3. INVESTMENT AND SPENDING GOALS

Endowment managers pursue the conflicting goals of preserving purchasing power of assets and providing substantial flows of resources to the operating budget. If fiduciaries produce spending and investment policies that deal successfully with the tension between the goals, the institution receives a sustainable contribution from endowment assets to support academic programs. Asset preservation and stable budgetary support, if achieved, satisfy the purposes of endowment accumulation – maintaining independence, providing stability, and creating a margin of excellence.

Benjamin Franklin observed that death and taxes represent life's only certainties. Managers of endowment assets suspend those certainties, as educational institutions aspire to exist in perpetuity and endowment assets enjoy exemption from taxes. The perpetual nature of colleges and universities makes endowment management one of the investment world's most fascinating endeavors. Balancing the tension between preserving long-run asset purchasing power and providing substantial current operating support provides a rich set of challenges, posing problems unique to endowed educational institutions.

Purchasing power preservation represents a long-term goal, spanning generations. Successfully managed endowments retain forever the ability to provide a particular level of institutional support, justifying the classification of endowment funds as permanent assets. Pursuit of long-term asset preservation requires seeking high returns, accepting the accompanying fundamental risk and associated market volatility.

Stable operating support constitutes an intermediate-term goal, reflecting the demands of a shorter-term budgetary planning cycle. Since academic programs contract only with great difficulty, institutions rely on reasonably predictable flows of funds from endowment to support operations. Supplying stable distributions for current operations requires dampening portfolio volatility, suggesting lower levels of fundamental risk with the accompanying lower levels of expected returns.

The high risk, high return investment policy best suited to serve asset preservation conflicts with the low risk, low return investment approach more likely to produce stable distributions to the operating budget. Spending policies deal with the conflict, in part by dampening the transmission of portfolio volatility to budgetary distributions. Further, by

specifying institutional preferences regarding the trade-off between purchasing power preservation and stability of flows to fund operations, spending policies determine the degree to which endowments meet the needs of current and future generations.

INVESTMENT GOALS

The late Yale economist James Tobin captured the essence of the investment problem facing fiduciaries:

> The trustees of an endowed institution are the guardians of the future against the claims of the present. Their task is to preserve equity among generations. The trustees of an endowed university like my own assume the institution to be immortal. They want to know, therefore, the rate of consumption from endowment which can be sustained indefinitely…. In formal terms, the trustees are supposed to have a zero subjective rate of time preference.
>
> Consuming endowment income so defined means in principle that the existing endowment can continue to support the same set of activities that it is now supporting. This rule says that the current consumption should not benefit from the prospects of future gifts to endowment. Sustained consumption rises to encompass and enlarge the scope of activities when, but not before, capital gifts enlarge the endowment.[i]

Tobin's concept of intergenerational equity comports with the goals of purchasing power preservation and stable operating budget support. By preserving endowment assets adjusted for inflation, the institution retains the ability to "support the same set of activities that it is now supporting." In supplying a stable flow of resources for operations, the endowment provides continuity of support, avoiding disruptive interruptions in distributions to academic programs.

Gifts and Endowment

When making an endowment gift, donors intend to provide permanent support for the designated activity. If financial managers maintain only the nominal value of gifts, inflation ultimately reduces to insignificance the impact of the fund. Yale's oldest surviving endowment fund dedicated to the support of teaching, the Timothy Dwight Professorship Fund established in 1822, entered the University's books at an historical cost basis slightly in excess of $27,000. Because price levels rose nearly twenty-seven fold in the intervening 185 years, a 2007

distribution from an endowment of $27,000 pales in comparison to an 1822 distribution from the same size fund. While during the Dwight Professorship's existence, the fund grew more than eighteen times to nearly $500,000, the current value falls short of the inflation-adjusted target by nearly one-third. Even though the University continues to benefit from the Timothy Dwight Professorship in the early twenty-first century, after accounting for inflation the fund fails to provide the same level of support available in the early nineteenth century. While fiduciary principles generally specify only that the institution preserve the nominal value of a gift[1*], to provide true permanent support institutions must maintain the inflation-adjusted value of a gift.

Explicitly stating that new gifts allow an institution to "enlarge the scope of activities," Tobin recognizes a principle important to endowment benefactors. Some institutions factor gifts into spending considerations, targeting a consumption level equal to the portfolio's expected real return *plus* new gifts. Harvard University, in fashioning its 1974 spending policy, assumed that "university expense growth would exceed (the long-term inflation) rate by two points."[ii] Yet, the institution's targeted reinvestment rate offset only the general level of inflation, not the higher university expense growth. Obviously, supporting the "same set of activities" required keeping pace with university expense growth, not general inflation, rendering the reinvestment rate inadequate to its purpose. To maintain endowment purchasing power, Harvard articulated a goal of accumulating sufficient new capital gifts to offset the difference between the general inflation rate and university expense growth. In so doing, the university explicitly employed new gifts to replenish inflationary losses.[iii]

Using new gifts to offset part of the impact of inflation on asset values fails to "enlarge the scope of activities" supported by endowment. If a fund devoted to supporting a chair in the economics department loses purchasing power, establishing a new chair in the law school does nothing to replenish the economics department's loss. From a bottom-up basis, donors have the right to expect that each individual endowment fund will retain purchasing power through time.

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[*] Section 2 of the Uniform Management of Investment Funds Act (UMIFA), which has been adopted in forty-eight States and the District of Columbia as of June 30, 2007, codifies this obligation by requiring that an institution maintain the historic dollar value of endowment gift. Some States have strengthened this law to include preservation of purchasing power.
In 2006, the National Conference of Commissioners on Uniform State Laws proposed adoption of the Uniform Prudent Management of Institutional Funds Act (UPMIFA), which explicitly suggested that States consider preservation of purchasing power when drafting their statutes. As of June 30, 2007, 12 States had adopted statutes based on UPMIFA.

Tradeoff Between Today and Tomorrow

Fund managers charged only with preserving portfolio purchasing power face a straightforward task. Simply accumulating a portfolio of Treasury Inflation Protected Securities (TIPS) allows investors to generate inflation-sensitive returns guaranteed by the government. Unfortunately, the excess of university inflation over general price inflation may well consume any incremental returns from TIPS, providing almost no real return to the institution. Such single-minded focus on asset preservation fails to meet institutional needs, as merely accumulating a portfolio of assets with stable purchasing power provides little, if any, benefit to the academic enterprise.

Endowment assets benefit educational institutions primarily by generating substantial reliable distributions to support operations. Fund managers with a narrow focus on providing generous predictable spending flows face little problem, particularly when operating with an intermediate time horizon. By holding assets that promise low levels of volatility, managers create a stable portfolio that allows budget planners to forecast payouts with reasonable certainty. Unfortunately, low risk investment portfolios deliver returns insufficient both to support substantial distributions and to preserve purchasing power. Exclusive pursuit of stable support for current operations favors today's generation of scholars over tomorrow's beneficiaries.

A clear direct trade-off exists between preserving assets and supporting operations. To the extent that managers focus on maintaining purchasing power of endowment assets, substantial volatility influences the flow of resources delivered to the operating budget. To the extent that managers emphasize providing a sizable and stable flow of resources to the operating budget, substantial volatility influences the purchasing power of endowment assets.

Consider two extreme policies to determine the annual spending from an endowment. One extreme, placing maintenance of asset purchasing power at center stage, requires spending each year only the real returns generated by the portfolio. Assume a particular year produces investment returns of ten percent and inflation of four percent. Distributing six percent of assets to the operating units provides substantial support to operations, while reinvesting four percent in the endowment offsets inflation and maintains purchasing power. The following year, in an environment with two percent investment returns and seven percent inflation, the institution faces a serious problem. Compensation for inflation requires a seven percent reinvestment in the endowment, but the fund generated a return of only two percent. The endowment manager

cannot ask the operating units for a five percent rebate to maintain portfolio purchasing power. At best, the institution can declare no distribution, hoping to generate positive real returns in following years to replenish lost purchasing power and, perhaps, to provide operational support. From an operating budget perspective, a policy that places year-by-year maintenance of purchasing power above all else proves unacceptable.

The other policy extreme, pursuing a goal of providing a completely stable flow of resources to the operating budget, requires spending amounts that increase each year by the amount of inflation. In the short-term, the policy provides perfectly stable inflation-adjusted distributions from the endowment to the operating budget. While under normal market conditions such a policy might not harm the endowment, serious damage results when faced with a hostile financial environment. In a period of high inflation accompanied by bear markets for investment assets, spending at a level independent of the value of assets creates the potential to permanently damage the endowment fund.

Spending policies specify the trade-off between protecting endowment assets for tomorrow's scholars and providing endowment support for today's beneficiaries. Cleverly crafted rules for determining annual endowment distributions reduce the tension between the objectives of spending stability and asset preservation, increasing the likelihood of meeting the needs of both current and future generations.

SPENDING POLICY

Spending policies resolve the tension between the competing goals of preservation of endowment and stability in spending. Sensible policies cause current-year spending to relate both to prior-year endowment distributions and to contemporaneous endowment values, with the former factor providing a core upon which planners can rely and the latter factor introducing sensitivity to market influences.

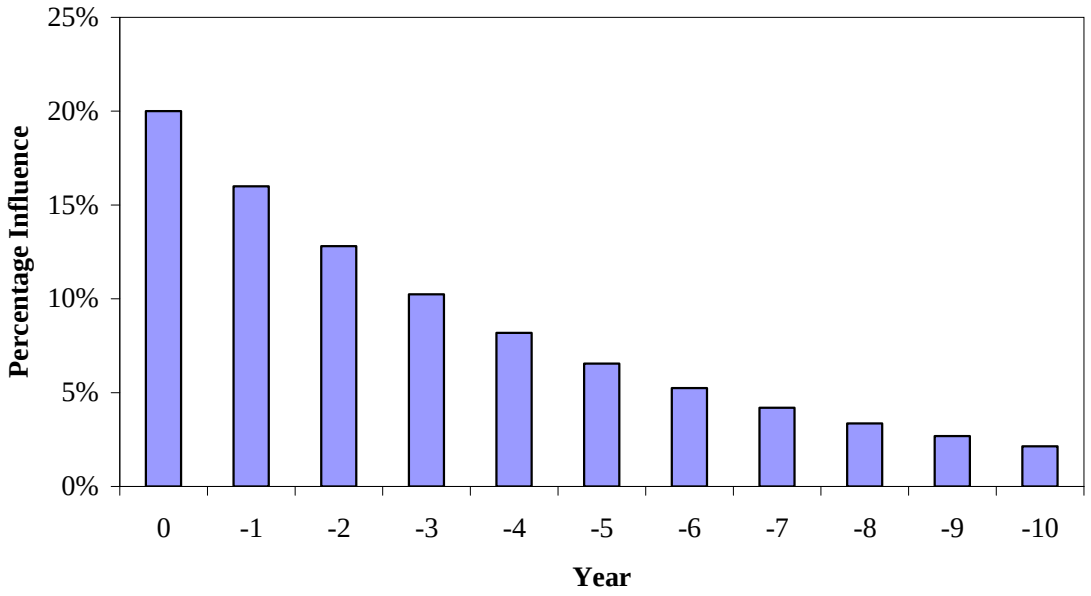
Yale's Spending Policy

Based on a structure created by economists James Tobin, William Brainard, Richard Cooper and William Nordhaus, Yale's policy relates current year spending both to the previous level of spending from endowment and to the previous endowment market value. Under Yale's rule, spending for a given year equals 80 percent of spending in the previous year plus 20 percent of the long-term spending rate applied to the endowment's market level at the previous fiscal year end. The resulting figure is brought forward to the current year by using an inflation

adjustment. Since previous levels of spending depend on past endowment market values, present spending can be expressed in terms of endowment levels going back through time. The resulting lagged adjustment process averages past endowment levels with exponentially decreasing weights.

The accompanying chart, Figure 3.1, shows weights applied to endowment values of previous years (ignoring the inflation adjustment). Multiplying the weights by the endowment values for the respective years and summing the results, determines spending for the current year. Note that years farther in the past have less influence on the calculation than more recent years. In contrast, a simple four-year average would apply equal 25 percent weights to each of the four most recent years.

Figure 3.1 **Yale's Spending Policy Insulates the Budget from Market Fluctuations**
Influence of Past Endowment Levels in Determining Current Spending



Source: Yale University Investments Office.

By reducing the impact on the operating budget of inevitable fluctuations in endowment value caused by investing in risky assets, spending rules that employ an averaging process insulate the academic enterprise from unacceptably high year-to-year swings in support. Because sensible spending policies dampen the consequences of portfolio volatility, portfolio managers gain the freedom to accept greater investment risk with the expectation of achieving

higher return without exposing the institution to unreasonably large probabilities of significant budgetary shortfalls.

By doing a particularly effective job of smoothing contributions to the operating budget, Yale's elegant spending rule contributes an important measure of flexibility to the university's investment policy. Instead of employing a simple averaging process that unceremoniously drops the oldest number in favor of the new, as time passes Yale's exponentially declining weights gradually squeeze out the influence of a particular year's endowment value. The superior smoothing characteristics reduce the transmission of investment volatility to the operating budget, allowing pursuit of portfolio strategies promising higher expected returns.

The 80 percent weight on previous year's spending and the 20 percent weight on current target spending reflect institutional choices regarding the tradeoff between spending stability and purchasing power preservation. Different institutions may well exhibit different preferences. Moreover, institutional preferences may change over time. In fact, as Yale's endowment support moved from one-tenth of revenues in the mid 1980s to one-third of revenues in the mid 2000s, the university opted for greater stability in operating budget support. By changing the weight on previous year's spending from 70 percent to 80 percent, Yale reduced the likelihood of a disruptive spending drop (at the expense of greater risk to purchasing power preservation).

Other Spending Policies

Throughout most of the twentieth century, institutions typically followed a practice of distributing for current expenditure only income generated in the form of interest, dividends and rents. Yale, which in 1965 began spending "a prudent portion of the appreciation in market value," noted two reasons for adopting the new policy:

> "First, it is only by coincidence that Yield will be a correct balance between the present and the future… Second, when Yield is the sole measure of what can be spent for present needs, a situation of annually increasing needs, such as has obtained for many years and seems likely to continue for many more, forces investment policy to seek to improve current Yield. But this, in turn, under market conditions prevailing most of the time since World War II, could only be done at the loss of some potential Gain."[iv]

Concerns about "invading principal" no doubt underlie the policies of institutions that base spending on the income generated by a portfolio. As Yale recognized, the distinction between

current income and capital appreciation proves too easily manipulated to provide a sound foundation for spending policy.

Consider the spending implications of discount, par and premium bonds with comparable levels of sensitivity to changes in interest rates, as set forth in Table 3.1. Although these bonds exhibit remarkably similar investment attributes, spending implications differ dramatically for an institution pursuing a policy of consuming all current income. The zero coupon bond provides no current cash-flow, the par bond generates a 6 percent yield and the premium bond pays out a well-above-market rate of 12 percent. Naturally, holding low coupon bonds leads to lower current spending and higher future portfolio value, while the opposite consequences stem from owning high coupon bonds. Fortunately, income-based spending rules determine spending for far fewer institutions today than in the late 1980s, when nearly one in five of educational institutions followed a policy of spending portfolio yield.[v]

Table 3.1 Otherwise Similar Bonds Generate Dramatically Different Cash Flows

Coupon, Duration, Price and Yield for Three Different Types of Bonds

	Coupon	Duration[a]	Price	Yield
Zero Coupon	0%	10 years	55.4	6%
Par	6	10 years	100.0	6
Premium	12	10 years	166.5	6

[a]*The maturity of the zero coupon bond is 10 years, the par bond 15 years, and the premium bond 18.5 years.*

Today, seven in ten educational institutions determine spending by applying a pre-specified percentage to a moving average of endowment values. Including past endowment values provides stability, because those past values determined in part the previous year's spending. Incorporating the current endowment value ensures that spending responds to market conditions, avoiding potential for damage caused by spending at levels unrelated to endowment value.

Some institutions spend a pre-specified percentage of beginning endowment market value, thereby transmitting portfolio volatility directly to the operating budget. On the opposite end of the spectrum, some colleges and universities spend a pre-specified percentage of the previous year's spending, potentially threatening endowment purchasing power preservation with market-insensitive spending levels.

A number of institutions decide each year on an appropriate rate, or have no established rule. This practice, although superficially appealing, fails to instill the financial discipline provided by a rigorous spending rule. In the absence of a well-defined spending policy, budgetary balance becomes meaningless. Spend enough to bridge the gap between revenues and expenses to produce a balanced budget. Spend less to create a deficit. Spend more to fashion a surplus. Balance, distress and prosperity rest in the hands of the spending committee. Fiscal discipline disappears.

Target Spending Rate

The target rate of spending plays a critical role in determining the degree of intergenerational equity. Spending at levels inconsistent with investment returns either diminishes or enhances future endowment levels. Too much current spending causes future endowment levels to fall, benefiting today's scholars; too little current spending causes future endowment levels to rise, benefiting tomorrow's scholars. Selecting a distribution rate appropriate to the endowment portfolio balances the demands of today with the responsibilities to tomorrow.

Target spending rates among endowed institutions range from a surprisingly low 0.1 percent to an unsustainably high 15.5 percent. More than 70 percent of institutions employ target rates between 4.0 percent and 6.0 percent, with about one in six using a 5.0 percent rate.[vi] The appropriate rate of spending depends on the risk and return characteristics of the investment portfolio, the structure of the spending policy and the preferences expressed by trustees regarding the trade-off between stable budgetary support and asset preservation.

Analysis of investment and spending policies leads to the conclusion that distribution rates for educational institutions generally exceed the return-producing capacity of endowment assets. According to a series of simulations conducted by the Yale Investments Office, the average endowment faces a nearly 20 percent intermediate-term probability of a disruptive decline in operating budget support. More troubling may be the almost 40 percent long-run likelihood of losing one-half of endowment purchasing power.[2*] High probabilities of intermediate-term spending volatility and long-term purchasing power decline indicate an

[*] The simulations assume returns consistent with the average endowment target asset allocation as reported in the 2006 NACUBO Endowment Study, employing a spending rate of 5 percent applied to a five-year moving average of endowment values. The intermediate term spending decline consists of a 25 percent real decline over five years. The time horizon for evaluating purchasing power preservation is 50 years.

inconsistency between expected portfolio returns and projected spending rates. Institutions faced with likely failure to meet the central goals of endowment management need to consider reducing spending levels or increasing expected portfolio returns.

In contrast to the average institution's high probability of failing to achieve endowment goals, institutions that follow sensible investment and spending policies face much better probabilities of success. For example, Yale has a long history of implementing well-articulated, disciplined policies. The university currently projects a 5 percent probability of a disruptive spending drop (as opposed to nearly 20 percent for the broader universe of institutions) and a 15 percent probability of purchasing power impairment (as opposed to 40 percent for the broader universe). Superior investment and spending policies lead to dramatically higher chances for success.

Endowment spending policies balance the competing objectives of providing substantial stable budgetary flows to benefit today's scholars and preserving portfolio assets to support tomorrow's academicians. Responsible fiduciaries face the challenging task of evaluating the ability of investment and spending policies to meet the long-term goal of purchasing power preservation and the intermediate-term goal of stable operating budget support. Employing the tools of portfolio construction and spending rules, trustees ultimately select policies based on preferences regarding the trade-off between the central goals of endowment management.

PURCHASING POWER EVALUATION

Preserving purchasing power requires that each individual gift to endowment forever maintain its ability to "support a specific set of activities." In aggregate, then, after deducting spending distributions, endowment assets must grow by the rate of educational inflation and increase by the amount of new gifts.

Appropriate measurement of inflation allows institutions to assess the continuing ability to consume a basket of goods and services peculiar to higher education. Since expenses of colleges and universities differ dramatically from those of individuals, and from those of the economy as a whole, inflation measures appropriate to individuals (the Consumer Price Index) or the broad economy (the GNP deflator) work poorly for higher education.

The Higher Education Price Index (HEPI) measures costs specific to educational institutions. Heavily weighted toward salaries and other personnel costs, over its 46-year history HEPI advanced at a rate approximately 1.4 percent per annum in excess of the GNP deflator.

Lack of productivity gains in education accounts for the greater inflation in academic costs. A labor-intensive enterprise, teaching cannot be made more efficient without impairing the process. For example, applying technology by using video terminals to replace in-person lectures improves productivity in a superficial sense, but diminishes the educational experience. Likewise, increasing class sizes improves productivity, but undoubtedly reduces quality at the same time. As long as productivity gains disproportionately accrue to the rest of the economy, costs for higher education can be expected to grow at a rate higher than the general level of inflation.

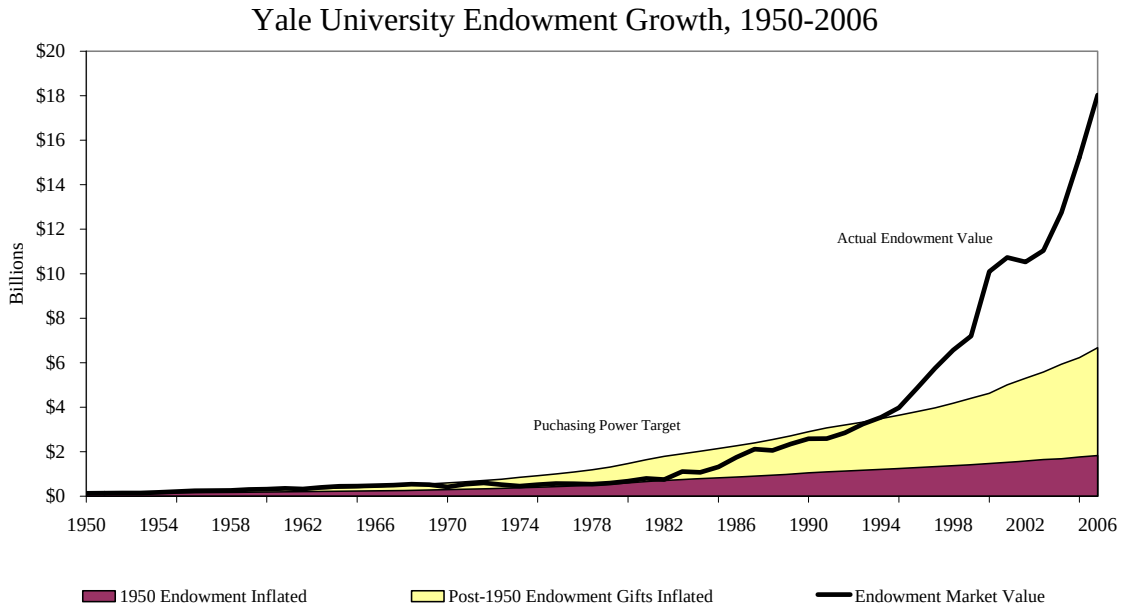
Yale's Endowment Purchasing Power

Figure 3.2 illustrates the Yale endowment's purchasing power from 1950 to 2006. The analysis begins in 1950, because prior to that date the University lacks clean data on gifts, spending and investment performance. Throughout much of the 20th century, financial statements recorded only book values of financial assets, providing little information for students of markets. Unit accounting, which enables institutions to distinguish between various inflows and outflows, gained wide acceptance only in the early 1970s, causing earlier data to be disentangled only with great difficulty.

Purchasing power analysis starts with the 1950 endowment value and subsequent inflation rates. Increasing the 1950 portfolio value by the amount of inflation in each subsequent year creates a series of purchasing power targets. Since gifts "enlarge the scope of activities" supported by endowment, each year the purchasing power target increases by the amount of new gifts, which in subsequent years undergo a similar adjustment for inflation.

Note the importance of new gifts to the endowment, with nearly three-quarters of 2006's targeted value stemming from gifts made since 1950. In other words, in the absence of new gifts over the preceding 56 years, Yale's 2006 endowment would likely total only about one-quarter of its actual value.

Figure 3.2 Endowment Values Vastly Exceed 1950 Purchasing Power Target



Source: Yale Financial Statements. Higher Education Price Index data from Research Associates of Washington.

A comparison of actual endowment values with targeted levels illustrates the degree of success in meeting purchasing power goals. Based on the difference between the June 30, 2006 market value of $18.0 billion and the purchasing power goal of $6.7 billion, Yale succeeded admirably in increasing asset values.[3*] Yet, the bottom line success includes periods in which the overall picture appeared far less rosy.

The 1950s witnessed a rough balance between endowment growth and purchasing power preservation, with a surplus of approximately 17 percent shown by 1959. After keeping pace through most of the 1960s, the endowment began to suffer as inflationary pressures grew, setting the stage for serious problems to come. During the 1970s, disastrous markets for financial assets and high inflation caused the endowment to end the decade 56 percent below its target level. By 1982, Yale's endowment reached a low point, with assets representing only 42 percent of the targeted purchasing power goal. Fortunately, the 1980s bull market reversed the problems of the 1970s, ultimately allowing the 1994 endowment to achieve the targeted level of the 1950

[*] In fact, a significant portion of Yale's increase in purchasing power results from value added in the investment process. Over the last two decades, Yale's portfolio increased by approximately $12.4 billion relative to the median result achieved by colleges and universities.

endowment inflated and adjusted for gifts. Extraordinary market returns subsequently boosted the June 30, 2006 endowment to a 170 percent surplus over the target.

Recent dramatic increases in endowment purchasing power cause some to question whether by accumulating assets, Yale's fiduciaries favor future generations of scholars at the expense of the current generation. While the question of the appropriate spending level generates spirited debate, the current increase in assets results from a combination of strong markets and reasonable spending rules, creating a cushion that will be drawn down in tough times to come.

Dramatic swings in purchasing power relative to targeted levels come as little surprise to veteran market observers. In 1982, Yale's endowment registered a nearly 60 percent deficit versus the desired level. Twenty-four years later, the portfolio shows a 170 percent surplus. Even though market swings cause institutions to feel alternately poor and rich, sensible portfolio managers base investment and spending decisions on assumptions regarding long-term capital market characteristics. Evaluating purchasing power preservation requires appreciation of the positive and negative consequences of market volatility, considered within the perspective of a distinctly long time frame.

Human nature reacts to unexpectedly handsome investment returns by looking for ways to consume newfound wealth. Responding to strong markets by increasing spending rates creates the potential for long-term damage to endowment. First, increases in the rate of spending following extraordinary investment returns puts the institution at risk of consuming part of the cushion designed to protect against a less robust future. Second, increases in spending soon become part of an institution's permanent expense base, reducing operational flexibility. If the rate of spending rises in a boom, an institution facing a bust loses the benefit of a cushion and suffers the burden of a greater budgetary base.

Target spending rates sit at the center of fiscal discipline, leading responsible fiduciaries to alter rates with great reluctance. Rather than seeing strong recent performance as an encouragement to increase payouts, skeptical managers wonder about the sustainability of past good fortune and prepare for the possibility of a less rewarding future. Only fundamental improvements in an institution's investment and spending policies justify altering target spending rates.

Evaluating maintenance of purchasing power requires an extremely long time horizon. Reacting to a decade of disastrous losses by reducing payout formulas or responding to a decade of extraordinary returns by increasing distribution rates may harm the academic enterprise. Bear market induced cuts in programs and bull market driven expansions of offerings needlessly buffet the institution, causing the endowment to fail in its mission of buffering university operations from financial market volatility. Responsible fiduciaries look past the inevitable short-run swings in endowment value caused by market gyrations, keeping attention firmly focused on the long-run preservation of asset purchasing power.

SPENDING SUSTAINABILITY EVALUATION

Stewards of endowment assets strive to provide a substantial, sustainable flow of resources to support the academic enterprise. In Tobin's words, to "support the same set of activities" throughout time, distributions must grow by at least the rate of inflation for the goods and services consumed by endowed institutions. When new gifts "enlarge the scope of activities," distributions from endowment must increase to support and sustain the new activities.

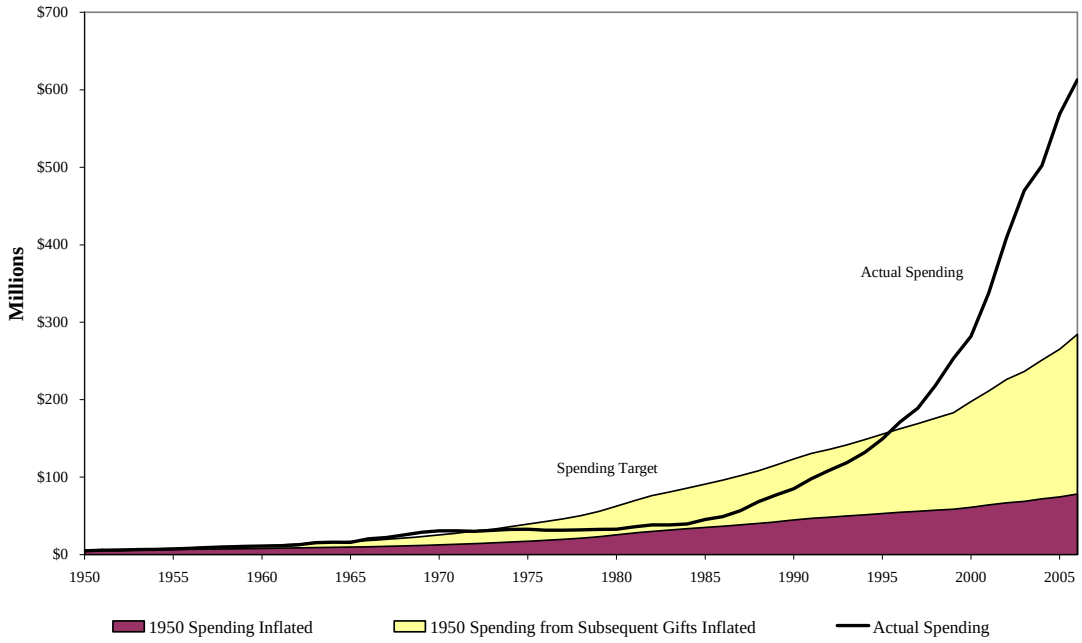
In contrast to the long-term nature of the purchasing power preservation goal, providing a sustainable flow of support to the operating budget constitutes an intermediate-term objective. Since large fluctuations in endowment spending flows wreak havoc with a budgetary process that thrives on stability, endowment managers strive to deliver reasonably predictable distributions to support operations.

Yale's Endowment Distributions

A spending sustainability analysis, portrayed in Figure 3.3, mirrors the purchasing power evaluation illustrated earlier. Beginning with 1950 spending from endowment as a base, the targeted spending levels increase each year by inflation and by the amount of spending from new gifts. For purposes of analysis, 4.5 percent represents the assumed spending rate on new gifts, a level consistent with Yale's long-run spending pattern.

Figure 3.3 Spending Growth Surpasses Inflation

Yale University Spending Growth, 1950 - 2006



Sources: Yale University Financial Statements. Higher Education Price Index data from Research Associates of Washington.

Over the 56 years covered in the spending analysis, Yale managed to increase or maintain nominal spending year-in and year-out. Inflation-adjusted spending does not boast the same unblemished record. After keeping pace with the inflation-adjusted target in the 1950s and 1960s, Yale's spending failed to keep up with the virulent inflation of the 1970s. Beginning in the mid 1980s, spending flows grew rapidly, posting sizable real gains and closing the gap between actual distributions and inflation-adjusted goals. In spite of extraordinary growth in the 1980s and 1990s, not until 1996 did Yale's spending from endowment exceed the inflation-adjusted target.

The two-year lag between the endowment's recapture of the 1950 gift-adjusted purchasing power level in 1994 and the spending flow's achievement of the same goal in 1996 stems largely from the dampening effect of the spending policy's smoothing mechanism. As endowment values rose rapidly beginning in the early 1980s and continuing through the 1990s, the averaging process in the spending rule kept endowment distributions from adjusting fully to the endowment's price appreciation.

More evidence of the impact of the smoothing mechanism comes from the spending level for 2006. Even though applying the target spending rate of 5.25 percent to the endowment's $15.2 billion value (as of June 30, 2005) results in a projected distribution of $799 million (ignoring the inflation adjustment), the actual spending level for fiscal 2006 amounted to only $618 million. As time passes, the spending rule causes actual payouts to move toward the targeted level, implying that if Yale were to maintain a $15.2 billion endowment, spending would approach $799 million within a few years.

While current beneficiaries of endowment distributions sometimes complain about the lag between endowment growth and spending increases, the smoothing mechanism performs a necessary function in muting the transmission of volatility in endowment values to spending flows. Yale's policies dampen volatility effectively, as evidenced by the fact that over the past 56 years the dispersion of year-over-year percentage changes in endowment value (12.4 percent standard deviation) exceeds by a fair margin the dispersion of changes in spending level (6.9 percent standard deviation). Effective spending rules allow assumption of greater investment risk, without transmitting the associated volatility to budgetary distributions.

At times, even the most effective set of policies provides little protection against turbulent markets. The greatest failure in providing stable budgetary support occurred in the 1970s. Operating in an environment where the rate of inflation exceeded returns on domestic stocks and bonds, endowment managers faced a grim set of choices. In spite of beginning the decade with actual spending comfortably ahead of the adjusted 1950 target level, by 1980 actual spending amounted to less than one-half the inflation-adjusted goal. In the face of hostile financial market conditions from 1970 to 1980 the university managed only to maintain the nominal payout, which proved woefully inadequate in the face of the decade's inflation. Even though nominal spending flows began to rise after 1980, the target level rose faster, causing actual spending at 1984's nadir to represent only 44 percent of the goal.

Viewed from the perspective of individual, but not independent, five-year periods, Yale experienced real spending declines of more than 25 percent six times in a succession of miserable years from 1971 to 1981. Such significant drops represent a failure to provide a stable flow of resources to support operations.

Providing stable, substantial, sustainable flows of resources to support operations represents the ultimate test of the effectiveness of endowment investment and spending policies.

Even though at times financial market conditions preclude reasonable satisfaction of endowment objectives, by fashioning a sensible package of asset management and distribution policies, investors increase the likelihood of achieving reasonable balance between the competing goals of protecting endowment assets from inflation-induced erosion and providing high, reliable levels of current budgetary support.

FOUNDATION INVESTMENT GOALS

Foundations share some characteristics with educational endowments. Along with their counterparts at colleges and universities, trustees of foundation assets often ignore Ben Franklin's certainties of life, enjoying favorable tax status and operating with a perpetual horizon. For many foundations, however, permanency constitutes a choice, not an obligation. If a foundation pursues a mission with a particular sense of urgency, for example, funding research to cure a terribly virulent disease, the trustees may decide to expend all available resources in an attempt to reach the goal with deliberate speed. Even without a time-sensitive mission, spending at rates designed to extinguish foundation assets constitutes a legitimate option for trustees.

A number of characteristics separate academic institutions from foundations. College and university endowment managers control both the management of assets, by determining the portfolio allocation, and the specification of liabilities, by defining the spending policy. The lack of constraints on investment and spending strategies provides great flexibility for fiduciaries, increasing the likelihood of meeting institutional goals.

Foundations exercise complete control over asset allocation policies, similar to the flexibility enjoyed by educational institutions. On the spending side, however, foundations must achieve a minimum payout of five percent of assets to support charitable purposes, or face tax penalties. The mandated distribution level causes foundations to face an investment problem materially different from the challenge facing educational endowment managers.

While academic institutions benefit enormously from high levels of endowment distributions, in the event of a serious disruption in endowment support other revenue sources play a compensating role in the budgetary base. Endowment distributions generally support only a modest portion of educational institution operating budgets, with major research universities relying on endowment payout to fund an average of 12.5 percent of expenditures.[vii] For most

such institutions, a significant decrease in spending from endowment poses difficult problems, but fails to threaten institutional viability.

Foundations rely almost exclusively on investment income to support operations. In 2006, eight of the ten largest grant-making foundations received essentially 100 percent of total revenues from investment portfolios. Even though grant programs grow and shrink somewhat more readily than academic operations, foundations require reasonably stable flows of funds to avoid disruption, particularly when activities involve multi-year commitments. The great reliance of foundations on distributions from investment assets calls for structuring portfolios with lower risk profiles.

Colleges and universities benefit from the generosity of alumni and friends, with gifts providing an important source of support for academic programs. In difficult times, inflows from donors serve to dampen shortfalls in endowment support for operations. In prosperous times, gifts allow educational institutions to expand the scope of their activities. Over time, the cumulative impact of giving makes an enormous difference to colleges and universities.

The Impact of Gifts

The experience of Harvard, Yale and the Carnegie Institution over the course of the 20th century provides insight into the importance of donor support. The Carnegie Institution of Washington, one of Andrew Carnegie's many philanthropies, pursues pure, cutting-edge scientific research in astronomy, plant biology, embryology, global ecology and earth sciences. Carnegie established the Institution in 1902 with a $10 million gift, increased the endowment by a further $2 million in 1907, and added $10 million in 1911. Carnegie's $22 million endowment nearly equaled Harvard's 1910 fund balance of $23 million and vastly exceeded Yale's $12 million.

Over the course of nearly a century, the Carnegie Institution endowment more than kept pace with inflation, with June 30, 2006 assets of $720 million comfortably ahead of the $490 million needed to match the rise in price levels. But, the formerly comparable Harvard endowment, with a June 30, 2006 value of $29.2 billion, and the previously smaller Yale endowment, with a value of $18.0 billion, dwarf the Carnegie fund. While differences in investment and spending policies no doubt explain some of the gap, the absence of gift inflows constitutes the fundamental reason for Carnegie's failure to keep pace with Yale and Harvard.

In desiring to supply a stable flow of operating income, hoping to exist forever and wishing to comply with minimum IRS distribution requirements, foundation fiduciaries face a fundamentally conflicting set of goals. Without a safety net of external sources of support, foundations feel the impact of poor investment results. Short-term stability in distributions argues for a less volatile portfolio, while long-run maintenance of purchasing power and high payout rates point toward a higher risk allocation. Foundations generally opt for lower risk portfolios, sensibly providing stable flows of resources to support the institutional mission. As a result, the foundation community spends at rates inconsistent with preservation of capital, suggesting that in the long run the role of most foundations will diminish as purchasing power erodes.

In spite of superficial similarities, endowments and foundations differ in important ways, including the amount of control over spending streams, the degree of programmatic reliance on portfolio distributions, and the availability of continuing external support. While endowments and foundations share some important characteristics, dissimilarities between the two types of funds lead to articulation of meaningfully different purposes and goals. That investment objectives of such closely related organizations differ so significantly highlights the importance of careful consideration of the relationship between investment funds and institutional objectives. Understanding the raison d'etre of a fund and expressing the related institutional aspirations serve as an important starting point in the funds management process.

THE SKEPTICAL VIEWPOINT

In a healthy academic community, controversy abounds. In the case of endowments, debate generally centers around intergenerational issues, with some current beneficiaries suggesting that endowment payout levels provide insufficient support for university operations.

Henry Hansmann, the Augustus E. Lines Professor of Law at Yale Law School, questions the advisability of any endowment accumulation, raising issues that go far beyond the question of appropriate payout rates. In an August 2, 1998 *New York Times* interview, Hansmann suggests that "a stranger from Mars who looks at private universities would probably say they are institutions whose business is to run large pools of investment assets and that they run educational institutions on the side that can expand and contract to act as buffers for investment pools."[viii] Hansmann suggests that trustees pursue a "real objective" of accumulating a large and growing endowment, viewing the educational operations as a constraint to unfettered

financial asset accumulation. Administrators and faculty seek endowments to provide job security, a light workload and a pleasant physical environment, while alumni focus on reputational capital, hoping to bask in the reflected glory of a wealthy educational institution.

In a working paper, entitled "Why Do Universities Have Endowments?", Hansmann correctly characterizes the 1960s as "boom years for higher education," while he notes in the early 1970s "hard times hit," as "private demand declined, government supply abruptly stopped its upward trajectory, and energy costs skyrocketed."[ix] Recognizing that "universities found themselves squeezed between costs that were continuing to rise and income sources that were shrinking," Hansmann observes "little affirmative evidence that universities in fact viewed their endowments as buffers for operating budgets."[x] Hansmann's assertions fail to reflect reality.

Yale's Endowment Buffer

Hansmann need not look far for evidence to rebut his claims. His employer, Yale University, used endowment spending policy to dampen growth in the boom times of the 1960s and to cushion the financial trauma of the 1970s. During the decade of the 1960s, Yale released an average of 4.4 percent of the endowment to support the academic enterprise. Strong budgetary results and superior investment performance accompanied endowment distributions that provided support at levels consistent with long-term sustainability.

In contrast, during the 1970s, spending from endowment averaged 6.3 percent, as Yale sought to offset, at least in part, the impact of hostile economic forces. Despite following a policy that released support for the operating budget at unsustainable rates, Yale posted deficits in every year of the decade. The policy of "leaning against the wind" cost the endowment dearly, as the purchasing power of assets declined by more than 60 percent between 1968 and 1982, in spite of the infusion of substantial amounts of new gifts.

The historical record indicates that Yale uses endowment assets to shield the operating budget from disruptive fluctuations in income streams. Sustainable spending rates in the range of 3.8 percent to 4.4 percent in the 1950s, 1960s, 1980s and 1990s correspond to reasonably stable operating environments. In contrast, the deficit plagued 1970s saw spending peak at the stunning rate of 7.4 percent in 1971. Without extraordinary endowment support in the 1970s, Yale's operational troubles would have been magnified, perhaps causing long-term damage to the institution.

Not only does historical experience suggest that Yale employed endowment assets to insulate academic programs from economic stress, but the very nature of the university's spending policy places budgetary stability in a prominent place. Each year Yale spends 80 percent of last year's spending adjusted for inflation *plus* 20 percent of the targeted long-term spending rate applied to the previous year's Endowment market value adjusted for inflation. By emphasizing budgetary stability, the university expresses a strong preference for using the endowment to reduce the impact of financial shocks.

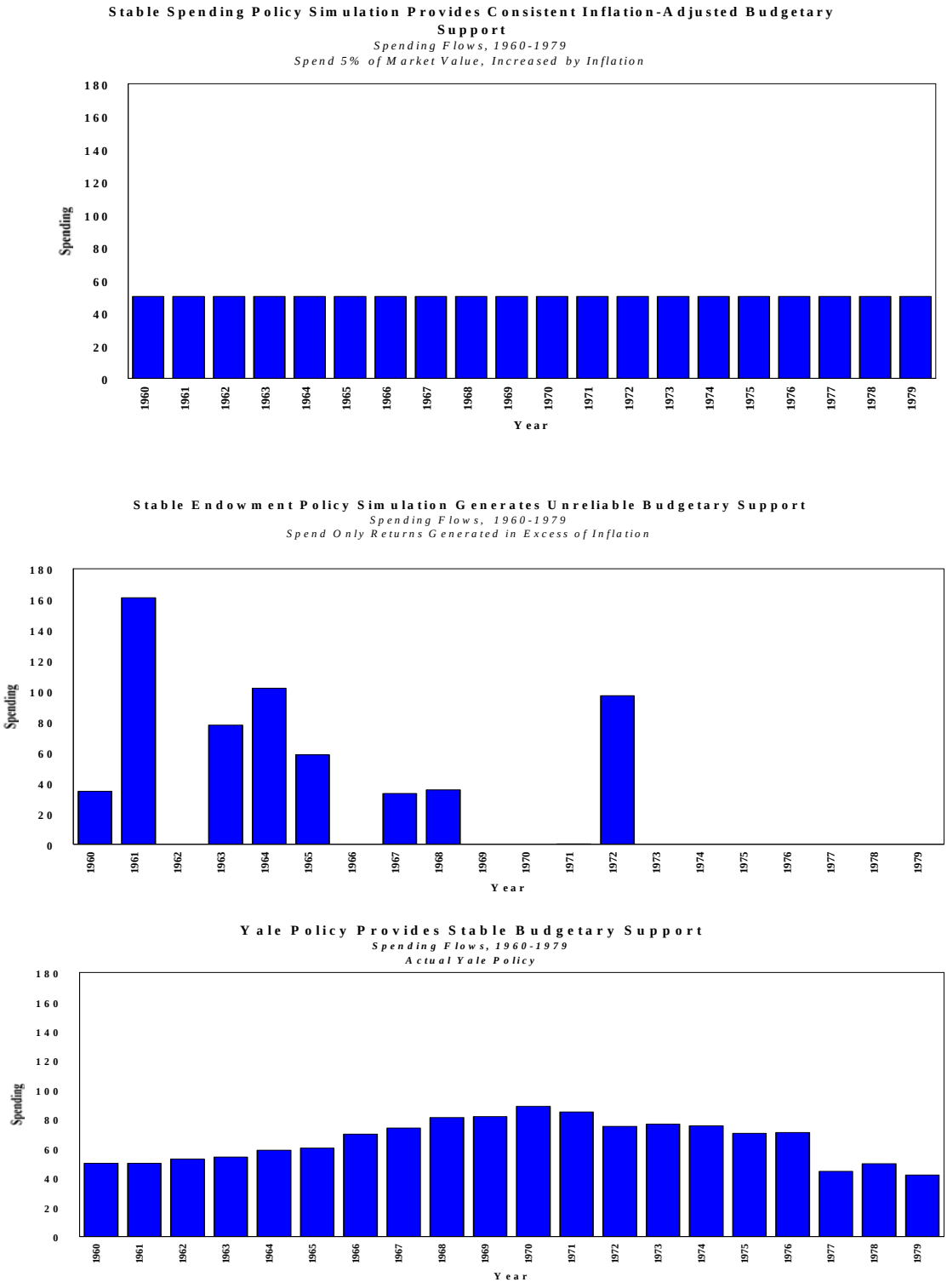
Spending Policy Extremes

Examining Yale's spending decisions in the context of policy extremes favoring, on the one hand, spending stability and, on the other hand, endowment preservation, highlights the university's substantial bias toward providing reliable support for operations. If universities treat academic operations as a sideshow to endowment accumulation, spending distributions would correspond to levels consistent with maintenance of asset purchasing power. In the extreme case, institutions would distribute only returns in excess of inflation, placing preservation of investment assets above even a modicum of stability in supporting academic programs. At the other end of the spectrum, if universities focus exclusively on consistent payouts from endowment, spending would rise with inflation, tracing a pattern independent of fluctuations in the market value of endowment assets.

Figure 3.4A illustrates the spending patterns resulting from two extreme spending policies using market returns from the 1960s and 1970s. The first panel shows the constant flows from maintaining inflation-adjusted spending, while the second depicts the volatile flows from maintaining inflation-adjusted endowment values. Note that an exclusive focus on endowment purchasing power stability fails to allow any distribution to support operations in more than one-half of the simulated periods.

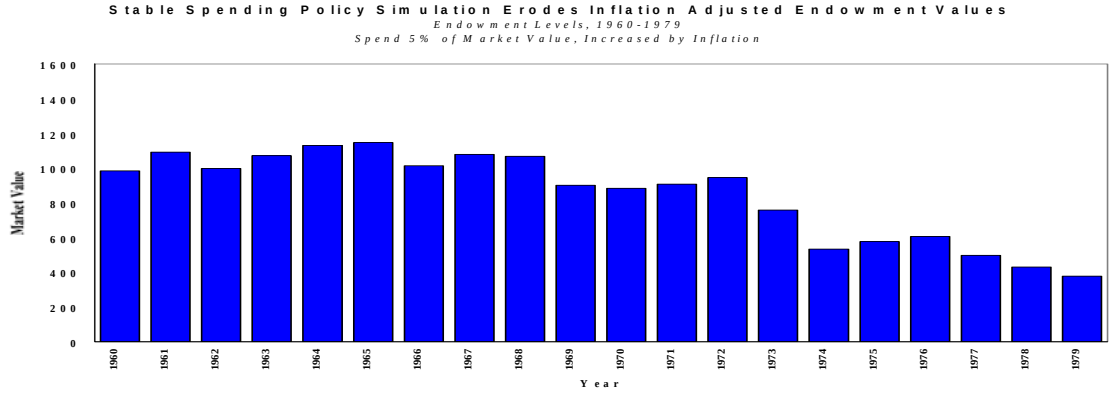
Figure 3.4B shows the impact of the extreme spending policies on endowment levels. Pursuing stable spending flows, as illustrated in the first panel, produces enormous volatility in real endowment values. In contrast, preserving endowment purchasing power promotes stability in asset values, as depicted by the relatively smooth pattern in the second panel.

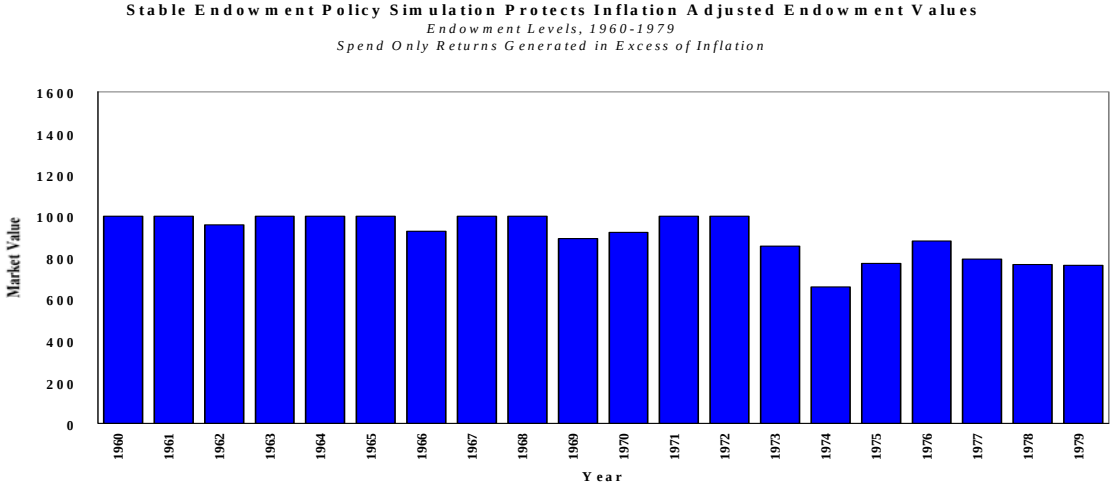
Figure 3.4A: Spending Flow Comparison Illustrates Impact of Extreme Policies

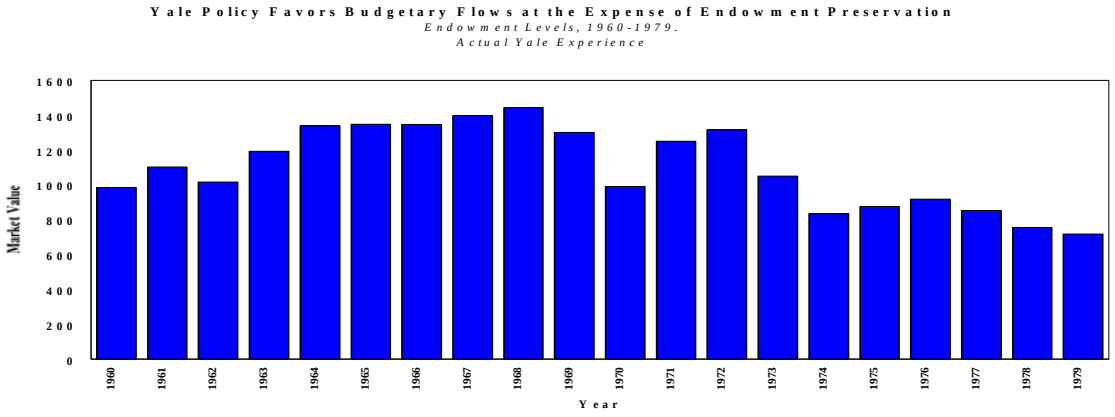


Note: Data are adjusted for inflation. Hypothetical portfolio has a starting value of $1000 and is readjusted to an asset allocation of 60 percent stocks and 40 percent bonds yearly. Actual Yale experience includes impact of new gifts while simulations do not.

Figure 3.4B: Endowment Level Comparison Illustrates Impact of Extreme Policies







Notes: Data are adjusted for inflation. Hypothetical portfolio has a starting value of $1000 and is readjusted to an asset allocation of 60 percent stocks and 40 percent bonds yearly.

Policies designed to provide a constant level of inflation-adjusted support for operations, illustrated in the top panels of Figures 3.4A and 3.4B, depend on benign financial markets to operate successfully. Consider the dramatically different results from simulations conducted using financial data from the 1960s and the 1970s.

The 1960s provided substantial rewards to investors. Stocks returned 7.8 percent per annum and bonds 3.5 percent in an environment where inflation grew by only 2.5 percent. Investors pursuing stable spending policies did little damage to endowments, causing a purchasing power decline of only around 10 percent.

In contrast, economic and financial conditions in the 1970s posed grave threats to endowed institutions, as high inflation and poor marketable securities returns exacted a terrible toll. Inflation, consuming 7.4 percent annually, exceeded returns on domestic stocks at 5.9 percent per annum, bonds at 7.0 percent, and cash at 6.3 percent. Investors found no place to hide. Simulations show that in 1970, if a traditional portfolio followed a stable spending policy, more than 60 percent of the purchasing power of a fund evaporated by the end of the decade.

Policies focused solely on endowment preservation, shown in the middle panels of Figures 3.4A and 3.4B, failed to release any distribution to the operating budget in 12 of 20 years between 1960 and 1979, highlighting the impracticality of a single-minded focus on asset protection. Even in the hospitable environment of the 1960s, investment results provided no support for current operations in three of ten years. So hostile were the 1970s that even with only one meaningful distribution to the budget, stable endowment policies failed to preserve assets, as purchasing power declined by nearly 24 percent.

Yale's policies, as reflected in spending flows and endowment levels depicted in the bottom panel of the figure, track the stable spending policy much more closely than the stable endowment policy. Similar to other endowed institutions, in the 1970s Yale experienced an extraordinary decline in endowment purchasing power as the institution sought to supply flows of funds to support the university's academic mission. By spending at unsustainably high rates, purchasing power of assets declined dramatically, dropping more than 40 percent during the 1970s. Yale's actions belie Hansmann's suggestion that endowment preservation dominates institutional thinking.

CONCLUSION

Investment and spending policies support the purposes for which educational institutions accumulate endowments, providing the framework for producing enhanced stability, increased independence and greater excellence. By achieving the long-term goal of purchasing power preservation and the intermediate-term goal of substantial, stable budgetary support, colleges and universities meet economist James Tobin's requirement that an endowment "continue to support the set of activities that it is now supporting."[xi]

Fiduciaries face a challenge in balancing the conflicting goals of preserving assets and supporting current operations. Spending policies resolve the tension by specifying the relative importance of sensitivity to current endowment market values (contributing to asset preservation) and sensitivity to past spending levels (contributing to stable budgetary support). The target spending rate plays an important role in determining a fund's ability to meet the objective of intergenerational equity, with too-high rates favoring current scholars and too-low rates favoring tomorrow's.

Donors to endowment expect to provide permanent support to a designated activity, requiring endowment managers to maintain each specific fund's ability to purchase the associated goods and services throughout time. Rates of inflation faced by educational institutions exceed general price-level increases since human-resource-dependent academic enterprises generally fail to achieve productivity gains, increasing the difficulties inherent in maintaining endowment purchasing power. New gifts fail to relieve the pressure to maintain asset values, as contributions to endowment expand the set of activities funded by an institution's permanent funds and enlarge the size of the portfolio to be preserved.

The process of articulating purposes and defining goals benefits fund managers of all stripes, leading to substantially different conclusions for different investors. In the case of institutions as similar as endowments and foundations, differences in institutional character cause purposes to vary. Variations in operating environments lead to expression of different investment goals that accommodate the particular institution's specific opportunities and constraints.

By providing the ultimate test against which to measure the desirability of various investment and spending policies, investment goals serve as an essential foundation for the funds management process. Investment objectives influence the philosophical tenets that underlie the creation of investment portfolios, generating important guidance for fund managers. Investors

evaluate combinations of portfolio asset allocations and spending policies in terms of ability to meet institutional goals, placing articulation of portfolio objectives at the heart of the investment process.

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[i] James Tobin, "What is Permanent Endowment Income?" *American Economic Review 64*, no. 2 (1974): 427-432.
[ii] Harvard University, *Managing Harvard's Endowment.* (Harvard University, 1990).
[iii] Even though Harvard's 1974 spending policy rationale contains flaws, in practice the University spends at prudent levels, producing payouts similar to those of comparable institutions.
[iv] Yale University, *Report of the Treasurer, 1965-66,* ser. 62, no. 19 (New Haven: 1966), 6-7.
[v] National Association of College and University Business Officers (NACUBO). Data are from various *Endowment Studies*. Prepared by Cambridge Associates, Inc.
[vi] In the 2006 NACUBO survey, 335 institutions reported using target spending rates.
[vii] See page ___ for analysis of Carnegie Foundation Research Universities.
[viii] Karen W. Arenson, "Q&A. Modest Proposal. An Economists Asks, Does Harvard Really Need $15 Billion?" *New York Times.* 2 August 1998.
[ix] Henry Hansmann. "Why Do Universities Have Endowments?" *PONPO Working Paper* No. 109, Program on Non-Profit Organizations, Institution for Social and Policy Studies, Yale University. January 1986, 21.

[x] Ibid., p.23.
[xi] Tobin, "Endowment Income," 427.