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## *The Crisis in Endowment Spending*

*April 2003*

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### OVERVIEW

The full dimension of the damage done (and being done) to institutional endowments in the on-going deflation in financial markets—the worst in 70 years—is only now coming into clear view. It's no surprise that losses are widespread, but their depth gives pause.

An average endowment—that is, one of median size and with average investment and spending policies—has declined 25% in the past three years. This is more than a cut, it's a wound, and one likely to be decades in mending. The effects, as with a physical lesion of such dimension, will be long remembered, and in some remnant forever visible.

Consider: From 1991 to 2000—"the good old days"—educational endowments appreciated by the remarkable *compounded average* rate of 15% a year. In the aggregate, endowment assets swelled during the decade by 295%, to \$241 billion—nearly four times their size in 1990 (figures from the National Association of College and University Business Officers, or "NACUBO" fiscal 2000 annual report).

*Rich get richer*

The lion's share of returns went to large endowments (greater than \$1 billion), simply by the law of large numbers. However, bigger bucks also translated into bigger *percentage* returns, because richer schools had the wherewithal to investment in highly lucrative—but also risky, cash-intensive and often illiquid—"non-traditional" assets (hedge funds, private equity, venture capital, timberland, etc.). The big funds' advantage was pronounced throughout the 1990's, and came to a crescendo in fiscal 2000—the sear mark of the decade in several respects—when the performance difference reached nearly 20%<sup>1</sup>.

*But the poor manage*

But the smaller funds, though constrained by prudence, timidity or a simple want of capital from venturing far into unfamiliar strategies, did very nicely all the same. Plain old stocks and bonds were galloping in the 1990's, so no one needed to feel deprived. Average earnings easily exceeded spending rates in each NACUBO size category, meaning every institution with a properly tuned investment policy had the luxury of tapping into a virtually self-replenishing endowment fund.

The bubble ruptured three years ago, coinciding for most schools with the end of the third quarter of fiscal 2000. By that quirk of the calendar, the big change did not show up in NACUBO data for 21 months, when results from fiscal 2001 were released. By then the losses had begun piling up

quite visibly, and painfully: a -3.6% average return in fiscal 2001 (a drop of 14.5 percentage points from the previous year), followed by -6% in 2002<sup>2</sup>. Hammond Associates estimates the median endowment return was -5%, for the first half of fiscal 2003 (ending 12/31/02), with another down quarter having just ended.

With such results from investments, institutions consuming endowment assets at the average rate (5%) had, by the end of last year, seen their funds depleted by 25%, as cited above. So a typically managed endowment worth \$100 million at the end of fiscal 2000 weighed in at \$75 million on 12/31/02, and is likely somewhat under that now (ignoring contributions). This is in line with NACUBO data, which show the median endowment value falling from \$101 million to \$80 million in fiscal 2002 alone.

Altogether, and unsurprisingly, the bad market environment has punished smaller schools disproportionately. Not only have their investments continued to lag those of larger institutions (by 620 to 670 basis points since fiscal 2000), but also as a group they draw more heavily on endowment money<sup>3</sup>. Lower performance and higher spending sum to a funding penalty—a “poor tax”—on smaller schools of about 7½% a year.

*“Poor tax” on small schools*

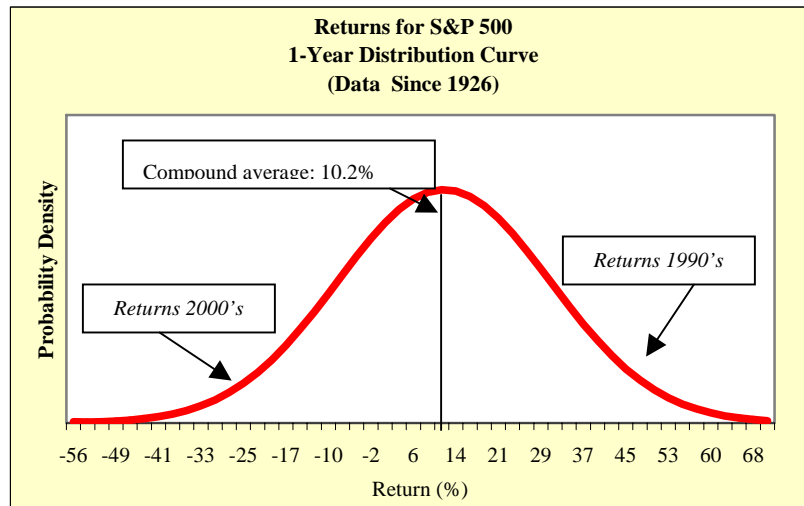
That is a number that can quickly become onerous in a bear market. Operating budgets being far less downwardly flexible than markets, many small schools no doubt have seen their perennial budget crunch transformed into an outright financial crisis.

Fund raising has picked up some of the slack, but small-category schools nevertheless drew down their investment assets by between 5.6% and 6.3% in 2002, net of additions<sup>4</sup>, NACUBO reported. Likewise, the Commonfund, in a poll of 637 institutions, found 12% of responding schools reporting they had invaded the corpus of their endowments to the extent of rendering their funds “underwater” (below historic dollar value), which raises legal complications about the further use of donated assets (more on this later).

The problem is a fundamental one, well known to anyone who’s ever sharpened an Eberhard No. 2: Arithmetic isn’t fair; it heavily favors them that’s got. When you lose 25% of your capital, you must earn 33.33% to get back to Schneider—not counting the effects of inflation or the time value of the dollars lost. Assuming for the moment that administrators of our fictive \$100 million endowment miraculously managed to suspend spending incursions, they would still face the formidable task of earning a net 10% a year for the next three years to restore the portfolio’s nominal value as of July 1, 2000. To recoup lost spending power, another 2 to 2½% must be tacked on for inflation.

*Dice are loaded*

That’s a return of 12 to 12½ percent in a market environment in which 10-year Treasury bonds are yielding less than 4%, and equities haven’t seen the light of day for three years. Not probable, to be sure, but the situation is worse than improbable. If our imaginary endowment had a gambler’s chance—roughly one in 47,000—of rolling “boxcars” (12) for its annual percentage return three times in a row, it would be better off. The fact is, the dice are loaded, the table is off plumb, and there is a suspect look to the croupier.



But even if the game were fair—that is, if market returns were independent random variables, like numbers on a die—it would not be rational to expect a return to the splendors seen in the late lamented bull market. To see why, examine the charts (below and following pages) of the distributions of historical equity market returns.

For a dozen years now (since Gulf War I), investors have been living in the “tails” of this bell curve, meaning we have been living through low-probability events—first for better, then for worse. Through the first nine years, and especially from 1995-1999, we were in the right tail, the sweet part of the returns distribution. That’s been followed by a sentence of three years (and counting) confined to the left tail, where pickings are slim.

*Reverting to the mean*

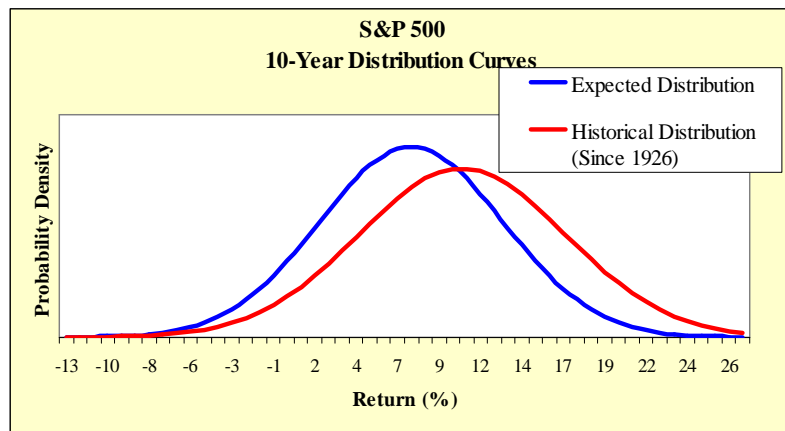
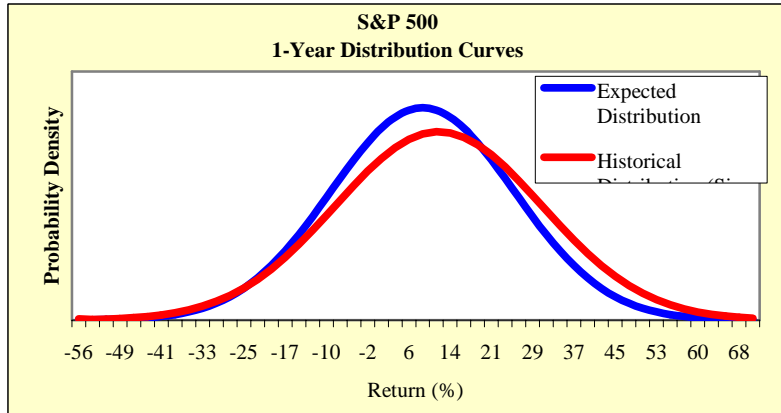
So far, so good: It’s the old story of feast and famine—the lean cows devouring the fat<sup>5</sup>. The rational expectation would be for a reassertion of central tendency (represented by the line in the middle of the chart’s bell curve), meaning returns centered on the 10.2% annual average that large-sized U.S. stocks have compiled since 1926. Decidedly not in the realm of rationality would be an expectation of a reprise of the 15.6% average annual rate at which top-tier university endowments engorged themselves through the 1990’s, or even of the less spectacular but quite robust 12.2% annual gain that smaller endowments enjoyed in those years. That also means the 12½% three-year return needed to rebuild our hypothetical \$75 million endowment is off the map for planning purposes.

*But it has moved*

Unfortunately, the bad news doesn’t stop there. Research at Hammond Associates points insistently toward an emergent return distribution shifted significantly to the downside (see charts). When (*if*) returns “rebound” from the current bear market, they likely will not converge upon their historical mean, but at a level appreciably below that. In short, it appears probable that we have entered a protracted period of dull-to-dismal results from capital markets.

When is an “expected” return not to be expected? When factors are introduced that for a time bias the curve. In this instance, we’re referring to several interactive influences, including a residual “morning after” effect from recent speculative excesses, and the apparently mordant condition of key market-driving trends. For the intermediate term at least (i.e., the next

decade or so), we expect to see significantly dampened performance (see charts). Our estimates call for a returns distribution bumped slightly toward the left (down side) along the horizontal axis, and bunched more toward the center on the vertical axis. This also means less variation in returns (also bad, given the new, lower range).



Although these shifts appear subtle and harmless on our charts, they imply large, unwanted effects when played out in three dimensions. It means, simply, less return from investments—fewer and less enduring rallies, deeper and more persistent slumps.

Why? Simply put, stocks have become too expensive to rise much higher. The risk premium on equities—the bit of extra return investors demand to buy stocks instead of risk-free government debt securities—looks very much like it’s at or near its practical, if not its absolute, lower limit.

*Equity premium bid down*

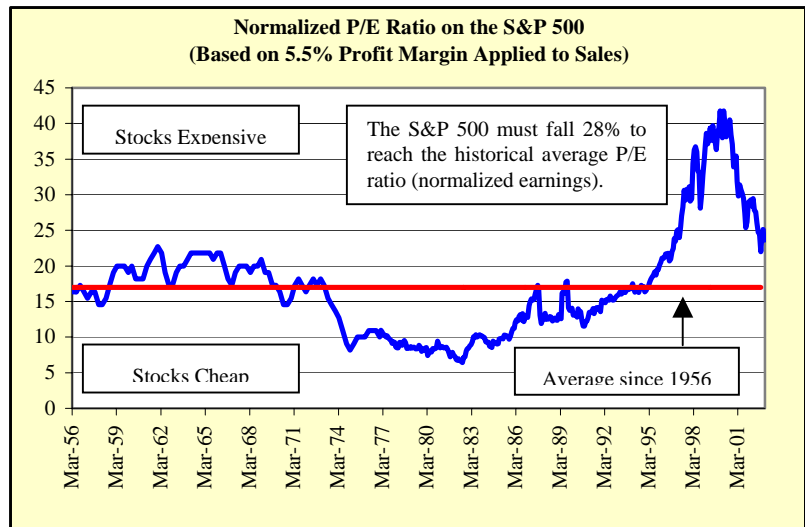
How does the equity risk premium get so beaten down? Investors drive it down by bidding stocks up. For (no doubt) myriad reasons—demographics prominent among them—stocks have risen to a salient position in the general public awareness over the past two decades. Certainly equity holdings have become a pre-eminent part of American savings and retirement plans. In part, this is simple justice: stocks being seen for what they are, an extremely effective way to compound wealth. Acceptance also seems to have come for that other thing stocks are: risky. This new toleration, obviously, can be expressed meaningfully only with dollars—

“stepping up to the plate,” in Wall Street’s unfortunate argot. Each “batter” who uses new money to take a swing at the stock market puts a ding in the equity risk premium.

This is not an ephemeral thing: The trend, though greatly accelerated in the 1990’s, has been in place for several decades. Its overt, measurable, manifestation is an expansion of the price/earnings ratio of stocks. The assumption is that if investors drive the price of stocks up faster than earnings rise, *ipso facto* they are either accepting more risk in stock ownership, or perceiving less. Either way, the equity risk premium theoretically takes the fall. This has been the most dramatic development in capital markets in the past two decades, though a rather dry and abstract topic, easily ignored in the media.

The bare bones are these: In 1982, at a market “trough,” the P/E ratio of the S&P 500 bottomed at 8; in January 2000, at the peak of an epic buying frenzy, the ratio, by one measure, topped 44<sup>6</sup>. The average is about 16 since World War II, and about 11 at a market nadir. Recently, the ratio has hovered just below 30<sup>7</sup>—about twice the historic average and three times its normal level at the terminus of a slide. Conclusion: If a recovery in stocks is imminent, it will not be driven by an increase in aggregate P/E. The ratio is out of room to expand, though it has ample room to contract (see below).

*P/E expansion defunct*



The P/E multiple is now, if anything, a brake on financial markets, its two-decade expansion a spent phenomenon. The question is how much of the “mountain” on the chart above is snowcap, and how much solid rock. Presumably some portion of this financial Mont Blanc represents a genuine shift in market psychology, likely associated with the (belated) maturation of the Baby Boom generation. Boomers have wrought enduring change at every stage of the life cycle since toddling forth into the consumer economy 50 years ago. Hard rock music, running shoes, rehab centers and personal computers are established industries, as well as embedded features of our culture<sup>8</sup>. We must hold open the possibility that the same will apply to investment—and speculation—in stocks.

The optimistic view now calls for the aggregate price/earnings relationship to drop gradually to its “real” level—ideally to be pulled down by improvement in the earnings denominator rather than driven down by

deteriorating prices. The equity risk premium would then rise modestly or hold constant.

Of course, if earnings do not improve, this scenario is moot. In any event, it appears that market valuation henceforth will be integrally tied to hard economic events (see chart below).

<i>Expected Annualized Total Return on S&amp;P 500 Over Next 10 Years<sup>1</sup></i>						
<i>Annualized GDP Growth</i>	<i>Normalized P/E Ratio at Year 10</i>					
	<i>10x</i>	<i>15x</i>	<i>20x</i>	<i>25x</i>	<i>30x</i>	<i>40x</i>
2.0%	-1.1%	2.6%	5.2%	7.4%	9.2%	12.1%
2.5%	-0.6%	3.1%	5.8%	7.9%	9.7%	12.6%
3.0%	-0.1%	3.6%	6.3%	8.4%	10.2%	13.2%
3.5%	0.4%	4.1%	6.8%	9.0%	10.8%	13.7%
4.0%	0.9%	4.6%	7.3%	9.5%	11.3%	14.3%

<sup>1</sup>GDP growth stated in real terms, while S&P 500 expected return stated in nominal terms.

The matrix shows large-cap U.S. stocks returning an expected 3.6% in an average economy (3.3%<sup>9</sup> real growth), and with the S&P 500 at its post-WWII average price multiple (16). A rosier P/E assumption of 20 brings the return to a more palatable 6.3%, again with average economic growth. But, edge-to-edge, the chart shows hard events are hard news.

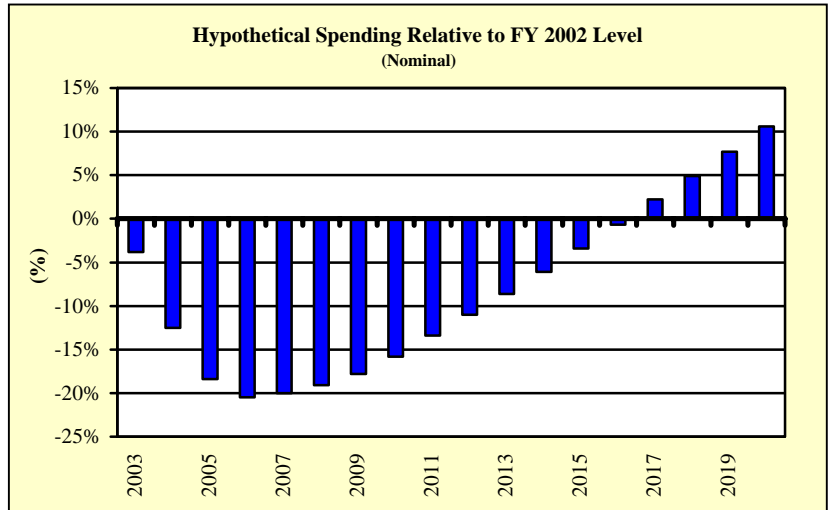
In the case of the second great price-driver in financial markets—declining interest rates—the math is even more compelling, for here there is an absolute limit of zero. In 1981, rates on Treasury Bills reached 14.7%. Today, T-Bills pay less than a tenth of that, and less than the inflation rate. That is, the real rate of return on short-term treasury securities is negative—it *costs* money to own them. Unless the Federal Reserve starts charging explicit rent to bond holders, there’s virtually no place for rates to fall.

*Rates bumping bottom*

Rates on short-term Treasury obligations are a key ingredient in all valuation formulae for financial instruments, and are keenly watched by markets. When there is a drop—especially if it signals a switch in policy by the Federal Reserve—paper assets (commodity futures excepted) rise in value—bonds by definition, but stocks also, and usually more so. Right now, rates seem to be telling us things are priced about right. If you buy a Treasury bill collectable for \$10,000 in three months, you pay \$9,971 and change. If you’ve got a \$100 million to invest this way, you can make about as much in a year as a utility infielder for the Kansas City Royals. That’s about as flat as the time value of money gets.

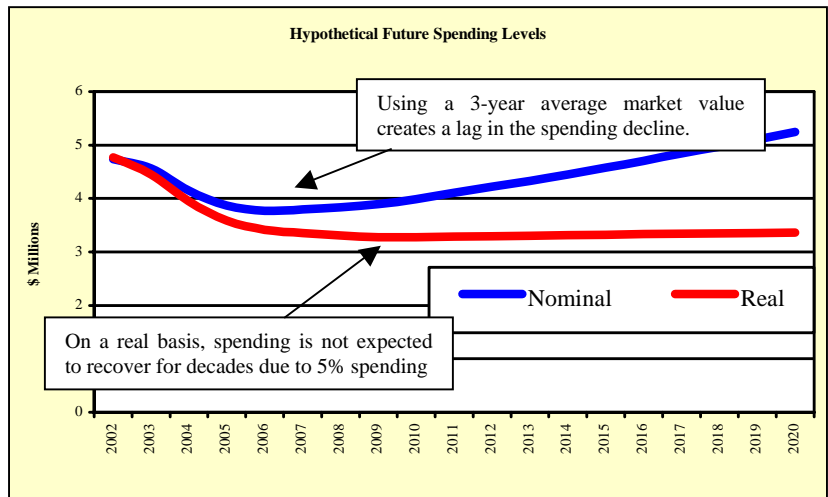
*Pressure on endowment spending*

For our hypothetical endowment portfolio, this is all bad news. Just how bad is best seen in a Monte Carlo simulation, a computerized enactment of thousands of possible return scenarios, the results of which produce a probability distribution. Our simulation assumes (realistically) that endowment spending will not be suspended, but rather continue at the current pace (5% of a 12-quarter trailing average valuation). Earning average returns (based on new, lower estimates), the sample endowment generates less and less spending money for several more years. The decline finally bottoms out in 2006, at \$3.8 million—less than 80% of the spending rate in fiscal 2000 (see chart, next page).



Still worse: Spending, though slowly rising after 2006, remains below the 2002 level *for another decade*. Nominal 2002 spending is not restored until 2017. By then, inflation, even at a fairly modest 2% annual rate, will have devoured more than a quarter of the fund’s true original value—about \$1.3million in 2002 dollars.

The chance of our ersatz endowment regaining its 2002 valuation in real terms—that is, net of inflation—is virtually nil. As the chart below shows, the timeline for a real-term recovery extends off the plane of the graph. The assumed 5% spending rate, when coupled with a projected 2% inflation drain, absorbs virtually all of the expected nominal investment power. The endowment will do well just to retain its current spending power.



Finally, the worst case: The simulation shows a 25% chance of sub-par market results stretching even the nominal recovery period to three decades.

So what to do?

- **Fund raising.** One obvious tack is to get more silken-voiced undergraduates on the phone, calling moneyed alumni to suggest a modest boost (say, inflation + 10%) to their annual donations. However, most, if not all, schools are already doing all of this they can. “Development,” as solicitation by not-for-profits now is

called, has itself developed into a bona fide industry, and most universities have a full-time professional staff. Few unturned stones remain. And a great number of Boomer alumni have had their own troubles in the financial markets, and are not inclined just now to open their checkbooks. Nor, unfortunately, are they in a position to capture the generous tax advantages accorded to donations of highly appreciated stock. Fund-raising obviously is *de rigueur* as an on-going enterprise, but unlikely to give a quick bump to the endowment's growth curve.

*Wall Street lays an egg (again)*

- **Stay the course.** Abandonment of the equities markets is not recommended. The equity risk premium might have contracted, but it's still a *premium*—meaning returns are better (in “the long run”) than available elsewhere. The historical (“realized”) risk premium—that calculated in retrospect from actual stock and bond returns—has been setting what we must hope are definitive lows: –32% vs. bonds in 2002, and in under –20% the prior two years<sup>10</sup>. Astonishingly, the retrospective equity risk premium vs. bonds *is now negative from 1990*<sup>11</sup>—as if the Internet had never been invented, as if “Cisco” were the name of a TV western hero. A monumental bender has left equity markets staggeringly hung over.

This is but the second time the realized equity risk premium has been in negative double-digits for three years running, the first being 1929-31 (it missed a fourth straight year only narrowly, finishing 1932 at –9%)<sup>12</sup>. Only twice before has a negative premium spanned a calendar decade: during the 1930's and 1970's<sup>13</sup>, both of which were eras wracked by economic distress. The 1990's, though bracketed by recessions, are memorable not for misery, but for giddy prosperity (including even balanced federal budgets), and for a rampage in financial markets that brought a rollicking finale to the decade, the century and the millennium. That such a period be succeeded by an inversion in market returns is surely an extraordinary anomaly—and a condition that cannot persist by any conceivable scenario. If reason holds, stocks will rise from their crypt, and thereby cause the forward risk premium—the one stock buyers implicitly insist upon—to swing back to true north ( $\pm$  a few degrees for declension)<sup>14</sup>.

Or perhaps not. Markets ultimately do just as they please, reason be damned. We pronounce the past to be prologue, and derive from it elaborate rules of econometric and financial forecasting, but all in retrospect. Predictive rules are no better than approximations, untrustworthy in direct degree to their claims of power and scope. But they are all we have to steer by. So optimists are right to declare themselves triumphant, and also right to keep their fingers crossed<sup>15</sup>.

At the moment, the most reasonable (i.e., speculative) view might be that markets are sounding for a bottom, and we, with cause, have averted our eyes. The trough, or trench, coming into view is not a pretty place<sup>16</sup>. But this is how value is built in a market economy. We might be getting the best look we ever will have—and a better one than we ever wanted—at Joseph Schumpeter's

“process of creative destruction.”<sup>17</sup> But, even if there is more unpleasantness in the offing, more pain to be meted out, Jeremy Siegel in the end will have his due: For the long run, *stocks are the thing*<sup>18</sup>. Ultimately, equities are indispensable. To build real wealth in America, one must own something (celebrities, CEO’s and second basemen excepted), and global stocks of every ilk—large, small, value, growth, emerging, the list extends indefinitely—are the primary means of diversifying the risk of ownership, short of a 10-digit portfolio. Meanwhile, we are enduring a galling re-education in the meaning of that hackneyed phrase, long run. Point one for our student notebooks: It does not mean ten years.

- **No overweight in bonds.** Certainly a flight to bonds is unwise. Fixed income has just concluded a remarkable run-up in price, and can hardly be expected to return more going forward than face value, which across the board is well below the rate for spending endowment dollars at most schools. Without a doubt, anyone investing in bonds with the expectation of a continued 32% premium over stocks is supremely ill advised. A technical analyst would say bonds are decidedly over-bought and due for a tumble. We fundamental analysts are content to observe that an interest rate of zero can’t be cut.
- **Diversify.** Do not forsake equities, but do diversify. Small-company stocks, international stocks and emerging market stocks are staples of a well-managed institutional investment portfolio. Additionally, the topic of diversification leads us irresistibly to a fuller discussion of “unfamiliar strategies” (below).
- **Alternative investments.** “Non-traditional” investment vehicles—embracing methodologies not confined to, or even focused on, holding stocks, bonds, bills and mutual funds—have reached a stage of development to be considered candidates for any well-diversified institutional portfolio. No longer mere exotica, alternatives have evolved into sturdy, all weather, strategies suited to our opaque and sometimes turbulent 21<sup>st</sup> Century markets. NACUBO data show that large endowments have out-performed their smaller kin by from 3% to 5% (compounded) over the past five fiscal years, due principally to a much heavier commitment<sup>19</sup> to investment vehicles such as real estate, venture capital, private equity, natural resources, and (especially) hedge funds. That is, the big schools have put much more into “alternatives” and taken much more out of them. Stocks might be necessary for all to own, but they are not necessarily all there is to own.

Our simulations show that the model endowment portfolio we’ve used benefits mightily from an infusion of alternatives (Chart B in the appendix). An allocation of 45% traditional global equity, 45% alternatives and 10% U.S. fixed income restores the portfolio to its nominal \$100 million level by 2011—six years before the simulated NACUBO “median” portfolio attains that mark<sup>20</sup>. We call this amalgam of stocks, bonds *and alternatives* our “New Millennium Portfolio.”

This, of course, is not a “new new” thing. Everyone in the endowment management business knows that Yale University, the poster boy for alternative-laden portfolios, has socked the market year after year with its astutely managed array of non-traditional assets. However, certain caveats apply. First of all, Yale’s astute management is highly proprietary. Near substitutes can be had, but for a price. The well advised will find a price that is reasonable, and pay it. Secondly, keep in mind that Yale *actually has* the aforementioned 10-digit portfolio<sup>21</sup>, and hence is on a different plane of risk than most mortals. Thirdly, proceed with circumspection, for this playing field has become soggy with money, and treacherous to the step. Investment in alternatives is recommended, but those just now coming to the table are counseled to approach these assets initially as a tool for managing risk, rather than tweaking return.

- **Cost-cutting.** Cost control, always advisable, now is mandatory—the only investment with a 100% rate of return. This is more easily said than done in the education business, but what can be done must be done, with all deliberate speed.

The last and trickiest point to consider is the calculation of spending formulae. It’s fair to assume that every board of endowment administrators, acting in good faith, has adopted a spending rule designed to preserve the core capital of the fund. That is, the spending rate is set below the expected long-term real appreciation rate of the fund’s investment portfolio. In the great majority of cases, the rate is further modified by a smoothing formula designed to compensate for market fluctuations with minimal disruption to spending patterns. For our model in this paper, we’ve assumed spending would be based on a three-year moving average of the portfolio value (the method used by about 80% of institutions<sup>22</sup>). This sort of thing works very well, so long as market fluctuations are “reasonable.” Restricting increases to a “corridor,” (see Chart A, appendix) greatly reduces the volatility of outlays, and quells the effects of most “bear” markets, as commonly understood—for example the steep market slide in the last four months of 1987, or the Wall Street swoon during the Iraqi occupation of Kuwait in 1990.

#### *Real bears hard to smooth*

The problem right now is that these particular market “bears” were more Teddy than terrible. The S&P 500 actually finished *up* in 1987 (don’t mention that to anyone who entered the market in mid-summer), and in 1990, it fell a modest 8 percent. When real bears rage, as they now have three times in the past century, they do seismic damage—86% cut from equity values in the Great Depression, 1929-32<sup>23</sup>, 37% lost during the OPEC/Vietnam/Watergate/stagflation quagmire of 1973-74, and 49% pared away during the current, as-yet-unnamed debacle (March ’00 to October ’02, and counting). If Goldilocks had met these three bears, we never would have heard the story about the porridge. No smoothing formula can cope with such markets. An endowment can sustain catastrophic damage between meetings of the investment committee, never mind the board as a whole. It’s hard to ration money that’s gone.

The irony of spending formulas, as with other planning devices, is that those that work best in ordinary circumstances often are worst for extreme conditions, and vice versa. For example, a fairly mindless policy of taking a fixed percentage of each year’s endowment valuation normally behaves as

a feather in the wind, providing an embarrassment of riches one year, and a funding drought the next. But it is just the ticket in a prolonged downturn, for it cuts spending in lock step with the implosion of endowment value.

By contrast, Yale University’s spending formula—certainly among the more elegant in use—combines a 70% weight for the prior year’s spending (adjusted for inflation, naturally) with a 30% weight for a percentage of the current endowment value. The two work well in a benign market environment, modulating spending and preserving portfolio value. But, when conditions turn genuinely noxious, the spending weight in the formula dominates the current-value weight, taking big bites from the endowment. It is not recommended as a model for funds under nine figures (chart, below).

**Spending Formulae**

OBJECTIVE	Best	—————▶			Worst	Comments
Maximize Short-Term Spending (Normal environment)	Simple	Yale	Rolling	Corridor		Simple has the highest effective spending rate in normal environments.
Minimize Spending Volatility (Normal environment)	Corridor	Yale	Rolling	Simple		Corridor spending rises 2.5% most years.
Preserve/Increase Endowment (Normal environment)	Corridor	Rolling	Yale	Simple		Corridor has the lowest effective spending rate in normal environments.
Minimize Spending Decline (Bad Environment)	Yale	Corridor	Rolling	Simple		Yale has most effective smoothing method for extreme market returns.
Preserve Endowment Value (Bad Environment)	Simple	Rolling	Corridor	Yale		Yale's effective spending rate is the highest after a significant market drop.

Besides wrecking spending formulae, the magnitude of the current downturn presents two special complications. The first we’ve talked about in sufficient detail: the protracted recovery period a true bear market requires (one more factoid: The Dow Jones Industrial Average closed at exactly 300 in 1928, its highest year-end close until 1954).

The second wrinkle, alluded to earlier, is peculiar to endowment funds: restrictions from the Uniform Management of Institutional Funds Acts (UMIFA).

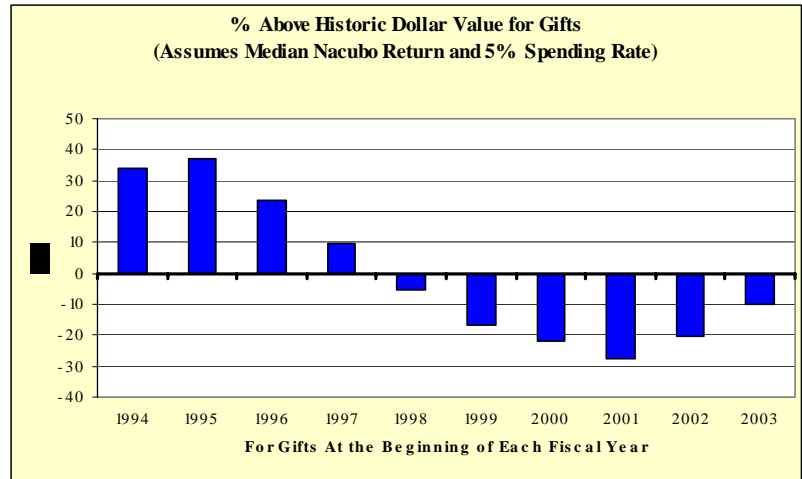
The UMIFA—a model intended to rationalize the investment of endowment portfolios—was enacted into law about 30 years ago by 47<sup>24</sup> states and the District of Columbia. Its principal innovation was the concept of “historic dollar value,” which was meant to liberate governing boards from the restriction of spending only the “income” (interest and dividends) from their portfolios. The income-only spending restriction for obvious reasons was causing serious and destructive distortions in investment practices, costing institutions millions that, had it persisted, now would count in the billions of dollars in forgone capital appreciation. UMIFA permitted boards to spend capital gains as well as dividend income and interest, so long as they preserved the original principal—the “historic dollar value”—of contributed capital. Furthermore, boards could decide for themselves (assuming good faith, of course) what constituted historic dollar value.<sup>25</sup>

*UMIFA misfiring*

This must have worked splendidly as states adopted the model legislation just as equity markets began their long recovery from the dark days of 1974. As stocks rose and endowments appreciated, “historic dollar value” was just that—history. We’re seeing the opposite case now. Today, money contributed endowments in the latter years of the 1990’s almost certainly is below its historic dollar value in all but the most successfully managed

portfolios. In fact, our work shows that, in an endowment earning average returns, all donations since 1998 are below historic dollar value, some by nearly 30 percent (see chart, below). Theoretically, these donations, unless specifically marked “unrestricted,” can’t be touched until they recover their original nominal value—possibly decades hence.

Boards retain wide discretion in determining historic dollar value, and cases no doubt vary from school to school (and UMIFA itself varies, state to state), but this is a genuine problem, and one not foreseen by the law, and indeed not seen since the law was adopted.



The answer?

Cost cutting, enhanced fund-raising, and diversification into alternative assets can be mixed and matched as all or part of an effective solution. But let us acknowledge the presence of the elephant in the corner: The only way truly to attack this problem is to cut spending rates to reflect lower expectations in investment returns. Taking our model portfolio as the example, the “recovery line” on our charts perks up immediately when the assumed spending rate is reduced, greatly shrinking the time necessary to restore the fund (nominally) to its 2002 level, and even suggesting the possibility of rebuilding lost spending power. Of course, the bigger the cut and the sooner it’s made, the better.

Furthermore, it is clear, in the even light of retrospect, that it is in such times as these that restrictive spending policies pay off most handsomely (that is, they’re best when most difficult to implement). For example, those institutions able to tighten their belts in the recession year of 1974, scrimping by on a spending rate of 3%, now enjoy 4x the endowment (all other factors held constant) of those who spent at a more grasshopperly 7% a year (see Chart C in appendix). The 3% spenders are also better off, by a factor of 2, than those that spent from their endowments at the national median rate of 5 percent.

The chart also illustrates once again that the laws of finance bless the child who has his own (and saves it): Those spending at 3% amass 4x the wealth of the 7% spenders, yet consume not much less than half (43%) as much. Similarly, the 3 percent spenders consume 60% as much as the 5-percenters, but pile up twice their wealth. Compound interest smiles upon the frugal: You save a little more (for long enough), and you get a lot more. Once the number of dollars reaches a critical size, that big number begets

bigger numbers, and an astonishing sum mounts up. An aphorism apocryphally attributed to Albert Einstein has the great physicist answering “compound interest” when asked to name the most powerful force in the universe<sup>26</sup>.

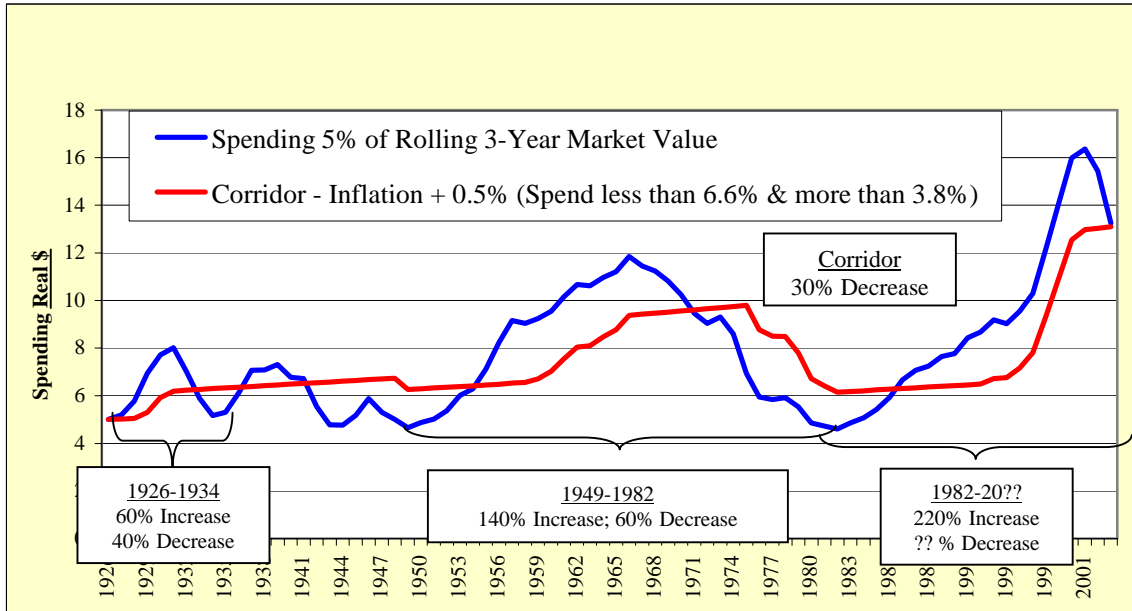
But all of this is well known to the happy few who imposed a restrictive spending rule—if not 3%, then some similarly abstemious regime—three decades ago or so, and stuck to it. If you didn’t, consider it now. The clock has rolled round again; the time is propitious.

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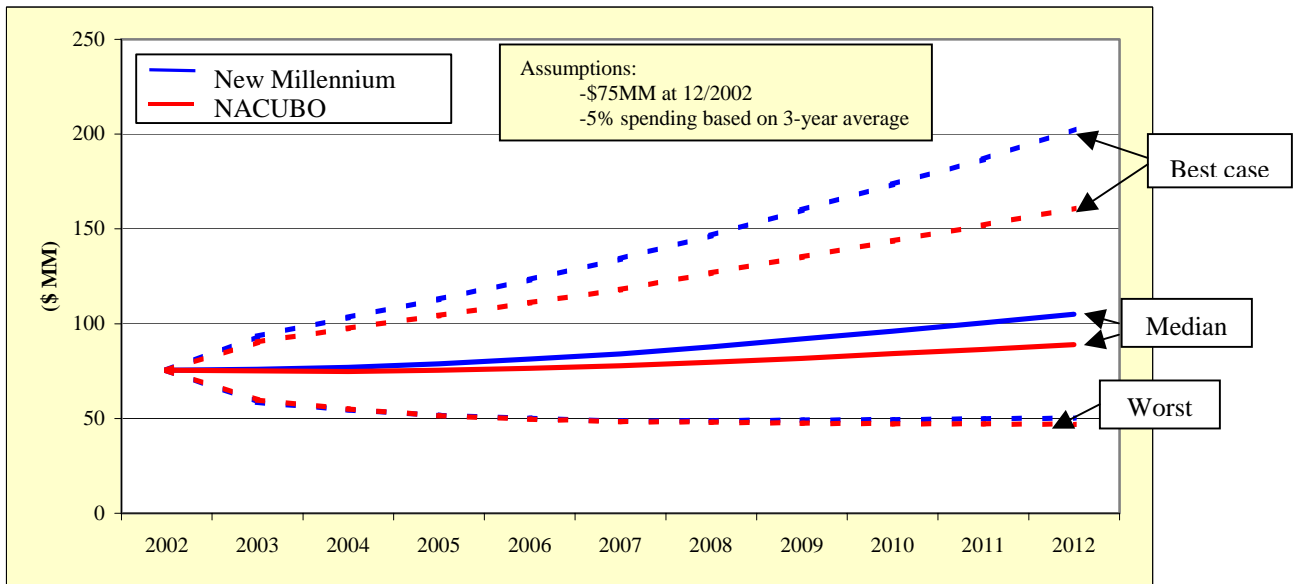
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Appendix

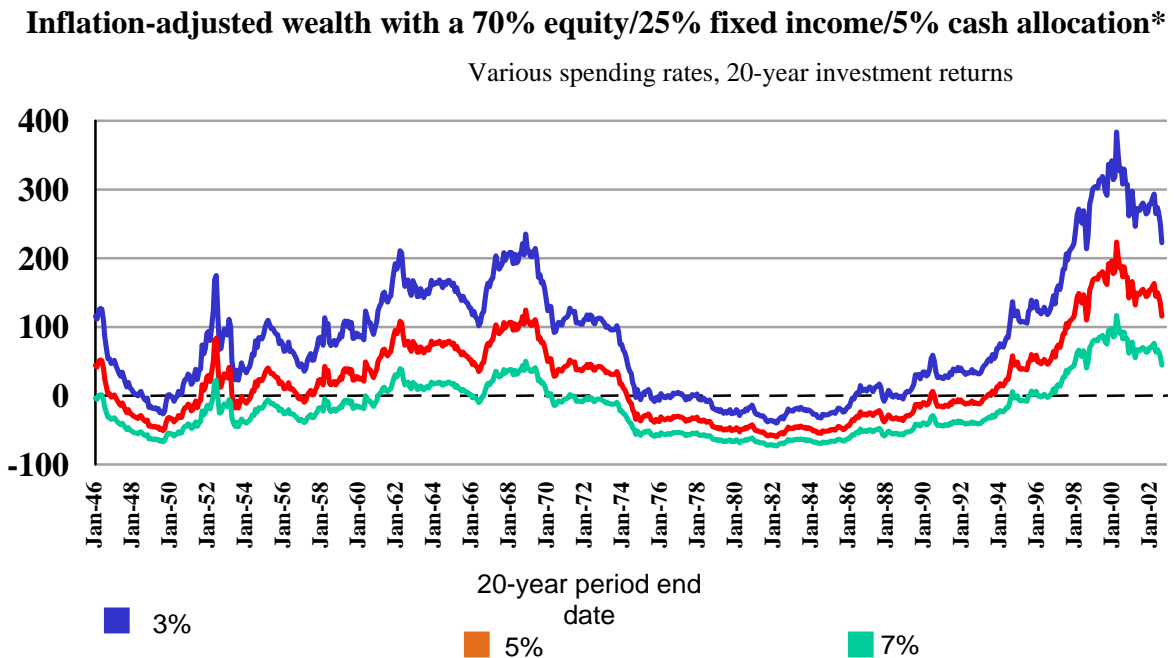
**Chart A:** Volatility of real spending with “Corridor” Rule (75% Equity/25% Bonds allocation); 1926-2002



**Chart B:** Performance of New Millennium Portfolio (various scenarios)



**Chart C:** Wealth accumulation with 3%, 5% and 7% spending rules; 1946-2002



\* U.S. large cap equities represented by S&P Composite Index. Government bonds represented by Ibbotson Intermediate Government Bond Index. Cash represented by 30-day U.S. Treasury bills. Market indices cannot be invested in directly. Past performance is not indicative of future results.

Source: Ibbotson Associates, JPMorgan Private Bank

**NOTES:**

<sup>1</sup> Funds larger than \$1 billion returned 29.2%; funds of \$100 million or less returned 9.7%; NACUBO 2000 *Endowment Study*, Page 8.

<sup>2</sup> To the credit of endowment fund managers, performance numbers uniformly are better than the S&P 500. The merits of diversification are visible, across all size categories.

<sup>3</sup> By differences ranging from 20 to 300 basis points, varying from year to year and inversely with endowment size. NACUBO 2002 *Endowment Study*, Page 64.

<sup>4</sup> For schools with endowments over \$1 billion, the net withdrawal rate was 2.8%, NACUBO 2002 report, Pgs. 49 and 51.

<sup>5</sup> *Book of Genesis*, Chapter 41:18-20.

<sup>6</sup> *Irrational Exuberance*, Robert J. Shiller, Princeton University Press, 2000, Page 8. The P/E ratio is calculated with a 10-year moving average of earnings.

<sup>7</sup> Based on 12-month aggregate earnings.

<sup>8</sup> Rates of return on Baby Boomer fads can be respectable. A plastic bag of Davy Crockett miniature figures that sold for a few cents circa 1955 now lists for \$12.50 on eBay, an appreciation of about 2,000%-3,000%. That's substantially better than long-term government bonds, which rose about 1,980% from 1955-

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**NOTES (continued):**

2002 (total return basis). The “Crockett premium” compares poorly to the equity premium, however. Large U.S. stocks have risen 9,465% (also total return basis) since Fess Parker reigned over the Wild Frontier (data from Ibbotson Associates).

<sup>9</sup> Robert D. Arnott, *The Role of Hedge Funds in a World of Lower Returns*, Journal of Portfolio Management, Fall 2002, citing GDP data from Madison’s world GDP survey.

<sup>10</sup>The Lehman Bros. Aggregate Bond Index out-performed the S&P 500 by 20.74% in 2000, by 20.02% in 2001, by 32.4% in 2002 and is leading by 4.4% through the first quarter of 2003.

<sup>11</sup> *Triumph of the Optimists, 101 Years of Global Investment Returns*; Elroy Dimson, Paul Marsh & Mike Staunton; Princeton University Press, 2002; Page 315.

<sup>12</sup> *Stocks, Bonds, Bills and Inflation (SBBI)*, Ibbotson Associates, 2003 Yearbook, Page 256. The 1929-32 span is the only time the equity premium has been negative for four straight years. The premium averaged +20% in the three years prior to the '29 crash. It averaged +22% in the five years prior to 2000.

<sup>13</sup> Dimson *et al.*, Pg. 315. The realized equity premium vs. bonds was -3.4% for the decade 1930-39, -0.7% from 1970-79 and -0.4% from 1990-2000.

<sup>14</sup> Ibbotson and Peng estimate the forward equity risk premium to be 3.97% compounded. They assume the current high P/E ratio represents a market forecast of earnings growth. *Long-Run Stock Returns in the Real Economy*, Financial Analysts Journal, January/February 2003.

<sup>15</sup> The stock market surged 54% in 1933. It fluctuated violently in following years, but had doubled in value by the outbreak of WWII. SBBI, Pgs. 226, 282.

<sup>16</sup> Arnott’s calculations call for the S&P 500 to drop to a level between 500 and 600, based upon the historical average price multiple and the 10-year earnings normalization method favored by Shiller. Historical dividend yields would put the index below 500; historical price-to-book values at 400. Another 15%-20% drop would be required to establish the price multiple typical of past bear markets.

<sup>17</sup> Joseph A. Schumpeter, *Capitalism, Socialism and Democracy*; HarperCollins, 1984, Page 81.

<sup>18</sup> *Stocks for the Long Run*, Jeremy J. Siegel; 2<sup>nd</sup> Edition, New York, Irwin, 1998.

<sup>19</sup>Schools with endowments greater than \$1 billion have an average commitment to alternatives ranging from 360% to 477% larger than the averages for the three categories of schools with endowments less than \$100 million, NACUBO 2002 *Endowment Study*.

<sup>20</sup> The allocation breaks down as follows: Equities: 22.5% domestic stocks, 22.5% international stocks; Alternatives, 10% real assets, 15% private equity, 20% absolute return hedge fund; and 10% U.S. fixed income. The NACUBO model is 75% domestic equity, 25% U.S. fixed income.

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**NOTES (continued)**

<sup>21</sup> So, of course, does Harvard, but during the current bear market Yale's portfolio has been the better performer *by more than \$2.1 billion*.

<sup>22</sup> About 85% of institutions use a rolling average endowment value to set spending policy, NACUBO reported in 2001. The Commonfund 2003 Benchmark Survey, reported that 78% of responding schools use a moving average of endowment value to set their spending rules, most employing a 12-quarter period.

<sup>23</sup> All data represent losses from large-cap. U.S. Stocks. Figures for 1974 and current bear markets taken from the Standard & Poor's 500 index; Depression era data from SBBI.

<sup>24</sup> Holdouts include Alaska and Pennsylvania. Florida repealed its UMIFA statute, reportedly through a legislative miscue, which legislators have promised to correct.

<sup>25</sup> *The Uniform Management of Institutional Funds Act and Its Meaning for Colleges and Universities*, by Terry L. Simmons, in the Association of Governing Boards of Universities and Colleges' Public Policy Paper Series.

<sup>26</sup> Einstein's  $E=mc^2$  is perhaps the most dramatic illustration of the power of exponential (i.e., compound) growth ever devised.