



Assessing endowment performance: The enduring role of low-cost investing

Vanguard research

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Daniel W. Wallick; Brian R. Wimmer, CFA; James J. Balsamo

- The “endowment model,” as implemented by organizations such as Harvard and Yale universities, has demonstrated notable long-term returns, leaving many investors eager to generate similar success.
- However, as Vanguard has reported in previous research (Wallick, Wimmer, and Schlanger, 2012), although the average *large* endowment, with more than \$1 billion in assets, has performed admirably over the past 25 years compared with the broad public markets, the large-endowment category represents only a small portion—10%—of all endowments. The remaining 90% of endowments, with average assets of less than \$1 billion, have performed more modestly.
- Given the distinct operational advantages of the largest endowments, it’s challenging for investors with smaller assets to replicate these endowments’ top performance through a similar use of alternative investments (Wallick et al., 2012).
- Accordingly, this paper’s update of our earlier research confirms that, over the analysis period, the majority of endowments would have been better off had they simply invested in low-cost, diversified, transparent public mutual funds.

To many observers, endowments represent the pinnacle of investment success. Over the past 25 years, prominent endowments have made headlines with their remarkable performance as they have shifted away from long-only, public investments toward illiquid alternatives. It's not surprising that many investors now aspire to replicate those achievements.

Previously, a balanced portfolio consisting of 60% stocks/40% bonds was the norm. Increasingly, however, institutions have gravitated toward reducing their public holdings and replacing them with hedge funds, private equity, and private real assets. As of June 30, 2013, the largest portfolios averaged about 60% alternatives.¹ As a result, endowments have become synonymous with the use of alternative investments. Now, approximately 25 years after this shift began, we again examine how endowments have performed.

Endowment performance has captured attention

The perception of many investors is that *all* endowments have performed strongly since some started increasing their exposure to alternatives in the later 1980s. These observers often cite as evidence the tremendous success of institutions such as Yale University, which earned 13.2% annually over the 25 years through June 2013 (*Yale Endowment Annual Report, 2013*), and Harvard University, which earned 11.5% over this period (*Harvard Management Company Endowment Report, 2013*), both significantly outpacing relevant benchmarks and the broad endowment universe. **Figure 1** illustrates these institutions' long-term success relative to all endowments, all active balanced mutual funds, and a simple 60% stock/40% bond benchmark. However, it's also noteworthy that for the five years through June 2013, **Figure 1** shows that endowments failed to do as well. The longer-term success but shorter-term struggles of the endowment model have left many investors wondering: "How can I position my portfolio for the best chance of success?" To start to answer this question, it's important to understand how endowments of various sizes have performed over the years, as opposed to a select few of the largest.

Figure 1. Average annualized returns of endowments versus active balanced mutual funds and a 60% stock/40% bond benchmark, as of June 30, 2013

	5 years	10 years	15 years	20 years	25 years
Yale University	3.3%	11.0%	11.8%	13.5%	13.2%
Harvard University	1.7	9.4	9.6	11.9	11.5
All endowments	3.8	6.8	5.6	7.7	8.4
All active balanced mutual funds	5.1	6.0	4.9	7.0	7.9
60% stock/40% bond benchmark	5.9	7.4	5.7	7.6	8.3

Notes: The average endowment and average active balanced mutual fund returns are all net of fees. The average return for all endowments is weighted by the number of endowments in each category. The 60% stock/40% bond benchmark represents the approximate average asset allocation of active balanced funds. It is composed of 42% U.S. stock market (Wilshire 5000 Total Market Index through April 22, 2005, and MSCI US Broad Market Index through June 30, 2013), 18% MSCI World Index ex USA, and 40% Barclays U.S. Aggregate Bond Index. Average active balanced mutual fund performance is measured for all existing funds at the start of each period; an equal-weighted average is calculated each year. For any funds that were subsequently merged or liquidated, we included their performance data up to the point of the merger or liquidation. See **Appendix A-1** for details on calculation of endowment returns.

Past performance is not a guarantee of future results.

Sources: Vanguard calculations, using data from Morningstar, Inc., Yale Investments Office, Harvard Management Co., and National Association of College and University Business Officers (NACUBO).

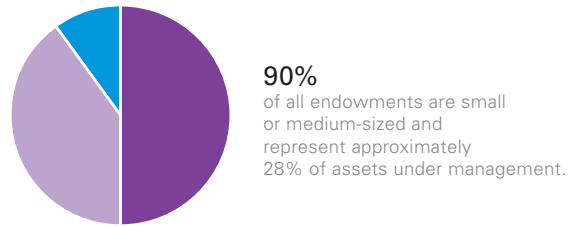
¹ Source: National Association of College and University Business Officers (NACUBO, 2013). For the purposes of this paper, the term *alternative investments* refers to private, largely illiquid investments such as hedge funds, private equity, and private real assets.

Largest endowments have driven success

When we evaluated endowments' performance on the basis of their size, we found the results to be more revealing. As **Figure 2** shows, endowments can be grouped into three different size cohorts: large (average assets of \$1 billion or more), medium (more than \$100 million but less than \$1 billion), and small (\$100 million or less) (see **Appendix A-1**, on page 9, for details).

Figure 3 illustrates the performance of each cohort over the 5, 10, 15, 20, and 25 years ended June 30, 2013. The analysis shows that the largest endowments performed extremely well over all but the five-year period. Although we frequently hear about large endowments' success, it's important to note that those endowments make up only about 10% of the total universe of endowment funds that report to the *NACUBO-Commonfund Study of Endowments*. Medium-sized and small endowments, which account for the remaining 90% of all endowments, have performed more modestly.

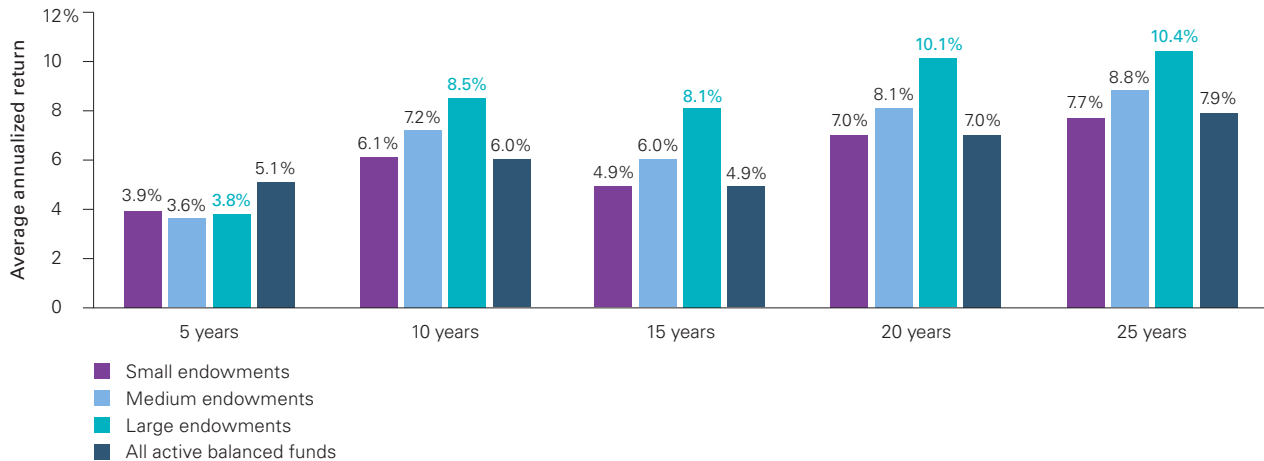
Figure 2. Endowments by size cohort



	Size cohort	Number of endowments	Percentage of endowments
■ Small	\$100 million or less	422	50%
■ Medium	>\$100 million but <\$1 billion	321	40%
■ Large	\$1 billion or more	82	10%

Sources: Small, medium, and large cohorts compiled by Vanguard, based on 2009–2013 *NACUBO-Commonfund Study of Endowments*.

Figure 3. Average annualized returns of endowments by size cohort versus results of active balanced funds



Notes: All data are for fiscal years ended June 30, 2013. All performance data are net of fees.

Sources: Vanguard calculations, using data from Morningstar, Inc., *NACUBO Endowment Study* (1987–2009), and *NACUBO-Commonfund Study of Endowments* (2009–2013).

Notes on risk: All investing is subject to risk, including the possible loss of the money you invest. Be aware that fluctuations in the financial markets and other factors may cause declines in the value of your account. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income. Investments in bond funds are subject to interest rate, credit, and inflation risk. Diversification does not ensure a profit or protect against a loss in a declining market. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Is it just a matter of adding more alternatives?

Some observers might conclude from this data that the main difference between the large endowments and others is the amount of alternative investments in their portfolios. This line of thought implies that if smaller endowments simply added more alternatives, their performance would improve. Although some evidence seems to support this theory, in the end it fails to hold up to scrutiny.

Data from the *NACUBO-Commonfund Study of Endowments* and from several individual universities make clear that use of alternatives has increased over time. Many of the largest endowments began to move into alternatives 20 to 25 years ago. Over the ten years through June 2013, smaller endowments followed suit with sizable allocations to alternatives (see **Appendix A-2** for details). **Figure 4** displays the growth in the use of alternative investments by all endowments.

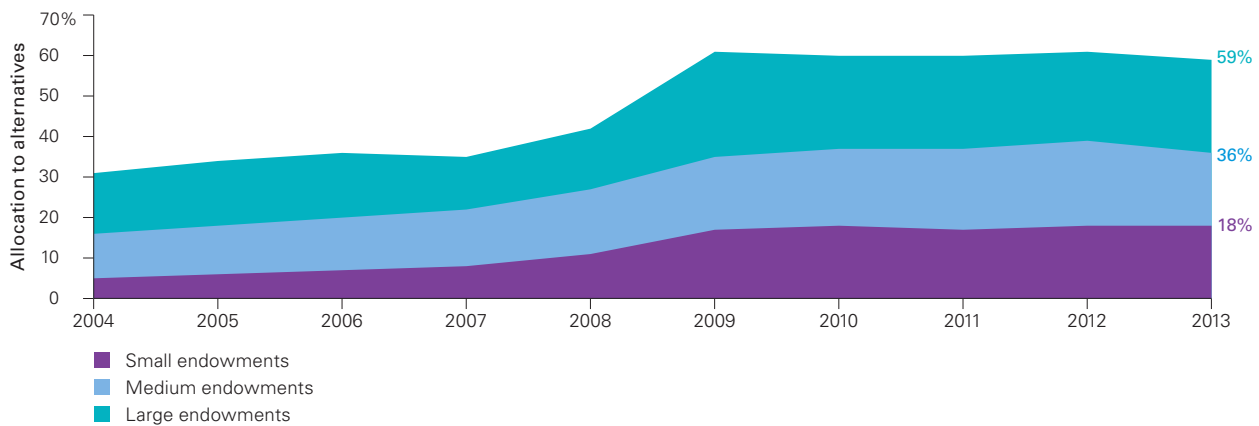
Figure 4 shows that, over the decade through June 2013, large endowments have, on average, increased their alternatives allocation from 31% to 59%, medium endowments from 16% to 36%, and small endowments

from 5% to 18%. These figures do show that small and medium endowments have more modest allocations to alternatives. Nevertheless, the implication that simply increasing this allocation would improve performance does not appear to be accurate, based on our review of (1) endowment performance over the last 20 years and (2) the average historical returns offered by alternative asset classes. We discuss each of these next.

Endowment performance through time

Figure 5 displays the rolling five-year excess returns of both large and small endowments versus a simple 60% stock/40% bond benchmark over the 20 years from 1994 through 2013. It also charts the growth in portfolio allocations to alternatives by the average endowment (weighted by the count in each size category). Two important observations emerge from the figure. First, large endowments have clearly generated strong excess returns, but the majority of their success occurred during the early and mid-2000s. Second, as small and medium endowments ramped up their allocations to alternative investments over the ten years through June 2013 and as more investor money has flowed into alternative categories such as hedge funds, positive excess returns

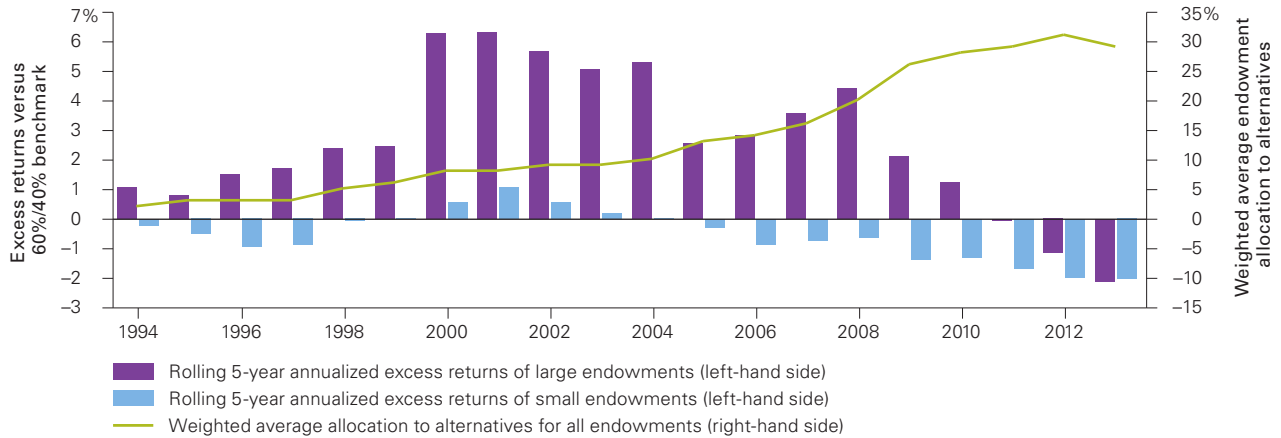
Figure 4. Endowment allocations to alternative investments, 2004–2013



Notes: All data are for fiscal years ended June 30. Alternative strategies are defined as Private equity (leveraged buyouts, mezzanine, merger-and-acquisition funds, and international private equity); marketable alternative strategies (hedge funds, absolute-return, market-neutral, long/short, 130/30, event-driven, and derivatives); venture capital; private equity real estate (non-campus); energy and natural resources (oil, gas, timber, commodities, and managed futures); and distressed debt. On-campus real estate is excluded.

Sources: Vanguard calculations, using data from *NACUBO Endowment Study* (1987–2009) and *NACUBO-Commonfund Study of Endowments* (2009–2013).

Figure 5. Excess returns of small and large endowments versus a 60% stock/40% bond index, and weighted average endowment allocation to alternatives, 1994–2013



Note: The 60% stock/40% bond index is composed of 42% U.S. stock market (Wilshire 5000 Total Market Index through April 22, 2005, and MSCI US Broad Market Index through June 30, 2013), 18% MSCI World Index ex USA, and 40% Barclays U.S. Aggregate Bond Index.
Sources: Vanguard, for endowment excess returns as of June 30, 2013, and NACUBO.

have not been forthcoming. Unfortunately, small and medium endowments did not participate in the early success of alternative investments realized by their larger counterparts, and recently—after years of increasing their exposure to alternatives—they have trailed the return of the 60% stock/40% bond benchmark by larger gaps than at any point in the full 20-year period.

Average performance experience in alternative asset classes

Although large endowments certainly benefited from early investment in alternative asset classes, successful investing in alternatives is more complex than a timely allocation of money. Vanguard research (e.g., Shanahan, Marshall, and Shtekhman, 2010) has shown that the average returns of alternative asset classes have trailed those of public stock and bond benchmarks; thus, investors must also identify and access top-performing managers within these asset classes to have a chance at succeeding.

Among private equity funds, Shanahan et al. (2010) found that only 30% of such funds outperformed the public equity markets; this finding was also confirmed by Mulcahy, Weeks, and Bradley (2012). Similarly, the average return of hedge funds has failed to outperform that of a broad-market benchmark of 60% stocks/40% bonds, and has also provided weak diversification benefits (Vanguard research by Hammer and Shtekhman, 2012).

To this point, small- and medium-sized endowments’ ventures into alternative asset classes have not lived up to expectations. Given the flood of assets into the alternative space combined with the weak average performance of alternative asset classes, it’s understandable why small and medium endowments have struggled to generate positive excess returns versus a 60% stock/40% bond benchmark by simply adding more alternatives. The following section explores the advantages large endowments tend to have over their smaller counterparts when investing in alternative asset classes.

Endowments' structural and operational differences

What has contributed to the success of the largest 10% of endowments? We have observed three key factors:

- *Investment expertise.* The largest endowments have, over time, developed a distinct depth of investing prowess, particularly regarding alternatives. The average large endowment has a staff of ten investment professionals. The ten *largest* endowments have made an even bigger commitment to expertise, with an average staff of 25 investment professionals (sources: Vanguard research and NACUBO, 2013). In addition, many large endowments were among the first significant investors to identify opportunities in alternatives.
- *Pricing power.* Larger endowments are able to commit significant capital to an investment manager. In combination with their years of investing expertise, this pricing power gives them a strong position in negotiating fees and allows them to avoid more expensive fund-of-funds structures. Indeed, some of the top endowment managers say that high fees alone are a reason to avoid some funds, implying that if an investment cannot be obtained at a reasonable price, it's not worth investing in.² Furthermore, 95% of their investments in alternatives are made directly with an investment manager, while 47% of alternative investments of small endowments are through a fund-of-funds structure, which adds an additional layer of fees and can be a significant drag on performance (NACUBO, 2013).
- *Access.* Large endowments, owing to their "first-mover" status in the alternative investment world, have developed long-standing relationships with talented managers—many of whom are no longer accepting new investors. Large endowments also tend to move to the front of the line for the most promising new investment opportunities, because of their alumni networks and the positive prestige and credibility that their investment can lend to a new fund.

Over time, most of the largest endowments have used these distinctive factors to achieve impressive results. This has led some to conclude that these endowments' approach to investing can't easily be replicated without similar resources and expertise. With this in mind, is there another way to achieve investment success?

Low-cost mutual funds have outpaced most endowments

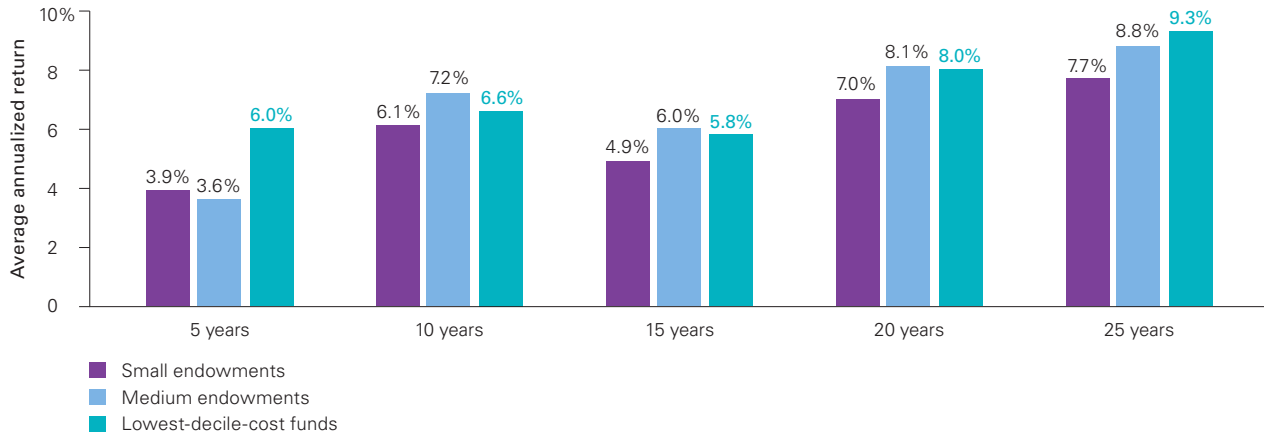
As previous Vanguard research has found, low cost is one of the most crucial factors in long-term investment success and can be identified in advance (e.g., Wallick, et al., 2011; Philips et al., 2014). When we compared the lowest-cost active balanced funds with the endowment size cohorts, we found that the balanced funds outperformed a majority of the time. Although the large endowments did relatively well, the performance of the average medium (40% of the total) and small (50%) endowments was less notable. For the five periods covered (see **Figure 6**), the low-cost funds outperformed small endowments every time and outperformed medium endowments in two of the five periods.

The return comparison in Figure 6 tells a compelling story, but many institutions prefer to consider risk-adjusted return, or how much risk is necessary to achieve a certain level of return. Using a Sharpe ratio³ analysis, we found that over the 25 years through June 2013, low-cost active balanced funds fared even better (i.e., had a higher Sharpe ratio than) medium and small endowments (see **Figure 7**).

² For more on this topic, see Bauer, Cremers, and Frehen (2010); Williamson (2012); and Swensen (2009).

³ The Sharpe ratio measures an investment's excess return per unit of risk and can be useful when comparing the performance of two portfolios with different asset allocations.

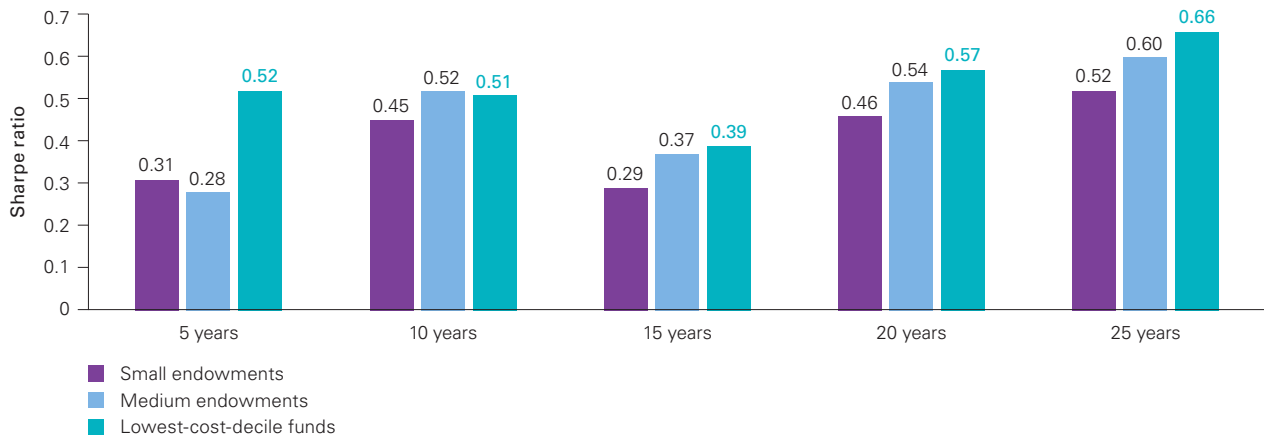
Figure 6. Average annualized returns of low-cost active balanced funds versus those of small and medium endowments



Notes: All data are for fiscal years ended June 30, 2013. Lowest-decile-cost funds were determined using end-of-period Morningstar, Inc., expense ratio data. Beginning-period expense ratios were similar.

Sources: Vanguard calculations, using data from Morningstar, Inc., *NACUBO Endowment Study* (1987–2009), and *NACUBO-Commonfund Study of Endowments* (2009–2013).

Figure 7. Sharpe ratios of low-cost active balanced funds versus those of medium and small endowments



Notes: Annual data for fiscal years ended June 30, 2013. Based on data availability, the Sharpe ratios for the small and medium endowments were calculated using category summary data, not an average of individual endowments within the categories.

Sources: Vanguard calculations, using data from Morningstar, Inc., *NACUBO Endowment Study* (1987–2009), and *NACUBO-Commonfund Study of Endowments* (2009–2013).

Conclusion

Vanguard's updated analysis of endowment investment performance again found that results differed distinctly depending on endowment size. The largest endowments, those with assets of \$1 billion or more, performed quite well over the two-and-a-half decades ended June 2013. Perhaps as a result of this success, they garnered an outsized portion of publicity. It's not surprising, therefore, that many market watchers see endowments—and their large allocations to alternative investments—as a model for investment success.

In reality, as our analysis shows, *although* the largest 10% of endowments have done extremely well, the average performance of the remaining 90% has been modest. Large endowments exhibit three key advantages that enable them to succeed where others have struggled: investment expertise, pricing power, and access. Lacking these advantages, smaller endowments have been unable to replicate this performance, even as they have significantly expanded their allocations to alternatives over the past decade.

In conclusion, Vanguard has found that for the period studied, the average small or medium endowment may have been better served by a portfolio of low-cost, transparent, diversified mutual funds invested in traditional stocks and bonds.

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Figure A-1. Calculation of endowment returns

Size ranges	Small endowments	Medium endowments	Large endowments
Through 1987	\$25M or less	>\$25M to <\$100M	\$100M or more
Through 1997	\$25M or less	>\$25M to <\$400M	\$400M or more
Through 1999	\$75M or less	>\$75M to <\$1B	\$1B or more
Thereafter	\$100M or less	>\$100M to <\$1B	\$1B or more

Notes: Individual-year returns were calculated by NACUBO-Commonfund on an asset-weighted basis within subcategories defined by fund sizes. Vanguard compiled the individual returns in each subcategory for each of the 25 years through June 30, 2013. We then combined the subcategories into broader cohorts labeled “large,” “medium,” and “small,” using fund-count weighting to calculate the average returns in each year for each cohort.

Sources: Vanguard calculations, using data from NACUBO-Commonfund.

Figure A-2. Endowment asset allocation

a. Large

Year	Equity	Fixed income	Alternatives	Short-term/cash/other
2004	50%	15%	31%	3%
2005	49	14	34	2
2006	49	13	36	2
2007	52	11	35	2
2008	46	11	42	2
2009	26	10	61	3
2010	26	10	60	4
2011	28	9	60	3
2012	27	9	61	3
2013	30	8	59	3

b. Medium

Year	Equity	Fixed income	Alternatives	Short-term/cash/other
2004	62%	19%	16%	4%
2005	60	18	18	4
2006	60	16	20	4
2007	59	15	22	4
2008	53	16	27	4
2009	42	16	35	7
2010	40	16	37	6
2011	43	14	37	5
2012	41	15	39	5
2013	45	14	36	5

c. Small

Year	Equity	Fixed income	Alternatives	Short-term/cash/other
2004	64%	25%	5%	6%
2005	64	24	6	6
2006	63	24	7	6
2007	64	22	8	6
2008	59	23	11	7
2009	51	24	17	7
2010	51	24	18	7
2011	53	22	17	8
2012	51	25	18	6
2013	54	22	18	5

Notes: Alternative strategies are defined as Private equity (leveraged buyouts, mezzanine, merger-and-acquisition funds, and international private equity); marketable alternative strategies (hedge funds, absolute return, market-neutral, long/short, 130/30, event-driven, and derivatives); venture capital; private equity real estate (non-campus); energy and natural resources (oil, gas, timber, commodities, and managed futures); and distressed debt. On-campus real estate is included in short-term cash/other. We used NACUBO-Commonfund’s dollar-weighted average from its reported data. When combining data for subcategories into the broader Vanguard categories (small, medium, and large), we used fund-count weighting because a dollar-weighted average was not possible, given the data available.

Sources: Vanguard calculations, using data from NACUBO-Commonfund.

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