporting to CEM was USD611 billion in 1991, increasing to USD10.1 trillion in 2018 – a sizeable chunk of total global pension fund assets, which in 2018 were estimated to be worth USD40 trillion globally<sup>2</sup>. Exhibit 3 provides more information on database coverage. As the table shows, the majority of pension funds represented in the database are from the North American region, with 611 pension funds from the U.S. and 260 pension funds from Canada. On average, in 2018, these funds had approximately USD25 and USD20 billion in assets, of which USD1.2 and USD1.5 billion was allocated to real estate, respectively.

Noteworthy is that the coverage of European pension funds has broadened significantly over the past decade, increasing from 86 pension funds in 2009 to 227 pension funds in 2018. Furthermore, the average size of the European pension funds reporting to CEM is quite large, with approximately USD46 billion in assets and USD1.6 billion of real estate holdings in 2018. Funds from the Rest of World<sup>3</sup> group are relatively large, but this is mostly driven by some very large funds from the Middle East. We have a total of 8,669 fund-year observations for the 1,131 funds in the sample. That implies that our analyses will mostly be based on unbalanced panel estimations -- the average pension fund is in the database for a period of 7.7 years.

**Exhibit 3: The CEM database**

	<b>#Funds</b>	<b>#Observations</b>	<b>Average Size Pension Fund (USD billion)</b>	<b>Real Estate Average Holdings (USD billion)</b>
U.S	611	4,772	24.87	1.24
Canada	260	2,594	19.68	1.53
Europe	227	1,116	46.05	1.61
Rest of World	33	187	130.27	2.81
Overall	1,131	8,669	31.02	1.46

## **REAL ESTATE INVESTMENT APPROACHES BY PENSION FUNDS**

The strategic asset allocation to real estate can be implemented through a myriad of investment approaches and styles (see Andonov et al., 2013 for a schematic overview). A pension fund can allocate capital to real estate using both a private equity approach and a public equity (REIT) approach. Exhibit 4 shows the development regarding the choice between public and

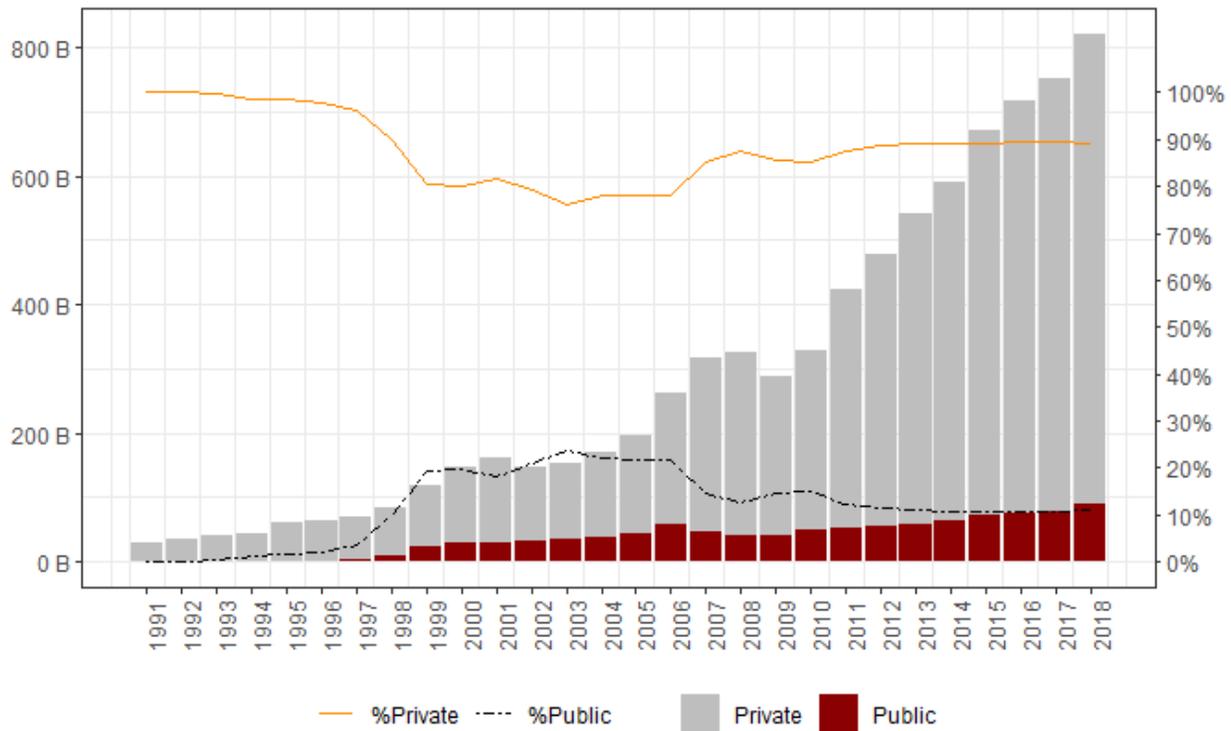
<sup>2</sup> This comparison is based on the Towers Watson Global Pension Assets Study 2018. (<https://www.willistowerswatson.com/en-CA/insights/2019/02/global-pension-assets-study-2019>)

<sup>3</sup> The Rest of World as defined in this paper covers Australia, China, the Emirates, New Zealand, Saudi Arabia, and South Korea.

private real estate investment for our global sample of 1,131 pension funds over the last three decades. The left-hand y-axis refers to the stacked bars, which show capital allocations in U.S. dollars (nominal terms), and the right-hand y-axis refers to the lines, which denote percentage allocations to the two types of real estate exposure -- the yellow line relates to private real estate and the black line to public real estate.

The graph shows that listed property exposure among pension funds was almost non-existent in the early 1990s. However, this started to change in the latter half of that decade -- during the period 1999-2006, pension funds held approximately 20% of their real estate exposure through the listed market. Since then, however, global pension fund exposure to listed real estate kept on growing in absolute terms, to levels of about USD 90 billion in 2018, but have gradually fallen in terms of their share of the overall real estate portfolio. The average allocation to public real estate is now just over 10% of the real estate portfolio and 0.9% relative to total pension fund assets. Here again, we observe the private asset revolution, with the absolute exposure of pension funds to private real estate increasing eightfold in the 20 years until 2018, to an allocation of USD 730 billion, on a total real estate exposure of USD 820 billion.

**Exhibit 4: Real estate holdings over time -- public versus private**



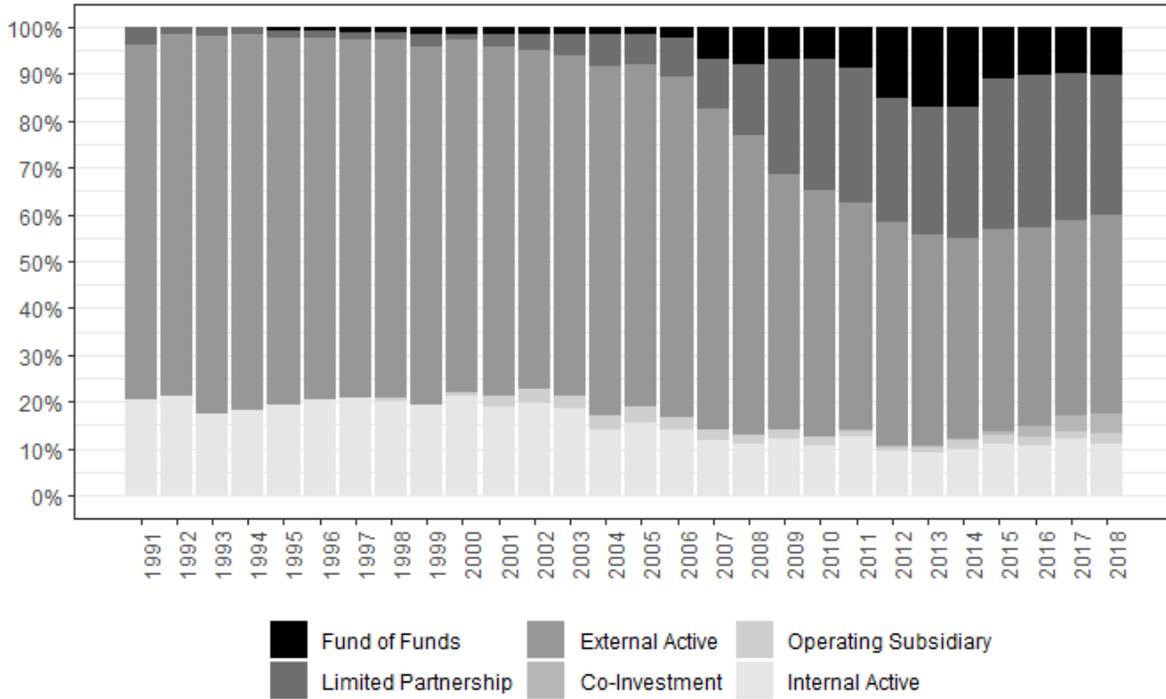
Investor attention to private assets has spurred the development of new vehicles to gain exposure to these assets -- pension funds can invest in private assets internally, or delegate investment management to external managers (see Andonov et al., 2015, for a discussion). This development is also clearly visible in real estate, as illustrated in Exhibit 5A, which shows the degree to which the different vehicles to gain access to private real estate investments have been

used by pension funds. The graph is ordered by the degree to which the real estate investment approach is internal or external, with those investment vehicles that have the largest extent of intermediation on top.

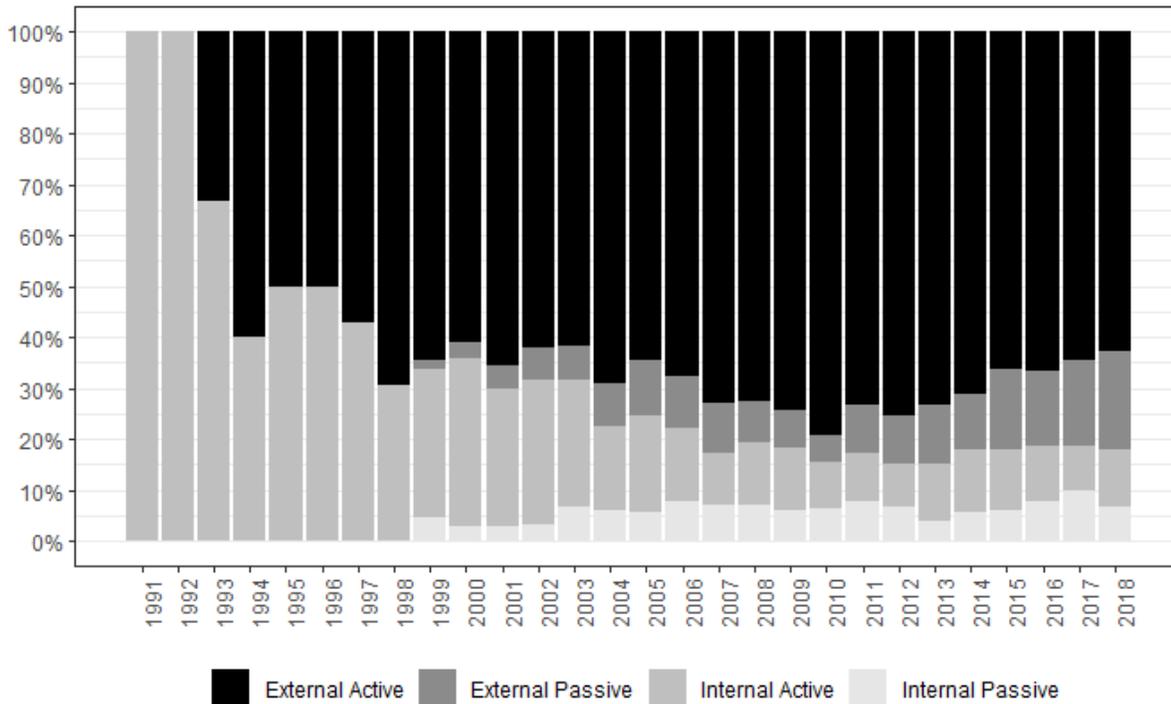
In the 1990s, the dominant strategies to gain exposure to private real estate were “internal active” and “external active”, with a very small minority of investors using limited partnerships. The category “internal active” means that a pension fund has an in-house real estate investment department, managing a portfolio of directly held real estate assets. The “external active” category refers to private equity real estate funds with an infinite life (i.e. open-ended funds), in which pension funds can take a stake, or separate accounts. After 2000, the “limited partnership” category gained in popularity, with about 30% of private real estate investments flowing through that structure in 2018. Limited partnerships are closed-end funds with a predetermined holding period. On the internal side, operating subsidiaries and co-investments were not used in the 1990s, but made some gains in recent decades, and are now almost exclusively used by the biggest pension funds (operating subsidiaries are especially popular in Canada, e.g. Oxford Properties of OMERS, Cadillac Fairview of OTPP, etc). Fund-of-funds, the most intermediated manner to get private real estate exposure, gained ground until 2014, but decreased in popularity since that time, and now represents approximately 10% of private real estate exposure.

The wide range of investment approaches to gain real estate exposure is not limited to the private equity side of the market; investment practices on the public equities side have also changed quite dramatically over the last 30 years, as illustrated in Exhibit 5B. During the early years of the sample period, all investment in public real estate securities was active and internal, which implies that pension funds had an in-house investment department managing a portfolio of stakes in listed property companies. In the mid-1990s, that shifted to external parties, who still managed the portfolios actively. In total, the “external active” category is responsible for about 60%-70% of the listed real estate exposure of global pension funds throughout the last two decades. Passive investment, both internally and through external fund managers (e.g. ETFs), started gaining ground from the late 1990s, but contrasting the trend in general equities, the growth in allocation has been rather slow. Externally managed passive investments now represent about 20% of the total listed real estate exposure, and that is only 6.5% for internal passive. For stocks, passive investment grew from 33.8% of the allocation to equities in 1991 to 42.5% in 2018. Combined with the fact that investment in private real estate is strictly “active,” we conclude that real estate very much remains an actively managed asset class.

**Exhibit 5: Real estate investment vehicles**  
**Panel A: Private real estate**



**Panel B: Public real estate**



## INVESTMENT COSTS

An important difference between real estate investment performance at the asset or index level and real estate performance at the level of the pension fund -- the ultimate asset owner -- is related to the costs to make and manage pension fund real estate investments. The CEM database maintains extensive records of investment costs for each asset class, and for each investment strategy within it.<sup>4</sup> The different investment approaches discussed in the previous section come with different levels of cost, and given the significant heterogeneity in the choice of investment approaches, it would seem likely that real estate investments costs reflect this heterogeneity.

Exhibits 6A and 6B graphically depict the development of real estate investment costs for the three main regions in the CEM database (Canada, Europe and the U.S.), for private and listed real estate, respectively. Costs are reported in basis points of the capital outlay, and are weighted by that same capital outlay -- the cost levels of the largest pension funds thus dominate the figures, we will also discuss unweighted costs in the discussion. Exhibit 6A shows that investment costs in private real estate seem to be quite stationary over time: although average investments costs do vary across years, they do not show a clear up- or downward trend. Second, we observe structural and persistent differences in private real estate investment costs across regions, with U.S. pension funds always paying more for their private real estate exposure than their peers in Europe, and especially compared to their peers just across the border, in Canada. On average, both over time and across pension funds, U.S. pension funds pay about 120 basis points for private equity real estate investments, compared to 75 basis points for European funds, and 54 basis points for Canadian pension funds. This difference does not become smaller over time. It is beyond the scope of this paper to investigate the determinants of the cost differences, but Andonov et al. (2015) show that U.S. pension funds rely more on external fund management solutions, including fund-of-funds.

Looking at unweighted costs (not shown in the exhibit) to avoid the dominance of the large pension funds, we observe a stationary average of about 150 basis points for U.S. funds, and 100 basis points for pension funds from Canada. Here, we observe rapidly rising investments costs for European pension funds, increasing from about 50 basis points in 2000 to 125 basis points in the last years of the sample. This is mainly due to the fact that small European funds increasingly employ funds-of-funds to obtain their private real estate exposure.

On the public real estate securities side, reported in Exhibit 6B, the picture is quite different. First, investment costs in listed real estate are much lower than on the private side of the market: the overall average investment cost across pension funds and over time (for the full sample period) is 21.9 basis points, against 98.8 basis points for private real estate. Second, the U.S. does not stand

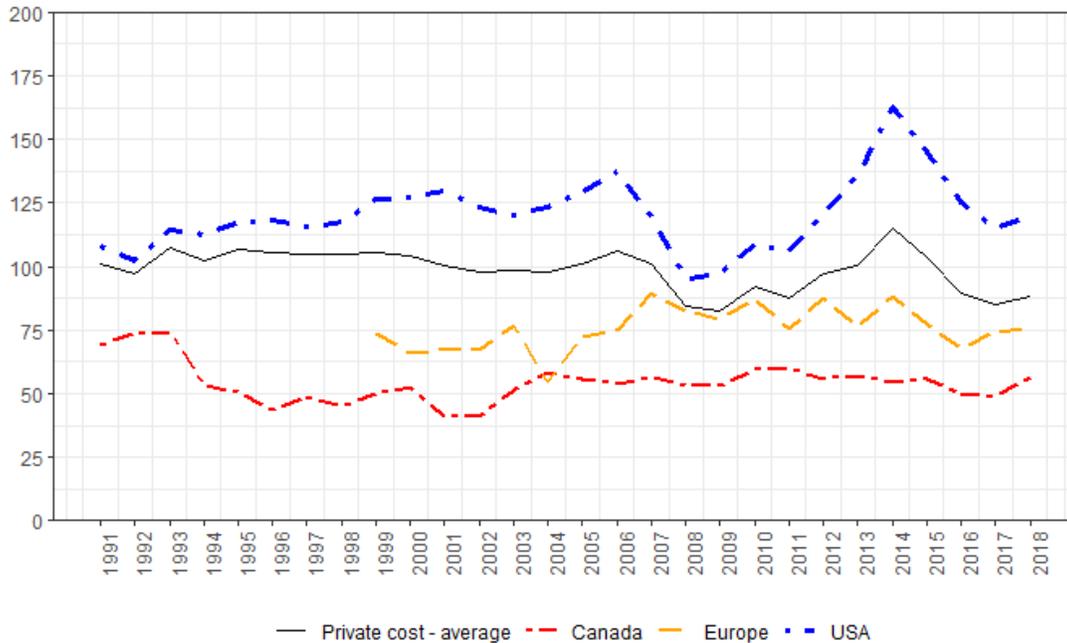
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<sup>4</sup> In the CEM database, internal investment costs capture the compensation and benefits to employees managing the internal investment portfolios, as well as their support staff, related research expenses and allocated overhead costs, all in addition to the transaction costs involved in the internal property portfolio. External investment costs include the management fees paid to both investment consultants and external money managers. On the other hand, CEM directly subtracts performance fees, carried interest, and rebates from the gross returns and does not incorporate these in the cost figures. These external investments costs also cover costs for internal staff whose sole responsibility is overseeing the external investments in real estate assets. The same applies for fund-of-funds, where the cost figures only pertain to the base management fee paid to the fund-of-funds manager as well as the underlying managers, but not to the performance fees and carried interest on either of these layers.

out in terms of investment cost levels in public real estate. In 2018, U.S. pension funds paid, on average, 34.9 basis points for investments in public real estate, which is not too far off the cost of pension fund investments in public real estate in Canada (50.6 basis points). Here, European pension funds are served most economically, with fees of, on average, 8.2 basis points.

**Exhibit 6: Real estate investment costs**

**Panel A: Private real estate (basis points per region, per real estate subcategory)**



**Panel B: Public real estate (basis points per region, per real estate subcategory)**

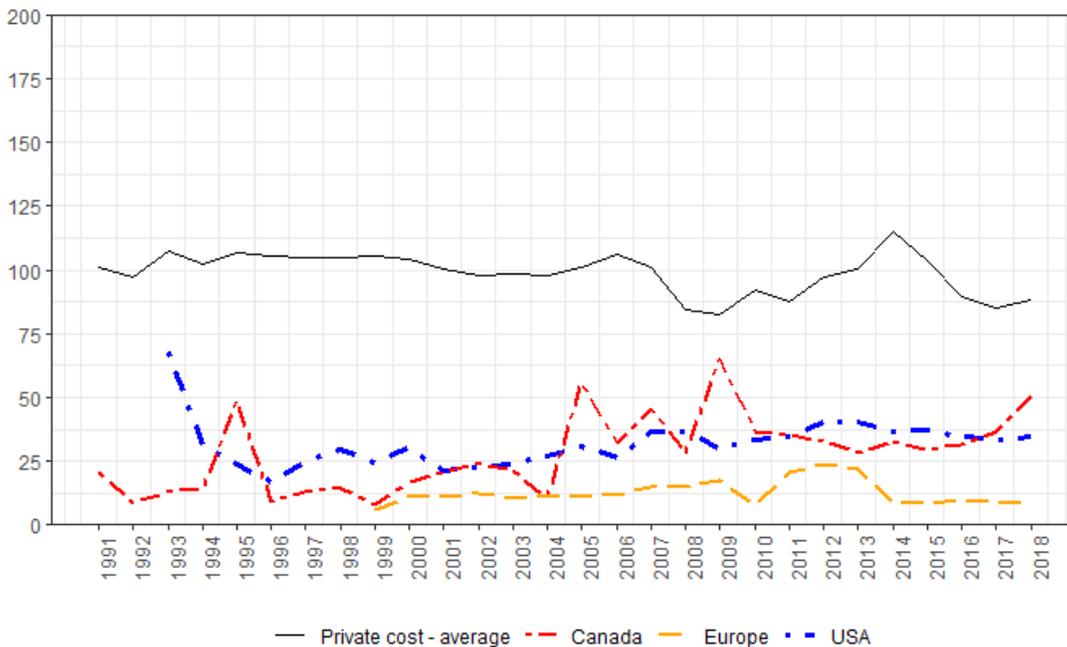
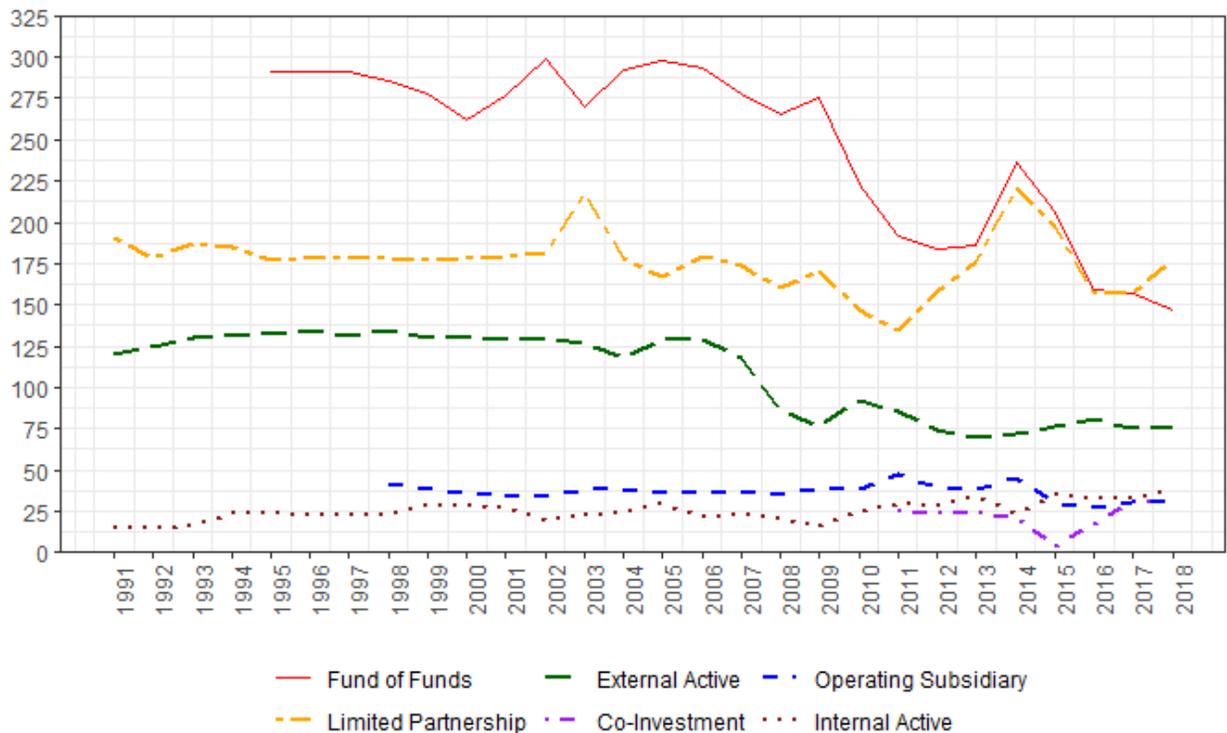


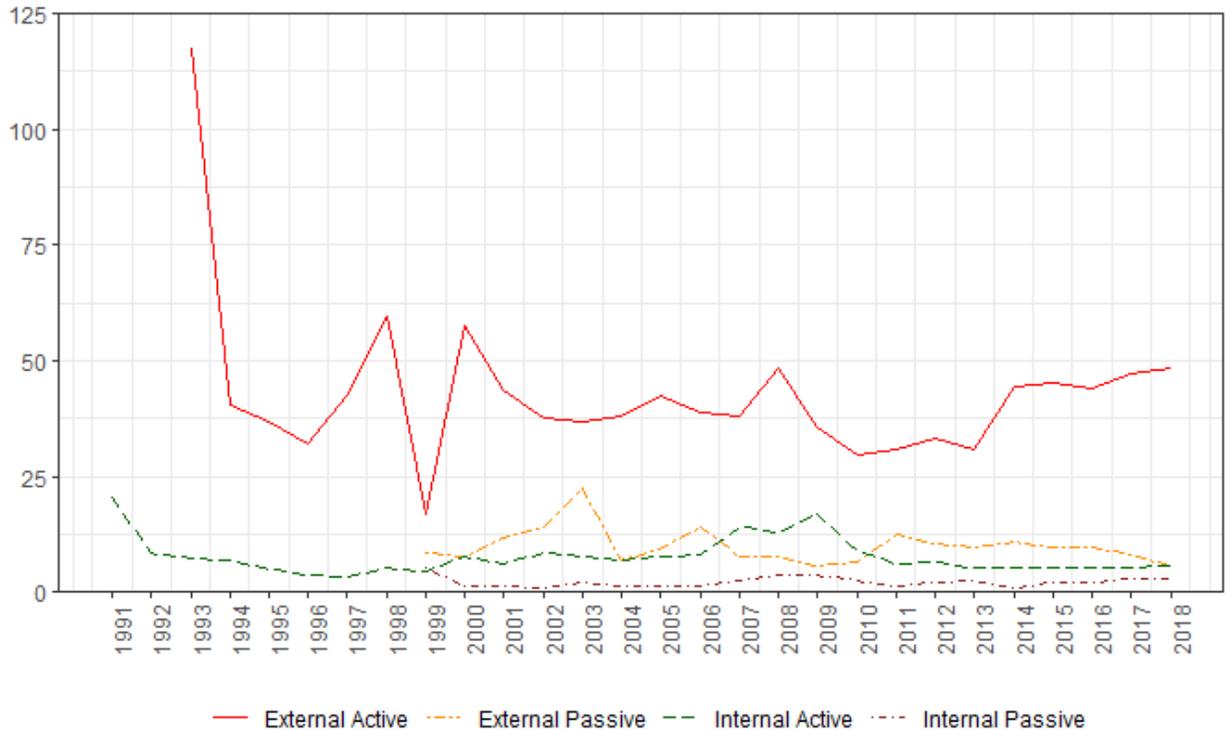
Exhibit 7 provides insight into the average cost of the different investment approaches discussed in the previous section. Note that fees exclude carried interest/promotes (see also footnote 4). As before, we start with the private side of the market, outlined in Exhibit 7A. First, we observe that the three internal approaches -- internal active, co-investment and operating subsidiary -- are considerably less expensive than the external approaches. The internal approaches are very close in terms of costs, at levels of approximately 35 basis points. On, average, the external ways to get real estate exposure are about 145 basis points more expensive. Within this group, funds-of-funds were traditionally the most expensive, although their costs ratios have come down quite drastically after the real estate crisis, from levels of about 293 basis points around 2006 to 147 basis points in 2018, and they are now comparable in cost to limited partnerships (i.e. finite life, closed-end funds). The costs of participation in an externally managed, open-ended fund or an externally managed separate account (external active in the graph) have also come down considerably over the last decade, from levels around 125 basis points to 75 points currently.

For allocations to public real estate equities, Exhibit 7B shows, not surprisingly, much lower costs. The average over time and across all four investment approaches is 22 basis points, against an average of 99 basis points for exposure to private real estate. The graph also shows that internal active and the two ways of passive exposure do not differ much in terms of cost level. These three approaches have an investment cost that is stationary over the past three decades at approximately 13 basis points. The outlier here is externally active, where investment costs are approximately 43 basis points, with relative stability over time.

**Exhibit 7: Investment costs by investment approach**  
**Panel A: Private real estate**



**Panel B: Public real estate**



## REAL ESTATE INVESTMENT PERFORMANCE FOR ASSET OWNERS

The previous sections have shown that the allocation to real estate has risen significantly over the past three decades. It is important to analyze whether this growth was justified by providing pension funds with higher gross and cost-adjusted returns compared to different asset classes that were (partially) substituted out. Exhibit 8 tabulates the gross returns and standard deviations for all asset classes across the entire sample and three distinct sub-periods. Returns are weighted by the size of the allocation to each asset class by each pension fund. The exhibit shows that over the entire sample period, real estate provided the fourth-highest gross return, at 9.6%. From the alternative assets, it is evident that private equity provided the highest gross returns, at 18.7%, on average, over the full sample period. Remarkably, while stocks, bonds, private equity, hedge funds and other real assets all experienced a slump in their returns over the 2001-2010 period, real estate provided returns that were of comparable magnitude to those in the previous decade. This is surprising, as the 2008-2009 global financial crisis was essentially a "real estate recession."<sup>5</sup>

Overall, it seems that the higher allocation to real estate is justified by high and relatively stable returns over the past 30 years. In that respect, the returns of real estate are contrasting quite starkly with other real assets that pension funds invest in. Exhibit 8 shows that these real assets

<sup>5</sup> A possible explanation is that we are looking at equity-type real estate assets, while the global financial crisis of 2008-2009 mostly revolved around debt-type real estate assets, such as (commercial) mortgage-backed securities. The debt real estate assets are usually part of a broader fixed income portfolio and are not the focus of this paper. In addition, capital returns in real estate depend on valuations, which are typically slow to reflect changing market conditions (Kok et al., 2017).

performed exceptionally well in the decade from 1991 to 2000, but then lost a bit of their luster, with falling average gross returns, both in absolute terms and relative to the other asset classes. This can be explained partially by the fact that in the 1990s, there were just a handful of pension funds investing in real assets other than real estate. As more pension funds piled into the real assets category, the pickings have become slim, and returns decreased.

**Exhibit 8: Gross return by asset class and sub-period**

Time Period		All Assets	Stocks	Bonds	Real Estate	Private Equity	Hedge Funds	Real Assets (Excl. Real Estate)
Full sample	Return	9.7	10.5	6.7	9.6	18.7	8.9	12.7
	$\sigma$	9.2	16.1	5.4	8.8	13.5	9.1	24.1
	Sharpe	1.1	0.6	1.3	1.1	1.4	1.0	0.5
1991-2000	Return	14.0	16.4	9.3	7.8	27.2	14.3	31.8
	$\sigma$	7.9	11.9	7.4	7.5	12.1	9.7	47.7
	Sharpe	1.8	1.4	1.3	1.0	2.3	1.5	0.7
2001-2010	Return	6.9	6.1	6.2	10.3	11.8	5.8	8.7
	$\sigma$	11.7	21.6	2.5	12.8	15.9	9.6	11.9
	Sharpe	0.6	0.3	2.5	0.8	0.7	0.6	0.7
2011-2018	Return	7.7	8.4	4.4	10.9	16.8	6.1	5.8
	$\sigma$	5.2	11.7	4.3	2.2	3.2	3.7	3.0
	Sharpe	1.5	0.7	1.0	5.0	5.2	1.6	1.9

Note: This exhibit presents the time series averages of the value-weighted gross, annual returns, including cross-sectional mean returns in percentages for the full sample period as well as three sub-periods. Standard deviations of the returns as well as Sharpe ratios are provided underneath the returns.

The previous sections illustrated that pension funds are increasingly choosing investment approaches with (multiple) intermediaries (Exhibit 6), and that these external investment approaches come with significantly higher costs as compared to internal investment approaches, especially for private real estate (Exhibit 7). Of course, a valid reason to use (multiple) intermediaries when investing in real estate would be that these intermediaries add value beyond their cost. To see whether they do, Exhibit 9 provides net returns for each real estate investment approach, with all fees are subtracted from the gross returns. The first important takeaway from that table is that REITs beat private real estate over the full sample period, with net returns almost 200 basis points higher. This is in line with recent research from Arnold et al. (2021), who show that U.S. open-ended private real estate vehicles underperform listed REITs, especially after controlling for risk and leverage.

Exhibit 9 shows that the net return achieved by pension funds decreases as pension funds add intermediaries to their investment approach. This holds for public as well as for private real estate approaches. For example, internal investment in public real estate yielded a 10.5% average return over the full sample period, and that was 9.8% for external investment. Note that the difference in net returns is larger than the difference between average investment costs for the two investment approaches.

For private real estate, we find an average net return of 8.4% across the three investment approaches over the full sample period. When looking at the different investment approaches over the entire sample period, the more externally-oriented investment approaches consistently provide lower net returns. Overall, it seems that additional layers of intermediaries do not add substantial value, or at least if they do, it is not in proportion to their costs: here also, we find that the average return difference between internal and external investment is larger than the average cost level. Internal private real investment has provided an average net return of 9.6%, against an average return of 8.0% for external investment (through funds or limited partnerships), and only 6.9% for funds-of-funds.

The table also suggests why funds-of-funds have been popular despite their overall underperformance: in the first decade of the sample period, they delivered higher average net returns than the other two approaches to gain private real estate exposure, and with a much lower standard deviation. Unfortunately, real estate funds-of-funds as a group have not been able to maintain that solid performance in the two decades after that. This is in line with recent evidence for private equity more generally, which shows lacking persistence in outperformance for pension fund investments (Harris et al., 2020).

**Exhibit 9: Net real estate returns by investment approach and sub-period**

Time Period		All REITs	REITs		All Private RE	Private RE		
			Internal	External		Internal	External	FoF
Full sample	Return	10.3	10.5	9.8	8.4	9.6	8.0	6.9
	$\sigma$	15.5	16.3	15.7	9.1	7.5	10.0	7.8
	Sharpe	0.7	0.6	0.6	0.9	1.3	0.8	0.9
1991-2000	Return	9.9	10.6	8.8	6.8	7.3	6.8	8.1
	$\sigma$	9.3	11.2	9.7	7.6	6.8	7.9	4.0
	Sharpe	1.1	1.0	0.9	0.9	1.1	0.9	2.0
2001-2010	Return	12.1	11.6	12.6	8.5	11.1	7.3	4.7
	$\sigma$	23.1	24.0	22.6	13.5	10.6	15.9	11.1
	Sharpe	0.5	0.5	0.6	0.6	1.0	0.5	0.4
2011-2018	Return	8.4	8.9	7.4	10.2	10.5	10.1	8.8
	$\sigma$	11.0	10.7	10.3	1.6	1.8	1.7	4.2
	Sharpe	0.8	0.8	0.7	6.5	5.8	5.8	2.1

Note: We present time series averages of cross-sectional value-weighted net mean returns in percentages for the full sample period as well as three sub-periods. Standard deviations of the returns are provided underneath returns.

## CONCLUSION AND IMPLICATIONS

The last three decades have seen significant growth in pension fund exposure to private and alternative assets all over the world. Real estate has been an important part of that expansion, and this has coincided with the rapid development of new investment vehicles to gain real estate exposure. On the private equity real estate side, limited partnerships, co-investments and fund-of-funds have provided pension funds access to real estate assets, whereas public real estate has seen the development of REITs and similar tax-efficient ways to get real estate exposure through the stock market, both actively and through passively managed, low-cost mutual funds.

These different investment approaches come with different levels of investment costs. Nevertheless, the overall average costs of real estate investment have stayed more or less stable over the last three decades, at about 114 basis points for private real estate investments and 17 basis points for listed real estate exposure. Underneath these global averages are some persistent differences across regions, especially for private real estate exposure. Most notably, U.S. pension funds consistently pay more for what seems like the same service: on average they pay about 120 basis points to manage their private investments. This contrasts especially with their Canadian peers, who face average costs of 54 basis points. European funds take a mid-position in terms of investment costs in private real estate, but are closer to Canada than to the U.S. For listed real estate, investment costs are more comparable across regions, but here we see a major difference between external active funds managers and the other ways to get listed real estate exposure.

Of course, it is possible that the higher costs are justified by better performance. We look at the gross and net returns real estate has delivered to a sample of 1,131 asset owners. This study shows that gross returns for both private and public real estate have been rather stable over the past decades, even after the 2008-2009 global financial crisis, and that real estate delivered the fourth-highest average returns. Other real assets, such as infrastructure, provided strong gross returns in the first decade of the sample, but have underperformed real estate since then. On the other hand, we observe that the net return achieved by global pension plans was highly dependent on the investment approach chosen, with more external approaches resulting in lower net returns, especially so for funds-of-funds. This final finding suggests that the costs of adding layers of financial intermediaries outweighs any possible value added.

This article has several practical implications for pension fund investors in real estate. As pointed out by Andonov et al. (2013), financial intermediation is costly, also when investing in real estate. Some pension funds have the ability to keep costs low through internalizing real estate investments, either by setting up an internal real estate group, operating subsidiary, or through co-investment directly into properties. Especially the latter model is in vogue among larger funds, with for example the Norwegian sovereign wealth fund (NBIM), which has bought direct stakes in many assets across the world over the past decade.

Smaller pension funds may not have the scale for internal operations, but can still use different allocation strategies for real estate investments – most importantly, public real estate offers a low-cost alternative, with the possibility of global diversification, at higher average returns than private real estate. However, rather than going the “public” route, most pension plans invest in private real estate, often through multiple layers of intermediation. Especially limited partnerships have grown in popularity, but those come at a cost that is similar to funds-of-funds, another expensive investment approach that yields returns lower than a public real estate or internal private real estate strategy. In addition to considering REITs, pension funds would be well-advised to consider cheaper, more standardized products, such as the ODCE funds, a collection of open-ended funds in the U.S., resisting the desire to allocate capital to more expensive, tailored mandates in the form of separate accounts, or even fund-of-funds.

Finally, the lessons of three decades of institutional investment in real estate provide useful insights for emerging real asset classes, such as infrastructure and natural resources. These asset

classes are rapidly growing from niche to mainstream, with institutional capital piling in, and with current allocations at 3.4%, on average. Pension funds should consider the full spectrum of investment approaches, including listed real assets firm as an alternative to private equity real assets funds, and the extent to which investments can be made internally, rather than externally. For small pension funds, club deals with other pension funds might be attractive. And of course, staying out of an asset class altogether might be an option that, although likely not palatable to pension fund boards, might be financially superior to investing in an asset through multiple layers of intermediation.

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