
10 Investment Policy Statement Benchmark Construction for Hospital Endowment Fund Management

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INTRODUCTION

Dr. Malcolm T. MacEachern, Director of Hospital Activities for the American College of Surgeons, presciently observed that:

our hospitals are now involved in the worst financial crisis they have ever experienced. It is absolutely necessary to all of us to put our heads together and try to find some solution. If we are to have effective results we must have concerted and coordinated immediate action. . . . Repeated adjustments of expenses to income have been made. Never before has there been such a careful analysis of hospital accounting and study of financial policies. It is entirely possible for us to inaugurate improvements in business methods which will lead to greater ways and means of financing hospitals in the future. . . . It is true that all hospitals have already trimmed their sales to better meet the financial conditions of their respective communities. This has been chiefly through economies of administration. There has been more or less universal reduction in personnel and salaries; many economies have been affected. Everything possible has been done to reduce expenditures but this has not been sufficient to bring about immediate relief in the majority of instances. The continuance of the present economic conditions will force hospitals generally to further action. The time has come when this problem must be given even greater thought, both from its community and from its national aspect.¹

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Many health administration and endowment managers would agree that Dr. MacEachern accurately describes today's healthcare funding environment. Although they might be startled to learn that Dr. MacEachern made these observations in 1932, there is the old truism that there is nothing new under the sun.

Healthcare statistics after the 2012 presidential election and Patient Protection-Affordable Care Act confirmation suggest that the financial crises are much the same for today's hospitals as they were for hospitals during the Great Depression. The American Hospital Association recently reported a number of gloomy statistics for hospitals:²

- Hospitals provided \$39 billion in uncompensated care to patients in 2010 representing 5.8 percent of their expenses.
- Technology costs are soaring as traditional technologies such as X-ray machines (available for \$175,000) are being replaced by contemporary technologies such as computed tomography (CT) scanners (available for \$1 million), which are in turn being replaced by CT functional imaging with positron emission tomography scans (available for \$2.3 million). Even a "simple" instrument like as a scalpel that costs \$20 is being replaced by equipment for electrocautery, which costs \$12,000, and that is then being replaced by harmonic scalpels that cost \$30,000.

A further review added more daunting numbers:³

- In 2010, 22.4 percent of hospitals reported a negative total margin.
- From 1997 through 2009, hospitals saw a small net surplus from government payments from sources such as Medicare and Medicaid deteriorate into a deficit approaching \$35 billion.
- Emergency departments in 47 percent of all hospitals report operating at or over capacity, partially reflecting an approximately 10 percent decline in the number of emergency departments since 1991.
- The average age of hospital plants has increased 22.5 percent from 8.0 years to 9.8 years in just 15 years.
- From 2003 through September 2007, hospital bond downgrades have outpaced hospital bond upgrades by 19 percent.

In a time when so much seems different yet so much seems the same, hospitals are increasingly viewing their endowments as a source of help. But what is an endowment? The same Latin words that give rise to the word *dowry* also give rise to the word *endowment*.⁴ Interestingly, the concepts of a dowry and an endowment are similar in many ways. Both are typically viewed as gifts for continuing support or maintenance. With respect to the health-care entity, an endowment is generally used to smooth variations in operating results and to fund extra programs or plant purchases. Any entity that enjoys the support of an endowment also encounters the conflicting objectives between current income and future growth.

Dean William Inge, a nineteenth century cleric and author, aptly noted, “Worry is interest paid on trouble before it is due.” When managing an endowment, it is important that the institution focus its attention on those items that it can control rather than worrying about those it cannot control. Successful endowment managers seem to agree that there are at least two major areas subject to the endowment’s control: asset allocation (also known as investment policy) and payout policy.

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ASSET ALLOCATION

Since a 1986 study of large pension funds suggested that investment policy, rather than market timing or security selection, was the primary determinant of portfolio performance,⁵ investors have seized upon asset allocation as the Holy Grail of investing. Although there has been ongoing debate regarding the original study’s methodology and conclusions, David Swensen, the Chief Investment Officer of Yale University, made the following observation with respect to asset allocation: “Investors often treat asset allocation’s central role in determining portfolio returns as a truism. It is not. The Brinson, Singer, and Beebower study describes investor behavior, not finance theory.”⁶

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It is its ability to control investor behavior that makes asset allocation so valuable. But what is asset allocation? In simple terms, asset allocation is the process of combining or blending investment asset classes in an attempt to obtain the highest possible return at the lowest possible risk. Because this is a laudable pursuit, an endowment should have a process to guide its behavior in establishing investment allocation.

DEVELOP A PROPER PERSPECTIVE

It has been said that the most difficult single feat in professional sports is hitting the major league pitch that can arrive at the plate in as few as 0.4 seconds after being thrown. Perhaps the most difficult feat in investing is setting an asset allocation. For the endowment manager (and most other investors), maintaining proper perspective of risk and return is likely the most difficult aspect of setting investment policy. Although investing carries many risks, William Spitz, CFA (Chartered

Financial Analyst), the treasurer of Vanderbilt University School of Medicine and manager of the team that provides day-to-day management of Vanderbilt's \$2.25 billion endowment, succinctly summarized the risks that should represent the primary areas of concern:

1. the endowment could suffer an unacceptable market loss
2. there could be a decrease in the amount of support the endowment could provide to the sponsoring institution
3. the endowment could fail to preserve its real purchasing power⁷

When balancing these divergent risks, the endowment manager must remember that an endowment is a matter of "inter-generational equity," meaning that the future generation cannot and must not be harmed by actions taken on behalf of the current generation. When establishing the allocation for an endowment, the concept of inter-generational equity means that the manager must take a long-term perspective. Such a strict long-term perspective would likely require an almost complete equity allocation. However, because most healthcare institutions have immediate needs, an endowment manager's investment allocation must also remain sensitive to the needs for current period funding.

To put endowment management into a more personal perspective, liken it to investing an individual retirement account (IRA) for a 65-year-old Mr. Methuselah who is preparing for 904 golden years of retirement bliss. His dilemma involves satisfying a need for current income while ensuring that he preserves the purchasing power of his portfolio.

ASSET CLASS CONSIDERATIONS

The 2006 Commonfund Benchmarks Healthcare Study surveyed 202 public and private healthcare institutions with total investment assets of \$105.8 billion. The average asset allocation reported by those institutions is shown in Table 10.1.⁸ Note that this study included pension, operating, and insurance reserve assets. Because most institutions invest their insurance reserves more conservatively than their pension or operating (endowment) assets, the data will likely appear to be somewhat more conservative than is actually the case for endowment assets. However, even allowing for this enhanced conservatism, the average annual returns of 6.3 percent for the year ended June 30, 2006, does not seem particularly healthy.

Domestic Equity

Historically, domestic equities have represented a significant portion of a typical endowment's assets because they have generated favorable long-term returns relative to cash and bonds. Of course, this greater return has also entailed greater risk as compared to those same lower return investments. As shown in the Commonfund survey, the average healthcare entity continues to place heavy reliance on domestic equities. However, survey participants have reduced their allocations to domestic equities by 7 percent in just two years in favor of international equities and alternative investments.

TABLE 10.1
Average Asset Allocations

Total domestic equities	30%
Fixed income	34%
International equities	12%
Alternative investments	15%
Cash/short-term securities	9%
Total	100%

Fixed Income

Most endowments will use fixed income or bond positions to provide more stable sources of income, greater portfolio diversification, and a hedge against unanticipated spending needs. Although many fixed income investments have historically exhibited less volatility or risk than other investment alternatives, they have also generally tended to have lower long-term returns. When determining the size of the endowment's fixed income position, the manager will want to remember that the inter-generational nature of endowments is such that long-term returns remain important. In addition, a substantial body of research suggests that the risk of higher-returning investments such as stocks diminishes substantially over longer holding periods. Endowments may desire to hedge their long-term liabilities with long-term bonds. However, they should consider research compiled by Dimensional Fund Advisors showing that longer-term bonds may not provide significantly higher return relative to their risk. As shown in the following chart, the average annual return of twenty-year bonds is virtually identical to that of five-year bonds, but the risk (as measured by standard deviation) is 75 percent higher.⁹

U.S. Treasury Obligations 1964–2012			
	One-Year U.S. Treasury Bills	Five-Year U.S. Treasury Notes	Twenty-Year U.S. Government Bonds
Annualized compound return (%)	0.73	5.17	5.46
Annualized standard deviation (%)	2.24	3.13	3.96

Foreign Equity

Exposure to foreign equity can enhance the overall diversification of the endowment portfolio. Perhaps more importantly, some foreign equity markets are substantially less efficient than the domestic equity market, which affords the portfolio manager the opportunity to earn above market returns. Within the foreign equity class, emerging markets are often viewed to be especially attractive because their rapidly growing and changing economies provide the skillful manager with an opportunity to add value.

Absolute Return

This class of investment seeks to exploit market inefficiencies and generate positive returns regardless of broader market performance. Investments in this class often are made through the use of hedge funds. Hedge funds will often employ leverage, short-selling, and arbitrage to take advantage of pricing distortions in their targeted strategy area.

When investing an endowment's assets in this category, the manager should be aware of fee structures that commonly include performance-related incentive fees, hurdle rates, and clawback clauses. The endowment manager should also remember that these types of investments generally have much less transparency than other asset classes with which they may be more familiar. Finally, because many of these investments are offered only to accredited investors, the investment manager is often free to pursue much more aggressive strategies than would otherwise be pursued for retail customers.

Private Equity

As with absolute return investments, private equity is generally available only to accredited investors. The relative lack of efficiency in this market allows the endowment to seek superior risk-adjusted returns by participating in such investments as venture capital and leveraged buy-out funds. When investing in this asset class, the endowment manager would be well served to partner with managers who "emphasize a value-added approach to investing. Such firms work closely with the portfolio companies to create entities that are fundamentally more valuable, relying only secondarily on financial engineering to generate returns."¹⁰ Although this class of investments has

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handsomely rewarded many large endowments, the manager must also remember that the very nature of this class is such that liquidity may be very limited.

Real Assets

Also known as “hard assets,” this class includes such investments as real estate, gas and oil, and timber. Many successful endowments have found this to be an attractive class of investments because they provide strong returns and can serve as an inflationary hedge. The Yale Endowment’s allocation to real assets is almost six times the average for other similar institutions, and since 1978 this allocation has returned an average 15 percent per year.¹¹ As further illustration, since 1987 timber has provided average annual returns of approximately 15.6 percent¹² as compared to 13.1 percent for domestic equities (as measured by the Wilshire 5000 Index). During this time period, timber had only three negative return quarters¹³ and significantly lower volatility than domestic equities. However, investing in assets such as timber requires that an endowment accept the approximate fifteen-year timeframe and the limited liquidity it represents (Spitz, 2004, pers. comm.).

COMBINING THE ASSET CLASSES

Combining the disparate information into a workable asset allocation is as much art as it is science, perhaps more so. Most endowments will use a combination of quantitative and qualitative analyses to develop their allocations. The quantitative portion of the analyses generally uses a variety of statistical techniques to develop a top-down approach to the general allocation. After developing a general sense of their desired range of returns, many endowments will use one of several “optimizer” techniques to assist in constructing an allocation. Commonly used optimization techniques include mean variance optimization (MVO) and Monte Carlo simulation (MCS).

Mean Variance Optimization

MVO has at its core modern portfolio theory (MPT), which seeks to find the “efficient frontier” that defines the minimum risk for any given level of return. To find this frontier, MVO will consider the expected returns, standard deviations (i.e., volatility), and correlation coefficients of individual asset classes. All things being equal, the endowment manager would generally choose the investments with the highest expected long-term return. However, the current funding needs placed upon endowments require that they be sensitive to the volatility of asset classes.

Expected volatility is often defined as “risk” and is measured by the standard deviation of investment returns around an expected average return for that same investment. In other words, an asset class with an expected return of 10 percent and standard deviation of 5 percent would have its returns range from 5 percent to 15 percent approximately two-thirds of the time. This assumes that returns are normally distributed around a mean although a fair amount of evidence suggests that they are not. Table 10.2 summarizes periodic returns and standard deviations for selected classes of assets.

Cross-asset correlation is measured by the correlation coefficients between two categories of investments. Correlation coefficients range from -1.0 to $+1.0$. A correlation coefficient of -1.0 means two investment classes move exactly inversely to one another. On the other hand, a $+1.0$ correlation coefficient means that two asset classes have totally positive correlation. A 0.0 correlation coefficient means that movement in one asset class cannot be used to predict the level of return in another asset class. By holding asset classes with imperfect correlation, volatility in the portfolio can be reduced as classes with higher returns balance those with low or negative returns. Table 10.3 summarizes correlation coefficients for the same asset classes described in Table 10.2.

The MVO optimizer will then mathematically plot a series of portfolio options that represent the maximum level of return for a given level of risk. By definition, there can be only one such efficient frontier of portfolios. Also explicit in MPT is the idea that a portfolio below the efficient frontier is inefficient, whereas a portfolio above the efficient frontier is impossible to sustain on a long-term

TABLE 10.2
Average Annual Returns and Standard Deviations for Selected Asset Class Returns, 2006–2011

Benchmark/Asset Class	Return	Standard Deviation
Wilshire 5000	1.15%	19.24%
MSCI EAFE	-5.37%	22.69%
MSCI EAFE Emerging Markets	-1.7%	29.01%
Hedge Fund	2.95%	9.20%
Timber	6.39%	25.67%
Real Estate	6.77%	6.41%
Long-term U.S. Government	11.21%	1.01%
Intermediate U.S. Government	6.34%	1.40%
Short-term U.S. Government	2.69%	1.50%
Medical Inflation	4.20%	1.14%

Sources: Index data for the Wilshire 5000 data were obtained from Wilshire Associates. Index data for the MSCI EAFE and MSCI EAFE Emerging Markets were obtained from Morgan Stanley Capital International, Inc. Index data for the HFRI Fund Weighted Composite Index was obtained from Hedge Fund Research, Inc. Index and return amounts for timber and real estate were obtained from the National Council of Real Estate Investment Fiduciaries. Returns and standard deviations for the Long-term U.S. Government, Intermediate U.S. Government, and Short-term U.S. Government asset classes were calculated by the author using thirty-year Treasury Bond, five-year Treasury Note, and thirteen-week Treasury Bill average annual yields. Medical Inflation was obtained from the Bureau of Labor Statistics and represents the rate of inflation for medical care of all urban consumers. All annual returns and standard deviations were calculated by the principal author.

basis. Figure 10.1 provides a graphic representation of the efficient frontier and portfolios that would be considered either inefficient or impossible to attain.

Monte Carlo Simulation

Named after Monte Carlo, Monaco, which is famous for its games of chance, MCS is a technique that randomly changes a variable over numerous iterations to simulate an outcome and develop a probability forecast of successfully achieving an outcome. In endowment management, MCS is used to demonstrate the probability of “success” as defined by achieving the endowment’s asset growth and payout goals. In other words, MCS can provide the endowment manager with a comfort level that a given payout policy and asset allocation success will not deplete the real value of the endowment.

The problem with many quantitative tools is the divorce of judgment from their use. Although useful, both MVO and MCS have limitations such that they should not supplant the endowment manager’s experience. As noted, MVO generates an efficient frontier by relying upon several inputs: expected return, expected volatility, and correlation coefficients. These variables are commonly input using historical measures as proxies for estimated future performance. This poses a variety of problems. First, the MVO will generally assume that returns are normally distributed and that this distribution is stationary. As such, asset classes with high historical returns are assumed to have high future returns. Second, an MVO optimizer is not generally time sensitive. In other words, the optimizer may ignore current environmental conditions that would cause a secular shift in the returns of a given asset class. Finally, an MVO optimizer may be subject to selection bias for certain asset classes. For example, private equity firms that fail will no longer report results and will be eliminated from the index used to provide the optimizer’s historical data.¹⁴

TABLE 10.3
Selected Asset Class Correlations Annual Returns

	Wilshire 5000	MSCI EAFE	MSCI Emerging Markets	Hedge Fund	Timber	Real Estate	Long-term U.S. Government	Inter U.S. Government	Short-term U.S. Government	Medical Inflation
Wilshire 5000	1.00									
MSCI EAFE	0.71	1.00								
MSCI EAFE Emerging Markets	0.41	0.67	1.00							
Hedge Fund	0.70	0.60	0.82	1.00						
Timber	0.38	0.18	0.32	0.58	1.00					
Real Estate	0.07	0.16	-0.42	-0.38	-0.59	1.00				
Long-term U.S. Government	0.08	-0.26	0.01	0.25	0.63	-0.65	1.00			
Intermediate U.S. Government	0.07	-0.32	-0.20	0.13	0.42	-0.34	0.91	1.00		
Short-term U.S. Government	0.10	-0.30	-0.36	0.01	0.09	0.04	0.64	0.89	1.00	
Medical Inflation	-0.30	-0.40	0.12	0.02	0.30	-0.80	0.73	0.55	0.30	1.00

Note: Historical data presented for illustrative purposes only.

Sources: Index data for the Wilshire 5000 data were obtained from Wilshire Associates. Index data for the MSCI EAFE and MSCI EAFE Emerging Markets were obtained from Morgan Stanley Capital International, Inc. Index data for the HFRI Fund Weighted Composite Index were obtained from Hedge Fund Research, Inc. Index and return amounts for timber and real estate were obtained from the National Council of Real Estate Investment Fiduciaries. Returns for the Long-term U.S. Government, Intermediate U.S. Government, and Short-term U.S. Government asset classes were calculated by the author using thirty-year Treasury Bond, five-year Treasury Note, and thirteen-week Treasury Bill average annual yields. Medical Inflation was obtained from the Bureau of Labor Statistics and represents the rate of inflation for medical care of all urban consumers. All annual returns and correlations were calculated by the principal author.

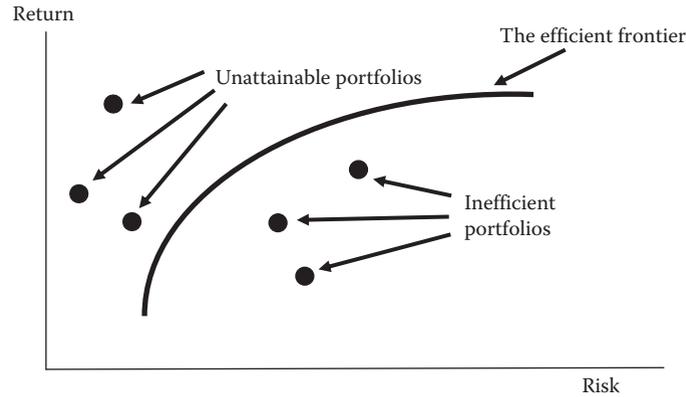


FIGURE 10.1 The efficient frontier.

Table 10.4 compares the returns and standard deviations for large- and small-cap stocks for the twenty-year periods ended in 1979 and 2010.

David Nawrocki identified a number of problems with typical MCS models as being that most optimizers assume “normal distributions and correlation coefficients of zero, neither of which are typical in the world of financial markets.” Dr. Nawrocki subsequently described a number of other issues with MCS, including nonstationary distributions and nonlinear correlations. Finally, Dr. Nawrocki quotes Harold Evensky eloquently noted that “[t]he problem is the confusion of risk with uncertainty. Risk assumes knowledge of the distribution of future outcomes (i.e., the input to the Monte Carlo simulation). Uncertainty or ambiguity describes a world (our world) in which the shape and location of the distribution is open to question. Contrary to academic orthodoxy, the distribution of U.S. stock market returns is far from normal.”¹⁵ Other critics have noted that many MCS simulators do not run enough iterations to provide a meaningful probability analysis.

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Some of these criticisms have been addressed by using MCS simulators with more robust correlation assumptions and with a greater number of iterative trials. In addition, some simulators now combine MVO and MCS to determine probabilities along the efficient frontier.

The Role of Judgment

Despite their limitations, optimizers are useful tools for developing asset allocations for endowments. They represent another tool in ensuring rational and consistent investor behavior. Most endowments will also use bottom-up analysis to examine the opportunities within a given asset class and to make adjustments to the allocations across asset classes.

TABLE 10.4
Twenty-Year Risk and Return Small-Cap versus Large-Cap (Ibbotson Data)

	1979			2010		
	Risk	Return	Correlation	Risk	Return	Correlation
Small-Cap Stocks	30.8%	17.4%	78.0%	18.1%	26.85%	59.0%
Large-Cap Stocks	16.5%	8.1%		13.1%	15.06%	

Note: IA Micro-Cap Value 14.66 17.44 24.69 0.44

Source: Reproduced from Loeper, D. 2001. Asset Allocation Math, Methods and Mistakes. *Wealthcare Capital Management White Paper*. CIMA, CIMC

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OTHER ASSET CLASS CONSIDERATIONS

Liquidity

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To take one leading example, open-end funds are unlikely to want to bet against something like the Internet bubble of the late 1990s.¹⁶ It could be argued that competition for investor funds among managers makes mediocrity preferable to the chance of failure. Verne Sedlacek of Commonfund termed this phenomenon "timeframe arbitrage" and noted that endowments that could have a longer-term investment horizon routinely cede this benefit by unnecessarily insisting on liquidity.¹⁷ When the performance of less liquid asset classes such as real assets and private equity are compared to that of more liquid classes such as domestic equity, the endowment manager seeking superior long-term performance would do well to incorporate less liquid classes into the portfolio.

Other Asset Classes

Some analysts believe that the focus on asset classes may have gone too far as investors have sought to "over-optimize" their portfolios. David Loeper, CEO of Wealthcare Capital Management, explained this concept as follows:

AQ8 Where things have really got off track has been the insistence on breaking asset classes into sub-classes by style, market capitalization, etc. The unpredictability of all the inputs into our optimizers, even over long periods of time, has been ignored. We have attempted to take efficient portfolios of stocks, bonds and cash and make them even more efficient by breaking the unpredictable asset classes into even less predictable sub-classes. This has all been done into the pursuit of "efficiency" as the proposal was validated by the Brinson and Beebower study, which purports to find that over 90 percent of the investment return variance is explained by asset allocation. The risk that you produce inefficient portfolios INCREASES if you increase the number of "asset classes" for which you must forecast not only the risk and returns but also each asset class' correlation to the others. The results of the optimizer and your resulting portfolio's efficiency is based on the accuracy of the inputs and NOT THE NUMBER OF THE INPUTS.¹⁸

Organizational Expertise

Some organizations have significant tenures of experience with certain asset classes. For example, Mr. Spitz noted that Vanderbilt's endowment has over twenty-five years of experience investing in private equities (Spitz, 2004, pers. comm.). Breadth of experience with a particular asset class helps ensure that an endowment understands its true risks, the proper analysis of potential additional investments, and its interactions with other elements of the portfolio.

Groupthink

Several endowment fund managers have noted that they commonly compare their endowment allocations to those of peer institutions and that, as a result, endowment allocations are often similar to the "average" as reported by one or more surveys or consulting firms. One endowment fund manager expanded this thought by presciently noting that expecting materially different performance with substantially the same allocation is unreasonable. It is anecdotally interesting to wonder whether the seminal study "proving" the importance of asset allocation could have even had a substantially different conclusion. It seems likely that the pensions surveyed in the study had very similar allocations given the human tendency to measure one's self against peers and to use peers for guidance.

Although peer comparisons can be useful in evaluating your institution's own processes, groupthink can be highly contagious and dangerous. For example, in the first quarter of 2000, net flows into equity mutual funds were \$140.4 billion as compared to net inflows of \$187.7 billion for all of 1999. February's equity fund inflows were a staggering \$55.6 billion, the record for single month investments. For all of 1999, total net mutual fund investments were \$169.8 billion,¹⁹ meaning that investors "rebalanced" out of asset classes such as bonds just in time for the market's March 24, 2000 peak (as measured by the S&P 500). Of course, investors are not immune to poor decision making in upward trending markets. In 2001, investors withdrew a then-record amount of \$30 billion²⁰ in September, presumably in response to the September 11th terrorist attacks. These investors managed to skillfully "rebalance" their ways out of markets that declined approximately 11.5 percent during the first several trading sessions after the market reopened, only to reach September 10th levels again after only 19 trading days. In 2002, investors revealed their relentless pursuit of self-destruction when they withdrew a net \$27.7 billion from equity funds²¹ just before the S&P 500's 29.9 percent 2003 growth.

Although it is easy to dismiss the travails of mutual fund investors as representing only the performance of amateurs, it is important to remember that institutions are not automatically immune by virtue of being managed by investment professionals. For example, in the 1960s and early 1970s, common wisdom stipulated that portfolios include the Nifty Fifty stocks that were viewed to be complete companies. These stocks were considered "one-decision" stocks for which the only decision was how much to buy. Even institutions got caught up in purchasing such current corporate stalwarts as Joe Schlitz Brewing, Simplicity Patterns, and Louisiana Home & Exploration. Collective market groupthink pushed these stocks to such prices that price/earnings ratios routinely exceeded 50. Subsequent disappointing performance of this strategy only revealed that common wisdom is often neither common nor wise.

More recently, the *New York Times* reported on June 21, 2007, that Bear Stearns had managed to forestall the demise of the Bear Stearns High Grade Structured Credit Strategies and the related Enhanced Leveraged Fund. The two funds held almost \$2 billion in mortgage-backed debt securities, many of which were in the sub-prime market. To compound the problem, the funds borrowed much of the money used to purchase these securities. The firms who had provided the loans to make these purchases represent some of the smartest names on Wall Street, including JP Morgan, Goldman Sachs, Bank of America, Merrill Lynch, and Deutsche Bank.²² Despite its efforts, Bear Stearns had to inform investors less than a week later that these two funds had collapsed.

Amount of Support Endowment Needs to Provide

The endowment manager will certainly want to consider the proportion of the institution's operating budget that is funded by the endowment. For example, an institution whose operating budget is funded 30 percent by the endowment may need to make fundamentally different decisions regarding the risk/return parameters of the portfolio than an institution whose operating budget is funded 5 percent by the endowment.

TACTICS FOR IMPLEMENTING THE ALLOCATION POLICY

The Efficient Market Hypothesis

An efficient capital market is one in which security prices rapidly change to reflect the arrival of new information and where the prices of securities reflect all information about the securities. The efficient market hypothesis (EMH) includes assumptions regarding the strength of the markets' efficiency.

For example, if the markets fully reflect all security-market information such as historical pricing trends, the efficiency is deemed to be of at least the weak form. If, on the other hand, security prices reflect all public and private information, the efficiency is deemed to be of the strong form. If the EMH is true in its strongest form, investors cannot hope to achieve risk-adjusted returns in

excess of those for the applicable market. In other words, if the EMH is true in its strongest sense, endowment managers would wisely seek to employ a passive form of investing in which the endowment purchases baskets of investments designed to replicate a given market index.

Numerous research studies have been conducted regarding the strength of the market's efficiency, and the results suggest that the domestic markets are efficient to some degree. However, the manager considering a purely passive approach to endowment management should consider several additional items. First, passive investing may be an unattractive strategy in protracted bear or flat markets. For example, the Dow Jones Industrial Average fell approximately 9.7 percent over the fifteen-year period between 1966 and 1981. Second, although domestic equity markets are generally believed to have some efficiency, other asset classes are believed to be much less efficient.

Managing for Alpha

Alpha measures non-systematic return, or the return that cannot be attributed to the market. It shows the difference between a fund's actual return and its expected performance given the level of systematic (or market) risk (as measured by beta). For example, a fund with a beta of 1.2 in a market that returns 10 percent would be expected to earn 12 percent. If, in fact, the fund earns a return of 14 percent, it then has an alpha of 2, which would suggest that the manager has added value. Conversely, a return below that expected given the fund's beta would suggest that the manager diminished value. In a truly efficient market, no manager should be able to consistently generate positive alpha. In such a market, the endowment manager would likely employ a passive strategy that seeks to replicate index returns. Although there is substantial evidence of efficient domestic markets, there is also evidence to suggest that certain managers do repeat their positive alpha performance. In fact, a 2002 study by Roger Ibbotson and Amita Patel found that "the phenomenon of persistence does exist in domestic equity funds." The same study suggested that 65 percent of mutual funds with the highest style-adjusted alpha repeated with positive alpha performances in the following year.²³

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Additional research suggests that active management can add value and achieve positive alpha in concentrated portfolios. A recent study of actively managed mutual funds found that "on average, higher industry concentration improves the performance of the funds. The most concentrated funds generate, after adjusting for risk . . . the highest performance. They yield an average abnormal return [alpha] of 2.56 percent per year before deducting expenses and 1.12 percent per year after deducting expenses."²⁴

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FutureMetrics, a pension plan consulting firm, calculated that in 2006 the median pension fund achieved record alpha of 3.7 percent compared to a 60/40 benchmark portfolio, the best since the firm began calculating return data in 1988.²⁵ Over longer periods of time, an endowment manager's ability to achieve positive alpha for their entire portfolio is more hotly debated. Dimensional Fund Advisors, a mutual fund firm specializing in a unique form of passive management, compiled FutureMetrics data on 192 pension funds for the period of 1988 through 2005. Their research showed that, over this period of time, approximately 75 percent of the pension funds underperformed the 60/40 benchmark.²⁶ The end result is that many endowments will use a combination of active and passive management approaches with respect to some portion of the domestic equity segment of their allocation. One approach is known as the "core and satellite" method, in which a "core" investment into a passive index is used to capture the broader market's performance while concentrated satellite positions are taken in an attempt to "capture" alpha. Because other asset classes such as private equity, foreign equity, and real assets are often viewed to be less efficient, the endowment manager will typically use active management to obtain positive alpha from these segments.

The Tactical Approach

Many successful endowments will establish a "strategic" allocation policy that is intended to guide long-term (greater than one year) investment decisions. This strategic allocation reflects the endowment's thinking regarding the existence of perceived fundamental shifts in the market. Most endowments will also establish a target range or band for each asset class. The day-to-day managers then

have the flexibility to make tactical decisions for a given class so long as they stay within the target range. The term “tactical” when used in the context of investment strategy refers to the manager’s ability to take advantage of short-term (under one year) market anomalies such as pricing discrepancies between different sectors or across different styles. Historically, tactical decisions with respect to asset allocation were derided as “market timing.” However, market timing implies moving outside of the target ranges, whereas tactical decision making simply addresses the opportunistic deployment of funds within the asset class target range.

PAYOUT POLICY

Although an endowment is intended to provide an institution with continuing support and as such is a long-term investment, the institution’s needs for current support dictate that some level of income be drawn from the endowment. The original payout policies had their roots in federal tax regulations that prescribed certain minimum payout standards for private foundations. Although these rules are not generally applicable to healthcare endowments, the 5 percent payout currently required under these rules seems to be a starting point for many endowments. After an extended bull market in which institutions could simultaneously raise their level of endowment distributions and increase the asset base of the endowment through market growth, the three-year bear market forced many endowments to re-examine their payout policies.

SUSTAINABLE WITHDRAWALS

Spending policies, which have a different yet as important a role in overall investments policy as asset allocation, are focused on the concept of providing for intergenerational equity; that is, current [patients and programs] should be neither advantaged nor disadvantaged relative to future [patients and programs]. To maintain this intergenerational equity, the endowment must maintain its value in real terms (i.e., adjusted for inflation) over a period of time. Thinking of it in another way, the endowment at a minimum should cover an institution’s spending and then grow by at least the rate of inflation.²⁷

In other words, if the applicable long-term rate of inflation is 3 percent and the rate of withdrawal is 5 percent, the long-term rate of return cannot be less than 8 percent in order to avoid depleting the real value of the portfolio. The difficulty arises when market volatility causes the rate of return during discreet time periods to fluctuate significantly from the long-term average. This phenomenon can cause an endowment to meet its long-term return objectives but still to deplete the portfolio.

COMMON PAYOUT METHODS

Recognizing the risk that market volatility represents to long-term portfolio health, endowments utilize a variety of methods to calculate periodic payouts.

- **Investment yield:** An endowment using this method spends only its dividends and interest and re-invests any unrealized and realized gains. There would appear to be two primary disadvantages of this method. First, the payout amount will be extremely volatile as yields on equity and fixed income investments fluctuate. Second, the endowment manager could be encouraged to adopt a short-term focus on yield to the detriment of purchasing power preservation.
- **Percentage of the prior year’s ending market value:** An endowment using this method would withdraw some fixed percentage of the prior year’s market value. As with the investment yield method, disbursements from the endowment can be somewhat volatile under this method.
- **Moving average:** This approach, which is most common among educational institutions, generally involves taking a percentage of a moving average of the endowment market value. The percentage commonly approximates 5 percent over a three-year period.

- **Inflation-adjusted:** This method simply adds some factor to the applicable rate of inflation for the institution.
- **Banded inflation or corridor:** This method is similar to the inflation-adjusted method except that it establishes a corridor or band of minimum and maximum increases in an attempt to limit the volatility of the disbursement amounts.

Table 10.5 compares the year-end endowment balances under each of these payout methodologies over a twenty-year period assuming a 60/40 equity/fixed income allocation to roughly mirror the average allocation described earlier. Equity returns are approximated using the S&P 500 index returns while fixed income returns are approximated using five-year Treasury bill yields.

TABLE 10.5
Payout Policy Comparison Ending Portfolio Balance (in Thousands)

	Spend Yield	Spend Percentage	Moving Average	Inflation Adjusted	Banded Inflation	Medical Inflation
1984	\$101,170	\$101,085	\$101,085	\$99,474	\$99,585	\$106,111
1985	\$103,268	\$102,181	\$102,217	\$98,301	\$99,171	\$113,288
1986	\$106,576	\$103,290	\$103,382	\$96,216	\$98,760	\$122,017
1987	\$109,668	\$104,410	\$104,561	\$96,007	\$98,544	\$129,098
1988	\$112,625	\$105,543	\$105,754	\$94,732	\$98,135	\$138,021
1989	\$115,671	\$106,688	\$106,961	\$91,968	\$97,727	\$149,758
1990	\$118,841	\$107,845	\$108,181	\$88,288	\$97,322	\$164,113
1991	\$122,610	\$109,015	\$109,416	\$86,227	\$96,918	\$177,110
1992	\$127,017	\$110,198	\$110,664	\$85,329	\$96,515	\$188,846
1993	\$132,142	\$111,393	\$111,927	\$85,492	\$96,700	\$199,030
1994	\$136,611	\$112,601	\$113,204	\$86,059	\$97,341	\$208,826
1995	\$141,489	\$113,823	\$114,495	\$87,467	\$98,935	\$217,071
1996	\$146,590	\$115,058	\$115,802	\$89,695	\$100,997	\$223,666
1997	\$151,886	\$116,306	\$117,123	\$92,176	\$103,103	\$229,971
1998	\$158,036	\$117,567	\$118,459	\$94,175	\$105,252	\$237,827
1999	\$164,117	\$118,843	\$119,811	\$95,977	\$107,267	\$246,557
2000	\$170,110	\$120,132	\$121,178	\$97,335	\$108,785	\$256,838
2001	\$177,438	\$121,435	\$122,561	\$98,176	\$109,725	\$268,962
2002	\$185,622	\$122,752	\$123,959	\$98,703	\$110,313	\$282,541
2003	\$194,738	\$124,084	\$125,373	\$100,556	\$112,384	\$293,016
2004	\$206,585	\$131,634	\$133,002	\$106,674	\$119,222	\$305,432
2005	\$219,158	\$139,644	\$141,095	\$113,165	\$126,477	\$318,526
2006	\$232,493	\$148,141	\$149,680	\$120,051	\$134,172	\$329,874

Note: All calculations were performed by the principal author and assume an initial \$100 million endowment portfolio and a 60/40 split between domestic equities and fixed income. Domestic equity returns are assumed to be entirely appreciation in nature and to be approximated by increases in the S&P 500 index. Fixed income returns are assumed to be approximated by average annual yields reported for U.S. five-year Treasury notes. The analysis assumes cost-free annual rebalancing to the asset allocation. The Spend Yield method assumes that only the yield (interest) is spent each year. The Spend Percentage method assumes that a consistent 5 percent of the prior year's ending balance is spent each year. The Moving Average method assumes that 5 percent of the average of the prior three year's ending balance is spent. The Inflation-Adjusted method assumes that ½ percent is added to the rate of medical inflation to determine each year's spending rate. The Medical Rate of Inflation was obtained from the Bureau of Labor Statistics CPI for Medical Care for All Urban Consumers. The Banded Inflation method utilizes the same assumptions as the Inflation Adjusted method except that annual spending cannot be less than 4 percent or more than 6.5 percent. Table 10.6 compares the annual disbursements from the endowment under these alternative methodologies.

TABLE 10.6
Payout Policy Comparison Annual Endowment Payouts (in Thousands)

	Spend Yield	Spend Percentage	Moving Average	Inflation Adjusted	Banded Inflation
1984	\$4,914	\$5,000	\$5,000	\$6,611	\$6,500
1985	\$4,058	\$5,054	\$5,018	\$7,226	\$6,473
1986	\$2,977	\$5,109	\$5,055	\$8,066	\$6,446
1987	\$3,393	\$5,164	\$5,111	\$6,064	\$6,225
1988	\$3,716	\$5,221	\$5,169	\$7,116	\$6,405
1989	\$3,807	\$5,277	\$5,228	\$8,529	\$6,379
1990	\$3,868	\$5,334	\$5,288	\$9,275	\$6,352
1991	\$3,463	\$5,392	\$5,348	\$7,434	\$6,326
1992	\$3,053	\$5,451	\$5,409	\$6,145	\$6,300
1993	\$2,603	\$5,510	\$5,471	\$5,028	\$5,688
1994	\$3,571	\$5,570	\$5,533	\$4,635	\$5,243
1995	\$3,435	\$5,630	\$5,597	\$3,828	\$4,330
1996	\$3,508	\$5,691	\$5,660	\$3,095	\$3,957
1997	\$3,624	\$5,753	\$5,725	\$2,977	\$4,040
1998	\$3,092	\$5,815	\$5,790	\$3,610	\$4,124
1999	\$3,535	\$5,878	\$5,856	\$3,928	\$4,390
2000	\$3,993	\$5,942	\$5,923	\$4,482	\$5,009
2001	\$3,023	\$6,007	\$5,991	\$5,081	\$5,679
2002	\$2,612	\$6,072	\$6,059	\$5,448	\$6,088
2003	\$2,179	\$6,138	\$6,128	\$4,153	\$4,641
2004	\$2,666	\$6,204	\$6,198	\$4,763	\$5,324
2005	\$3,350	\$6,582	\$6,372	\$5,107	\$5,707
2006	\$4,151	\$6,982	\$6,657	\$4,598	\$5,138

Source: All calculations were performed by the principal author using assumptions that are the same as those used in Table 10.5.

STRESS TESTING

AQ11

The numerical results indicate that spending must be set substantially lower than the long-term growth rate of the portfolio, in order to produce an acceptable probability of preserving real value of the original [principal]. As a very crude rule of thumb, the spending rate must be set at 200 basis points lower than the expected growth rate of the fund itself in order to secure a less than 20% chance of having a negative real return after 20 years. Thus, if a fund is expected to grow by 6% in real terms—a generous equity premium in today's environment—spending should be set at less than 4% of current assets.²⁸

In other words, even if an endowment achieves its expected long-term real return of 6 percent, it is possible for the endowment to fail to meet the goal of long-term principal preservation. Table 10.7 summarizes the diminution in real value of the \$100 million endowment under the alternative payout methods described and illustrated in the previous section.

AVOIDING MISTAKES

Among the best of the numerous books analyzing the causes of the crisis in the financial markets is *Too Big to Save?*, written by Robert Pozen, chairman of MFS Investment Management and member of The Commonwealth Fund's board of directors and its investment committee. AQ12

In *Too Big to Save?*, Pozen describes how the Federal Reserve set interest rates too low from 2001 through 2006, leading dollar investors across the world to search for higher yields from

TABLE 10.7
Payout Policy Comparison Erosion of Purchasing Power (in Thousands)

	Spend Yield	Spend Percentage	Moving Average	Inflation Adjusted	Banded Inflation
1984	-\$4,940	-\$5,026	-\$5,026	-\$6,636	-\$6,526
1985	-\$10,020	-\$11,107	-\$11,071	-\$14,987	-\$14,117
1986	-\$15,442	-\$18,728	-\$18,635	-\$25,801	-\$23,258
1987	-\$19,430	-\$24,688	-\$24,537	-\$33,091	-\$30,554
1988	-\$25,396	-\$32,478	-\$32,267	-\$43,289	-\$39,886
1989	-\$34,087	-\$43,070	-\$42,797	-\$57,790	-\$52,030
1990	-\$45,271	-\$56,267	-\$55,931	-\$75,824	-\$66,791
1991	-\$54,500	-\$68,095	-\$67,694	-\$90,883	-\$80,192
1992	-\$61,829	-\$78,648	-\$78,182	-\$103,517	-\$92,331
1993	-\$66,888	-\$87,637	-\$87,103	-\$113,538	-\$102,330
1994	-\$72,215	-\$96,225	-\$95,623	-\$122,767	-\$111,485
1995	-\$75,582	-\$103,248	-\$102,575	-\$129,603	-\$118,136
1996	-\$77,076	-\$108,609	-\$107,865	-\$133,972	-\$122,669
1997	-\$78,085	-\$113,665	-\$112,848	-\$137,795	-\$126,868
1998	-\$79,792	-\$120,260	-\$119,368	-\$143,653	-\$132,575
1999	-\$82,440	-\$127,714	-\$126,746	-\$150,579	-\$139,290
2000	-\$86,728	-\$136,706	-\$135,660	-\$159,503	-\$148,053
2001	-\$91,524	-\$147,527	-\$146,402	-\$170,786	-\$159,237
2002	-\$96,919	-\$159,789	-\$158,582	-\$183,838	-\$172,228
2003	-\$98,278	-\$168,933	-\$167,643	-\$192,461	-\$180,633
2004	-\$98,844	-\$173,798	-\$172,430	-\$198,757	-\$186,209
2005	-\$99,368	-\$178,882	-\$177,431	-\$205,361	-\$192,049
2006	-\$97,381	-\$181,733	-\$180,194	-\$209,823	-\$195,702

Source: All calculations were performed by the principal author using assumptions that are the same as those employed in Table 10.5.

AQ13 mortgage-backed securities than were obtainable with U.S. Treasuries.⁴ This global demand, given lax regulation of many mortgage lenders and the excessive leverage allowed in Wall Street banks, drove housing prices to bubble heights. Pozen documents how the spread of new financial instruments such as collateralized debt obligations and credit default swaps introduced significant unappreciated risks into the financial system, a problem compounded by the trading of such securities outside regulated exchanges and by the conflicted position of credit-rating agencies, whose compensation depended on favorable ratings for securities they were supposed to score objectively. In the debate on legislation to address these flaws, there is wide agreement on the need for the following reforms: a systemic risk monitor, higher capital requirements for financial institutions, more transparent and better organized markets for financial derivatives, as well as expansion of the federal government's resolution authority to cover insolvent non-bank financial firms. Passage of reform legislation, however, has been delayed by major points of disagreement, including the scope of the Federal Reserve's authority, the proper agency for regulating consumer financial products, and the supervisory framework for mega-financial institutions in the system—how to insure their accountability and define a contained, low-cost role for government when these institutions get into trouble.

AQ14 Along with all Americans, foundation endowment managers have a great deal riding on the outcome of the ongoing financial system reform debate in the U.S. Congress. The modest investment returns forecast for the next seven years, noted above, are predicated on at least a modest economic recovery and average annual inflation of 2.5 percent.

However, as documented by Carmen M. Reinhart and Kenneth S. Rogoff in a recently published landmark study of financial crises, the typical aftermath of a major bank-centered financial crisis involves a protracted period of falling gross domestic product, often lasting two years or more.⁵ In their review of eight centuries of financial crises, with special focus on those in this century, these scholars label the current turmoil as the “Second Great Contraction,” ranking just below the one that produced the Great Depression. Thus, there is substantial risk that the nation may face slow growth and high unemployment for an extended period. This risk puts a premium on getting financial system reforms “right,” and in place as soon as possible. As Rogoff notes, “If we don’t re-regulate the banking system properly, we’ll either get very slow growth from overregulation, or another financial crisis in just ten to fifteen years.”⁶

Added to these risks are those posed by the state of U.S. finances—the level of government debt and persistent international balance of payments (current account) deficits that threaten long-term growth and stability. As Alice Rivlin, former vice chair of the Federal Reserve and founding director of the Congressional Budget Office, argues, “[T]he biggest economic challenge . . . is enacting credible future deficit reduction without derailing the fragile recovery.”

RETHINKING THE MANAGEMENT OF FOUNDATION ENDOWMENTS: THE COMMONWEALTH FUND 2009 ANNUAL REPORT

In *Too Big to Save?*, Pozen lays out the mistakes made by many modelers responsible for the introduction of the complex financial instruments, such as mortgage-backed securities and credit default swaps, that played key roles in bringing the financial system to its knees in 2008.⁸ Reinhart and Rogoff similarly identify recurring fallacies and lessons to be drawn from the history of financial crises. These two bodies of work can help foundations avoid mistakes in managing their endowments.

1. *Simple extrapolations of the past are dangerous:* Pozen cautions that “the differences between past and future trend lines can be as important as the similarities.” For example, given the gravity of the current financial crisis, foundations should be careful about assuming that the historical average of market returns will prevail over the next several years. AQ15
2. *Be patient in riding out financial bubbles:* As Pozen reminds us, investment bubbles can last for years, but economic fundamentals ultimately win out. In safeguarding against bubbles, foundations should base their budgeting and investment strategies on what they perceive to be long-term realities. As Jeremy Grantham points out, this means in practice that, in a financial bubble like that of 2003–2008, perpetual foundations should allow their spending rate (spending as a percentage of endowment average market value) to fall—thereby setting aside “fat years” funds for use in the lean years that are inevitably to come.⁹ More difficult, of course, is sticking to fundamentally sound investment strategies that produce below-benchmark returns in periods of market excess. As Pozen concludes, “The timing of the burst of any bubble is impossible to predict, so be very patient.” AQ16
3. *The frequency of extreme events is greater than people think:* Major global banking crises have occurred, on average, every twelve years since 1900, as Reinhart and Rogoff document, and every eleven years since 1945. For perpetual foundations, the occurrence within a forty-year period of two endowment-shaking crises like the financial crisis and oil shock–induced stagflation of the 1970s (when it was not unusual for the inflation-adjusted market value of foundation endowments to decline by 60 percent) and the 2008 global financial disorder indicates that such crises are not “black swan” events. Foundation managers would be wise to heed Pozen’s advice: Pay more attention to low-probability events and hedge or insure against them if possible. AQ17
4. *Beware of the “This Time Is Different” syndrome:* As Reinhart and Rogoff describe, the thinking of the mid-2000s in the United States was, “Everything is fine because of globalization, the technology boom, our superior financial system, our better understanding of AQ18

monetary policy, and the phenomenon of securitized debt.” In their research covering multiple centuries, these authors find that similar thinking preceded virtually every financial crisis. Foundation managers should conclude that the siren call of “This Time Is Different” is a sure signal to lower the risk profile of the endowment.

5. *Be knowledgeable of the predictors of financial crisis:* Reinhart and Rogoff present a convincing body of evidence that markedly rising asset prices (particularly housing bubbles), slowing real economic activity, large current account deficits, and sustained debt build-ups (public or private) generally precede a financial crisis. Attention to such systemic risk measures can help foundations position their endowments to better weather financial crises.
6. *Understand how the origins of a financial crisis can greatly affect the depth and duration of its impact on economies and markets:* Reinhart and Rogoff’s research informs us that bubbles are far more dangerous when they are fueled by debt, as was the case with the global housing bubble of the early to mid-2000s. Their study reveals that global financial crises arising from excess leverage are typically followed by very severe multiyear slow-downs in economic activity accompanied by high unemployment. Just as such crises produce major bear markets in stocks, so they entail bear market rallies followed by resumed slumps. Endowment managers ignore this pattern at considerable risk.
7. *Ignore liquidity risk at your peril:* With their deep endowment pockets and significant fixed-income holdings, foundations generally do not worry much about liquidity. With increasing commitments to private equity and hedge fund partnerships, however, liquidity risk was a real concern for many endowments before the recent financial crisis. The crisis demonstrated that this risk rises significantly as leverage increases within the financial system. Thus, foundations should keep necessary reserves on hand and take increasing care that they are cautiously invested as financial storms gather. As yields fall on short-term investments, foundations will be lured to higher-yielding alternative products, but the risks and liquidity profiles of such products require very close examination. In light of recent experience, a number of foundations have taken out lines of credit, and more should consider doing so.
8. *Be ready to question the experts:* Adapting Pozen’s advice on how banks and investment firms should manage their expert modelers, a primary role of a foundation’s investment committee is to understand the limitations of the foundation’s financial staff, consultants, and investment managers. Committee members should ask questions that push the so-called experts to explore fully the risks involved in each strategy and the assumptions underlying any quantitative model.

OTHER CONSIDERATIONS

Management Models

Solo Investment Committee Model

In this common approach, typically employed by very small foundations but also by many small and even midsize ones, the investment committee of the board has virtually all strategic and operational responsibility for the endowment—working with little or no internal staff or consultant support, although generally delegating portfolio management to a brokerage firm, mutual funds, or external investment managers (typically using commingled funds shared with other investors).

In this model there is no question where accountability lies, provided performance is tracked and the board holds the committee accountable.

The weaknesses are that it can be difficult to recruit members with sufficient investment experience and the ability to commit the required time and attention to successful investment, and there is significant risk of conflict of interest. There are challenges in achieving consensus while avoiding “groupthink,” and no investment company research is available.

Investment Committee-Investment Consultant Model

As foundation size and investment strategy complexity increase, many investment committees recognize the need for an investment consultant to help inform and guide their decisions, and sometimes to help implement them. The amount of responsibility delegated by the committee ranges significantly under this model, depending on the capacities and preferences of the committee and the ability and services offered by the consultant.

The strength in this model is provided by advice a consultant can bring on asset allocation based on a wide range of contacts and experience, as well as a strong financial research base. A consultant can provide an independent voice that helps build a consensus and avoids conflicts of interest.

This model has weakened accountability by diffusion of responsibility resulting from difficulties in attributing performance. There is difficulty in verifying the past performance of the consultant, and the entity must compete with many other clients requiring client's attention. Effective management of consultant can also be an issue.

Investment Committee-Internal Financial Staff-Investment Consultant Model

Any foundation with assets of \$250 million or more is likely to pursue a sophisticated diversified investment strategy. Under these circumstances, the day-to-day responsibilities of managing the endowment require qualified staff; moreover, barring an investment committee member with the time, inclination, and expertise to work closely with the consultant on strategic and operational issues like manager searches, a professional staff member is needed to ensure the best use of the time and skills of the consultant and committee members. Thus, this model entails still higher de facto (if not formal) levels of responsibility delegation by the investment committee.

The model provides better oversight of and more effective use of consultant. More accountability exists and safeguards from conflict of interest. This model, however, relies heavily on the ability of internal staff and the entity's ability to pay competitive wages to attract capable staff to add value.

Internal CIO Model

Once a foundation reaches the \$2 billion level in endowment assets, it becomes economical and feasible to hire a full-time, highly trained, experienced chief investment officer (CIO) and recruit a sizeable, dedicated professional investment team, compensated at the necessary competitive levels. As described by Lawrence E. Kochard and Cathleen M. Rittereiser, a number of very large foundations, including the Carnegie Corporation and the William and Flora Hewlett Foundation, use this model and have achieved considerable success. AQ26

Outsourced CIO (O-CIO) Model

Given the shortcomings of the solo investment committee, committee-consultant, and committee-financial staff-consultant models discussed above, the trend in recent years is for endowments with less than \$2 billion dollars in assets to fully outsource the management of their endowment to a firm that essentially offers a packaged set of services comparable to those that very large foundations obtain with an in-house CIO. The O-CIO firm—the best being the creation of a stellar former CIO of a large university endowment or pension fund—assumes most of the responsibility for managing the endowment. While the amount of delegated authority varies from foundation to foundation, most investment committees using this model have an essentially advisory role and, beyond consultation on broad strategy, leave decisions on managers and tactical moves to the O-CIO. The spectrum of actual services offered by O-CIOs is wide, ranging from somewhat customized portfolios to one-size-fits-all proprietary portfolios.

This method provides a high level of investment experience and expertise and is a potential solution to the problem of a “missing CIO” for endowments with less than \$2 billion. Weaknesses of this approach are the limitations on customization of strategy, the “key person risk” exists, and inadequate oversight by the investment committee.

Controlling Risks

By definition, investment risk means uncertainty. As John Griswold, Executive Director of the Commonfund Institute noted, however, risk can be managed, but it takes “top-down commitment to risk management and a tough attitude.” An endowment must understand its risks and put someone in charge of regularly assessing risk and reporting to the committee (Griswold, 2004, pers. comm.). In 1994, Orange County in California filed for bankruptcy after its treasurer invested significant portions of its \$7.5 billion investment pool in various leveraged or derivative securities. It is quite likely that this bankruptcy would not have occurred had the Orange County treasurer, Robert Citron, been subject to independent, informed oversight and a comprehensive risk management strategy.²⁹

If the ultimate measure of performance is achieving the endowment’s goals, the ultimate measure of risk is failing to achieve those same goals. Unfortunately, the inter-generational nature of endowments is such that ultimate performance and risk are difficult to measure in discreet time increments. In fact, fixation solely upon the long-term risk would often obscure short-term risks that would actually result in long-term failure. In managing endowment risk, there seems to be several best practice steps that successful endowments follow.

Understand the Risk

Although the broad risk facing endowments can be quickly summarized as “the failure to achieve spending and inflation-adjusted growth goals,” the endowment portfolio and the individual assets may face any number of the following subsidiary risks.

- **Call risk:** The risk faced by a holder of a callable bond that a bond issuer will take advantage of the callable bond feature and redeem the issue prior to maturity. This means the bondholder will receive payment on the value of the bond and, in most cases, will be reinvesting in a less favorable environment (one with a lower interest rate).
- **Capital risk:** The risk an investor faces that he or she may lose all or part of the principal amount invested.
- **Commodity risk:** The threat that a change in the price of a production input will adversely affect a producer who uses that input.
- **Company risk:** The risk that certain factors affecting a specific company may cause its stock to change in price in a different way from stocks as a whole.
- **Concentration risk:** Probability of loss arising from heavily lopsided exposure to a particular group of counterparties.
- **Counterparty risk:** The risk that the other party to an agreement will default.
- **Credit risk:** The risk of loss of principal or loss of a financial reward stemming from a borrower’s failure to repay a loan or otherwise meet a contractual obligation.
- **Currency risk:** A form of risk that arises from the change in price of one currency against another.
- **Deflation risk:** A general decline in prices, often caused by a reduction in the supply of money or credit.
- **Economic risk:** the likelihood that an investment will be affected by macroeconomic conditions such as government regulation, exchange rates, or political stability.
- **Hedging risk:** Making an investment to reduce the risk of adverse price movements in an asset.
- **Inflation risk:** Uncertainty over the future real value (after inflation) of your investment.
- **Interest rate risk:** Risk to the earnings or market value of a portfolio due to uncertain future interest rates.
- **Legal risk:** Risk from uncertainty due to legal actions or uncertainty in the applicability or interpretation of contracts, laws, or regulations.
- **Liquidity risk:**³⁰ The risk stemming from the lack of marketability of an investment that cannot be bought or sold quickly enough to prevent or minimize a loss.

It would seem self-evident that a risk that is not fully understood cannot be consciously managed or mitigated. As such, the endowment board should consider asking the chief investment officer to delineate the risks associated with each asset class and determine whether options exist for mitigating or eliminating those risks (John Griswold, 2004, pers. comm.).

Measure the Risk

In addition to the listed risks that may be relevant to particular investments or classes, most endowments will use one of the following broad measures of risk:

- **Beta:** Beta is a measure of systematic or market risk for either an individual asset or an entire portfolio. In other words, beta measures a given security's sensitivity to market movements. For example, a beta of 1.0 means that a 1 percent change in the market will result in a 1 percent change in the security's price. A beta of 1.5 means that a 1 percent change in the market will result in a 1.5 percent change in the price of the security. Beta is calculated using a regression model that compares fluctuations in the security's return to that of the market. Many endowments will seek to maintain a beta that is substantially less than that of some broad market index.
- **Standard deviation:** In statistical terms, standard deviation measures a normal distribution around a mean or average. For investment purposes, standard deviation is used to measure "risk" or, more literally, volatility. As with beta, standard deviation can be measured at either the asset or the portfolio level.
- **Value at risk (VAR):** VAR³¹ as a risk measure has been gaining in popularity for several reasons. First, portfolio managers and their clients intuitively evaluate risk in monetary terms rather than standard deviation. Second, in marketable portfolios, deviations of a given amount below the mean are less common than deviations above the mean for that same amount.³² Unfortunately, measures such as standard deviation assume symmetrical risk. VAR measures the risk of loss at some probability level over a given period of time. For example, a manager may desire to know the portfolio's risk over a one-day time period. The VAR can be reported as being within a desired quantile of a single day's loss. In other words, assume a portfolio possesses a one-day 90 percent VAR of \$5 million. This means that in any one of ten days the portfolio's value could be expected to decline by more than \$5 million. Note that VAR is only useful for the liquid portions of an endowment's portfolio and cannot be used to assess risks in classes such as private equity or real assets.

Contingency Plan

Many quantitative methods would have suggested that the October 1987 crash was impossible. Mark Rubenstein, a professor at University of California at Berkeley, noted that if annualized stock market volatility is assumed to be approximately 20 percent "(the historical average since 1928), the probability that the stock market could fall 29 percent in a single day is 10^{-160} . So improbable is such an event that it would not be anticipated to occur even if the stock market were to last for 20 billion years. . . . Indeed, such an event should not occur even if the stock market were to enjoy a rebirth for 20 billion years in each of 20 billion big bangs."³³ Although it was statistically impossible for it to happen, it did. The nature of crises is such that many are unanticipated events with unexpected precipitators. As such, a contingency plan cannot address every conceivable event. A contingency plan should address the process for confronting these events. Most importantly, the plan should assign responsibility for actions and contain provisions to limit the ability of panic to impair long-term decisions.

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Endowments have at their core donor trust. As such, it is important for an endowment's contingency plan to include provisions for communicating promptly and forthrightly with the public. One only has to look at the Red Cross' performance during the aftermath of the September 11, 2001, tragedy to receive a lesson on an inappropriate approach. After donating more than \$550 million to the Liberty Fund, donors learned that less than \$175 million had been spent on direct aid for

victims and that the Red Cross was allocating a large portion of the funds to other programs. After public outcry and congressional hearings, the Red Cross announced that all donations would be spent on direct victim relief. Unfortunately, Dr. Bernadine Healy, the president of the Red Cross, resigned at least in part because of this controversy.³⁴ These violations of public confidence can have long-term impacts on an endowment's donor base. Consider also the United Way, whose national leader, William V. Aramony, was accused of fraud, embezzlement, and other charges in 1992. Even a decade later, inflation-adjusted contributions are lower than they were before the scandal, even though charitable giving in general has doubled.³⁵

The very nature of crises is such that predetermined contingency plans generally allow more rapid and appropriate reaction. For an endowment, a well-considered contingency plan will include both an action (or standstill) plan and a public relations plan.

Rebalance

Rebalancing the endowment portfolio contradicts conventional market "wisdom" that you allow your winners to run. Perhaps in speculation this is true, but for investing such a view can be deadly. Take, for example, the Cleveland Clinic's experience with its endowment. In 1999, the Cleveland Clinic Foundation reported \$1.2 billion in investments. Unfortunately, by the end of 2002, the Foundation's investments were valued at \$650 million, a loss of approximately 50 percent. Its losses reflected its substantial allocation into technology stocks during the technology boom of the late 1990s. As a result of these investment losses, the Clinic had to postpone a planned \$300 million cardiology center, and certain debt financing had to be restructured. In addition, both Moody's and Standard & Poor lowered their ratings on the Clinic.³⁶

Because rebalancing by definition requires an endowment to take money from more successful investment classes and invest it into under-performing classes, it will always cause some measure of anguish. There will always be some reason why rebalancing should not take place. In 1987, the unprecedented single-day decline in the market could have been presented as an argument against moving into equities. In 1998, the seemingly endless number of world financial crises could have provided a useful excuse to avoid rebalancing into emerging markets. Current bond prices could provide similar reasons for not rebalancing into an appropriate fixed income position. However, because the whole reason for asset allocation policy decisions is to mitigate the negative impact that irrational behavior can have on an endowment's investment performance, the endowment should include a process for periodic rebalancing of its assets.

WRITE IT DOWN

As described earlier, the primary lesson of asset allocation studies seems to be that investor behavior is arguably the primary determinant of investment success. No one would dream of building a new house without a blueprint. Although the homeowner might make change orders throughout the process, the blueprint will always be used to ensure that the actual house floor plan matches the homeowner's expectation and, more importantly, that the house is structurally sound. The Investment Policy Statement (IPS) is the endowment manager's equivalent of a blueprint. One consultant notes that an IPS must possess three characteristics:³⁷

- **Detailed and specific:** The more detail and specificity an IPS embodies, the more useful and measurable it will be.
- **Sound rationale:** The IPS should answer many of the "why" questions that could arise when someone with perfect hindsight looks to question the endowment manager's approach.
- **Logically consistent:** The IPS should function as a cohesive document in which the provisions do not contradict one another.

Jay Yoder, CFA, Director of Investments at Smith College, noted that an IPS must have the following seven components:³⁸

- Return objectives
- Definition and tolerance of risk
- Asset allocation guidelines
- Asset class rationales
- Provisions for periodic rebalancing
- Benchmarks at both the portfolio and asset class level
- Policy regarding indexing

A well-considered endowment IPS will also likely address such issues as payout policy, descriptions of roles and responsibilities, and any investment restrictions. See a sample of an IPS at the end of this chapter.

COMMITTEES AND STAFF

The failures of corporate governance have been well-publicized, with such examples as Enron, MCI WorldCom, Adelphia, the Bear Stearns hedge funds, and even the New York Stock Exchange. That such failures could happen despite the number of intelligent and talented people at each of these entities suggests that the problems of corporate governance could easily afflict the committee running an endowment. Although Sarbanes-Oxley does not yet directly impact the boards of non-profit organizations such as endowments, Verne Sedlacek, the former CEO of the Harvard Management Company and current CEO of Commonfund, suggests that it does provide some considerations for best practices. In particular, Mr. Sedlacek notes that endowments should consider the following minimum items with respect to their boards:³⁹

- **Structure:** One of the key considerations with respect to structure is the board's size. Mr. Sedlacek notes that the trend is towards smaller, more active boards. Larger boards can devolve in such a way that little is accomplished.
- **People:** Although it may be enticing to have only investment professionals on the board, the endowment may actually find a board composed of individuals with varying experience to be more valuable. Investment professionals are not immune to believing that their approach or knowledge of a particular market segment represents the best option for the endowment.
- **Relationships:** It is becoming increasingly important that endowment boards have a number of independent voices.
- **Compensation:** Although most board members are volunteers, the potential liability and degree of work required by service might lead the endowment to consider paying board members to ensure that it attracts the best possible talent.
- **Roles and Responsibilities:** The endowment should try to carefully delineate the responsibilities of the board and its members in relation to internal staff and the external managers. Indecisive or conflicting actions by the board can make it difficult for the endowment to retain quality staff.

SELF-ASSESSMENT

Successful healthcare endowments often attribute part of their success to a consistent investment policy. The elements of a formalized policy that are best known include the IPS, the asset allocation, and the payout policy. Until recently, few tools existed to help endowments assess and benchmark their investment processes, particularly the less publicized elements of an appropriate process. The Foundation for Fiduciary Studies publishes a guide, *Prudent Practices for Investment Stewards*, that could be helpful to endowment fiduciaries seeking to understand best practices in managing an investment process. The Foundation also publishes a *Self-Assessment of Fiduciary Excellence for Investment Stewards*, which allows endowment fiduciaries to ask a number of questions about their own processes.⁴⁰

OTHER RESOURCES

There are many resources on investment theory and analysis. Although a growing number of consultants will either fully or partially outsource endowment management, relatively fewer resources offer unbiased advice regarding the controllable aspects of endowment management. Fortunately, at least three resources provide general assistance to the endowment manager seeking additional broad coverage of these topics.

Commonfund Institute: <http://www.commonfund.org>

Swensen, D.F. 2003. *Pioneering Portfolio Management: An Unconventional Approach to Institutional Management*. New Haven: The Free Press.

Foundation for Fiduciary Studies: <http://www.fiduciary360.com>

CONCLUSION

Hospital and major healthcare entity endowment fund management needs aim for accountability on the part of each major player who shares responsibility for the endowment, and for a management model likely to make most of their resources while protecting against major risks.

In periods of extreme uncertainty, like recent economic downturn, endowments should give heightened attention to the composition of their investment committees and to the skills and time priorities of members. They should also reassess the extent to which their investment committee is adequately staffed to do its job and whether external resources need to be tapped to ensure strong endowment management.

Just as the field of medicine continuously changes, so too does the field of endowment management. Endowment managers continue to increase their knowledge of the science and expand their skill in the art. However, successful endowment managers will continue to focus on the areas that they can control in order to minimize the risk of the areas they cannot.

ACKNOWLEDGEMENT

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CASE MODEL 1

The Initial Investment Allocation

After conducting a comprehensive fundraising program, the Hoowa Medical Center received initial gifts of \$50 million to establish an endowment. Its status as the community's only trauma center and neonatal intensive care unit causes it to provide substantial amounts of unreimbursed care every year. This phenomenon, together with the declining reimbursements and an estimated 6 percent increase in operating costs, leaves the Center with a budgeted cash

shortfall of \$4 million for the next fiscal year. Although the new endowment's funds are available to cover such operating shortfalls, the donors also expect their gifts to provide perpetual support for a leading-edge medical institution.

Bill, the Center's treasurer, has been appointed to supervise the day-to-day operations of the endowment. One of his initial successes was convincing his investment committee to retain a consultant who specializes in managing endowment investments. The consultant has recommended a portfolio that is expected to generate long-term investment returns of approximately 10 percent. The allocation reflects the consultant's belief that endowments should generally have long-term investment horizons. This belief results in an allocation that has a significant equity bias. Achieving the anticipated long-term rate of returns would allow the endowment to transfer sufficient funds to the operating accounts to cover the next year's anticipated deficit. However, this portfolio allocation carries risk of principal loss as well as risk that the returns will be positive but somewhat less than anticipated. In fact, Bill's analysis suggests that the allocation could easily generate a return ranging from a 5 percent loss to a 25 percent gain over the following year.

Although the committee authorized Bill to hire the consultant, he knows that he will have some difficulty selling the allocation recommendation to his committee members. In particular, he has two polarizing committee members around whom other committee members tend to organize into factions. John, a wealthy benefactor whose substantial inheritances allow him to support pet causes such as the Center, believes that a more conservative allocation that allows the endowment to preserve principal is the wisest course. Although such a portfolio would likely generate a lower long-term return, John believes that this approach more closely represents the donors' goal that the endowment provide a reliable and lasting source of support to the Center. For this committee faction, Bill hopes to use mean variance optimization to illustrate the ability of diversification to minimize overall portfolio risk while simultaneously increasing returns. He also plans to share the results of the Monte Carlo simulation stress testing he performed, which suggests that the alternative allocation desired by these "conservative" members of his committee would likely cause the endowment to run out of money within 20–25 years.

Another polarizing figure on Bill's committee is Marcie, an entrepreneur who took enormous risks but succeeded in taking her software company public in a transaction that netted her millions. She and other like-minded committee members enthusiastically subscribe to the "long-term" mantra and believe that the endowment can afford the 8 percent payout ratio necessary to fund next year's projected deficit. Marcie believes that the excess of the anticipated long-term rate of return over the next year's operating deficit still provides some cushion against temporary market declines. Bill is certain that Marcie will focus on the upside performance potential. Marcie will also argue that, in any event, additional alternative investments could be used as necessary to increase the portfolio's long-term rate of return. Bill has prepared a comparative analysis of payout policies to illustrate the potential impact of portfolio fluctuations on the sustainability of future payout levels. Bill is also concerned that Marcie and her supporters may not fully understand some of the trade-offs inherent in certain of the alternative investment vehicles in which they desire to increase the allocated funds.

Key Issues

1. Given the factors described in the case study (anticipated long-term investment return, anticipated inflation rate, and operating deficit), how should Bill recommend compromise with respect to maximum sustainable payout rates?

2. How should Bill incorporate the following items into his risk management strategy?
 - a. educating the committee regarding types of risk affecting individual investments, classes, and the entire portfolio
 - b. measuring risk and volatility
 - c. provisions for periodic portfolio rebalancing
 - d. using tactical asset allocation
 - e. developing and implementing a contingency plan
3. What additional steps should Bill take to form a group consensus regarding the appropriate level of endowment investment risk?
4. What additional elements should Bill add to his presentation to target the concerns of the “conservative” and “aggressive” committee members, respectively?

CHECKLIST 1: Hospital Endowment Fund Asset Allocation	Yes	No
Have you developed estimates of expected returns for individual asset classes?	o	o
Have you developed estimates of expected volatility for individual asset classes?	o	o
Have you developed estimates of the expected correlation co-efficiencies among the various asset classes?	o	o
Have you used some form of simulation to develop a top-down preliminary asset allocation:		
To determine whether risk could be reduced without sacrificing return?	o	o
To determine the likelihood that your allocation will yield a “successful” result?	o	o
Have you performed bottom-up analysis of each asset class to refine the preliminary allocation?	o	o
Does your institution have any specialized knowledge with respect to a given asset class?	o	o
Does your organization place any restrictions on the types of assets in which the endowment can invest?	o	o
With respect to each asset class, have you:		
Considered whether the class provides opportunity for managers to add value through active management?	o	o
Considered whether the class has liquidity constraints that should limit the amount of its allocation?	o	o
Developed an understanding of the risks particular to individual security positions and the class as a whole?	o	o
Determined whether the risks particular to that class can be mitigated or quantified?	o	o
Have you compared your proposed asset allocation to that of peer organizations and evaluated the reasons for any material differences?	o	o
Does your analysis of the allocation suggest that you will be able to meet the desired payout levels?	o	o

CHECKLIST 2: Hospital Endowment Fund Payout Policy	Yes	No
Does your organization require annual support from its endowment to meet operating needs?	o	o
If so, is that support a significant portion of your operating budget?	o	o
Have you identified a target payout rate as a starting point for your payout policy determination?	o	o
Have you compared the anticipated annual distributions under various payout methods given your target allocation?	o	o
Have you developed an estimate of inflation for your institution?	o	o
Have you estimated an expected long-term rate of return given your asset allocation?	o	o
Have you estimated a long-term sustainable payout rate given your inflation and return estimates?	o	o
Have you used modeling to “stress-test” the portfolio given the target payout rate?	o	o

If so, does the stress-testing suggest that you modify your target payout rate or smoothing methodology?	<input type="radio"/>	<input type="radio"/>
If so, does the stress-testing suggest that you modify your target asset allocation to allow for greater long-term returns or less short-term volatility?	<input type="radio"/>	<input type="radio"/>
Does your analysis suggest that you modify your payout targets to ensure that the real purchasing value of the endowment portfolio is preserved?	<input type="radio"/>	<input type="radio"/>

CHECKLIST 3: Hospital Endowment Fund Investment Policy Statement (IPS)	Yes	No
Does your endowment have a written IPS?	<input type="radio"/>	<input type="radio"/>
If so, does it contain:		
Written return objectives?	<input type="radio"/>	<input type="radio"/>
Definition and tolerance for risk?	<input type="radio"/>	<input type="radio"/>
Asset allocation guidelines?	<input type="radio"/>	<input type="radio"/>
Asset class rationales?	<input type="radio"/>	<input type="radio"/>
Provisions for periodic rebalancing?	<input type="radio"/>	<input type="radio"/>
Portfolio level benchmarks?	<input type="radio"/>	<input type="radio"/>
Asset class level benchmarks?	<input type="radio"/>	<input type="radio"/>
Description of payout policy?	<input type="radio"/>	<input type="radio"/>
Description of team member roles/responsibilities?	<input type="radio"/>	<input type="radio"/>
Description of any investment restrictions?	<input type="radio"/>	<input type="radio"/>
Provisions for voting proxies?	<input type="radio"/>	<input type="radio"/>
Limitations on concentrations of any particular security or investment position?	<input type="radio"/>	<input type="radio"/>
Do you periodically review and update your IPS?	<input type="radio"/>	<input type="radio"/>

CASE MODEL 1

Sample Hospital Endowment Fund Investment Policy Statement

Goals and Objectives

Objective of the Policy Statement

In recognition of the inter-generational character of the fund, the Plan has as its objective the attainment of real growth on the total asset value after current spending. The principle purpose of the Investment Policy Statement (IPS) is to protect the portfolio from ad hoc revisions of sound long-term policy. The written policy will serve to guide and direct various investment managers in the investment of funds when short-term market outlooks are troubling. The Board wants to detail, to the extent reasonably possible, the goals and objectives of the investment plan, as well as the performance measurement techniques that will be used to evaluate the service rendered by the managers. Realizing that our overall objective is best accomplished by using a variety of management styles, we will adjust our asset tolerances and permissible volatility to incorporate specific manager styles. The Board hopes that the net result of the process used to develop investment policy and formalize that policy into a written statement will increase the likelihood that the Plan can meet the inter-generational needs of the sponsoring organization.

Performance Objectives and Goals

The Plan's target performance, on an annualized basis net of fees, will be expected to:

- Equal or exceed the spending rate plus inflation over the market cycle
- Equal or exceed the average return of the appropriate capital market index weighted by the asset allocation target percentages

Interim fluctuations in the value of the fund will be viewed in perspective because the Plan is considered to have a long-term horizon. However, within an individual asset class, the fund's short-term performance and volatility should not be materially worse than those of the appropriate benchmark for that class.

Investment Philosophy

The Plan will allocate its investments in accordance with the belief that it has a long-term investment horizon. We believe that long-term investment success requires discipline and consistency of approach. The Plan will be managed on a total return basis, recognizing the importance of capital preservation while remaining cognizant that real returns require the assumption of some level of investment risk. The Plan shall seek appropriate compensation for the risks that must inevitably be assumed while using prudent investment practices to mitigate or eliminate those risks that can be diversified without sacrificing return. The basic tenets of the Plan's management include the following:

- The portfolio as a whole is more important than any individual asset class or investment.
- At any given level of risk, there is an optimal combination of asset classes that will maximize returns.
- Equities and similar investments generally offer higher long-term returns than fixed income investments while also generally having higher short-term volatility.
- Overall portfolio risk can be decreased by combining asset classes with low correlations of market behavior.

Investment Policies and Procedures

Investment Program Policy

The investment program is intended to result in a policy that allows the greatest probability that the goals set forth in the Objective of the Policy Statement can be met. This process includes the following broad actions:

- Projecting the organization's spending needs
- Maintaining sufficient liquidity for near-term spending commitments
- Assessing expected market returns and risks for the individual asset classes

The policy recognizes that diversification among and across asset classes can result in lower portfolio risk while simultaneously providing higher portfolio returns. Modeling and simulation are used to identify the asset classes the Plan will use as well as the approximate percentage of the Plan that each class will represent. It is recognized that fluctuation in market values will occur or that tactical movements can be made to recognize temporary market inefficiencies. As such, the asset allocation provides ranges around each asset class target. It is generally anticipated that the investment program that gives rise to the asset allocation will be periodically repeated and that asset class target ranges will be modified or affirmed.

Asset Allocation Targets and Ranges

As a result of the above investment process, the Board has adopted the following asset allocation policy with the indicated targets and ranges.

Asset Class	Minimum Weight	Target Weight	Maximum Weight
Domestic equities	xoxox%	xoxox%	xoxox%
Fixed income	xoxox%	xoxox%	xoxox%
International equities	xoxox%	xoxox%	xoxox%
Absolute return	xoxox%	xoxox%	xoxox%
Private equity	xoxox%	xoxox%	xoxox%
Real assets	xoxox%	xoxox%	xoxox%

It is expected that the fund's daily management team will utilize external managers to implement areas within individual asset classes for which those managers have the requisite expertise, resources, and sustainable investment selection process. These external managers will have discretion over matters related to security selection and timing within their area of mandate.

Spending Policy

It is the organization's intent to distribute ___ percent annually based on the ___ payout methodology. This intent is subject to the understanding that the spending rate plus the organization's rate of inflation will not normally exceed the rate of return. It is understood that the total return basis for calculating spending as sanctioned by the Uniform Management of Investment Funds Act (UMIFA) allows the organization to spend an amount in excess of the current yield (interest and dividends earned), including realized and unrealized appreciation. However, it is also understood that the inevitable volatility in the portfolio occasionally may require payouts to be reduced to preserve the purchasing power of the fund.

Rebalancing Policy

The organization recognizes that a disciplined approach to investing is the best way to secure consistent performance. As such, the fund should be rebalanced within target ranges on no less than an annual basis in a manner consistent with not incurring inappropriately excessive costs.

Investment Management Policies and Procedures

Equity Securities

Both domestic and international securities are intended to provide capital appreciation and current income to the Plan. It is generally recognized that the higher return potential of equities entails higher market volatility and potential for loss. This asset class shall include domestic and international common stocks or equivalents (American Depositary Receipts plus issues convertible into common stocks). The equity portfolio shall be well diversified to avoid undue exposure to any single economic sector, industry group, or individual security. No more than 5 percent of the equity portfolio based on the market value shall be invested in securities of any one issue or corporation at the time of purchase. No more than 10 percent of the equity portfolio based on the market value shall be invested in any one industry at the time of purchase. Capitalization/stocks must be of those corporations with a market capitalization exceeding \$50,000,000. Common and convertible preferred stocks should be of good quality and traded on a major exchange, including NASDAQ, with requirements that such stocks have adequate market liquidity relative to the size of the investment.

Fixed Income Securities

Fixed income securities are intended to provide additional diversification to the Plan and to provide dependable sources of income to the Plan. It is anticipated that the Plan will include fixed income investments of various maturities and durations. Allowable types of such securities include marketable debt securities issued by the United States Government or an agency of the United States Government, foreign governments, domestic corporations, mortgages and asset-backed securities, and high yield debt. These investments should be managed actively to take advantage of opportunities presented by such factors as interest rate fluctuations and changes in credit ratings. These investments are subject to the following limitations:

- No issues may be purchased with more than 30 years until maturity.
- Investments of single issuers other than direct obligations of the United States Government or its agencies may not represent more than 5 percent of the Plan's assets.
- No more than 25 percent of the fixed income securities portion of the Plan's assets may be allocated to below investment grade debt issues.

Cash and Equivalents

All cash and equivalent investments shall be in pooled investment vehicles, such as money market funds, where the fund's share price is intended to remain constant and the yield is comparable to the then current risk-free rate of return. The Plan is also permitted to purchase United States agency-guaranteed certificates of deposit or short-term United States Government securities. Cash and equivalents are not generally considered to be appropriate vehicles for purposes of investment return. As such, these investments should typically be limited to serving as temporary placements for funds awaiting distribution to the sponsoring organization or investment into an approved asset class.

Other Securities

- **Private capital partnerships:** Investments may be made into venture capital, leveraged buy-out, or other private equity managed pools. Such investments should only be made through managers having the requisite experience, resources, and track record of superior performance with the given type of private equity.
- **Real estate:** Investments in real estate should be in the form of professionally managed, income-producing commercial or residential properties. Such investments should be made only through pooled investment real estate funds as managed by professionals with track records of superior long-term performance.
- **Natural resources:** Investments may include timber, oil, or gas interests held in the form of professionally managed pooled limited partnership interests. Such investments should only be made through managers having the requisite experience, resources, and track record of superior performance with the given type of natural resource.
- **Absolute return investments:** Investments may include equity-oriented or market-neutral hedge funds (i.e., long/short, event-driven, arbitrage, etc.).
- **Derivatives and derivative securities:** Derivatives are securities whose value depends upon the value of some other security or index. Examples of such investments include futures, options, options on futures, interest-only or principal-only strips, etc. Certain managers may be permitted to use derivatives. However, no derivative positions can be utilized if such positions would cause the portfolio to

fall outside of portfolio guidelines. In addition, such derivative positions must be fully collateralized. Examples of appropriate derivative strategies include hedging a position; maintaining exposure to an asset class while making changes to the allocation, where maintaining the derivative position is more cost-effective than holding a cash position; or changing the duration of a fixed income position. Such investments should only be made through managers having the requisite experience, resources, and track record of superior performance with the given type of derivative. The manager must also be able to demonstrate that such derivatives are integral to their mandate and that the counterparty to the derivative strategy can fulfill their obligations.

Restrictions

The Board is authorized to waive or modify any of the restrictions in these guidelines after thorough investigation of the manager and the rationale for the deviation.

Roles and Responsibilities

To achieve our overall goals and objectives, we want to identify the parties associated with our accounts and the functions, responsibilities, and activities of each with respect to the management of fund assets. Our investment managers are responsible for the day-to-day investment management of the Plan assets, including specific security selection and timing of purchases and sales. The custodian is responsible for safekeeping the securities, collections, and disbursements and periodic accounting statements. The prompt credit of all dividends and interest to our accounts on payment date is required. The custodian shall provide monthly account statements and reconcile account statements with manager summary account statements. The investment consultant is responsible for assisting the client in developing the investment policy statement and for monitoring the overall performance of the Plan and the specific investment managers.

Duties of the Board

The Board's primary duties shall include, but not be limited to, the following items:

- Hiring and evaluating the members of the management team
- Approving the investment policy as prepared by the management team
- Reviewing, no less than annually, the Plan's allocation and performance

Duties of the Management and Staff

Management and staff will be primarily responsible for the day-to-day administration of the Plan. It is anticipated that their primary duties shall include, but not be limited to, the following items:

- Selecting, retaining, and terminating investment managers as necessary to implement the investment policy
- Selecting, retaining, and terminating consultants as necessary to prepare the asset allocation, hire and evaluate managers, perform topical research, and review performance
- Developing investment policy for the Board's review and approval
- Implementing investment policy within the target ranges set forth by the Board
- Reviewing no less than quarterly the Plan's investment performance
- Administering the Plan's investments in a cost-effective manner

- Developing a contingency Plan for the protection of the Plan's assets and ensuring appropriate communication with the public in the face of a catastrophic event
- Selecting an appropriate custodian to hold and safeguard the Plan's securities investments
- Maintaining sufficient records to allow for the necessary oversight and management of the Plan's investments

Duties of External Investment Managers

Management and staff will be primarily responsible for the day-to-day administration of the Plan. It is anticipated that their primary duties shall include, but not be limited to, the following items:

- Complying with the provisions of this policy statement
- Staying within the style and risk parameters of their respective mandates
- Providing proof of liability and fiduciary insurance coverages
- Maintaining necessary risk controls
- Using best possible execution for trades made on the Plan's behalf to ensure the most timely, cost-effective execution
- Reconciling transaction data no less than monthly with the custodian
- Disclosing material changes in personnel, processes, investment outlook, financial condition, or other matters that could be reasonably deemed to be of interest to the Plan

Other Considerations

Trading Guidelines

All trading in accounts shall be done through a recognized national or regional brokerage firm. Additionally, it is understood that block transactions or participation in certain initial public offerings might not be available through a primary broker. In this case, the manager should execute those trades through the broker offering the product and service necessary to best serve the account. It should be the responsibility of the manager to see that duplicate trade confirmations and duplicate monthly statements are mailed to your consultant.

Proxy Voting

The investment manager shall have the sole and exclusive right to vote any and all policies solicited in connection with securities held by the client.

Performance Review and Evaluation

Performance results for the investment managers will be measured on a quarterly basis. Total fund performance will be measured against a balanced index posed of commonly accepted benchmarks weighted to match the long-term asset allocation policy of the Plan. Additionally, the investment performances specific for individual portfolios will be measured against commonly accepted benchmarks applicable to that particular investment style and strategy. The consultant will be responsible for complying with this section of our policy statement. The managers shall report performance results in compliance with the standards established by the Association for Investment Management and Research. Reports shall be generated on a quarterly basis and delivered to the client with a copy to the consultant within four weeks of the end of the quarter.

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Author Queries

- AQ1: Please supply page number for MacEachern quote.
- AQ2: Please provide source and page number for Inge quote.
- AQ3: Please supply page number for Swensen quote.
- AQ4: Please supply page number for Yale Endowment quote.
- AQ5: Please supply page number for both Nawrocki quotes in this paragraph.
- AQ6: Please confirm placement of “IA Micro-Cap Value....”
- AQ7: Please supply source and page number for Stein quote.
- AQ8: Please provide page number for Loeper quote.
- AQ9: Please supply page number for Ibbotson and Patel quote.
- AQ10: Please supply page number for Kacperczyk et al. 2002 quote.
- AQ11: Please confirm the way the section “Stress Testing” is formatted.
- AQ12: Please provide full reference for Pozen, *Too Big to Save?*
- AQ13: Beginning with the paragraph starting “In *Too Big to Save?*, Posen describes...” There are a numbers that seem like they should correspond to notes, but no corresponding note was provided. Please clarify. Number 4 is here after “with U.S. Treasuries.”
- AQ14: Please provide year range for “next seven years” to avoid this statement becoming outdated.
- AQ15: Please provide a complete reference the landmark study by Carmen M. Reinhart and Kenneth S. Rogoff.
- AQ16: Number 5 is here after “years or more”
- AQ17: Please provide page number for quote from Rogoff.
- AQ18: Number 6 is here after “just ten to fifteen years”
- AQ19: Please provide reference information for the quote by Alice Rivlin, in last paragraph under Avoiding Mistakes, including page number of quote.
- AQ20: Number 8 is here after “its knees in 2008”
- AQ21: Please provide page number for Pozen quote
- AQ22: Please provide references for “As Jeremy Grantham points out”
- AQ23: Number 8 is here after “are inevitably to come”
- AQ24: Please provide page number for Pozen quote
- AQ25: Please provide page number for Reinhart and Rogoff quote
- AQ26: Please provide reference information for Lawrence E. Kochard and Cathleen M. Rittereiser (under “Internal CIO Model).
- AQ27: Please provide page number for Rubenstein quote
- AQ28: None of these are cited in the text of this chapter, so this section was changed to “Suggested Readings.”
- AQ29: For all journal articles, please provide page range of article.
- AQ30: Ref 2: Please provide city of publisher.
- AQ31: Ref 4: Please provide URL.
- AQ32: Ref 7: Please provide author.
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- AQ40: Ref 28: Please provide URL
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