

Appendix A - Endowment Management

The biggest challenge for trustees and fiduciaries of endowment funds is the management of the delicate trade-off between long-term requirements and current needs. It is a balance between two conflicting goals:

- 1. To preserve the purchasing power of the assets throughout time.**
- 2. To provide a substantial, stable flow of funds to beneficiaries.**

By preserving the purchasing power of assets, future generations benefit from the endowment at the same level as the current generation. At the same time, a stable flow of funds must be made available to the current generation. The decision which trustees must make, is how to distribute risk between these two goals. Emphasis on maintaining purchasing power results in greater volatility to the flow of funds to beneficiaries, while emphasizing sizable and stable cash flows to beneficiaries results in substantial volatility to the purchasing power of endowment assets.

Spending Policy

A spending policy must be devised that addresses the conflicting objectives of preserving purchasing power and providing a stable flow of funds to beneficiaries. Most institutions achieve the balance by determining a sensible long-term target rate of spending and applying that rate to a moving average of endowment market values.

The two common types of spending policies are income-only and total-return. With an income-only policy, disbursements come only from income, leaving the capital gains to act as an automatic reinvestment mechanism. Total-return policies have no such constraint, allowing much greater flexibility in setting disbursement rates. Historically, most endowments used an income-only policy, but over the past thirty years the trend has been towards total-return. As of 1994, less than 11 percent of surveyed college and university endowments in the United States used an income-only policy ¹. There are advantages and disadvantages with each of these policies.

Income-Only Policy

Advantages

- Causes a high level of conservatism on the part of fund administrators.
- Reduces the need for more sophisticated risk controls, thereby lowering administration and management costs.

¹ NACUBO, 1994 NACUBO Endowment Study, 1988 National Association of College and University Business Officers (Washington D.C., Cambridge Associates Inc.).

Disadvantages

- Limits and tends to distort investment strategies - fixed income bias.
- Excessive conservatism on the part of the fund administrators.
- Disbursement shortfalls in declining interest rate environment.
- High inflation environment causes a transfer of principal to income.
- The reinvestment rate may be too low to offset inflation and expected cost increases.
- Does not encourage more sophisticated investment practices.

Total Return Policy

Advantages

- Investment strategy can properly match needs and forecasts.
- Allows flexibility in responding to unusual cash needs.

Disadvantages

- Requires more sophisticated strategies and risk controls - increasing costs.

The balance between the two conflicting goals of endowment investment policy is determined by the annual spending rate of the fund and the method by which it is calculated. With income-only policies, this determination is simpler since only current income (dividends and interest) is available for spending. Total-return policies however, allow far more discretion.

Spending Rate

“The interpretation that drives most modern spending policies is that the entire function for which the endowed support originally was provided should be supported indefinitely, regardless of increases in cost.”²

Determining the spending rate, is one of an endowment foundation’s most important decisions. Without a deep understanding of the dynamics between the spending rate and the investment policy, serious errors can occur. During the high inflationary period in the 1970s and early 1980s, a number of endowment funds spent all of their income from their fixed income assets, depleting their principal, because they did not understand that principal was being transferred to income via inflation. While there are some subtleties in setting the spending rate in income-only policies, total-return policies are substantially more complex.

The setting of a spending rate requires the trustee to consider:

- Forecasts of long term returns for various asset classes.

² William F. Massey, *Endowment: Perspectives, Policies, & Management* (Washington D.C., Association of Governing Boards of Universities and Colleges, 1990), p. 22.

- Volatility and correlations of asset classes.
- Endowment's tolerance for risk.
- Nature of asset classes - perpetual vs. finite.
- Gift Flows (Contributions).
- Inflation forecast.
- Cyclical nature of beneficiary needs.

The spending rate is the rate at which cash will leave the portfolio. In determining how large of a cash flow the portfolio can manage, we must consider all other cash flows in and out of the portfolio. These flows can be direct such as expenses and gifts, and indirect such as capital gains, and inflation.

The spending rate is a function of the following:

- **Gift Flows**
- **Inflation Forecast**
- **Expected Real Cost Rise**
- **Expected Rate of Return**
- **Smoothing Procedure**

Gift Flows

Gift flows can create a number of problems when setting policies, because of the distortions they cause in the analysis. One distortion is that they boost a fund's final value regardless of investment performance, and therefore can mask the impact of asset allocation and spending decisions. In order to avoid this problem, performance must be measured using a time-weighted return system, whereby gifts are considered as infusions of cash and are therefore factored out of the portfolio's performance.

Another distortion occurs with the interaction between gift giving and asset allocation. If gifts are correlated with bull and bear markets, they can severely affect a rebalancing strategy. Finally, the nature of the gift can also be a problem. Illiquid or extremely volatile assets in the form of gifts, not only impact investment decision making, they can also negatively affect portfolio performance.

Inflation Forecast

The Governor of the Bank of Canada has stated that the long run inflation target for the Bank is between 1 and 3 percent. Bank policy for the past decade has been decisively focused on this low inflation target, regardless of the severity of the recession in the early 1990s. If anything, the Bank has erred on the lower side of this band resulting in deflationary periods in the 1990s. An average inflation target of 2% would not be

unreasonable. (For a more detailed discussion of this trend see the Economic Forecast section in the main document).

Expected Real Cost Rise

Specific operating costs and the needs of beneficiaries are unlikely to always rise by the same rate as inflation. The demand for endowment funds may increase rapidly during periods of recession in the local economy while inflation remains low. Also, recession or growth in the local economy may not always match that of the country as a whole. The fluctuation of these costs may be cyclical, systemic or random. Therefore, the Expected Real Cost Rise term in the Spending Rate equation is not necessarily a simple number. This term can be quite difficult to determine in some cases. Nevertheless, it is the trustees' responsibility to determine what costs apply to their circumstances and to ensure that these assumptions are incorporated in their spending and investment policies.

Expected Rate of Return

There are three main issues to address in setting the Expected Rate of Return. They are:

- **Forecasting long run returns and volatilities.**
- **Determining the endowment fund's tolerance for risk.**
- **Differentiating between perpetual and finite assets.**

Forecasting returns and volatilities

Asset allocation and strategic rebalancing are the primary factors in determining a portfolio's performance. Therefore, a portfolio's long-term rate of return and volatility will be primarily dependent upon the rate of return of its constituent asset classes and the percentage holdings of each class. For a more detailed discussion, see Appendix C - Asset Allocation. (Note: It is easier to predict the real rate of return on fixed income than the nominal rate and inflation rates.)

Determining fund's risk tolerance

One of the most difficult and sensitive issues when setting any investment or spending policy is determining an organization's tolerance for risk. Contention rarely surfaces during high growth markets, but when a market drops substantially, knee jerk reactions from the trustees can substantially reduce long run performance. While contention surfaces in bear markets, the problem is usually created when growth is high. There are no easy answers, but running a number of simulations beforehand prepares the trustees for the possibility.

Perpetual vs. Finite Assets

Spending rates are frequently calculated as a percentage of the market value of the fund. The problem with this approach, is not differentiating between a perpetual and finite asset. Most equities (common stocks) are perpetual assets, where the company is intended to continue on into perpetuity. A perpetual endowment fund can then use the market prices of these assets when calculating spending rates. This is not the case, however, for finite assets such as bonds, preferred shares and unit trusts. For most bonds and preferred shares, the investor knows the maturity date, so on that date they will receive the security's par value. Pricing an unrealized capital gain from an interest rate decline, causes an increase in market value and increases the spending rate even though the reinvestment rate has now fallen. This results in excessive spending in the near term, and a long term depletion of the fund's assets. The following example demonstrates this concept.

Example of Spending Rate Under Different Interest Rate Scenarios

In this example, the investor purchases a 30 year bond with a yield of 8% per annum. The spending rate is set at 5.5% of the bond's market value (Net Portfolio Value).

In the first scenario, the underlying interest rate is 8% and remains unchanged over the 30 year period.

Portfolio with Constant Interest Rates

Years Since Inception	Interest rate	Bond Price	Annual Coupon	Spending Rate	Net Portfolio Value
0	8%	100.00			\$100.00
1	8%	100.00	8.00	\$5.50	\$102.50
2	8%	100.00	8.00	\$5.64	\$105.06
5	8%	100.00	8.00	\$6.07	\$113.14
10	8%	100.00	8.00	\$6.87	\$128.01
15	8%	100.00	8.00	\$7.77	\$144.83
20	8%	100.00	8.00	\$8.79	\$163.86
25	8%	100.00	8.00	\$9.95	\$185.39
30	8%	100.00	8.00	\$11.26	\$209.76

A snapshot of the portfolio is shown every five years subsequent to year two.

The Net Portfolio Value grows each year, because of the reinvestment of the coupons. The spending rate increases at a steady rate, and the portfolio's value increases at a steady rate as well. This is a text book scenario.

In the second scenario, interest rates decline at the end of year one from 8% to 4%. They remain at 4% for the next 29 years. The price of the 30 year bond jumps substantially in

year one, increasing in value by more than 70%. Since the spending rate is set against the market value, the spending rate jumps substantially in year two. However, since the bond will be worth par at the end of the 30 year period, the unrealized gain will disappear over that time. The investor's purchasing power is being reduced by two effects. One, is that the spending rate is based on the market value, causing an excessive drain, and the other is that a spending rate of 5.5% is higher than the reinvestment rate of 4.0%. These two effects, combined with compound interest gradually depletes the portfolio's purchasing power.

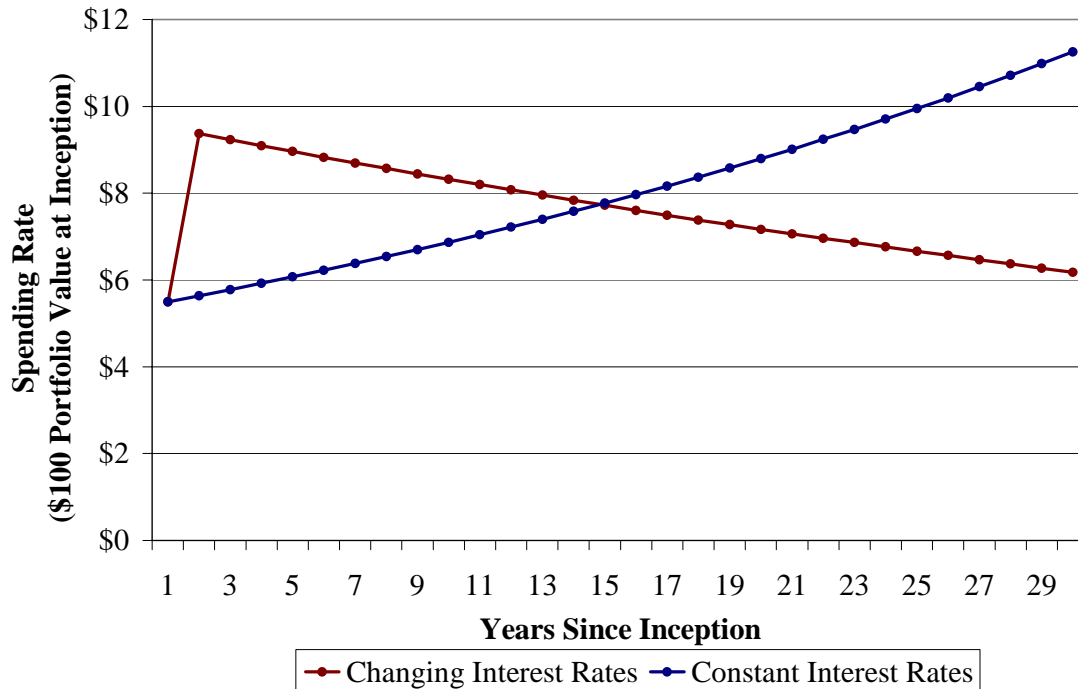
Portfolio with Changing Interest Rates

Years Since Inception	Interest rate	Bond Price	Annual Coupon	Spending Rate	Net Portfolio Value
0	8%	100.00			\$100.00
1	4%	167.93	8.00	\$5.50	\$170.43
2	4%	166.65	8.00	\$9.37	\$167.88
5	4%	162.49	8.00	\$8.96	\$160.48
10	4%	154.36	7.84	\$8.32	\$149.01
15	4%	144.47	7.77	\$7.72	\$138.28
20	4%	132.44	7.87	\$7.17	\$128.41
25	4%	117.81	8.00	\$6.66	\$119.36
30	4%	100.01	8.00	\$6.18	\$110.68

A snapshot of the portfolio is shown every five years subsequent to year two.

The following graph contrasts the two levels of spending, as a result of the interest rate change.

Fixed Income Portfolio Spending Rate Comparison



Smoothing Procedure

A smoothing procedure is usually put in place to reduce the spending rate's volatility. A moving average of the fund's market value of previous years is the standard method. The moving average constrains the volatility of the spending rate to be less than the portfolio's volatility. Another method is by using a preset increment, where the level of spending will be increased by a certain percentage over that of the previous year's.

Summary

There are a multitude of issues which must be addressed when setting investment and spending policies. The procedure for setting these policies and the interplay between them can be quite complex, yet it is one of the most important decisions facing the endowment fund's trustees. They should be resolved through a balanced decision-making process, which takes into consideration all relevant factors, and is flexible enough to address unforeseen events.