

Comparison of \$1 Billion University Endowments

By Steve Valentor

The Endowment List

Polynomial Ventures created our own database of endowment data for 1574 colleges and universities in the United States with collective endowment assets exceeding \$1 trillion. In this report, we compare eleven schools with endowment fund balances of approximately \$1 billion each.

These universities were chosen because their endowment balances range from \$901 million to \$1.5 billion with an average of \$1.1 billion. All of the schools are private with the exception of Clemson. Most report that they have paid outside advisors with the exception of Marquette, which maintains an internal investment management group. Enrollments range from 348 to 29,000 with an average of 9,866 students. Tuition, fees, and expense estimates to attend the universities range from \$0 at Berea College in Kentucky to \$89,205 at Carleton College in Minnesota.

Overview



Founded in 1855, Berea is a small racially integrated, coeducational private liberal arts school in Berea, Kentucky. Berea serves 1500 students offering 33 majors. Most notably, since 1892 Berea has not charged any tuition or fees.



Midwestern University

Midwestern University is a private medical and professional school with campuses in Illinois and Arizona founded in 1900 as Chicago College of Osteopathic Medicine. It serves 6500 students who can earn degrees in assorted health care disciplines.



Located in Waltham, MA, Brandeis University was founded by Albert Einstein and Israel Goldstein in 1948 as a private research university now serving 6000 students.



Mount Holyoke is a private women's college in South Hadley, MA. Founded in 1837, it offers 50 undergraduate majors and 3 Masters programs to 2300 students.





Carleton College was founded in 1866 in Northfield, MN. It is a private liberal arts college serving 2100 students, offering 33 majors and is considered highly selective.




PRINCIPIA COLLEGE

Principia, located in Elmhurst, IL is a private liberal arts college founded in 1912 to serve the cause of Christian Science. Enrollment is only 348 students who can study 27 undergraduate majors.

 **DEPAUL UNIVERSITY** Founded in Chicago in 1898, DePaul is the largest private Catholic university in the US serving nearly 22,000 students across 10 colleges spread over two campuses.

 **CLEMSON UNIVERSITY** Clemson University is a public land grant university founded in 1889 in Clemson, SC serving 29,000 students. Clemson is home to the US Army and Air Force ROTC programs as well as the Marine Corps PLC program.

 **LOYOLA UNIVERSITY CHICAGO** Loyola University Chicago is a private Jesuit college established in 1870. Today it serves 17,000 students and offers multiple campuses, including one in Rome.

 **University of Dayton** University of Dayton is a private Catholic research university in Dayton, OH. Founded in 1850, it is the second largest private university in Ohio serving 11,350 students.



Marquette University was founded in 1881 in Milwaukee to offer Catholic education to the areas emerging German population. It now serves more than 11,000 students through 10 colleges offering a broad range of courses of study.

The Data

The source of this financial data is the public filings of IRS Form 990 files which are required for all not-for-profit, tax-exempt entities in the United States. These were obtained through the pages of [irs.gov](https://www.irs.gov). Additional background information was found at the university web sites. All data is from fiscal 2023 with historical reference and trend data from 2022.

It should be noted that the form 990 filings are not absolutely uniform in the data reported. Some represent the entire University. Others reflect only operation of the associated foundation. In this report, the terms “fund” and “endowment” are used interchangeably. There are also minor differences that result from how the accountants that prepare the filings interpret each line item.

We also used the National Association of College and University Business Officers (NACUBO) report “*U.S. Higher Education Endowments Report 7.7% Return for FY23 While Spending More in Support of Their Missions*” by Katy McCreary and Archana Hannan as a reference.

It is also worth noting that the objectives of each of these endowments are long-term and are intended to insulate their corresponding universities from short-term economic shocks. They achieve this by funding grants which contribute to the operating budgets of their universities. This report is limited in its perspective of analyzing only two years of investment results and trend data as publicly reported.

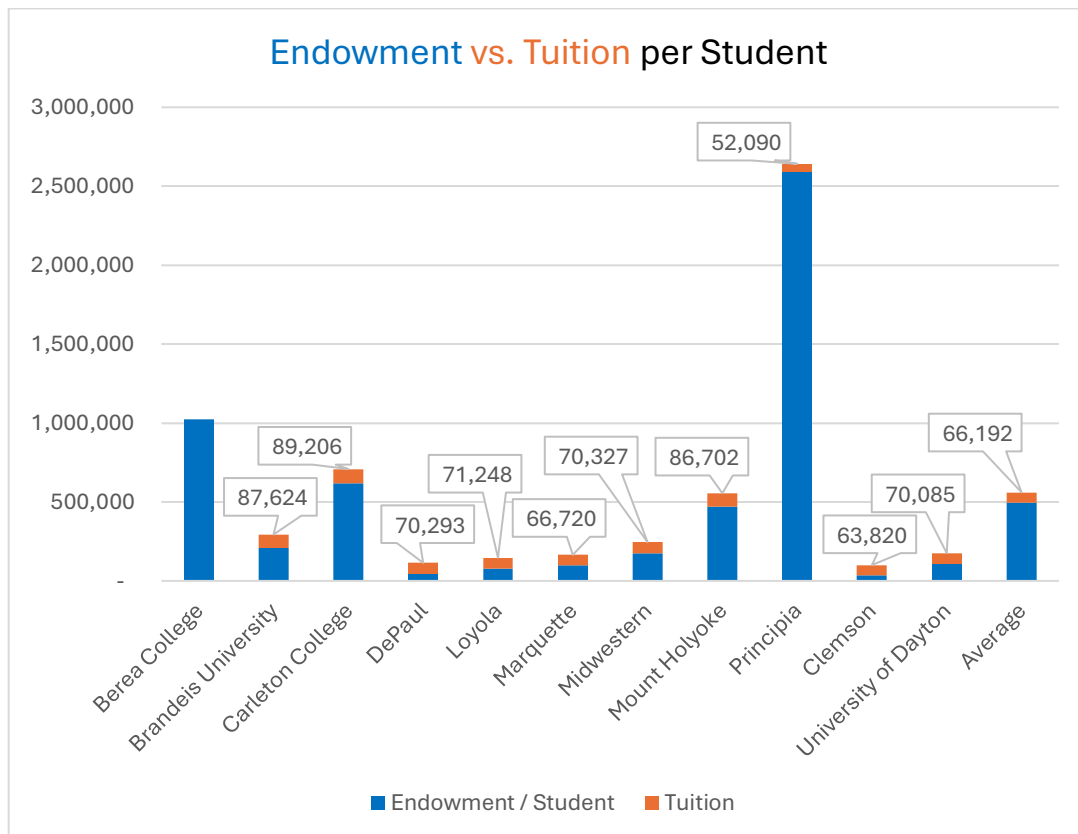
Analysis

The initial objective of this report was simply to identify possible characteristics and correlations of fund performance in similar sized endowments. As we analyzed the data, we were surprised by several discoveries.

One point that stood out was the correlation between the number of students and the size of the endowment. The highest was Principia with a whopping \$2.6 million per student. Berea College was second at \$1 million per student. Berea is also unique in that it does not charge students tuition or fees. These two schools coincidentally have the lowest tuition rates.

Schools with the lowest endowments per student are Clemson at \$36,424 and DePaul at \$43,830. They are also the largest schools in the study. These two are the only schools that charge more for tuition than the value of the endowment per student. The average among all eleven schools was \$494,564 of endowment balance per student.

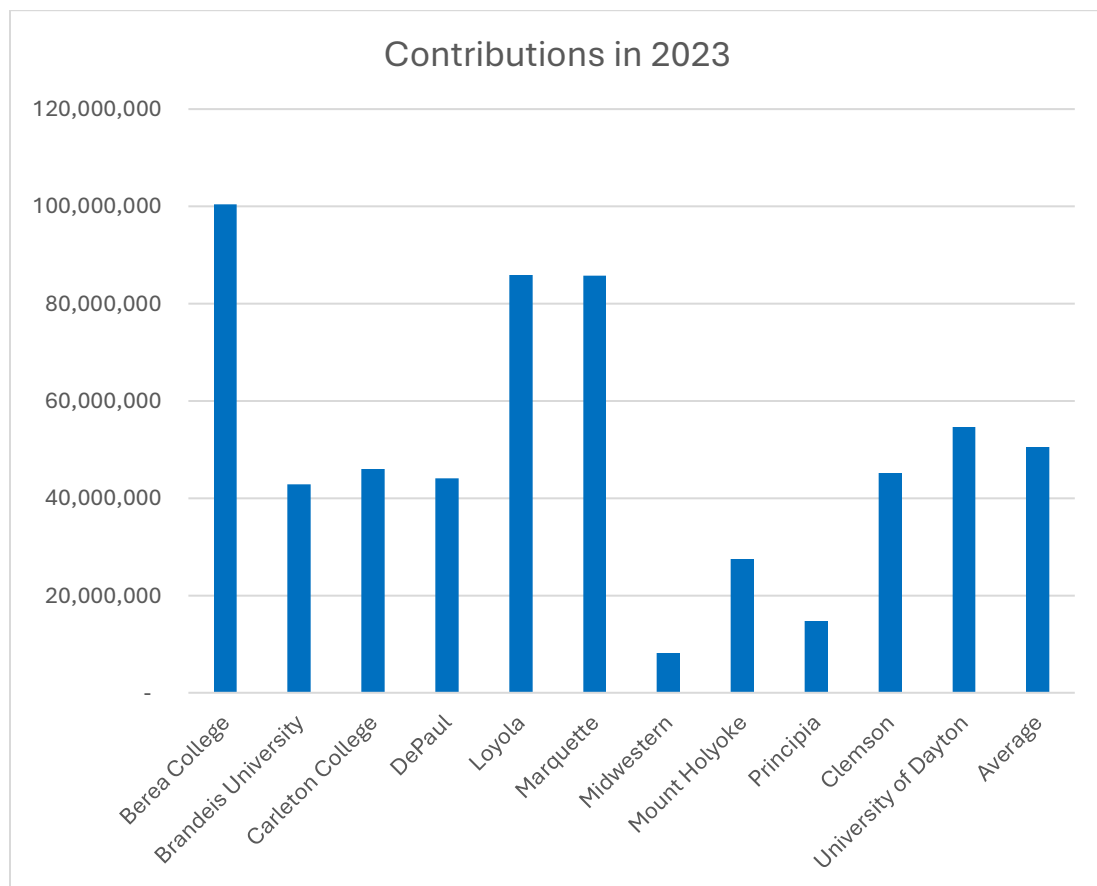
The chart below compares the endowment balance and tuition on a per-student basis. The most notable anomaly is Berea College which does not charge tuition to its 1500 students. The white boxes indicate the tuition, fees, and housing for each university. Principia is clearly an outlier with more than \$2.5 million per student.



It is interesting to think of the annual returns of the endowments on a per-student basis. At Principia, that is \$137,931 per student. At Clemson, it is \$841 per student. More important to the students is the size of the grants per student. Principia is the highest at \$41,542 and Midwestern is the lowest at only \$537 per student. Note that Midwestern is a graduate school for professional programs only and does not serve undergraduates. Of schools that serve undergrads, Clemson grants \$1012 per student.

Contributions and Returns

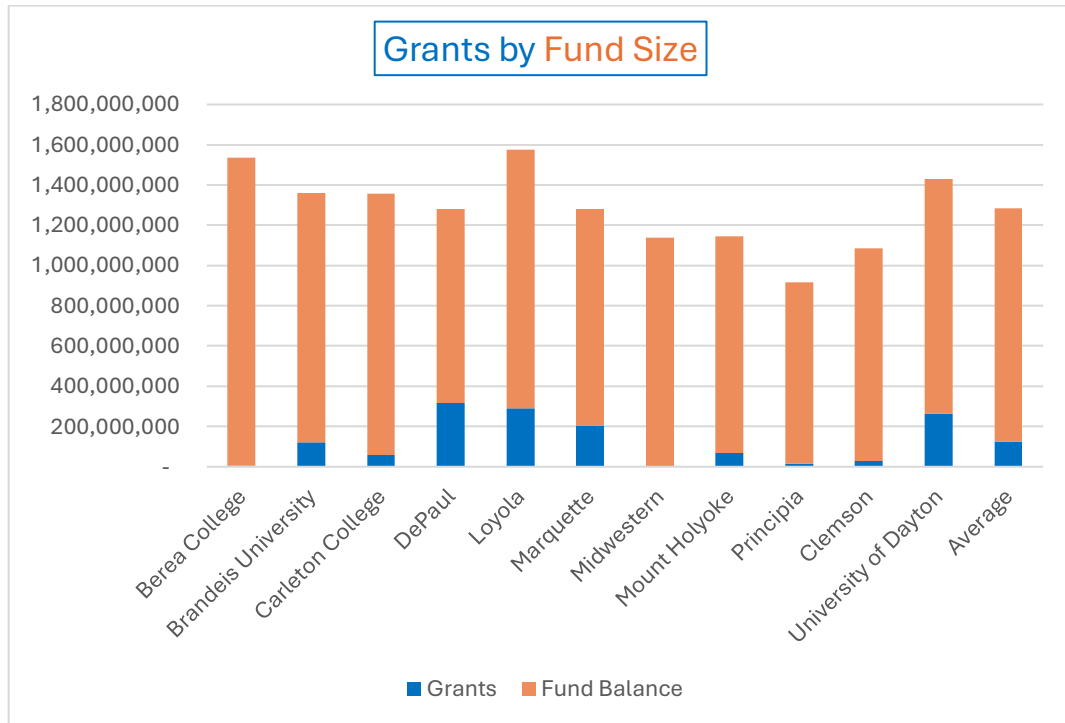
Regardless of any specific mandates, the fundamental goal of all endowments is to provide capital to augment the operational budget of the sponsoring university. Endowments are intended to be permanent. They must be invested to earn returns sufficient to provide annual grants to the university as well as to maintain their perpetual effectiveness by overcoming the effects of inflation. As we can see in the data, many endowments rely on annual contributions to make their grants. For 2023, contributions ranged from \$8 million at Midwestern to \$100 million at Berea. The average contribution was \$50.5 million.



Grants

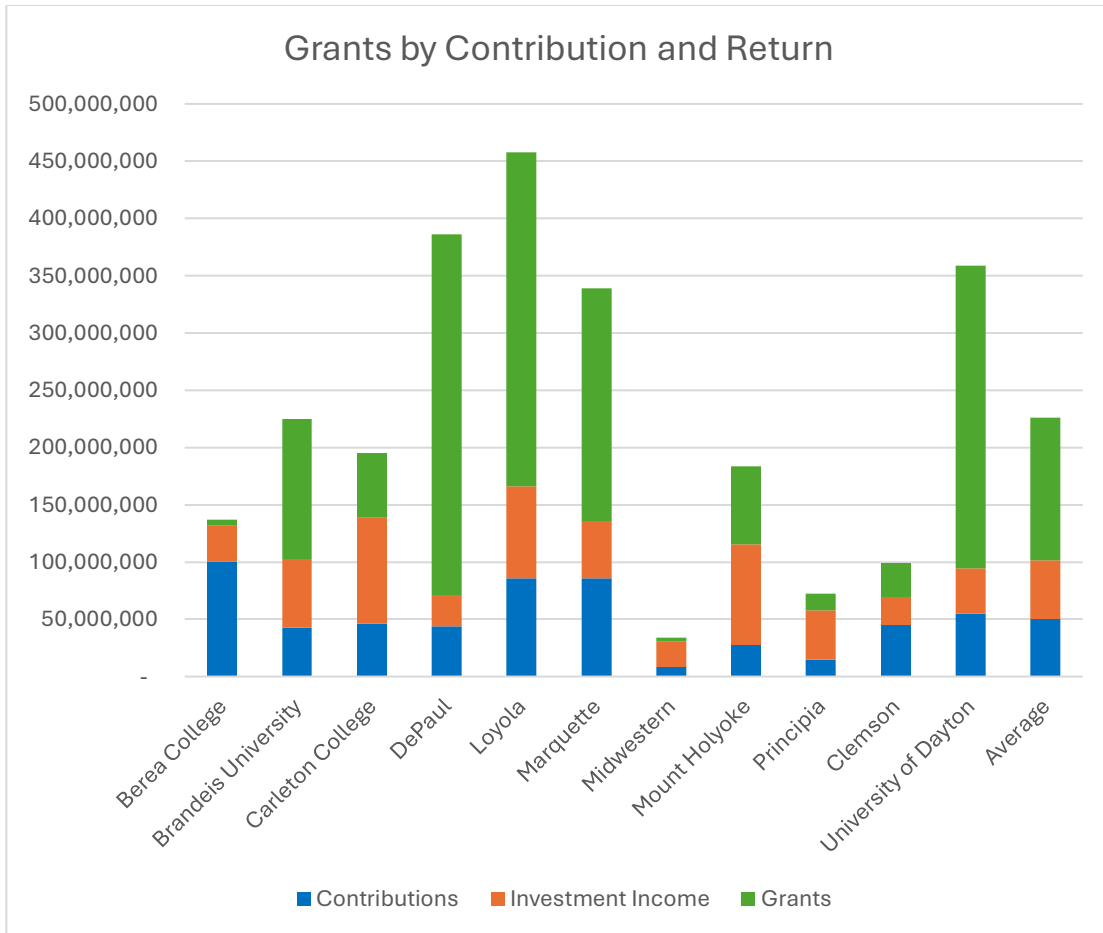
Six of the eleven universities provided more grant money than their combination of contributions taken in and investment returns earned. These schools effectively reduced the real value of their endowments. This is especially significant during periods of high inflation, such as 2023.

Grants are not proportional to fund size. Berea and Principia are the most conservative granting less than 2% of their fund size.



DePaul was the most aggressive, granting \$315 million while raising and earning only \$71 million. This necessarily causes the DePaul fund the fall behind inflation, reducing its longer-term effectiveness. Berea might appear to be by far the most conservative granting only \$5 million of the \$132 million raised. It appears that Berea College is not reporting its tuition and fee concessions as grants. In addition to grants from their endowments, all of the schools studied rely on annual university revenue to fund their full ongoing operations. Revenue sources include tuition, fees, research grants, sports, entertainment, the operation of real estate, and other sources.

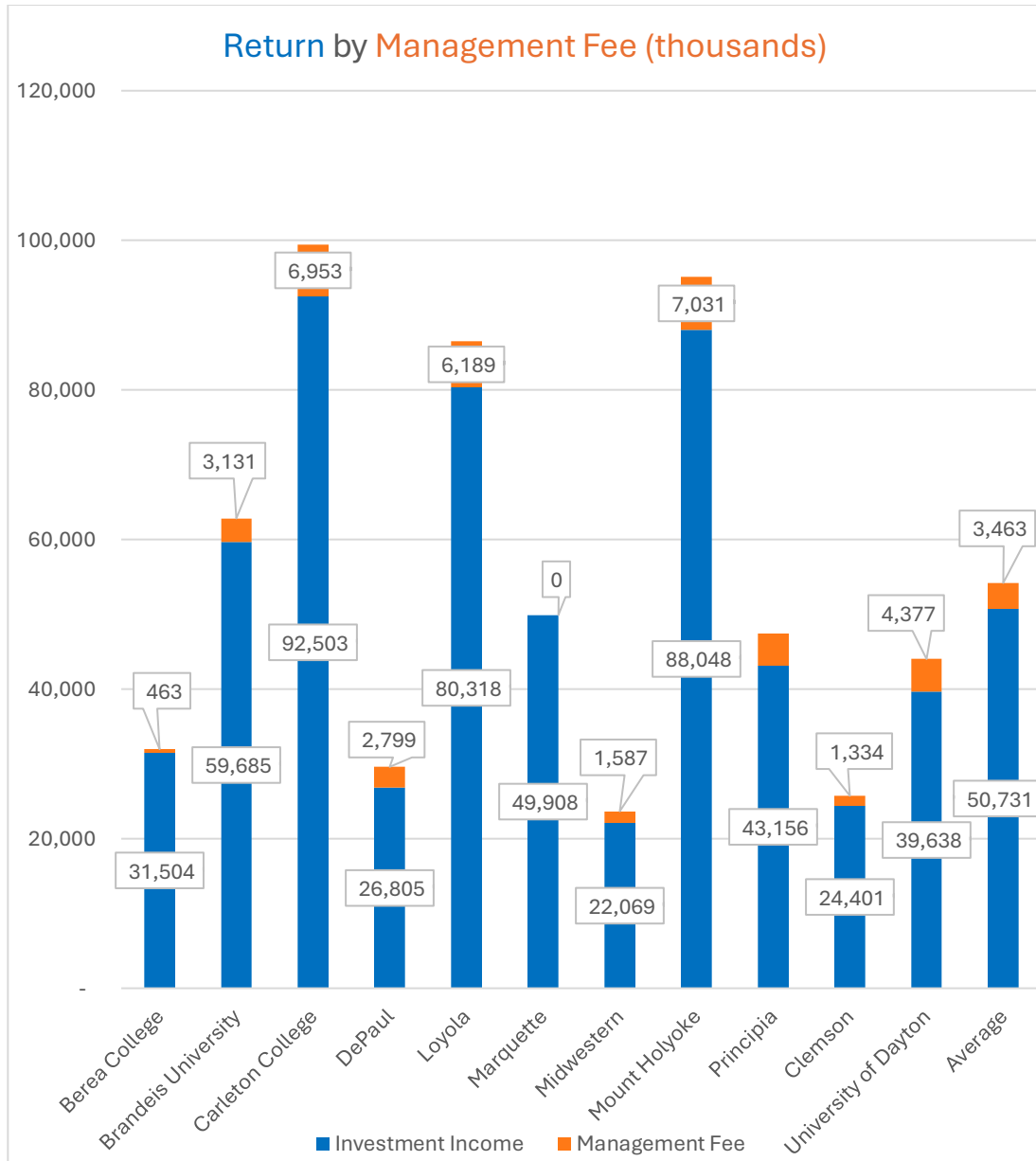
The chart below shows grant expenses in green, returns in orange, and contributions from doners in blue. Interestingly, the four Catholic universities in the Midwest (DePaul, Loyola, Marquette, and Dayton) gave out more than they took in, significantly exceeding the average for the group.



Investment Strategies

Most of the funds engage outside advisors. The one exception in this particular group is Marquette University. They maintain their own Investment Office which functions in a similar way as the largest endowments. There is a cost associated with this, but it is not explicitly itemized on the form 990. Marquette would be wise to compare their internal costs to the fee for an independent manager, which averages 0.3% of the fund balances for this group.

There is considerable variance in investment income and management fees. The following table shows fund returns and associated management fees. The white boxes indicate the numerical values (in thousands) associated with the corresponding blue and orange bars.



DePaul and Dayton are paying more than 10% of their **investment income** as management fees. The average is 6.4%.

There is a more obvious correlation between management fees and returns as percentages. As the chart below shows, average return increases by 4% for each one half percent increase in management fee.

This should not imply that spending more on a manager guarantees superior returns. It might be the case that some advisors just happened to perform better during the short period studied. In cases where the return on the entire fund is about the same as the risk free rate, the value of an advisor should be questioned. It is

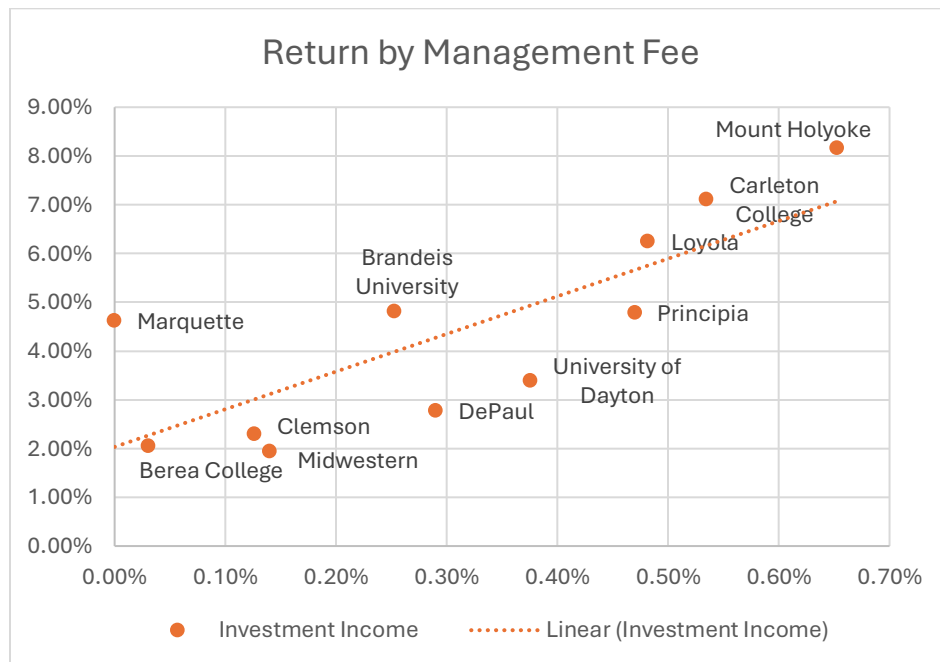
important to note that advisor fees are likely not the only fees that an endowment will incur.

Internal fees for alternative investments such as hedge funds, private equity, and venture capital are not explicitly listed in the form 990 and apply only to the portion of the endowment invested in these asset classes.

These fees typically include an annual fee of 2% or more of assets under management (AUM) and 20% of eventual gains. Compared to the reported fees, these investment-specific fees may seem quite high. Ultimately, these fees may reach 40% or more.

The associated returns must justify the increased fees. Gains are normally reported “net of fees.” This means that before gains are reported, fees are deducted. Historically, these alternative assets return much more than publicly traded securities.

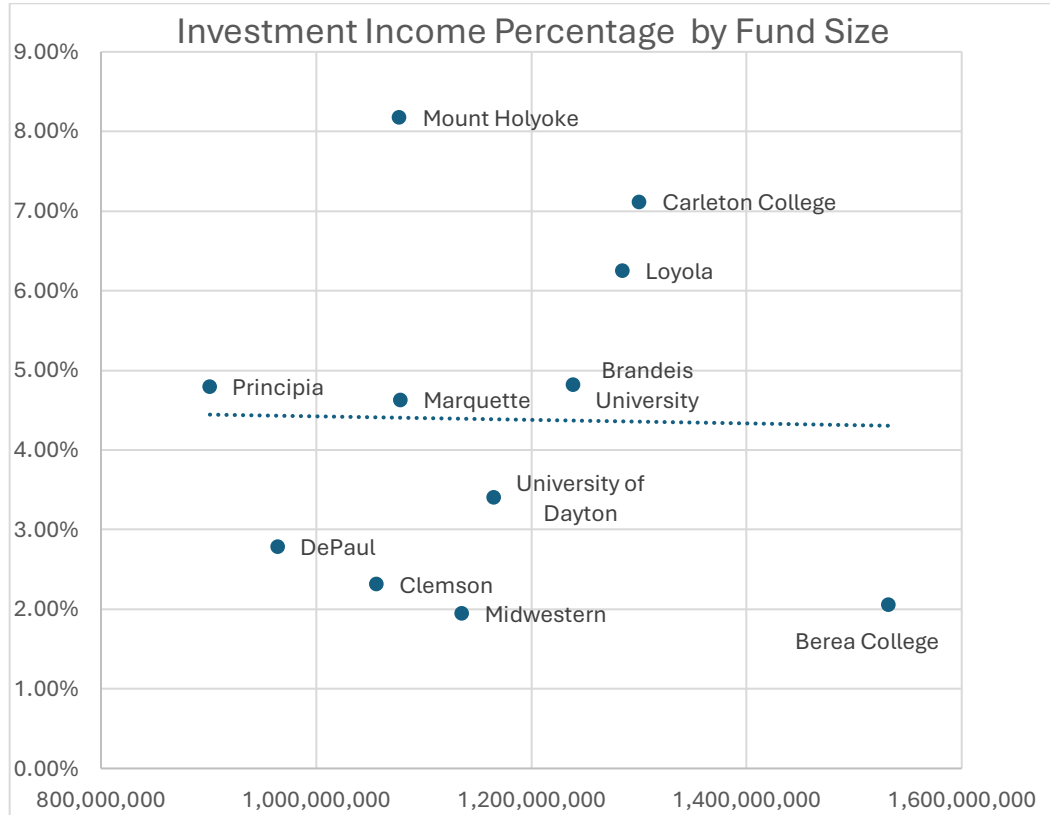
Endowments such as the ones at Mount Holyoke and Carleton College are unlikely to achieve overall gains exceeding 7% without a sizable portion of their assets invested in alternatives.



Returns are not Related to Fund Size

Among this group of endowments with an average fund size of approximately \$1 billion, there is no correlation between fund size and returns, as shown by the flat trend line. Over a broader range of endowment sizes, NACUBO reports that

institutions with assets exceeding \$5 billion posted an average return for 2023 of 2.8% while those with assets under \$50 million realized 9.8%. Over a longer term however, institutions with AUM greater than \$5 billion achieved a 10-year average of 9.1%, exceeding all study participants approximately 2%.



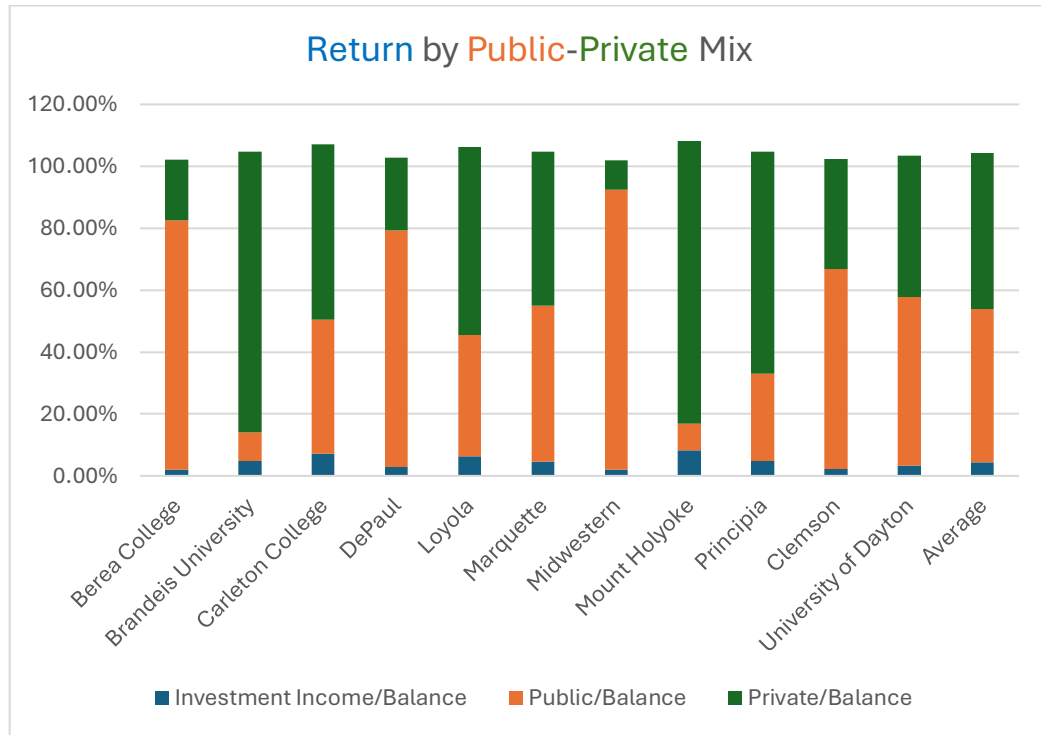
Endowments have a very broad variety of investments that they may consider. These range from the most conservative, risk-free assets such as US Treasury Bills and Bonds to privately held asset funds including hedge funds, private equity, and venture capital assets.

The public filings do not identify specific investment assets. It is necessary for tax-exempt entities to indicate the value of assets that are invested in publicly traded securities as well as privately held securities.

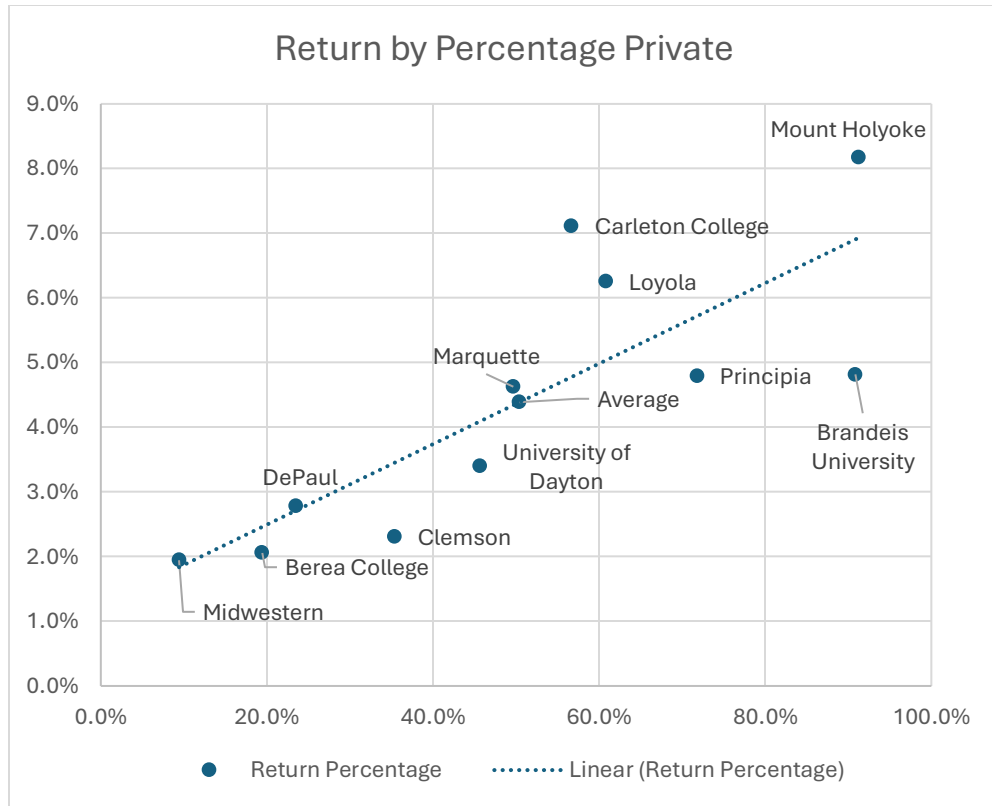
Publicly traded securities have the advantage of being relatively liquid in that they can be sold in the short term.

Privately held securities on the other hand are highly illiquid. Investment commitments continue for many years, or even decades and these assets carry many restrictions regarding redemption.

It would seem intuitive that private assets should deliver a higher return given these constraints. And they do. The following chart shows the mix of private and public assets as well as overall return. It is a bit difficult to see in this chart, but the green rectangles represent the percentage of each fund invested in private securities. Publicly traded securities are shown in orange, and overall fund return is shown in blue. If you look closely, you may notice that there is a correlation between the size of the green and blue rectangles.



The correlation becomes much more obvious in the following chart which compares the overall return of each endowment with the percentage of the endowment invested in privately held securities. Not surprisingly, endowments with greater percentages of their assets invested in private securities show proportionately higher returns.



There are many specific recommendations that can be made based on this data. More generally, endowments with more than 50% private assets all perform above the average. Endowments with less than 50% of their investments in private assets underperform the average.

Comparison to Common Investment Averages

It is never a good idea to react to the returns on specific investments over a short period of time. The temptation to evaluate decisions in hind-sight is also generally not productive.

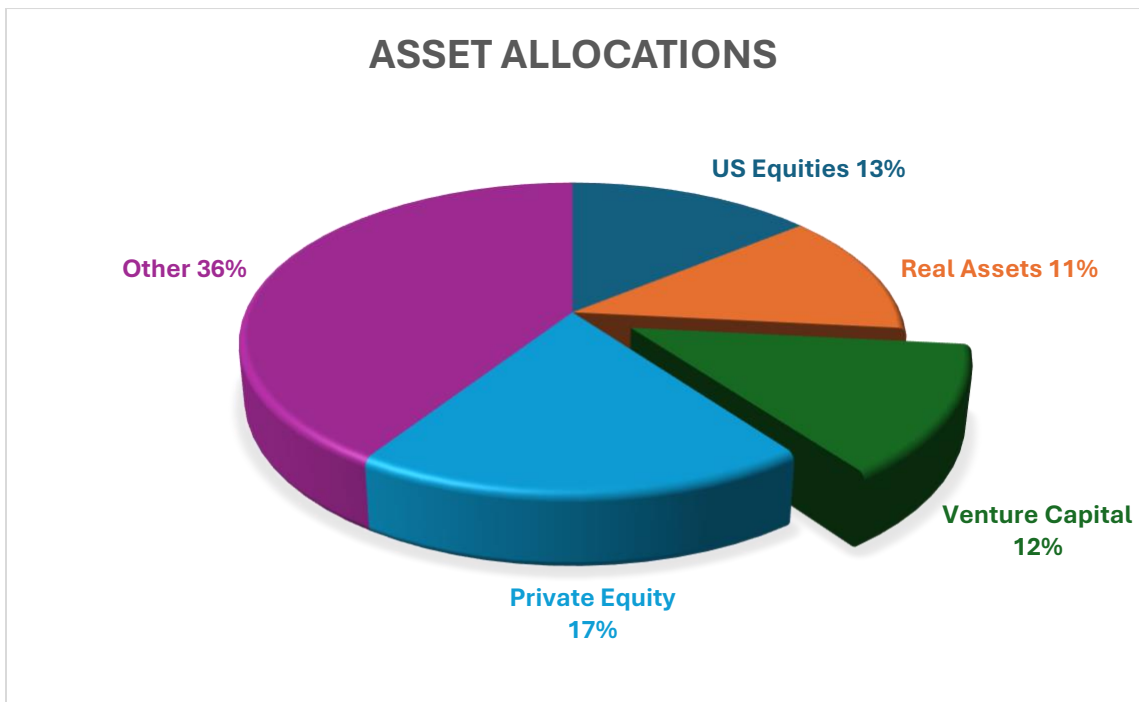
It is useful to compare the average returns on these endowment funds with the general investing climate as well as information gathered regarding endowment performance in general during the period under study. This can be used to assess the allocations of the overall fund to various assets and asset classes.

In 2023, 10-year Treasury Bonds locked in 3.88%, risk-free 3 month US Treasury Bills returned an average of 5.07%, investment grade commercial bonds offered 8.74%, Berkshire Hathaway stock returned 12.6%, and the S&P 500 returned 26.06%. A portfolio of 5 publicly traded private equity (PE) firms: KKR, the Carlyle Group CG, Blackrock BX, Apollo Global Management APO, and TPG earned an impressive 51.1% in 2023.

Any portfolio constructed of the above mentioned securities as long as 25% was allocated to the S&P 500 would outperform even the best of the billion dollar endowments. This should raise some concern for the managers of these billion dollar endowments.

We don't have any way to know what the allocations of each endowment are, but we can look at averages reported by the Commonfund and the National Association of College and University Business Officers (NACUBO).

The report includes results from 688 endowments. Average returns for the entire group were 7.7% for 2023. Note that this is quite a bit better than our eleven endowments which averaged only 4.39%. On average, these endowments allocated 17.1% to private equity (including hedge funds), 12.5% to US public equities, 11.9% to venture capital, 11.2% to real estate, 11% to fixed income securities, and the remaining 36.3% distributed among miscellaneous assets. The following chart shows the allocations graphically.



The 688 endowments were divided into seven groups ranging from fund balances less than \$50 million to those with assets exceeding \$5 billion.

Private equity, real estate, and venture capital make up 40% of allocations. This is consistent with the eleven schools that we studied which on average allocate 50.4% to private securities. Endowments that allocate substantially less, like Berea, DePaul, Marquette, and Clemson show lower than average returns.

The cohort in the NACUBO report with endowments between \$1 billion and \$5 billion funded 17.1% of their school's operating budget. Our group of eleven funded 27.6%. Though many of these were at the expense of falling behind inflation as they exceeded investment income.

It is clear that higher allocation to private alternative assets can enhance an endowments ability to accomplish its mission.

Of the private assets available to university endowments, venture capital may represent the most attractive alternative for several reasons. Venture capital is truly focused on bringing new goods and services to market. This reduces inflation, increases employment rates and makes the country more competitive on the world stage.

Many of the portfolio companies supported by venture capital have risen out of new technologies developed at universities. When these companies succeed, not only do the sponsoring universities benefit financially, but also they garner attention as attractive learning centers. Potential business partners may seek them out to collaborate on new technology development. The job market for graduates of universities active in new venture development also likely increases. A finally, a university that takes an active role in developing tomorrows technologies may well attract benefactors.

Our firm, Polynomial Ventures offers venture capital investments and advice to university endowments and qualified institutional investors. We have decades of experience investing in early stage technology companies in the underserved markets outside of Silicon Valley and New England.

About the author: Steve Valentor (steve@valentor.com) is a 30-year technology industry veteran who has worked in computer engineering, semiconductor R&D and software development for companies ranging from startups to the Fortune 200. He has held positions from entry level engineer to senior technical management, CEO and board chair. Currently the president of the venture capital firm Polynomial Ventures (polynomial-vc.com) and an adjunct professor at DePaul University, Valentor holds an M.B.A. in finance and a B.S. in math, both from the University of Illinois at Chicago.

Data

School	Contributions	Program Revenue	Investment Income	Audit Income	Other Income	Total Income
Berea College	100,394,459	23,753,009	31,504,233	65,969,988	1,805,602	157,457,303
Brandeis University	42,854,023	421,920,365	59,685,000	63,586,000	6,285,752	478,693,199
Carleton College	45,960,724	153,602,800	92,503,081	201,761,000	4,455,645	296,522,250
DePaul	44,147,258	772,917,260	26,804,500	35,540,000	4,486,968	848,355,986
Loyola	85,943,611	825,867,994	80,317,898	17,454,000	608,925	992,738,424
Marquette	85,760,802	539,328,982	49,908,229	49,238,000	34,993,756	709,991,769
Midwestern	8,137,080	486,419,994	22,069,324	39,820,340	1,464,835	518,091,233
Mount Holyoke	27,553,928	161,061,284	88,048,476	13,340,000	7,253,061	283,916,749
Principia	14,819,824	25,582,602	43,156,424	18,980,344	1,941,166	85,500,016
Clemson	45,244,851	5,393,770	24,401,025	9,469,319	-	75,039,646
University of Dayton	54,702,119	785,446,061	39,637,969	47,547,000	7,855,934	887,642,083
Average	50,501,698	381,935,829	50,730,560	51,155,090	6,468,331	484,904,423

School	Grants	Salaries	Total expenses	Revenue less Expenses	Net Assets	Management Fee
Berea College	4,988,153	60,133,357	134,094,613	23,362,690	1,866,842,390	462,778
Brandeis University	122,135,163	235,453,211	516,290,241	(37,597,042)	1,390,841,395	3,130,558
Carleton College	56,935,377	98,895,653	239,981,775	56,540,475	1,565,084,762	6,952,780
DePaul	315,340,469	357,823,469	847,464,149	(26,108,163)	1,390,297,000	2,798,510
Loyola	291,428,062	384,925,097	913,232,181	79,506,247	2,075,188,160	6,188,948
Marquette	203,156,768	272,924,303	652,702,241	57,289,528	1,469,568,000	0
Midwestern	3,491,338	254,761,474	393,667,514	124,423,719	1,661,997,416	1,587,026
Mount Holyoke	67,815,874	101,128,851	235,271,207	48,645,542	1,163,487,552	7,031,173
Principia	14,456,449	47,647,930	101,062,746	(15,562,730)	1,078,937,070	4,233,597
Clemson	29,338,090	2,891,690	47,057,942	27,981,704	925,616,043	1,334,007
University of Dayton	264,714,431	337,287,723	879,160,283	8,481,800	1,574,473,729	4,377,340
Average	124,890,925	195,806,614	450,907,717	31,542,161	1,469,303,047	3,463,338

School	Public Securities	Private Securities	Fund Balance	Net Gain	Gain less Contribution	Gain Percentage	Return Percentage
Berea College	1,234,312,500	297,916,361	1,532,228,861	115,283,275	14,888,816	0.97%	2.06%
Brandeis Univer	113,309,618	1,125,501,652	1,238,811,270	18,003,842	(24,850,181)	-2.01%	4.82%
Carleton Colleg	563,288,481	737,358,721	1,300,647,202	74,081,713	28,120,989	2.16%	7.11%
DePaul	738,013,495	226,238,258	964,251,753	56,954,321	12,807,063	1.33%	2.78%
Loyola	503,075,654	781,599,518	1,284,675,172	65,215,878	(20,727,733)	-1.61%	6.25%
Marquette	542,891,129	535,780,951	1,078,672,080	45,126,800	(40,634,002)	-3.77%	4.63%
Midwestern	1,028,592,815	106,937,422	1,135,530,237	136,501,729	128,364,649	11.30%	1.94%
Mount Holyoke	93,968,240	983,590,443	1,077,558,683	41,854,468	14,300,540	1.33%	8.17%
Principia	253,573,696	647,637,555	901,211,251	24,104,527	9,284,703	1.03%	4.79%
Clemson	682,554,065	373,745,571	1,056,299,636	56,723,783	11,478,932	1.09%	2.31%
University of Da	633,365,935	531,815,185	1,165,181,120	59,455,881	4,753,762	0.41%	3.40%
Average	580,631,421	577,101,967	1,157,733,388	63,027,838	12,526,140	1.11%	4.39%

School	Contributions / Balance	Investment Income/Balance	Grants/Balance	Public/Balance	Private/Balance	Students	Endowment / Student
Berea College	6.55%	2.06%	0.33%	80.56%	19.44%	1,500	1,021,486
Brandeis Univer	3.46%	4.82%	9.86%	9.15%	90.85%	6,000	206,469
Carleton Colleg	3.53%	7.11%	4.38%	43.31%	56.69%	2,100	619,356
DePaul	4.58%	2.78%	32.70%	76.54%	23.46%	22,000	43,830
Loyola	6.69%	6.25%	22.68%	39.16%	60.84%	17,000	75,569
Marquette	7.95%	4.63%	18.83%	50.33%	49.67%	11,000	98,061
Midwestern	0.72%	1.94%	0.31%	90.58%	9.42%	6,500	174,697
Mount Holyoke	2.56%	8.17%	6.29%	8.72%	91.28%	2,300	468,504
Principia	1.64%	4.79%	1.60%	28.14%	71.86%	348	2,589,688
Clemson	4.28%	2.31%	2.78%	64.62%	35.38%	29,000	36,424
University of Da	4.69%	3.40%	22.72%	54.36%	45.64%	11,000	105,926
Average	4.24%	4.39%	11.14%	49.59%	50.41%	9,886	494,546

School	Tuition	Return/Student	Grant/Student	Grants / Contributions	Fee/Fund	Fee/Return
Berea College	-	21,003	3,325	5.0%	0.03%	1.47%
Brandeis Univer	87,624	9,948	20,356	285.0%	0.25%	5.25%
Carleton Colleg	89,206	44,049	27,112	123.9%	0.53%	7.52%
DePaul	70,293	1,218	14,334	714.3%	0.29%	10.44%
Loyola	71,248	4,725	17,143	339.1%	0.48%	7.71%
Marquette	66,720	4,537	18,469	236.9%	0.00%	0.00%
Midwestern	70,327	3,395	537	42.9%	0.14%	7.19%
Mount Holyoke	86,702	38,282	29,485	246.1%	0.65%	7.99%
Principia	52,090	124,013	41,542	97.5%	0.47%	9.81%
Clemson	63,820	841	1,012	64.8%	0.13%	5.47%
University of Da	70,085	3,603	24,065	483.9%	0.38%	11.04%
Average	66,192	23,238	17,944	240.0%	0.30%	6.72%