Institutional Investment Strategy and Manager Choice: *A Critique*

Richard M. Ennis

Richard M. Ennis is retired chairman of EnnisKnupp and a past editor of *Financial Analysts Journal* in Fort Myers, FL.
richardmennis@gmail.com

KEY FINDINGS

- Public-market pricing is a much bigger factor in alternative asset markets now than in the past. Alts have ceased to be the diversifiers they once were and have become a significant drag on institutional fund performance.
- The cost of institutional investing is 1.0% to 1.7% of asset value annually. Public pension funds underperformed passive investment by approximately 1.0% a year for the 10 years ended June 30, 2018; the shortfall of educational endowments was 1.6% a year.
- The author advocates much greater use of passive investment management as a way to bring cost into line with the characteristic diversification of institutional investors.

ABSTRACT: *The diversification of public pension funds and educational endowments is explained by a few stock and bond indexes alone. Alternative investments ceased to be diversifiers in the 2000s and have become a significant drag on institutional fund performance. Public pension funds underperformed passive investment by 1.0% a year over a recent decade; the annual shortfall of endowments is 1.6% a year. Given the extent of institutional diversification, the diminished effect of alternatives, and the funds' prevailing cost structure, institutional investors face the prospect of continuing significant underperformance in the years ahead. There is a better approach to institutional investment strategy and manager choice.*

TOPICS: ***Wealth management, retirement, pension funds, private equity****

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Institutional investors speak in reverent terms of the importance of sound policy as the foundation for their work, but that is not what drives them. Institutional investors' passion has always centered on identifying profitable opportunities and having the skill to exploit them. This was the case with conventional money management in the 1960s and 1970s and alternative investing beginning in the 1980s. The success of the latter was such that public pension funds now have 28% of their assets in alternative assets. The figure is 58% for large educational endowments. Alternatives have lost much of their luster, and thus institutional investors now face the question of whether to stay the course or rethink strategy. This article addresses institutional investment strategy and manager choice in light of experience to date. It analyzes the investment results of institutional funds to identify key diversification patterns.

EXHIBIT 1

Composite Returns for Public Pension and Endowment Funds for Fiscal Years Ended June 30 (percentage)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	10 Years
Pension	–19.9	13.7	21.3	1.1	12.1	16.7	3.3	0.8	12.3	8.6	6.38
Endowment	–20.5	12.2	20.1	0.8	11.7	16.5	4.3	–1.9	12.9	9.7	5.94

It sheds light on the cost of institutional investing. It examines institutional fund performance, including the impact of alternative investments. Ultimately, it seeks to help set the stage for more productive institutional investment strategy and manager choice.

DIVERSIFICATION AND PERFORMANCE

Data Sources and Limitations

We created two composites of return, one for public pension funds and the other for educational endowment funds in the United States. The public fund composite is an equal-weighted average of the returns of 46 large public pension funds. The sample is limited to funds with fiscal year ends of June 30 in accordance with our methodology, which entails analysis of synchronous returns and hence requires a common fiscal year end for the funds studied.[1] The sample is further restricted to funds that report investment returns net of expenses. Public fund data were obtained from the Pension Plan Data database maintained by the Retirement Research Center at Boston College,[2] annual reports (comprehensive annual financial reports [CAFRs]) of the subject funds, and third-party performance reporting, where available. For educational endowment funds, we used data provided in the Nacubo Survey for endowments greater than $1 billion in value. Using Nacubo archival data, we created a composite of approximately 100 institutions. Fund returns making up the endowment composite are equal weighted and reported to Nacubo as net of investment expenses.[3] The annual returns of both composites appear in Exhibit 1.

Compared with studies of the returns of individual securities or mutual funds, the present undertaking is data constrained to a much greater degree. Pension Plan Data and Nacubo are the only sources of publicly available return history for public pension funds and endowment funds, respectively. All returns are self-reported. The shortest time period for which rates of return are available is annual (i.e., neither monthly nor quarterly return data are available for either fund type). Annual returns are available for individual public funds but not for endowments. About one in three public funds still reports returns gross of fees to some extent; those funds had to be identified by sifting through all the CAFRs and removed from the data set. If one wishes to evaluate the performance of a representative sample of institutional investors, these are the constraints that define the scope and nature of work that can be done.

Diversification

Exhibit 2 summarizes the diversification of the two fund types by management style, indicating endowment funds' much heavier reliance on alternative investments and the limited use of passive investing by either fund type.

Casual inspection of the two return series in Exhibit 1 reveals that they are very similar, notwithstanding that one has twice the alts allocation of the other. To better understand the diversification pattern of the two composites, we identified six asset-class indexes that might help capture their risk–return signatures:

- Russell 3000 Stock Index
- Bloomberg Barclays Aggregate Bond Index
- MSCI All-Country World ex-US Stock Index
- Cambridge Associates Private Equity Index
- Cambridge Associates Real Estate Index
- HFRI Fund-of-Funds Composite Index

[1] Approximately 75% of public funds use June 30 as their fiscal year-end date.

[2] See Pension Plan Data: https://crr.bc.edu/data/public-plans-database/.

[3] See Nacubo Public Tables, History: https://www.nacubo.org/Research/2019/Historic-Endowment-Study-Data.

EXHIBIT 2
Portfolio Diversification by Management Style

Management Style	Public Pension Funds	Endowment Funds
Active	52%	28%
Passive	20%	14%
Alternative	28%	58%
Total	100%	100%

Sources: Pension Plan Data, Nacubo, Greenwich Associates.

To analyze the diversification of the two composites, we used the quadratic programming technique originated by Sharpe (1988). Popularly known as returns-based style analysis, the technique enables the analyst to determine which index returns statistically explain the risk–return characteristics of a portfolio—or a composite of them, as in the present case. The analyst can introduce (i.e., make available) two or more index return series as independent variables to determine the allocation among the indexes that best matches the composite in terms of its risk-and-return characteristics. The technique reveals how a fund, or composite, is effectively diversified among possible components.[4]

We analyzed the diversification patterns of the composites of public and endowment fund returns by using two measures: R^2 and the standard error of the regression (tracking error). We performed returns-based style analysis on the composite returns five times, sequentially, broadening the number of possible explanatory variables by one with each successive iteration. We started with just two indexes, those for US stocks and US bonds. We then made additional potential explanatory variables (indexes) available one at a time. We report diversification measures for each iteration in Exhibit 3.

The first row of Exhibit 3 illustrates the powerful influence of diversifying beyond stocks and bonds in the decade from July 1999 through June 2008. The R^2 rose from 0.75 to 0.97, and tracking error decreased from nearly 6% to 2% with the inclusion of alternative investments. In the decade that followed, alternatives had a negligible impact on endowment diversification, with the R^2 already at 0.99 with global stocks and bonds alone (column 2). The same pattern exists for public pension funds during the more recent 10-year period. (Ten years of historical return data for the pension funds are not available for the prior period.)

These are noteworthy results. For a decade, stock and bond indexes have captured the return-variability characteristics of alternative investments in composites of institutional funds, for all intents and purposes. Alternative investments did not have a meaningful effect. The finding that the correlation between funds with significant alts exposure and marketable securities benchmarks is near perfect runs counter to the popular notion that the return properties of alts differ materially from those of stocks and bonds. That, after all, is an oft-cited reason for incorporating alternative investments in institutional portfolios. As we see here, however, alt returns simply blend into broad market returns in the context of standard portfolio analysis in the latter decade. In a later section, we address developments in the markets for principal areas of alternative investment that have contributed to the melding of alts' returns with those of stocks and bonds.

Benchmark Selection and Performance Evaluation

Performance evaluation requires a benchmark. We used the following criteria in establishing benchmarks for the two composites:

1. Benchmarks should be investable in a manner that is free of active decision making and net of cost.
2. To the extent possible, they should be fact based: free of the selection bias or arbitrariness that would be inherent in choosing the benchmark based on experience, judgment, or taste.
3. They should comport with the observed diversification pattern at least as well as other benchmark candidates that might meet the selection criteria.

We limited the benchmark components to the three marketable securities indexes based on the first selection criterion. All three are readily, passively investable at negligible cost. To address the other two criteria, we used returns-based style analysis with the additional constraint that the non-US equity allocation not be

[4]Returns-based style analysis is akin to multiple regression with two constraints: All the independent variable weights (betas) must be positive, and they must sum to 1.0.

EXHIBIT 3

Patterns of Diversification of Institutional Funds during Two Decades: R^2 and Tracking Error

	1. US Stocks and Bonds Only	2. Admit Non-US Stocks	3. Admit Real Estate	4. Admit Private Equity	5. Admit Hedge Funds
Endowment Funds	0.66	0.75	0.75	0.91	0.97
1999–2008	(6.7%)	(5.7%)	(5.7%)	(3.4%)	(2.0%)
Endowment Funds	0.98	0.99	0.99	0.99+	0.99+
2009–2018	(1.6%)	(1.5%)	(1.5%)	(0.8%)	(0.5%)
Public Pension Funds	0.99+	0.99+	0.99+	0.99+	0.99+
2009–2018	(1.1%)	(0.9%)	(0.9%)	(0.6%)	(0.6%)

less than 16%–17% of total assets.[5] The resulting factor benchmarks are shown in Exhibit 4. Exhibit 5 summarizes the performance of the two institutional composites, subtracting the benchmark return from that of the composite. The excess return of public pension funds is −0.99% a year and that of endowments is −1.59%.

Risk-Adjusted Composite Return

Exhibit 6 illustrates a regression of the public pension fund composite returns on its factor benchmark returns. The public fund composite's beta relative to the benchmark is 1.003, indicating market-like volatility. The intercept of the simple regression is a measure of risk-adjusted performance (alpha). The alpha of public funds as measured by the intercept in Exhibit 6 is −0.98% per year. The alpha has a standard error of 0.39% and a *t*-statistic of −2.5, indicating its statistical significance. The R^2 of the regression is 0.993. The standard error of the regression (tracking error) is 1.0%, which is very small relative to the full range of composite outcomes of more than 40 percentage points (i.e., the greatest negative public fund return in Exhibit 1 is −19.9% and the greatest positive return is +21.3%, for a range of 41.2 percentage points).

Exhibit 7 is the same as Exhibit 6 except that it illustrates endowment results. The endowment composite's beta relative to its factor benchmark is 0.987, indicating market-like volatility. The alpha (intercept) is −1.47% per year, with a *t*-statistic of −2.4, indicating statistical significance. The R^2 of the regression is 0.985. The standard error of the regression is 1.54%. Although the fit is not as tight and the negative alpha is greater, the overall picture for the endowment composite is very similar to that of public pension funds. The regression statistics associated with Exhibits 6 and 7 reinforce the earlier finding that public securities markets have become the essential drivers of institutional portfolio return.

One Year Out of Sample

The regression equations depicted in Exhibits 6 and 7 can be used to forecast composite return using the returns of market indexes. This is accomplished by multiplying the slope coefficient by the aggregate benchmark return (reached by applying benchmark proportions to the index returns) and adding back the negative intercepts. This permits an out-of-sample check on their predictive power. We did this for the fiscal year 2019.[6] Exhibit 8 shows the results. Actual returns matched the forecasts.

Estimating Cost

A full understanding of the economics of institutional investing requires knowledge of its cost. A study by the Pennsylvania Public Pension Management and Asset Investment Review Commission examined the

[5] The mean return and covariance properties of the three asset classes during the period of study are such that, in the absence of this additional constraint, the solution would have non-US equity at approximately 11% of total assets. Based on available data regarding actual institutional investment practice over the course of the study period, we concluded that the figure should not be allowed to go below 17% for public pension funds or 16% for endowment funds to avoid introducing an upward bias in the benchmark return.

[6] Because composite data were not available at the time of writing, we used the median public fund return from the BNY Mellon Master Trust Universe as of August 7, 2019. See https://www.bnymellon.com/us/en/newsroom/news/pess-releases.

EXHIBIT 4
Composite Benchmarks

	Bond Allocation	US Equity Allocation	Non-US Equity Allocation	R^2 with Composite	Tracking Error
Public Fund Benchmark	29.6%	53.4%	17.0%	0.993	0.95%
Endowment Fund Benchmark	28.1%	55.9%	16.0%	0.985	1.46%

EXHIBIT 5
Composite Performance (10 years ended June 30, 2018)

	Composite Return	Factor Benchmark Return	Excess Return	Cumulative Difference
Public Pension Funds	6.38%	7.37%	–0.99%	–9%
Endowment Funds	5.94%	7.53%	–1.59%	–14%

investment expense of public pension funds with assets of $10 billion or more using data reported by the funds.[7] As a percentage of asset value, the reported cost figures ranged from less than 0.10% to 1.57% of assets, with an average of approximately 0.40%. Reported costs typically include investment manager fees invoiced to the fund. However, they generally exclude at least some transaction costs for marketable securities, as well as real estate and private equity charges netted against cash flows to the fund. Performance-related fees for hedge funds and private equity are often not reported or are underreported. As a result, public funds' reported investment costs are biased heavily downward and generally of little value in gauging the true cost of investment. To get a sense of actual expense, we developed a rough-and-ready *cost function* for institutional investing: Working from the bottom up, we estimate the typical cost, including transaction cost, of institutional stock-and-bond-only investments at approximately 0.54% of asset value.[8] Hooke and Yook (2020) arrived at a cost estimate of 2.48% of asset value for five public pension funds' alternative investment portfolios using detailed accounting data. With 0.54% as the investment cost with no alternative investments and 2.48% for 100% alts, we derive a simple cost equation:

$$\textit{Investment cost as a percentage of asset value} = 0.54\% + 1.94\% \times A$$

where A is the fraction allocated to alternative investments.

The cost equation yields an estimated investment expense of 0.98% of asset value for the composite of public pension funds. Public funds had an average alts allocation of 22.5% over the course of our study, so the cost estimate is 0.54% + 1.94% × 0.225 = 0.98% of asset value. The estimated cost for the endowment composite (with 58% alts) is 1.67% of assets.[9] Note that the cost estimates are very similar to the composites' respective margins of underperformance: 0.99% and 1.59% per year relative to passive investment. These closely comparable results provide support for the simple model of institutional investment cost; that is, given the two composites' extraordinary degree of diversification, we would expect them to underperform properly constructed passive

[7] See page 105 of the Pennsylvania Public Pension Management and Asset Investment Review Commission's 2018 "Final Report and Recommendations."

[8] Assumptions are as follows: Stocks are 70% of a marketable-securities-only portfolio, and bonds are 30%. Passive management accounts for 15 percentage points of the stock allocation and 5 percentage points of the bond allocation, leaving active stocks at 55% of the total and active bonds at 25%. The cost of active stock portfolio management, including transaction costs, is 0.8% of assets annually; for bonds, the figure is 0.4%. Passive management is free. With these assumptions, the cost of stock management is 44 bps and that of bond management is 10 bps, for a total cost of 54 bps.

[9] At the beginning of the study period, the pension funds' average allocation to alternatives as a class was 17% of total assets, rising to 28% at the end of the period; the average of the average value was 22.5% over the study period. Endowments averaged 58% alts over the study period.

EXHIBIT 6
Regression of Composite Public Pension Fund Returns on Factor Benchmark Returns

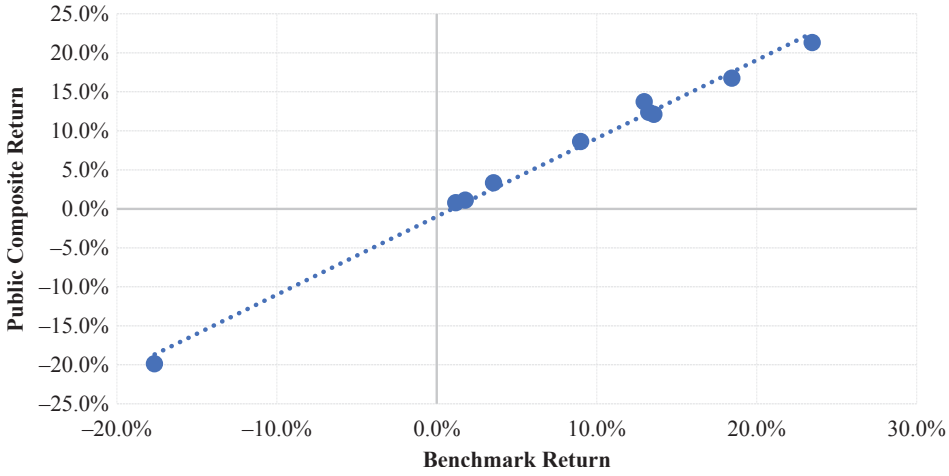
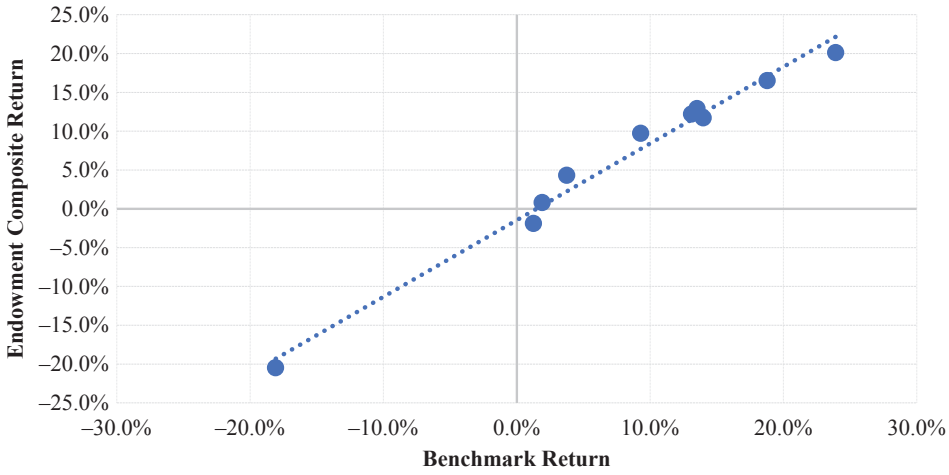


EXHIBIT 7
Regression of Composite Endowment Fund Returns on Factor Benchmark Returns



benchmarks by about the amount of costs incurred. Accordingly, we put the cost of institutional investment in the range of 1.0% to 1.7% of asset value, depending largely on the extent of alternative investment.

Cross-Sectional Analysis of Public Pension Funds

We derived a unique benchmark for each of the 46 public pension funds in our data set and refer to them as *equivalent-risk* benchmarks. We did this by regressing the individual fund returns on those of the factor benchmark for the public fund composite. These equivalent-risk benchmarks reveal the effect of the factor-diversification pattern of the composite and the relative volatility of the individual funds to the composite. The betas of the individual funds ranged from 0.8 to 1.2 relative to composite benchmark. Cross-sectional performance results are given in Exhibit 9. The median alpha is –1.03% per year. The range of alpha is –3.16% to +1.10%. Of the 46 funds, one has a statistically significant positive alpha. Seventeen have statistically significant negative alphas.

EXHIBIT 8

Out-of-Sample 1-Year Forecast for Year Ended June 30, 2019

	Public Funds	Endowment Funds
Actual Return	6.4%	5.9%
Forecast Return	6.4%	5.9%

In other words, public pension funds underperformed markedly—17 to 1—in the cross section.

Another striking feature of public fund investing is the degree of diversification it produces. In Exhibit 9, the median R^2 of the pension funds with market factors is 0.985. The median standard error of regression, or tracking error (not shown), is just 1.55%, a very small value in the context of the 41-percentage-point range of return previously noted. It is no exaggeration to describe customary public pension fund diversification as extreme. With this type of diversification, if the annual cost of public pension fund investing is 1% of asset value, the likelihood of underperforming in any one year is 0.75—a daunting prospect. The likelihood of underperforming over a decade is 0.98—a virtual certainty.[10]

Diversification, per se, is not the problem. Institutional trustees are fiduciaries, and prevailing diversification patterns are a manifestation of how they interpret their fiduciary duty. In other words, observed diversification is an institutional fact of life. The problem is the combination of extreme diversification and high cost: a recipe for failure.

Questionable Benchmarking Practices

Overseers of institutional funds—perhaps a majority of them—might say that the findings reported do not apply to them because they have outperformed their custom benchmark. These are performance benchmarks of the institutions' own devising that they use in their annual reports. There are no reporting standards governing benchmarks, and benchmark designers have been known to take liberties with the applicable principles. Here are a few we noted in the course of our

[10] Probabilities reflect the area under a normal distribution curve with a tracking error of 1.5% and incorporating a cost of 1.0% per year for the respective holding periods.

EXHIBIT 9

Diversification and Performance of Public Pension Funds for the 10 Years Ended June 30, 2018

Rank	Fund	R^2	Alpha	*t*-Stat
1	Georgia Teachers	0.996	1.10%	4.4
2	West Virginia PERS	0.976	0.72%	1.0
3	New Jersey	0.978	0.67%	1.1
4	Iowa	0.983	0.42%	0.8
5	New Mexico Teachers	0.947	0.32%	0.3
6	Los Angeles DWP	0.991	0.16%	0.4
7	Minnesota SBI	0.993	0.13%	0.3
8	North Carolina	0.992	0.07%	0.2
9	Arkansas Teachers	0.979	0.02%	0.0
10	Arizona SRS	0.997	–0.15%	–0.5
11	New Hampshire	0.998	–0.24%	–1.1
12	New York City ERS	0.996	–0.34%	–1.1
13	South Dakota	0.976	–0.35%	–0.4
14	New York State Teachers	0.990	–0.36%	–0.7
15	Florida	0.995	–0.61%	–1.7
16	Kentucky Ret. System	0.970	–0.64%	–0.8
17	Montana	0.988	–0.64%	–1.2
18	Los Angeles County	0.993	–0.68%	–1.8
19	Connecticut Teachers	0.986	–0.78%	–1.5
20	San Francisco	0.986	–0.94%	–1.5
21	Arizona Pub Safety	0.972	–1.00%	–1.4
22	Texas Teachers	0.972	–1.02%	–1.2
23	Maine	0.992	–1.03%	–2.5
24	Washington State	0.975	–1.03%	–1.3
25	Illinois Universities	0.995	–1.05%	–2.9
26	Virginia Ret. System	0.972	–1.06%	–1.3
27	Connecticut Employees	0.989	–1.06%	–2.2
28	Oregon	0.974	–1.08%	–1.3
29	Ohio School Employees	0.988	–1.20%	–2.2
30	Rhode Island	0.990	–1.25%	–2.7
31	South Carolina	0.978	–1.41%	–2.1
32	Vermont Employees	0.942	–1.44%	–1.3
33	Missouri DOT & HP	0.967	–1.45%	–1.5
34	Maryland State Ret.	0.980	–1.47%	–2.2
35	Illinois State Employees	0.986	–1.47%	–2.5
36	Illinois Teachers Ret. Sys.	0.994	–1.80%	–4.5
37	California STRS	0.983	–1.82%	–2.6
38	Phoenix ERS	0.995	–1.87%	–5.8
39	Missouri SERS	0.917	–2.12%	–1.5
40	North Dakota ERS	0.983	–2.21%	–3.1
41	Kern County	0.982	–2.25%	–3.5
42	Indiana PERS	0.943	–2.27%	–2.1
43	California PERS	0.990	–2.36%	–4.3
44	Pennsylvania Pub Sch	0.939	–2.47%	–1.9
45	New Mexico PERA	0.987	–2.63%	–4.3
46	North Dakota Teachers	0.984	–3.16%	–4.2
	Median	**0.985**	**–1.03%**	**n/a**

study: (1) failing to define the custom benchmark or one or more of its components; (2) using as many as 20 benchmark components, including obscure ones, in a single custom benchmark, rendering it incomprehensible; (3) using noninvestable constructs (e.g., "CPI + 3%" or the fund's actuarial interest assumption) as a component; (4) using a benchmark that reflects active decision making; and (5) using a benchmark that excludes significant investment expenses. Indeed, an entire paper could be written on the black art of institutional fund benchmarking.

The 10 largest public pension funds in our data set reported having outperformed their custom benchmark by an average of 0.17% per year over the study period. Those same funds underperformed their respective equivalent-risk benchmarks by an average of 0.83% a year—which is to say, the average of custom benchmarks lagged that of equivalent-risk benchmarks by 100 bps per year. This suggests the custom benchmarks are *slow rabbits* in the parlance of greyhound racing. It certainly raises a question about the objectivity of self-measurement.

Comparing Public Pension Funds and Endowment Funds

Individual-fund-level data are not available for educational endowment funds. There is no reason to believe, however, that the availability of such data would present a different picture than we have seen for public pension funds. During the course of the study period, the excess annual return of the public fund composite is −0.99% and that of the endowment composite is −1.59%. Thus, aggregate public outperformed aggregate endowment by 60 bps a year. The R^2 of the two return series is 0.990. Apart from the endowments' relative underperformance, which we attribute to greater cost, the return patterns are nearly identical, as revealed by visual inspection of Exhibit 1.

The comparison of pension and endowment returns introduces another element of the economics of institutional investing. Namely, there is no intrinsic difference between endowment funds and pension funds in terms of how they perform. Both are tax-exempt investors. Both are institutional funds in the United States that would describe themselves as having an amply long investment horizon for equity investing. Both are overseen by fiduciaries operating under trust law that originated with *Harvard v. Amory* (1830). Both operate in the same largely efficient markets (more on this later). Dollars invested do not know whether they are working for an Ivy League school or public school teachers. Endowment funds are not merely competing with one another; they are competing with public pension funds on a daily basis. And they have not been doing well in recent years.

ALTERNATIVE INVESTMENTS

Large educational endowment funds were early adopters of what came to be known as the Yale Model in the latter part of the 1980s, with heavy emphasis on alternative investments. The Yale Model had a great run, with large endowment funds, in particular, outperforming stocks and bonds by a wide margin. For the 10 years ended June 30, 2008, for example, large endowment funds in the Nacubo survey outperformed a 60–40 blend of the Russell 3000 Stock Index and investment-grade bonds by 570 bps per year. That is a stunning margin of advantage for a composite of diversified portfolios. Then things changed, with alternative investments seeming to lose their luster at about the time of the Great Financial Crisis of 2008. This section summarizes important developments in the marketplace for alternative investments during the past two decades and recaps the performance of key areas of investment.

Marketplace and Performance

Overall context. For all the attention that alternative assets have attracted, they are relatively small components of investable capital markets. The aggregate value of stocks and bonds globally is approximately $180 trillion.[11] Nonlisted, investment-grade commercial property in the United States has been estimated to be worth $3 trillion,[12] or 1.7% of the aggregate value of stocks and bonds worldwide. Hedge funds are approximately $3.2 trillion,[13] or 1.8%, and private equity is

[11] SIFMA Fact Book: https://www.sifma.org/resources/research/fact-book/.

[12] See Teuben and Bothra (2018). This is apart from the $1.3 trillion in REITs, which are included in the Russell 3000 Index, and about $5 trillion of commercial, industrial, and retail real estate on corporate balance sheets in the United States.

[13] See HFR (2019).

$3.4 trillion,[14] or 1.9%. The total market value of these alts represents only about 5% of what is tantamount to a market portfolio.

Real estate. One of the most significant developments in the last two decades in the real estate investment market has been the explosive growth of listed assets. Between 1995 and 2018, the value of publicly traded real estate investment trusts (REITs) in the United States grew 25-fold, from $50 billion to $1.250 trillion.[15] Another area of growth has been non-core real estate funds. The two principal categories of non-core real estate funds are *opportunistic* and *value-added*. Non-core real estate investments, with greater property-level risk and leverage, are expected to produce greater returns than core types.

Significant real estate cash flows and valuations are reflected in the financial statements of publicly traded corporations and are priced into their shares. It has been estimated that real estate assets at market value account for 40% of US corporate assets (see Nelson, Porter, and Wilde 1999). This figure may be somewhat high in view of the relatively recent rise of FAANG (Facebook, Apple, Amazon, Netflix, and Google) giants, which may be less reliant on real estate in their operations. Nevertheless, real estate remains an important asset of corporate America, and corporations buy and sell properties in the same markets as real estate asset managers. Therefore, when you invest in a stock index fund, you get a big slug of genuine, diversified, valuable, income-producing real estate. Furthermore, $1.3 trillion of pure real estate assets now exist in the form of REITs, which are included in the Russell 3000. It should come as no surprise, then, that institutional funds' real estate returns would be captured by the returns of the US stock market, as indicated by the results reported earlier. As Pagliari, Scherer, and Monopolies (2003, p. 10) put it, "improved market efficiency, increased market capitalization, and better data availability are all contributing to a more seamless real estate market, where public and private market vehicles display a long-run synchronicity."

During the last two decades, private-market real estate underperformed REITs by a wide margin. In a 2019 study, CEM Benchmarking determined that institutional portfolios of private-market real estate, including core and non-core properties, underperformed listed real estate by 2.8% a year between 1998 and 2017.[16] With comparable volatility (adjusted for return smoothing), REITs achieved much better risk-adjusted performance than private-market real estate over the 20-year period, with a Sharpe ratio of 0.44 compared with 0.33 for private real estate. Bollinger and Pagliari (2019) determined that non-core real estate significantly underperformed between 2000 and 2017. They calculated the annual alpha of "opportunistic" funds at −2.85% and that of "value-added" at −3.46% relative to core funds. The authors concluded that the largest contributor to the poor showing of non-core investments was their cost, which they put at 3% to 4% per year of the equity portion of investment value.

Private equity. Extraordinary developments have characterized the private equity market in the past two decades. The number of private equity firms active grew more than 10-fold between 1995 and 2018, from fewer than 1,000 to roughly 10,000.[17] The number of corporate transactions mushroomed 60-fold, from fewer than 50 deals a year in 1996 to nearly 3,000 in 2018. Valuation levels rose by nearly 50% between 2003 and 2018, with average purchase price multiples increasing from 7.3 to 10.9 of earnings before interest, tax, depreciation, and amortization for US leveraged buyout transactions. Uninvested capital, the so-called dry powder of the industry, now totals $1.2 trillion, three times the amount that existed in 2003.[18] Which is to say, capital equal to 38% of the aggregate value of invested private equity assets is looking for good deals.

Private equity managers compete in the capital markets with corporations, insurance companies, banks, and conventional money managers when they buy and sell companies and borrow to finance the companies' ownership. Furthermore, leverage amplifies returns,

[14] See Preqin 2019 Global Report (https://docs.preqin.com/samples/2019-Preqin-Global-Private-Equity-Venture-Capital-Report-Sample-Pages.pdf).

[15] See FTSE Nareit Real Estate Index Historical Market Capitalization, 1972–2018 (NAREIT, https://www.reit.com/data-research/reit-market-data/us-reit-industry-equity-market-cap) and REIT Industry Monthly Data for December 2019 (NAREIT 2019, https://www.reit.com/data-research/reit-market-data/reit-industry-financial-snapshot).

[16] See "Updated 20-Year CEM Benchmarking Study Highlights REIT Performance Versus Private Real Estate" (NAREIT, https://www.reit.com/data-research/research/updated-cem-benchmarking-study-highlights-reit-performance).

[17] See Preqin (2019).

[18] See Bain & Co.

whether it is buried in a partnership or out in the open. Numerous studies have shown that pricing in the private equity market has become much better aligned with the public equity and debt markets that envelop and dwarf them.

Important research findings include the following:

- Private equity returns resemble those of domestic small-cap value stocks without a return premium. See Phalippou (2014); Harris et al. (2014); Ilmanen, Chandra, and McQuinn (2020); L'Her et al. (2016); and Rabener (2018).
- The cost of private equity investing approximates 6% per year of invested capital. See McKinsey & Co. (2017) citing CEM Benchmarking data (p. 24) and Phalippou and Gottschalg (2009).
- Excess return for buyout funds turned decidedly negative in the mid-2000s (see L'Her et al. 2016). Public market equivalent (PME) values for private equity declined from 1.2 to 0.8 at about the same time (see Ilmanen, Chandra, and McQuinn 2020).
- US buyout funds achieved an average annual excess return of −2.7% to −3.2% between 2006 and 2014 according to L'Her et al. (2016).[19] Phalippou (2014) obtained a similar result at −3.1% per year.

Hedge funds. Hedge fund assets under management in 1997 totaled approximately $118 billion. The figure grew 27-fold to $3.2 trillion in 2018,[20] with much of the influx occurring in a handful of years leading up to the Great Financial Crisis, according to Sullivan (2019). Asness (2018) and Sullivan separately reported that from 1994 until 2008, hedge funds as a class produced statistically significant value added. Sullivan put the net alpha at +3.4% per year. Then things changed. Sullivan reported that between 2009 and the middle of 2019, the same hedge fund composite produced an alpha of −0.8% per year. Moreover, Asness reported that hedge fund returns have become more highly correlated with traditional active-stock management, making the strategy less attractive in terms of its diversification potential.

All three areas of alternative investing have significantly underperformed for at least a decade, and it appears to be a natural economic consequence of the convergence of two factors: greater pricing efficiency and high cost.

The Impact of Alternative Investments on Institutional Performance

We analyze the relationship of public pension fund performance and allocations to alternative investments as a class. (We had to treat alternative investments collectively because the data required to evaluate the performance impact of distinct subcategories of alternatives are not available.) At the beginning of the study period, the funds' average allocation to alternatives as a class was 17% of total assets, rising to 28% at the end of the period; the average of the average value was 22.5% over the study period. We examined the relationship of 10-year total return and the percentage allocated to alt investments for 44 of the 46 public pension funds in our data set in cross section.[21] Exhibit 10 indicates the magnitude of the adverse impact alternative investments had on public pension fund returns. The slope is −0.036 with a statistically significant *t*-statistic of −2.6. The return indicated by the regression for zero alternative investments (i.e., the intercept) is 7.24%, compared with 5.80% for a 40-percentage-point alts allocation. The difference is 144 bps, or a reduction in total return of 36 bps per 10 percentage points of alts exposure. Exhibit 11 shows an even stronger relationship between the funds' alpha (risk-adjusted return) and their respective average alts allocation (slope of −0.049 and *t*-stat of −2.9). It indicates that a reduction in alpha of nearly 200 bps relative to marketable securities alone is associated with a 40% allocation to alts.

End of an Era?

No one really knows whether the next 10 years will be a replay of the last 10, a reprise of the glory days of alternative investing, or something in between. Substantial evidence, however, suggests alts' glory days have come and gone. Without question, institutional assets flooded what were (and remain) small markets. Pricing became much more efficient as a result. Principal categories of alt investment have underperformed by

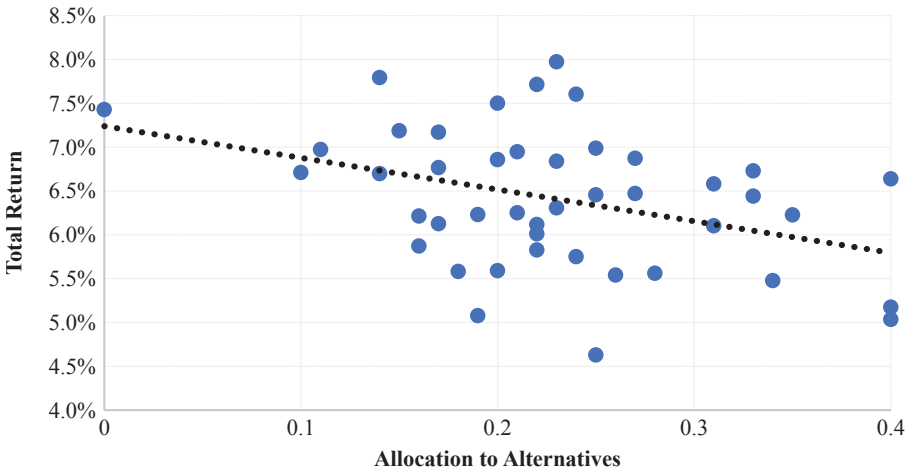
[19] These figures are averages of excess return for "levered size and leverage-adjusted," with and without "buyout sector weights" derived from value-weighted PMEs across vintages (Tables 3 and 4), pp. 44–45.

[20] See HFR: https://www.hedgefundresearch.com/sites/default/files/articles/1Q18_HFR_GIR_FINAL.pdf.

[21] Historical alternative asset allocation data were unavailable for two of the funds.

EXHIBIT 10

Total Return vs. Exposure to Alternative Investments (10 years ended June 30, 2018)



significant margins over many years, and alts collectively have proven to be a serious drag on institutional investment performance for a decade and counting.

STRATEGY AND MANAGER CHOICE

Ellis (1975) dubbed institutional investors' chronic underperformance of stock market indexes The Loser's Game.[22] Not long thereafter, passive management began to make limited inroads with institutional investors. Then along came alternative investing, which provided institutional investors with a welcome respite from The Loser's Game. Now it appears that alternative investing, too, has become a losing proposition. What is an institutional investment trustee to do? Stay with conspicuous commitments to pricey alternative investments and simply hope for the best? Go back to old-fashioned stock-picking? Await the next new thing? Experience—more than a half century of it—strongly suggests change is in order.

Overall Strategy

We propose that institutional trustees place half their portfolio assets in a few broad stock and bond market index funds, thereby sharply reducing their cost of operation and increasing the likelihood of outperforming those among their peers that choose not to follow suit. This goes for gigantic funds as well as small funds and both private and public funds. As a corollary, we propose that trustees then increase or decrease their passive investment percentage, incrementally but systematically, in the ensuing years, based on the performance of the active assets. In other words, if active investments, net of all costs, underperform a properly constructed, equivalent-risk benchmark over time, trustees would transfer assets to the passive portfolio as a matter of policy. Conversely, to the extent that active investing adds value, moneys could migrate from the passive portfolio to the active one—with justification. In either event, the trustees would be acting systematically on their experience, which is responsible behavior. Over the long run, this procedure will minimize the regret of having pursued the wrong strategy. The initial condition—a 50% passive allocation—reflects the lessons of the financial economics of institutional investing much better than does the status quo. Operationally, the proposal is disciplined, pragmatic, and responsible.[23]

Manager Choice

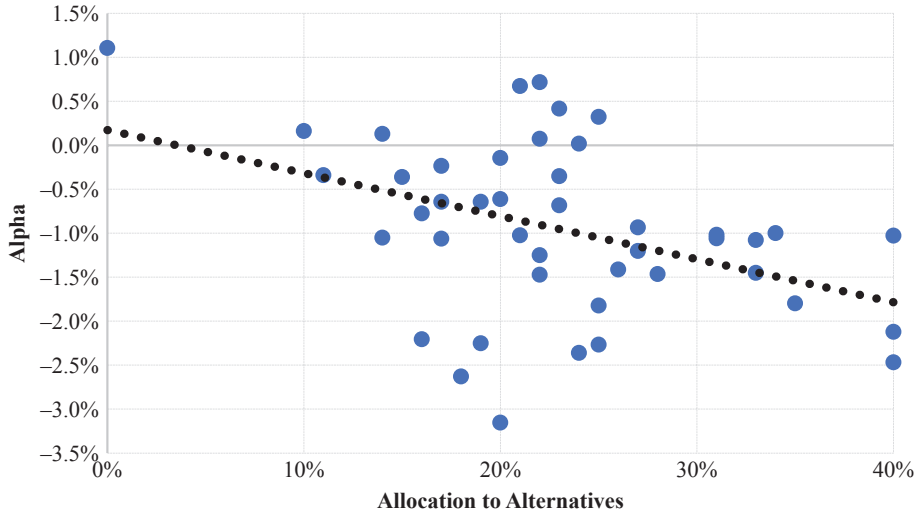
Three broad index funds—two stock and one bond—captured the essence of US institutional

[22] Sharpe (1966) and Jensen (1968) were the first to point out that active stock mutual fund managers were failing to recoup their expenses.

[23] The author's consulting clients that adopted this strategy long ago saw the passive percentage of their assets rise fairly consistently, with some approaching 100%.

EXHIBIT 11

Alpha vs. Exposure to Alternative Investments (10 years ended June 30, 2018)



investment returns during the study period, and predominantly active investment strategies underperformed passive investment by a significant margin for both types of institutional investor. These facts shape the criteria for manager choice, which include the following:

- Start with passive management—truly passive management at the lowest possible cost. The proposed approach is all about exploiting the advantage of minimum investment expense. If experience tells us anything about institutional investing, it is that low cost trumps genius over the long run. Do not allow the design of the passive portfolio to be incidental or simply the residual of active decision making.
- Stock funds should be capitalization weighted and comprehensive. A total US stock market index fund combined with another that embraces developed and emerging markets abroad is sufficient. An off-the-shelf, investment-grade bond index fund will do just fine. The key here is to overcome the temptation to be clever. At the risk of being repetitive, the idea is to capture broad market exposures at the lowest possible cost with minimal maintenance (KISS).

The most any investor need pay for its passive portfolio is 5 bps, the prevailing cost of a blend of retail mutual funds. Large institutions can get it for a single basis point or less. It is difficult to exaggerate the importance of such an advantage in a world in which the competition is routinely paying 1.0% to 1.7% for the management of diversified portfolios in highly competitive markets—portfolios likely to earn single-digit returns for the foreseeable future.

Asset Allocation Strategy

Asset allocation is up to the individual institutional investor in light of its circumstances, and the subject is largely beyond the scope of this article. That said, we believe one particular allocation strategy warrants the reader's attention. The strategy: Maximize the likelihood of exceeding the return of an identifiable peer group. How to execute this? By making exclusively passive investments in a factor configuration that matches that of peers collectively. Over the decade of this study, the strategy underperformed the public pension fund composite (i.e., peers) in only 1 year out of 10 (and by just 73 bps in that year) while outperforming peers by 99 bps per year over the decade. The strategy underperformed large endowment peers in 2 out of the 10 years (by less than 60 bps in each case) while outperforming them by 159 bps a year over the decade. These margins of advantage translate to consistent top-quartile performance. The strategy, of course, simply represents passive implementation of the same factor exposures as the peer group with results that are the picture of consistency.

The approach comports with long-standing and deep evidence concerning financial markets and institutional fund performance. Best of all, it provides a coherent strategy for winning The Loser's Game.

CONCLUSION

Three broad market indexes—two stock and one bond—now capture the essence of institutional investment return. Alternative investments have ceased to be diversifiers and, in fact, have become a significant drag on institutional fund performance.

Public pension funds underperformed a passive benchmark by 99 bps per year over the decade ended June 30, 2018. Endowments underperformed passive by 159 bps a year.

Given the degree of institutional fund diversification, the diminished role of alternatives, and prevailing cost structure, institutional investors face the prospect of continuing significant underperformance in the years ahead. It is time for a fresh approach to institutional investment strategy and manager choice, one that reflects experience and the lessons of financial economics.

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ADDITIONAL READING

Another Look at Private Real Estate Returns by Strategy

MITCHELL A. BOLLINGER AND JOSEPH L. PAGLIARI
The Journal of Portfolio Management
https://jpm.pm-research.com/content/45/7/95

ABSTRACT: *This article examines the risk-adjusted, net-of-fee performance of noncore funds and generally finds that investors would have been better served by merely placing additional leverage on their core investments rather than investing in noncore assets. Using several datasets to create a mosaic-like view of the performance of private real estate investments, the authors find that over the 2000–2017 study period, value-added funds have, on average, generated an alpha of −3.26%; similarly, opportunistic funds have generated an alpha of −2.85%. Consequently, had investors in core funds used more leverage (loan-to-value ratios of 55% to 65%), they would have saved approximately $7.5 billion per year in unnecessary investment-management fees. The higher fees charged by these noncore funds were a material factor contributing to their negative alphas. Value-added funds charged approximately three times as much in fees as core funds, and opportunistic funds charged approximately four times as much. How and why these fee structures might change in the future is also explored. However, the fee differentials (relative to core funds) are insufficient to explain the entirety of the negative alpha associated with value-added and opportunistic investing. These conditions imply that noncore managers have, on average, overpaid for (and/or mismanaged) fund assets.*

Alternative Asset Fees, Returns, and Volatility of State Pension Funds: *A Case Study of the New Jersey Pension Fund*

JEFF HOOKE, CAROL PARK, AND KEN C. YOOK
The Journal of Alternative Investments
https://jai.pm-research.com/content/22/3/33

ABSTRACT: *This case study provides new information about alternative asset fees to many institutional investors by tapping a relatively unknown data source: state pension fund annual reports. Examining the few state pension funds annual reports that track both fixed fees and carried interest fees of private equity funds and hedge funds, we find that average alternative asset fees were 2.48% of the relevant pension fund assets for the fiscal year ended June 30, 2017. In addition, as New Jersey provides the most detailed alternative asset data, this study discusses New Jersey pension fund's private equity and hedge fund (a) returns, (b) fees, and (c) volatility, compared to verifiable and public benchmarks for the five years ended June 30, 2017. Both private equity and hedge fund portfolios underperformed the benchmarks, and the alternative asset industries' claim of higher returns and lower risks than traditional assets is not supported in this study. To the degree that other state pension funds follow the same investment policies and controls as the state of New Jersey, this study concludes that state pension funds should reduce their holdings of alternative asset substantially.*

Demystifying Illiquid Assets: *Expected Returns for Private Equity*

ANTTI ILMANEN, SWATI CHANDRA, AND NICHOLAS MCQUINN
The Journal of Alternative Investments
https://jai.pm-research.com/content/22/3/8

ABSTRACT: *The growing interest in private equity means that allocators must carefully evaluate its risk and return. The challenge is that modeling private equity is not straightforward, due to a lack of good quality data and artificially smooth returns. We try to demystify the subject, considering theoretical arguments, historical average returns, and a forward-looking analysis. For institutional investors trying to calibrate their asset allocation decisions for private equity, we lay out a framework for expected returns, albeit one hampered by data limitations, that is based on a discounted cash-flow framework similar to what we use for public stocks and bonds.*

In particular, we attempt to assess private equity's realized and estimated expected return edges over lower-cost public equity counterparts. Our estimates display a decreasing trend over time, which does not seem to have slowed the institutional demand for private equity. We conjecture that this is due to investors' preference for the return-smoothing properties of illiquid assets in general.