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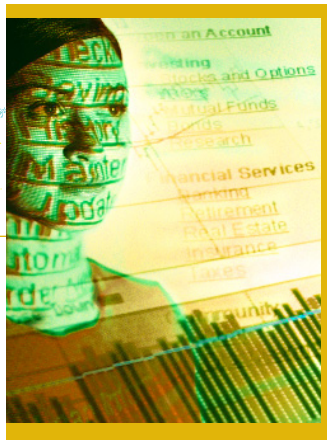

Endowment Spending
Goals, Rates, and Rules

NEARLY THREE-QUARTERS of colleges and universities today target their endowment spending at about 5 percent of a three-year rolling average of total endowment market value. During the favorable investment conditions of the 1990s, many institutions saw their endowments and endowment spending soar, and became more dependent on endowment spending than they had been. More recent volatile market conditions, however, have constrained endowment spending—especially for the many institutions using a spending rule based on a three-year rolling average. As a result, many institutions are reexamining how they manage endowment spending. Perry Mehrling, professor of economics at Barnard College; Paul Goldstein, director of financial and strategic studies in the University Budget Office at Stanford University; and Verne Sedlacek, president and chief executive officer of Commonfund, discuss the goals and purposes of institutional endowments and various approaches to establishing endowment payout rates and rules.

Goals for Endowments

Perhaps the notion that most frequently comes to mind when considering endowment management is that of *intergenerational equity*—that is, according to Verne Sedlacek, "the state in which the nominal market value [of the endowment] is equal to or greater than the inflation-adjusted market value from one generation to the next." Perry Mehrling's alternative approach to endowment management would refine that definition by saying that the endowment's inflation-adjusted value should simply be *equal* from one generation to the next, rather

than growing larger over time. Mehrling argues that the common practice of adding investment returns in excess of spending back into the endowment works only if the spending rate is so low that excess returns are always assured. This is because the endowment corpus is ratcheted up when returns exceed spending, but not ratcheted back down when returns fall short of spending. Indeed, because every new level of achieved endowment accumulation becomes the new perpetual goal, the demands of intergenerational equity even seem to require that any shortfall be made up. In other words, the policy of holding current spending below the expected rate of return shifts all the risk involved in future asset returns onto present shoulders, and none of it onto future generations. Mehrling wonders what is equitable about that approach, and encourages consideration of increased current endowment spending under certain conditions.

Paul Goldstein acknowledges the need to preserve the value, or purchasing power, of the endowment by not paying out too much annually—but adds that the primary goal is not to maintain the corpus of the endowment but rather to use the endowment to support the institution's mission. Goldstein believes that endowment managers should first focus on maximizing the benefit of the endowment to the institution and not simply on maintaining its value at all costs. Future generations will benefit from current uses of the endowment, which justifies dipping into it to, for example, build new facilities, support research, and attract faculty, and for other activities that clearly are investments in the future of the institution. Enough must also be spent to support current programs and meet donors' expectations. Finally, endowment spending should be smoothed so as to avoid year-to-year fluctuations in payouts that make budgeting difficult. Goldstein describes endowment management as an effort to balance short- and long-term needs, and risks and rewards between the present and future.

Goldstein cites the experience of Stanford in the early 1990s, when the university was faced with deficits brought on largely by a drop in its indirect cost recovery rate and an anticipated reduction in overall sponsored research volume. Stanford's trustees formulated a plan to adjust its budget to the new reality. To allow time for the budget adjustments to be implemented without causing major disruptions to academic programs or services, the trustees approved a plan that included a two-year increase in the endowment payout rate from 4.75 percent to 6.75 percent. Clearly, at that point, the current needs of the university outweighed the need to preserve the endowment's value. It should be noted that the board had the flexibility to act on this strategy only because of the "surplus" in the endowment then (as a result of superior returns in the 1980s).

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Commonfund's 2004 Benchmarks Study reported results of a survey of 650 senior investment or financial professionals at educational institutions about their objectives in managing endowments. More than half (54 percent) of respondents said their primary concern was to "provide a consistent and growing stream of income." Twenty-six percent of respondents chose "maximize intergenerational equity" as their top concern and 11 percent chose "smooth variations." These results are consistent with Mehrling's and Goldstein's more nuanced approaches to managing endowments than simply preserving their value for future generations.

The Alpha-Beta Approach

Mehrling proposes an alternative approach to the dominant, traditional 5 percent spending standard, originally designed to both ensure a consistent and reliable level of income and maintain endowments in perpetuity. While these goals may be entirely appropriate, the problem lies in the uncertainty of investment returns, which even over the long run vary widely. Indeed, whatever we assume about the future will most likely prove to be wrong.

Investment returns behave like random variables—sometimes high, sometimes low, sometimes middling—and that fluctuation poses a problem for the concept of intergenerational equity. If we want to guarantee to future generations a fixed amount of spending, then we cannot guarantee a fixed corpus. And if we want to guarantee a fixed corpus, then we cannot guarantee fixed spending. In a world of risk, it seems that we must choose between the putative interest of the beneficiary (constant spending) and the putative interest of the trustee (constant endowment).

To address this, what most institutions have done over time is fix the level of spending low enough that most of the time earnings are more than sufficient to cover it. In this way, both spending and the corpus are guaranteed. Of course, this means that spending is modest, but on the bright side it also means that in most years returns exceed

spending and the excess can be added to the endowment—which brings us to Mehrling's point about the compromise of intergenerational equity, wherein the current generation bears the risk of future returns.

Mehrling proposes the creation of a *stabilization fund* to absorb fluctuations and allow both spending and the corpus to remain at constant levels. Think of the fund as a kind of bank account with overdraft privileges, but one that has the same return as the endowment. On average, the account is zero, but when there is a period of abnormally high returns, the account becomes positive, and when there is a period of abnormally low returns, the account becomes negative.

Conceptually, we use the stabilization fund to take the risk of asset returns off the shoulders of both the present and future. With risk out of the picture, the requirement of intergenerational equity becomes clearer. We should set spending on the original corpus at the expected rate of return.

The remaining question is whether to adjust spending according to the size of the stabilization fund, and if so, how. Clearly, we cannot tolerate a stabilization fund that rises or falls without bound. The former would cheat the present, and the latter would cheat the future. So we may want to spend from the stabilization fund in a way that stabilizes its value (at zero) over time. The main point, however, is that discussion about how best to treat the stabilization fund can be completely separated from the discussion about how to treat the original endowment.

Whatever approach is adopted, spending will be in accord with some version of the following basic formula:

$$S_t = \alpha E_0 + \beta F_{t-1},$$

where S_t is current spending, E_0 is the original endowment, F_{t-1} is the stabilization fund balance at the end of the previous fiscal period, and both α and β are spending rates. [All values are expressed in real (inflation-adjusted) terms.]

To share investment risk equitably across generations, the spending rate α should be set at the expected rate of return. Of course, we don't know the expected return and so must estimate it, recognizing that the band of error is inevitably large. One response to that uncertainty is to underestimate the return, "just to be safe." Hence, the traditional 5 percent rule. A major advantage of the stabilization fund approach is that it encourages more realistic estimates because the consequences of being wrong are mitigated by the dynamic operation of the spending rule. If we choose our estimate of α wrong, the effect over time will be a systematic deviation of the stabilization fund from zero, and then our choice of the adjustment coefficient β will come into play.

Concretely, it is useful to consider today's quasi endowments (resulting from internal growth and not gifts) as *de facto* stabilization funds that have ballooned out of proportion to the original endowment. From this perspective, the problem in the last decade may not be that we spent too much, but that we spent too little! And the problem we face now, given bad times for the last few years, is not how to preserve the quasi endowment intact, but rather how to optimally spend it down to serve institutional goals.

The Stanford Rule

Stanford uses a *target rate rule* based on setting a target rate and then paying out from the endowment at that rate. Goldstein argues that the target rate is not set low "just to be safe" but is set equal to the long-term expected real (i.e., inflation-adjusted) return on the endowment, minus institutional cost rise. The goal is to keep the system in equilibrium: that is, to have the endowment grow at the same rate as the institution's cost rise, and balance the risk and reward between the current year and the future

In mathematical terms, we want (real) spending S to keep up with cost rise c or

$$S_{i+1} = (1 + c)\, S_i$$

That is, the payout (spending) in year i+1 should be equal to the spending in year i, inflated by the cost rise.

Let E_i be the endowment market value at time i; if our expected real return is ρ and our target spending rate is α, then, in expected terms:

$$S_i = \alpha E_i \text{ and } E_{i+1} = (1+\rho) E_i - \alpha E_i$$

By substitution, we must set our target spending rate equal to our long-term expected real return, less cost rise, thus $\alpha = \rho - c$

To do this, we use our best guess of future market returns. Of course, our best guess could be wrong, but any other assumption would be either more or less conservative than the neutral position Stanford wants to take. Another institution, or Stanford under different circumstances, might want to set the target payout rate lower with

the intention of increasing the endowment, or set the rate higher with the intention of increasing current spending and drawing down the endowment.

Thus, setting the target rate involves (1) estimating the long-term real investment return and (2) balancing future growth against current spending.

The case above is static and does not deal with year-to-year variations in market value. To manage the variability, Stanford uses a smoothing rule, namely,

$$S_{i+1} = \theta(1+c)S_i + (1-\theta)\alpha E_i$$

where θ is our weighting factor (currently $\theta = 0.6$). In words, we set the current year's payout equal to a weighted average of 60 percent of last year's payout increased by cost rise, plus 40 percent of the current endowment value times our target payout rate (currently 5 percent). The Stanford rule is a weighted average of an inflation-linked rule (see below) and a target rate rule.

The Stanford smoothing rule can also be shown to be a geometrically weighted average of past endowment values. It is like a three-year rolling average rule, except that it refines the concept to include **N** previous endowment values (with older values weighted less than recent values) and adjusts past market values by cost rise.

The Stanford rule does not have any terms referencing the historical or original real value of the endowment. The rule takes the position that we are where we are, and we look forward into the future rather than trying to revert to a historic market value.

Comparison of the Alpha-Beta and Stanford Rules

Unlike the Stanford rule, the alpha-beta rule explicitly segregates the endowment into two parts: an original endowment and a stabilization fund. Because the alpha-beta rule seeks to maintain the "true," original endowment at a fixed level and the stabilization fund at zero by adjusting spending from year to year, it is inherently less stable than a target spending rate rule such as Stanford's, which pays out at a constant rate. As a result, Mehrling recommends using smoothing rules to help set β, the stabilization fund spending rate. Since higher values of β tend to produce greater fluctuations in spending, this smoothing step is particularly important. Mehrling suggests that traditional three-year averaging may not be sufficient, and that instead some version of the Stanford smoothing method—which accounts for many more endowment values and weights them according to how recent they are—be applied. Unless smoothing is done carefully, the alpha-beta rule tends to overcorrect for jolts that affect the endowment—either positively (when the stabilization fund is positive) or negatively (when the stabilization fund is in deficit) by loading more risk and variation onto the current generation.

Because the alpha-beta rule segregates the endowment, it implies that equally valued endowment funds will be treated differently. Goldstein questions how that might work in practice. For example, a gift made when the market was at a peak would be under a substantial burden to maintain its "true" value, and payout would need to be curtailed, perhaps frustrating the donor's intention. Goldstein also questions the practicality of establishing the value of the original endowment—a significant parameter in the alpha-beta rule. In the case of a new endowment, he says, one could start with the value of the gift, but for institutions with an established endowment, what is the appropriate value? It seems that the values for the original endowment and the stabilization fund must be determined individually for each endowment fund. Goldstein believes the process could become very difficult both politically and logistically.

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Commonfund's Inflation-Linked Rule

The inflation-linked rule, described by Sedlacek, is designed to maintain budgetary stability by increasing payout from year to year by the amount of inflation or institutional cost rise. That is, each year's payout is based on the prior year's payout. This rule is not entirely independent of the endowment's market value, which is factored in by the use of boundaries that constrain the payout within a defined band of, for example, a minimum of 3 percent and a maximum of 6 percent of the endowment's value.

The main attraction of an inflation-linked rule is that it shields year-to-year spending from market fluctuations—so long as the spending rate remains within the boundaries. However, in instances in which the boundary

condition is met, the payout is directly affected by investment returns on the endowment. Indeed, in simulated applications with a 3–6 percent band that projected the rule's effect out 20 years, the lower boundary was hit in 45 percent of the cases with the benchmark asset allocation and a 5 percent spending rate. As the portfolio is diversified, the number of band hits is reduced. Hitting the lower boundary means that the payout should be increased above last year's spending plus inflation or institutional cost rise, and is an indication of good returns. In contrast, hitting the upper boundary and therefore having to cut spending is undesirable.

Commonfund uses an *Allocation Planning Model* (APM) to forecast outcomes by simulating potential future economic scenarios and applying them to various asset allocations. (See Commonfund APM sidebar.) The APM simulation was run on a hypothetical $1 billion endowment with a targeted 4.5 percent spending rate and an asset allocation as follows: 26 percent U.S. equities, 15 percent international equities, 40 percent alternatives, 2 percent cash, and 17 percent fixed income. The simulation randomly projected 1,000 scenarios of varying economic conditions each year for 10 years for each of four spending methods: the Stanford target rate method, with its weighted smoothing rule accounting for historical endowment values; the typical three-year rolling average approach; and two inflation-linked methods banded at 3–6 and 3–7 percent of total endowment value.

In terms of preserving endowment value, the four spending methods prove to be quite comparable, as all fell within a 57–59 percent probability range of achieving intergenerational equity. However, with regard to the primary goal of providing a consistent and growing stream of income (identified as more than twice as important as intergenerational equity to endowment managers in the 2004 Commonfund survey), the spending methods vary significantly. In terms of how often endowment spending would have to be cut, the three-year rolling average spending method resulted in spending cuts more than twice as often as the banded 3–7 percent method (21 percent vs. 10 percent of the 10,000 scenarios run for each). The Stanford weighted average approach and the banded 3–6 percent method resulted in spending cuts 14 and 12 percent of the time, respectively. (It stands to reason that the banded 3–7 percent method would result in spending cuts less frequently than the banded 3–6 percent method because an upper boundary of 6 would be hit more often one set at 7.)

COMMONFUND'S ALLOCATION PLANNING MODEL

Commonfund's Allocation Planning Model (APM) is a proprietary financial forecasting tool that assists nonprofit investors with evaluating the impact of their decisions on the ability to achieve long-term goals. The model evaluates the probability of meeting long-term objectives using several inputs: (1) asset allocation, (2) contributions, (3) distribution rate, and (4) distribution method. Commonfund's APM is a forward-looking, yield curve–based model that simulates potential future economic scenarios and asset class returns within those economic scenarios. The model takes today's yield curve, uses Monte Carlo simulation to project 1,000 different yield curves for next year by changing economic factors that affect the curve, and projects returns for each of 19 asset classes in each of the "new" yield curve environments. The projected returns are based on the regression of the historical relationship between these asset classes and the yield curve. The model then takes each of the 1,000 "new" yield curves as the next starting point and repeats the process, building another 1,000 yield curves and projecting returns in those environments. The output of the model is a distribution of nominal returns, real returns, real asset values, distribution amounts, and nominal spending changes for 5, 10, 15, and 20 years.

Conclusion

Are some colleges and universities too rich? Are they perhaps saving too much for the future and, therefore, spending too little today? In an environment in which Congressional interest in the cost of higher education is high, some institutions may feel vulnerable to charges that they are hoarding too much wealth. Yet one could argue that the long-term view evidenced by the goal of intergenerational equity is otherwise lacking in our society, and that planning for the future is an important and necessary virtue of colleges and universities.

As we have seen, endowment managers are faced with a variety of sometimes conflicting goals. Donors give gifts to be used in perpetuity to support programs, and trustees

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are obligated to preserve enough of the value of the gifts to ensure their perpetuity. However, the institution must spend enough of the return on gifts to support the programs for which they are intended. Finally, because programs are sensitive to fluctuations in funding, large year-to-year variances in payouts from the endowment are best avoided.

Clearly, a balance of short- and long-term needs must be struck, and where that balance point lies at any one institution will be determined by its particular circumstances at any given time. It is interesting to note that the Uniform Management of Institutional Funds Act (UMIFA), in the currently proposed redrafting of its original 1972 language, is moving away from the concept of the historical market value of endowments and toward allowing greater flexibility for governing boards to determine appropriate endowment payouts.

The thrust of the UMIFA language in its current draft is that if one has reason to expect that the long-term return on the endowment will change, it would be appropriate to change the target rate in a spending rule. Faced with a current crisis and a large endowment, additional spending might be appropriate. Alternatively, after an extended period of endowment losses, a board could conclude that rebuilding endowment value is of higher priority than maintaining all current programs. Each of these situations presents a change in fundamentals: either fundamental assumptions about the nature of future market conditions or a crisis that increases the need for additional resources. Given the unpredictable nature of crises and the very long-term nature of market cycles, reacting to such situations is probably better handled through a human process of reevaluation and judgment than via the mechanics of a rule.

The question, then, is whether appropriate governance structures to make such judgments are in place. Trustees should be fully informed—with clear, complete, and readily understandable analyses—of the short- and long-term implications of the decisions they must make with regard to endowment spending. Only then can they fully discharge their roles as guardians of the institutions they serve.

Perry Mehrling is professor of economics at Barnard College. His recent books include *Fischer Black and the Revolutionary Idea of Finance* (2005) and (with Roger Sandilands) *Money and Growth: Selected Essays of Allyn Young* (1999). Perry's work on endowment spending for colleges and universities stems from his earlier work on "Spending Policies for Foundations" (1999), which built on his previous work on a proposal to reform Social Security. Mehrling can be reached at pgm10@columbia.edu.

Paul Goldstein is director of financial and strategic studies in the University Budget Office at Stanford University. He was instrumental in the design of the university's accounting, reporting, and authority systems and was a major contributor to the development of the decision support system and the university data warehouse. Goldstein also was project co-manager for implementing the Pillar budget system at Stanford. Goldstein can be reached at marmot@stanford.edu.

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