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CAMBRIDGE ASSOCIATES LLC

ASSET ALLOCATION IN THE CURRENT ENVIRONMENT

How Will You Earn What You Spend?

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CONTENTS

Introduction

Two years into a global bear market that has brought a renewed appreciation of relative risk and valuation across asset classes, we think investors should step back from day-to-day fund management and reconsider the most basic question:

> *Will our portfolio generate sufficient return over the next five or ten years to enable us to maintain spending without depleting the real value of our assets?*

Achieving this primary objective has been so easy for so many years that too many investors have become unduly complacent. What follows is designed to rattle that complacency because we doubt the average endowment fund asset allocation can earn the 5%+ real rate of return (net of expenses) required to sustain a 5% spending rate without erosion of capital.

Perhaps one should be patient, stoic, and skeptical, acknowledging merely that fat decades may be followed by thin, and that since neither is readily predictable one should stick with simple long-term policy allocations and trim spending as necessary. In the very long term (50+ years) this approach may work, but in practice few investors or investment committees possess either Job's patience in the face of adversity or the stomach to cut spending, and will inevitably revisit their asset allocation over a more limited time horizon as the shape of the investment world changes. In addition, no investor should presume to know the probable return on equities over the next 50 years—why should future returns or equity risk premia correspond to those of the past?[1] And since long-term asset allocations are predicated on estimated return assumptions, it is risky for investors to assume they will *necessarily* attain the results projected by long-term models. By extending the time horizon, we can increase our confidence in some outcomes—for example, that equities will outperform bonds—but should also acknowledge that we can have very little idea what to expect in most other areas, except perhaps that most predictions will be proved wrong.

In the face of such uncertainty, our basic approach to investment planning combines the stability of a predominant allocation to equities, which we think should remain relatively constant, with the flexibility of a broad definition of equities and an advocacy of diversification among different types of equity assets. In implementing a portfolio built along these lines, the key question then becomes, *which assets should we buy and sell, and when?* To which we would answer, *buy what looks cheap or reasonably priced, on the basis of relative valuations, and rebalance thereafter.*

[1] For a thorough and provocative examination of this issue, see Arnott and Bernstein's "What Risk Premium Is "Normal"?" in the March/April 2002 *Financial Analysts Journal*.

Times Past

Those were the days my friend
We thought they'd never end
-Mary Hopkin (1968)

Over the 20-year period from 1982-2001, a U.S. tax-exempt endowment fund, invested 70% in the Russell 3000® Equity Index and 30% in the Lehman Brothers Aggregate Bond Index, rebalanced quarterly, and spending 5% of a three-year moving average of market value would have realized the following results on $100 invested:

- An average annual compound return (AACR) of 14.6% in nominal terms and 11.0% in real terms.[2]
- A rise in nominal spending averaging 10.2% per year—from $5.00 in 1982 to $31.05 in 2001.
- A rise in real spending averaging 6.8% per year—from $4.82 to $16.40.
- An increase in nominal value from $100 on January 1, 1982, to $564.26 by December 31, 2001 (down from a peak value of $667.17 at the end of 1999).
- An increase in real value to $297.98 (down from a peak value of $372.63).

All this without incurring the added risk of active management—such was the power of the great bull market that market risk, or beta, was all investors needed to incur to reap these extraordinary rewards—and also without investments in non-U.S. markets, private equity, real estate, or hedge funds. As for risk, the standard deviation of our hypothetical 70% equity/30% bond portfolio would have been 12.0 percentage points, which puts it at the top end of the range we have observed at most endowment funds. (See Exhibit 1.)

A few observations illustrate why this was the best of times:

- Only in eight of the 83 rolling 20-year periods since 1900 have U.S. equities generated higher real returns than the 11.6% real AACR of the period 1982-2001. The average real AACR for all 20-year periods is 6.6%.
- Bonds have *never* generated a higher real return in *any* 20-year period since 1900—the 8.6% real AACR of the period 1982-2001 is the highest ever and is a staggering 6.7 percentage points better than the average real AACR of 1.9% for all 20-year periods since 1900. This means that an endowment fund foolishly invested entirely in bonds could nevertheless have spent 5% annually without depleting its real value.
- On December 31, 1981, the price-earnings ratio of the S&P 500 was eight. At the end of 2001 it was 49. The average since 1960 is 17.

[2] For fiscal years 1981-2001 (i.e., June 30, 1981 to June 30, 2001), the compound average annual return of this 70/30 portfolio is also 13.7%, before spending. This would rank in the 37th percentile (0 being highest, 100 being lowest) among the 91 U.S. endowment funds for which we have 20 years of data.

- On December 31, 1981, the yield on 30-year Treasury bonds was 13.6%. At the end of 2001 it was 5.5%.
- The CPI for 1981 was 8.9%. For 2001 it was 1.6%.

Of course, by 1982, most investors were thoroughly disillusioned with U.S. equities, since the real AACR of the S&P 500 for the preceding 20 years (1962-81) had been 0.8% and for the preceding ten years (1972-81), -2.1%. Consequently, very few endowment funds had as much as 70% in equities. In fact, among the 41 institutions for which we have asset allocation data for both dates, the average allocation to equities has increased from 53.9% then to 61.0%[3] now, while the allocation to bonds and cash has dropped from 30.6% to 17.8%. Today's equity allocations are generally more diversified than in 1982, when investors concentrated almost entirely on U.S. publicly traded stocks, but the diversification achieved by investing in various equity asset classes (e.g., public and private U.S. equities) may prove illusory if their exposure to fundamental financial or economic conditions (e.g., rising interest rates, or deflation) are essentially the same.[4]

Times Present

With the global equity bear market now two years old, and counting (see Exhibits 2 and 3), it seems appropriate to take stock (so to speak) of where we stand today, and to think hard about how to allocate assets for tomorrow. Our theses are:

- The good old days are gone. Despite the recent decline in equities, from today's starting point it is unrealistic to expect U.S. equity indexes to generate returns sufficient to cover a total portfolio 5% spending rate (i.e., a 5% real rate of return). In other words, equities may not produce returns significantly greater (and could be less) than the 3.3% real return embedded in the current yield of TIPS.
- However, we may be entering a period in which active managers with strong research capabilities can add consistent value—as they have tended to do in lackluster markets characterized by relatively high dispersions and low correlations of returns among individual securities. To take advantage of such managers, investors may have to tolerate greater tracking error, relative to equity benchmarks, than they have in the past—which means they should develop a high level of confidence in their managers *before* hiring them and should regularly rebalance among them.[5]

[3] This figure of 61.0% allocation to equities understates total equity exposure since it does not include the net equity exposure of the 15.3% these institutions have allocated to hedge funds today (compared to an average hedge fund allocation of zero in 1982).
[4] For further discussion of this point, see our 2000 paper, *Diversification: A Warning Note*.
[5] On manager selection, see our papers, *U.S. Common Stock Manager Selection* and *Firing Managers: Should Performance Be Your Guide?*

- Investors should also concentrate on identifying asset classes or sectors that are undervalued or at least fairly valued. These are often found stranded in the desert of investors' indifference, abandoned after a prolonged period of disappointing performance. The propensity of most investors to opt instead for the comforting hubbub and glitter of what has recently performed well, and to endure consistent disappointment as a result, is the central mystery of behavioral finance. We agree completely with Seth Klarman of the Baupost Group, who writes, "there is no investment so superior that its attractiveness overcomes an excessive price." We would only add that prices are inevitably driven up, and/or the quality of the products offered to investors is driven down (which amounts to the same thing), when demand soars.

Earning Enough to Cover Spending

The key questions today are:

- Which asset classes and strategies are priced to generate sufficient returns to enable an endowment fund to maintain its current level of spending without depleting its real value?
- Which are overpriced and therefore vulnerable to disappointment?
- If beta (i.e., market risk) won't generate enough return to pay the bills, where are investors most likely to find alpha (i.e., manager value added)?
- How should they implement their allocations?

Asset Class Review

Our current thinking on asset class valuations is reflected each month in "Notes on Current Valuations" in *Market Update* on our website. The following remarks complement these monthly notes by taking a longer-term perspective of the outlook for the major asset classes.

U.S. Equities. In addition to the regular analysis of U.S. equity valuations in the "Notes on Current Valuations," a recent *Market Update* commentary, "The Rise and Fall of the S&P 500," examines in detail the various drivers of U.S. equity market returns, and concludes:

- Notwithstanding the probability of sharp periodic rallies from oversold positions, the various engines of return lack the fuel needed to drive another bull market.
- Unless the economy falls back into recession, which would adversely affect corporate earnings, interest rates seem more likely to rise than to decline, which would drive equity multiples down (just as falling rates have driven them up).
- Inflation expectations are already low, with room for disappointment. On the other hand, lower-than-expected inflation would chill investors with premonitions of a deflationary freeze.

- Historically high P/E multiples (whether on trailing, forward, reported, or operating earnings) already discount earnings growth assumptions that historical precedent suggests are unrealistic, especially in light of the post-Enron insistence on more conservative and transparent accounting practices.

Hence our assumption that U.S. equity market returns over the next decade are more likely to end up at the bottom than remain at the top end of the long-term distribution.

A great bull market lifts all manager boats and blurs distinctions among them; a flat or bear market sorts them out. Those few managers with real investment insight and capability will outperform the broad market averages by considerable margins, but the many engaged primarily in asset gathering and retention, rather than investing, will add no value. The latter, of course, masquerade as the former, and it's not easy to distinguish between them, ex ante. However, since we doubt that beta risk will be adequately rewarded, we think investors should search for alpha.

Non-U.S. Equities. Outside the United States, the outlook for equities is somewhat better because their valuations are not so rich. Moreover, corporate culture (in Europe and Japan) is undergoing reformation, with a greater focus on return-on-equity and profitability; governments are gradually liberalizing economic policies that often impeded private sector growth; and with higher savings rates than in the United States and equity market capitalization a much smaller percentage of GDP, there is greater potential for broader market participation. In addition, Japan, still the second largest economy in the world, could possibly surprise on the upside sometime in the next five years or so, since everyone seems now to expect only the worst. Over the next five and ten years we would therefore expect non-U.S. equity markets to gradually outperform the United States and correlations across equity markets to decline from the very high levels of recent years as global economic dependence on the United States reverts to lower levels. In addition, investments in non-dollar assets serve as a crude hedge against the possibility of a substantial decline in the value of the U.S. dollar, which is a risk dollar-based investors should not ignore.

Emerging Markets Equities. Emerging markets are always risky, always vulnerable to investor sentiment, and always a kind of leveraged bet on global economic growth. At the right price, however, the risk/reward ratio favors investors, and the risk/reward ratio today is better than it has been in decades, despite the strong rally of recent months.

Many U.S. investors are currently questioning why they have *any* allocation to non-U.S. equities, since these investments have failed to provide diversification benefits, and have underperformed U.S. equities in the past decade. We regard this as a classic example of driving with one's eyes glued to the rear-view mirror.[6] (For a more detailed argument on this point, see our recent *Market Update* comment, "Diversification, Returns, and Risk: The Promise of Global Equity Investing.")

[6] In a recent "Global Strategy" commentary, Morgan Stanley's Barton Biggs quotes Berkshire Hathaway's Charlie Munger: "It's stupid the way people extrapolate the past—and not slightly stupid, but massively stupid."

Venture Capital. U.S. venture capital is likely to remain in the doldrums for at least several more years until the overhang of capital has disappeared and general partners can no longer live comfortably off the annuity stream produced by annual fee income raked off the huge pools of assets gathered during the boom.[7] Fund valuations do not yet reflect the reality that much of the capital drawn down and invested in 1999 and 2000 is gone—many funds will earn no return on investments made in those years. On the risk/return spectrum, venture capital resides on the far side of small-cap growth, and shares the same fundamental bases of return (although it should be noted that venture capital returns are even more abnormally distributed than those of public market equities; that is, more of the returns are found in "fat tails" at each end of the return distribution).

The AACR for the Nasdaq Composite Index from March 31, 2000 through December 31, 2001 is -38.6% (cumulative -57.4%), and for U.S. venture capital -26.2% (cumulative -41.2%). It seems likely that the decline in venture capital returns will eventually match or exceed that of the tech-heavy Nasdaq, especially in light of the more dramatic decimation of the smaller tech and telecom stocks, whose effect on the Nasdaq Index is muted by its capitalization weighting. However, during U.S. venture capital's last sojourn in the desert, in the 1980s, the best managers were still able to generate sufficient returns to retain investors' interest and—a good deal of the damage having already occurred—we would anticipate this would again be the case from this point forward, unless the economy sickens and remains prostrate for an extended period. In short, we expect the best managers to earn modest returns, the average to disappoint, and the worst to go bust.[8]

In Europe, however, where boom and bust were both less extreme (except in telecoms), the venture capital market remains far less developed at a time when the reconfiguration of the European economic landscape is expanding entrepreneurial opportunities in many sectors. As the U.S. venture market becomes broader, more transparent, more liquid, and generally more efficient (all of which suggests it should be accorded a lower premium vis-à-vis public market equities), private market opportunities in the less mature, less efficient, European markets become relatively more attractive. However, U.S. investors should not delude themselves into thinking that a couple of weeks in London, Paris, Frankfurt, or Milan is all they need to understand European markets and identify top-tier managers. A defining characteristic of inefficient markets is that some players have better information than others—and those will almost always be locals.

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[7] A decline in the overhang of capital is not solely dependent on the pace of follow-on or new investments in portfolio companies. As the U.S. venture capital industry attempts to "right-size," we would expect more and more firms to follow the lead of some partnerships in shrinking recent mega-funds by announcing their intent to draw down only 60% or 70% of commitments over time. Although general partners obviously earn larger annual fees from larger funds, if economic and market conditions impair their opportunities to invest in such a way as to earn superior returns on invested capital, both their reputation and their share of realized profits will suffer.

[8] If we assume that U.S. venture capital will earn a return five percentage points better than that of U.S. common stocks (which implies investment with above-average managers), and has a standard deviation of returns approximately ten percentage points greater than that of public market equities (our assumptions for modeling purposes are a 16.5% standard deviation for U.S. common stocks and a 26.25% standard deviation for U.S. venture capital), then one should expect a venture portfolio to *underperform* a common stock portfolio in 36.4% of all five-year periods, 31.1% of all ten-year periods, and 24.4% of all 20-year periods. In other words, those who invest in venture capital in the belief that it will outperform public equities in virtually all periods longer than a few years have neither read their history nor done their math.

Private equity investors generally wince at the mention of Asia, where they have incurred considerable risk and have earned nothing. Looking forward, however, Asian private equity is nascent, cutting edge, interesting, and worth watching. Again, however, *local* knowledge and expertise are likely to prove invaluable.

Non-Venture Private Equity. In both the United States and Europe, the large buyout space appears crowded and over-capitalized, and pricing relatively efficient, which impairs managers' opportunities to generate strong returns, net of their handsome fees. The middle market offers better prospects—*if* managers can gain access to financing (which has recently proved difficult). Longer term, buyout investing remains reasonably attractive: the dynamic U.S. economy can be relied on to create successive waves of varied opportunity, and continued consolidation and rationalization will generate a steady stream of deals in Europe. As in venture capital, however, manager selection is critical to success: the worst managers are worthless, the average are not worth the trouble, and only the best generate sufficient returns to justify the added risks and illiquidity of the asset class.

Hedge Funds. Although a choppy, inconclusive, volatile equity market environment is theoretically ideal for long/short equity hedge fund managers, the majority of hedge funds—whether engaged in arbitrage activities or long/short investing—will dissolve within ten years, having dissipated investors' money. Some will blow up, inflicting collateral damage on others occupying the same space, but most will simply wither as a result of investor disillusionment. Similarly, most funds-of-hedge funds, having generated comfortable fee income for their sponsors, will also dry up. Currently, however, the large investment banks, both in the United States and Europe, are eagerly stoking the blaze of the hedge fund mania by promoting their prime brokerage services to prospective hedge fund managers and aggressively marketing huge funds-of-funds, and so the momentum has only gathered steam since we issued a cautionary warning in our paper, *Hedge Funds: Bangs and Whimpers?* last September.

In the case of long/short equity strategies, where capacity is not an issue, we simply expect that most managers will fail to meet investors' net return expectations; with many arbitrage (a.k.a. "absolute return") strategies, however, the influx of money degrades prospective returns because more anglers casting their lines in a given fishing hole results in fewer fish per angler. We don't know how long the hysteria will last, but every historical precedent says it will certainly come to a bad end.

Nevertheless, the *idea* of hedge fund investing is sound and we recognize that the hedge fund format and compensation structure has attracted some of the best investment brains. Worldwide a small number of hedge funds managers will generate good returns through a combination of specialized expertise, diligent research, disciplined opportunism, trading skill, and excellent risk management. So we would by no means advocate abandoning these areas of opportunity—in the search for alpha, this field is relatively fertile—but would stress the pre-eminent importance of:

- Developing a coherent program designed to realize explicit objectives, rather than selecting managers individually, from the bottom up.

- Thorough knowledge and understanding of specific strategies, including their bases of return, pricing, valuation, and risks.
- Same, applied to individual managers.
- Diversification across strategies and managers.
- Awareness of how money flows, especially as directed by the funds-of-funds, affect different areas at different times, raising risks and degrading prospective returns.

U.S. Real Estate. As a result of the softer economy, real estate fundamentals have deteriorated across all property types and locations. Hardest hit are the more cyclical office sector and the geographic areas with high tech concentration. Falling rent and occupancy rates are adjusting from historical peaks to levels that in many cases are near long-term averages. Meanwhile, low and falling interest rates have done much to cushion the impact of reduced operating earnings. In contrast to their behavior in the mid- to late-1980s, bidders remained cautious during the recent economic boom, preventing prices from escalating much above long-term values in most areas.

Historically, investments in U.S. property have generated risk-adjusted returns competitive with those of equities; among the major asset classes, real estate stands out today as reasonably valued, under-owned, persistently inefficient (which means that skilled managers continue to find ways to add considerable value), and generating attractive cash flows, which investors will increasingly value if the U.S. equity market makes little headway in the years to come. In addition, the asset class provides portfolios with meaningful diversification benefits and some inflation protection—which amounts to a free bonus at current prices.

REITs. Although we have advocated REITs as a useful core holding that provides immediate diversification and a broad exposure to the asset class, we have also noted that REIT portfolios are more volatile than private real estate portfolios, not only because the latter are not marked-to-market every day, but also because REITs, like closed-end funds, will shift from premium to discount to net asset value (NAV) as investor sentiment towards them waxes and wanes. Consequently, we have suggested reducing exposure to REITs when their values exceed those of the underlying properties and increasing allocations when they trade at a discount. Today, REITs trade at a premium to NAV, having been scooped up both by equity managers and by hedge funds seeking the comfortable cushion of the large payout. As a result, we would recommend that investors reduce allocations, shifting instead to private partnerships.

Private Real Estate. Net income in the private sector varies by property type, location, and manager strategy, but is generally comparable to the 6.5% dividend paid by REITs. The opportunity to leverage equity investments and the structural inefficiencies of the private real estate market provide managers with various ways to add value, which enables investors to diversify their portfolios by strategy and risk exposures as well as by property type and location.

Summary Recommendations

Because the circumstances of each institution are unique, we are leery of issuing generic recommendations. Nevertheless, with that caveat in mind, we thought it might be useful to comment on the average endowment fund allocation today, in light of our central concern that covering the average spending rate of 5% or so will prove increasingly challenging during the next decade.

The average endowment fund is currently invested as follows:[9]

Asset Class	Allocation (%)
U.S. Equity	43.2
Global Equity ex-U.S.	10.3
Emerging Markets Equity	1.4
Private Equity	4.0
Equity Real Estate	3.1
Marketable Alternatives	8.9
Bonds	25.7
Cash	3.4

Despite our dim view of the outlook for the U.S. stock market, we remain convinced that endowment funds should prefer to own assets rather than simply to earn income from lending—which means maintaining high allocations to equities, broadly defined, and relatively low allocations to bonds and cash. Within equity portfolios we continue to preach the virtues of diversification as the surest route to consistent success. In any given quarter or year, this or that highly concentrated portfolio will always perform best—after all, some asset class has to be top dog in any given period—but in the investment world, yesterday's best-in-show inevitably proves a mutt tomorrow, and history suggests that those convinced they can predict tomorrow's winners are simply deluded. Hence our insistence on diversification and assiduous rebalancing.

As noted in the introduction, there is scope for debate on the question of whether—and if so, when, why, and how—institutions should shift their asset allocations rather than simply establish a long-term policy and then rebalance religiously. Assuming for the moment that they *should* periodically reconsider their allocations, and taking the average endowment fund asset allocation as a model portfolio, we would recommend the following:

- Use rallies to **reduce allocations to U.S. equities**. Make lower-than-average allocations to core index funds and higher-than-average allocations to active managers (which generally implies overweighting the mid- and small-cap sectors). With this comes the need to tolerate substantial manager tracking error and to adopt a disciplined rebalancing policy.

[9] Allocations are as of December 31, 2001 and include 347 endowment funds ranging from $5 million to $23 billion in assets, with a mean of $679 million. Private Equity includes venture capital and non-venture private equity. Marketable Alternatives includes absolute return and long/short equity hedge funds.

- **Increase allocations to non-U.S. equities, including emerging markets**. Larger investors should consider regional allocations to specialist managers instead of, or complementary to, one-size-fits-all-countries EAFE mandates.
- In the quest for alpha, private markets still offer an advantage over public markets, because they are still less efficient. So we would recommend that investors **maintain existing allocations to private equity investments** (venture and non-venture private equity), but scrutinize managers assiduously and seek to diversify globally. Are manager incentives still aligned with those of LPs? Have some become asset gatherers rather than investors? How did they respond to the boom and how are they reacting to the bust? Investors should allocate money only to managers in whom they have the highest conviction—if that means fewer commitments this year, next year, so be it. Those not already invested should be in no hurry to implement allocations to U.S. private investments, where venture and buyout both seem overvalued, but should perhaps start educating themselves with a view to implementing private equity programs gradually, over a period of years, as the decade ages.
- **Increase real estate allocations substantially**. Although real estate as an asset class appears reasonably valued, and there are a number of excellent fund managers pursuing varied value-adding strategies, the average allocation among endowment funds languishes at 3.1%. Current relative valuations give real estate a significant head start over U.S. equities, and we would be surprised if it failed to outperform U.S. equities over the next decade.
- **Beware, be cautious, be skeptical, and be vigilant in the treacherous world of hedge funds**. Many of the products offered are high-risk, high-priced dreck; many more are pablum priced as caviar. The dispersion of returns among managers will be huge, which means that manager selection and program construction are critical to success. Although we believe that hedge funds *can* provide investors with diversification benefits and opportunities to earn good returns, most investors have little hope of realizing these benefits without expertise in program construction and manager selection.
- Above all, **look forward, not backward**. Investors' steadfast propensity to invest in what *has done* well recently, despite the manifest failure of this approach, is truly astonishing. At the same time, investors should also recognize that future returns are inherently unpredictable—as a quick review of historical forecasts by investment banks, brokers, or managers readily confirms. But if buying what did well yesterday doesn't work, and one can't predict what will do well or badly tomorrow, how can one decide how to invest? The answer is that current prices provide a reasonable starting point for the evaluation of relative risk and reward on the long menu of available opportunities, and so this is where to begin.

EXHIBITS

Exhibit 1

20-YEAR AGGREGATE SPENDING SIMULATION

1982-2001

	Change in Nominal Spending	Nominal Spending ($)	Change in Real Spending	Real Spending ($)	EMV ($)	Nominal Return	Real EMV ($)	Real Return
1982		5.00		4.82	118.58	18.58	114.20	14.20
1983	1.74	5.09	-1.97	4.72	135.25	14.06	125.51	9.90
1984	14.27	5.81	9.93	5.19	138.33	2.27	123.49	-1.61
1985	5.74	6.15	1.87	5.29	171.99	24.33	147.91	19.78
1986	14.93	7.06	13.68	6.01	193.16	12.31	164.32	11.09
1987	13.80	8.04	8.97	6.55	193.02	-0.07	157.23	-4.31
1988	17.30	9.43	12.34	7.36	211.89	9.77	165.29	5.13
1989	9.17	10.30	4.33	7.67	253.47	19.63	188.95	14.31
1990	7.76	11.09	1.56	7.79	240.31	-5.19	168.83	-10.65
1991	3.80	11.52	0.71	7.85	295.84	23.10	201.66	19.44
1992	9.69	12.63	6.60	8.37	309.03	4.46	204.71	1.51
1993	7.31	13.55	4.44	8.74	327.66	6.03	211.25	3.19
1994	10.10	14.92	7.23	9.37	310.12	-5.35	194.73	-7.82
1995	3.89	15.50	1.32	9.49	389.62	25.64	238.59	22.53
1996	7.11	16.61	3.67	9.84	434.78	11.59	257.69	8.00
1997	9.04	18.11	7.21	10.55	523.43	20.39	305.03	18.37
1998	16.34	21.07	14.49	12.08	606.40	15.85	347.78	14.01
1999	16.44	24.53	13.39	13.70	667.17	10.02	372.63	7.14
2000	14.82	28.16	11.06	15.21	627.51	-5.94	339.00	-9.03
2001	10.26	31.05	7.79	16.40	564.26	-10.08	297.98	-12.10
Mean	10.18	13.78	6.77	8.85	--	--	--	--
AACR (%)	--	--	--	--	--	9.04	--	5.61
Std. Deviation of Qtrly Rtns.	--	--	--	--	--	12.01	--	12.16

***The 70/30 portfolio had a 20-year nominal AACR (06/30/1981-06/30/2001) *before* spending of 13.71%. This return ranks in the 37th percentile of the 91-Member Endowment Universe, which had a median return of 13.2% over the same time horizon.**

Sources: Lehman Brothers, Inc. and Thomson Financial Datastream.

Note: Portfolio of 70% Russell 3000 and 30% Lehman Aggregate rebalanced quarterly, with quarterly spending of 5% of three-year moving average.

Exhibit 2

RETURNS FOR VARIOUS INDEXES IN U.S. DOLLARS

For Periods ending March 31, 2002

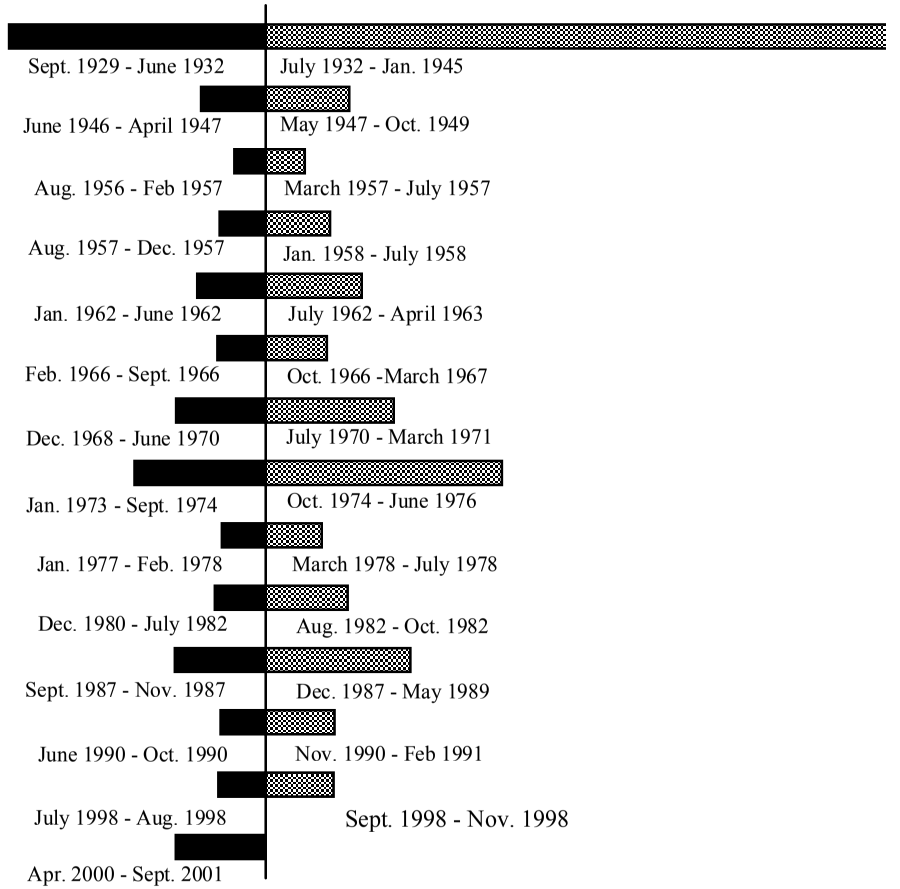
	Two-Year Cumulative Return	Two-Year AACR	Five-Year Cumulative Return	Five-Year AACR
MSCI World	-28.3	-15.3	29.9	5.4
MSCI EAFE	-32.2	-17.6	6.8	1.3
MSCI Europe ex U.K.	-29.7	-16.1	31.0	5.5
MSCI Emerging Markets Free	-26.3	-14.2	-23.6	-5.2
FTSE All-Share	-22.9	-12.2	20.0	3.7
S&P 500	-21.5	-11.4	62.3	10.2
Russell 3000®	-20.9	-11.1	62.2	10.2
Russell 2000®	-3.5	-1.8	57.6	9.5
Russell Top 200® Value	-4.6	-2.3	69.3	11.1
Russell Top 200® Growth	-44.0	-25.2	43.7	7.5
Russell 2000® Value*	34.9	18.7	70.5	11.9
Russell 2000® Growth*	-35.6	-22.2	28.7	5.5
U.S. Venture Capital*	-41.2	-26.2	401.2	40.4
U.S. Private Equity (non-venture)*	-20.2	-12.1	82.4	13.5
NCREIF*	17.7	9.8	73.7	12.3
NAREIT	52.2	23.4	46.5	7.9
U.S. Long-Short Hedge Funds*	12.5	7.0	134.3	19.6
U.S. Absolute Return*	20.9	11.5	74.7	12.5
J.P. Morgan Global Govt Bond	-0.4	-0.2	15.5	2.9
LIBOR ($)	9.8	4.8	30.4	5.5
J.P. EMBI Global	15.1	7.3	49.0	8.3
Lehman Brothers Aggregate	18.5	8.9	44.0	7.6
Lehman Brothers Long Govt	14.6	7.0	51.9	8.7
91-Day T-Bill	8.9	4.4	27.0	4.9

Sources: Cambridge Associates LLC Investment Manager Database, Cambridge Associates LLC Non-Marketable Alternative Assets Database, Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, National Association of Real Estate Investment Trusts, Standard & Poor's, and Thomson Financial Datastream.

* Returns are quarterly through December 31, 2001.

Exhibit 3

S&P 500 DOWNTURNS AND RECOVERY
1926-2001



Source: Global Financial Data
610x