2006 Revisited

ENDOWMENT MANAGERS and trustees should probably ignore return data for 2006 in formulating or revising their asset allocations. The propensity to chase the most recent high performers is strong, and try as we might, it is difficult to overcome the bias towards recent winners. So beware; the prudent manager/trustee must consciously fight the temptation to allocate money to what worked last year just because it worked last year. It may seem easy to justify, but allocation choices should be based on expected future returns, not past returns. With this warning, we take a look back at 2006 and capital market returns for the year.

Figure H.1 contains total return data on the seventeen asset classes in the *Advisor's* universe. An astute reader of the first issue of this publication pointed out that geometric average returns are better indicators of the long-run returns to be realized from an asset class than arithmetic average returns, as reported in that issue. Although the expected returns used to derive the *Asset Allocation Advisor's* optimal portfolio are built from the bottom up and not derived form historical data (with three exceptions), we include both arithmetic and geometric averages in figure H.1.

CAPITAL MARKET RETURNS
Total Returns with Reinvested Dividends & Interest, Pre-tax, Gross

	Historical Returns, Arithmetic (Top Line) and Geometric (Bottom Line)					
	20 year 1987-2006	10 year 1997-2006	5 year 2002-2006	1 year 2006	long-term	years
U.S. large-cap stocks	13.0% 11.8%	10.0% 8.4%	7.6% 6.2%	15.8%	12.3% 10.3%	81
U.S. small-cap stocks	14.9% 13.2%	15.2% 13.5%	17.5% 15.2%	16.2%	17.4% 12.5%	81
UK stocks	13.3% 12.2%	10.7% 9.3%	16.6% 15.2%	33.6%	12.1% 9.5%	81
Euro area stocks	13.8% 12.1%	13.7% 11.2%	18.4% 16.0%	35.9%	13.8% 11.5%	20
Japan stocks	6.6% 2.7%	6.9% 2.0%	14.9% 13.7%	1.9%	15.1% 10.9%	46
Emerging market stocks	– –	14.0% 9.4%	28.7% 27.0%	32.6%	19.7% 14.4%	19
Venture capital	– –	19.1% 12.9%	1.1% -0.4%	6.5%	19.7% 14.5%	18
Real estate	14.3% 13.1%	15.8% 14.5%	24.0% 23.2%	35.1%	15.2% 13.6%	35
Commodities	12.7% 9.8%	8.9% 4.7%	16.1% 14.8%	-15.1%	14.1% 11.2%	36
U.S. long-term government bonds	9.1% 8.6%	8.2% 7.8%	7.4% 7.2%	1.2%	5.8% 5.3%	81
U.S. intermediate-term government bonds	6.9% 6.8%	5.9% 5.8%	4.4% 4.3%	3.1%	5.4% 5.2%	81
U.S. TIPS	– –	– –	7.4% 7.3%	4.9%	7.2% 6.5%	9
U.S. long-term corporate bonds	8.9% 8.6%	7.9% 7.7%	7.9% 7.8%	3.2%	6.2% 5.8%	81
U.S. high-yield bonds	10.2% 9.7%	7.2% 6.9%	10.5% 10.1%	10.3%	11.2% 10.3%	27
U.S. MBSs	– –	6.4% 6.4%	5.2% 5.2%	5.5%	6.7% 6.6%	15
Foreign investment-grade bonds	– –	5.7% 5.2%	11.0% 10.5%	8.2%	5.7% 4.7%	10
Emerging market sovereign debt	– –	11.9% 11.0%	17.8% 17.5%	14.1%	14.6% 12.3%	15
Treasury bills	4.5% 4.5%	3.6% 3.6%	2.3% 2.3%	4.8%	3.8% 3.7%	81
Inflation	3.1% 3.1%	2.4% 2.4%	2.7% 2.7%	2.5%	3.1% 3.0%	81

Figure H.1: Capital Market Returns
Source: Barclays Capital, Bloomberg, Bureau of Labor Statistics, Ibbotson/Morningstar, Merrill Lynch, Morgan Stanley, Sand Hill Econometrics

It's important for managers and trustees to understand the difference between the two averages. The following example illustrates the difference. Suppose you have $100 invested in an equity mutual fund that loses 20% in the first year. At the end of the first year, the investment has a value of $80. Now imagine that the fund has a return of 20% in the second year. Where does the investment stand? Not at $100 but at $96, because a 20% gain on $80 is less than a 20% loss on $100. The arithmetic average of the annual returns over the two years is 0%, the average of +20% and -20%. But the geometric average return, or the compound return, over the two years is -2.02%. A $100 investment that experienced a 2.02% loss in value each year would be worth $96 after two years. Check the math and see for yourself. It doesn't matter if the gains come first or second.

Geometric averages are always less than arithmetic averages. In the case of an investment that generates a constant return, the geometric average will equal the arithmetic average, but constant returns do not occur in the real world. Asset categories that have widely dispersed returns will have a geometric or compound average further from the arithmetic average. Asset classes with less widely

dispersed or less variable returns will have geometric averages closer to the arithmetic average. Thus, although the arithmetic average returns for emerging market equities and venture capital have both been nearly 20%, their geometric average returns have been less than 15%. Contrast this with the return data on any segment of the U.S. bond market where the differences between the arithmetic averages and the geometric averages are less than 1% and still smaller on a proportional basis, despite the lower returns generated by bonds.

Which average is best to use in investment planning? The theory on this question has evolved considerably in the past nineteen years. The first edition (1989) of Bodie, Kane, and Marcus's classic textbook, *Investments*, states ". . . if our focus is on future performance, then the arithmetic average is the statistic of interest because it is an unbiased estimate of the portfolio's expected future return" (page 721). The most recent edition (2005) incorporates a more refined approach to the question and states that the appropriate statistic in long-range forecasting is a weighted average of the arithmetic and geometric returns, with the weight assigned to the geometric average depending on the length of the forecast time period compared to the length of the historical time series from which the averages were derived. If our averages are derived from a fifty-year history and our forecast time horizon is twenty-five years, we should weight the geometric average by 50% and the arithmetic average correspondingly by 50%. If our time horizon is fifty years, we should weight the geometric average by 100% and give no weight to the arithmetic average. By contrast, if our time horizon is five years, we should weight the geometric average by only 10% and rely primarily on the arithmetic average. For long-term forecasting, our astute reader is largely correct; but for our purposes, we need both arithmetic and geometric averages if we are going to base our expected returns on history. Historical returns, however, have serious limitations, as readers of the last article in this issue will see.

The richest returns in 2006 were provided by real estate, UK stocks, emerging market stocks, and euro area stocks, all with returns of more than 30%. Foreign market returns were significantly boosted by the appreciation of most foreign currencies against the dollar in 2006 —with Japan being the notable exception. U.S. equities produced returns in excess of 15%, with small-cap stocks marginally out-performing large-cap stocks, 16.2% to 15.8%. Emerging market sovereign debt and U.S. high-yield bonds also generated returns more than 10%, but all other classes produced single digit returns, including venture capital. Commodities were the only class to produce a negative return for 2006.

What implications do we draw from the 2006 return data for future asset allocation? First, a healthy contrarian instinct should incline us to look closely at those classes that had superior returns in 2006 to see if allocations should be **reduced** to those classes. Are strong returns a sign that market valuations have reached extreme levels not likely to be sustained in the future? Equity real estate investment trusts (REITs) are the only asset clearly in this category. As noted in the last issue of the *Advisor*, REIT valuations in early 2007 reached all-time, or near all-time, highs for the past twenty years, as measured by price-to-earnings, price-to-cash flow, and price-to-book value ratios. Valuations have fallen considerably since they reached

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their peak early this year. On every basis, price-to-forward earnings, price-to-cash flow, and price-to-book value, valuations have declined on average by nearly 20% through mid-June. Although valuations are less elevated now, they are still above median levels. Accordingly, portfolio managers who are overweight in real estate should consider rebalancing their portfolios and reducing the allocation to real estate.

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The other exceptional performers for 2006—euro area stocks, UK stocks, and emerging market stocks—were aided by significant appreciations of their currencies relative to the dollar. Figure H.2 shows the change in the value of selected currencies in 2006, along with changes this year through mid-June. Investors holding securities denominated in foreign currencies realized the currency appreciation on top of the base return of the security.

FOREIGN CURRENCY HISTORICAL AND PROJECTED APPRECIATION/(DEPRECIATION) VERSUS THE U.S. DOLLAR

	Actual Appreciation/(Depreciation) versus the U.S. Dollar		Projected Annual Appreciation/(Depreciation) through 2010	
	2006	Jan-Apr 2007	Consensus forcast	Forward rates
Euro	+11.7%	+3.4%	-2.3%	+0.8%
UK, pound sterling	+13.7%	+2.1%	-3.1%	-0.8%
Switzerland, franc	+7.9%	+1.0%	-0.7%	+2.1%
Sweden, krona	+15.9%	+2.3%	-0.5%	+0.6%
Russia, ruble	+9.4%	+2.5%	+0.4%	-0.7%
Japan, yen	-1.1%	-0.4%	+3.2%	+3.7%
Australia, dollar	+7.6%	+5.3%	-4.2%	-1.7%
China, yuan	+3.4%	+1.2%	+4.2%	+4.2%
India, rupee	+1.8%	+7.5%	+0.8%	-3.6%
Philippines, peso	+8.3%	+3.1%	-0.6%	n/a
Mayaysia, ringgit	+7.1%	+3.1%	+1.0%	n/a
South Korea, won	+8.6%	-0.1%	+0.2%	+0.4%
Thailand, baht	+15.7%	+7.9%	-0.8%	-0.2%
Singapore, dollar	+8.5%	+1.0%	+0.9%	+2.1%
Hong Kong, dollar	-0.3%	-0.6%	n/a	n/a
Brazil, real	+9.4%	+4.9%	-4.5%	-5.2%
Peru, new sol	+7.1%	+0.7%	n/a	n/a
Argentina, peso	-1.0%	-0.9%	-2.2%	-4.6%
Mexico, peso	-1.7%	-1.3%	-1.9%	-2.8%
Canada, dollar	-0.3%	+5.1%	-1.4%	+0.5%

Figure H.2: Foreign Currency Historical and Projected Appreciation/(Depreciation) versus the U.S. Dollar
Source: Bloomberg and *Advisor* calculations

Will foreign currencies continue to appreciate against the dollar? Not according to consensus forecasts or forward exchange rates. Figure H.2 also reports the projected change in the value of foreign currencies according to consensus forecasts and forward rates as of 14 June 2007. Only the Japanese yen and the Chinese yuan are expected to appreciate more than 1.0% per year according to both forward rates and consensus forecasts. Forecasts call for the euro and the pound sterling to lose value against the dollar, although those forecasts are not entirely consistent with forward rates. The story is mixed with regard to Asian currencies. The listed Latin American currencies are all expected to lose value against the dollar.

Compared to six months ago, the outlook for investment gains through currency appreciation on foreign investments is decidedly uncertain. Although the fundamental reason for the dollar's weakness persists—large U.S. current account and fiscal deficits totaling approximately 10% of GDP or more than $1.2 trillion—the currency markets are signaling some recovery for the dollar, with China and Japan being the major exceptions. Several shorter-term factors may be the key to the projected slowdown or halt in the depreciation of the dollar, however temporary. First, the currency markets may be anticipating a slowdown in U.S. economic activity and a drop in U.S. imports, with a concomitant drop in the demand for foreign currencies. Second, the currency markets may be reacting to concerns about inflation caused by recent rate hikes by several central banks, including the European Central Bank and the central banks of England, Switzerland, Norway, Sweden, Denmark, China, India, and Australia. Of course, inflation is a two-edged sword. All other things being the same, higher interest rates in these countries would make dollars less attractive, thereby causing them to depreciate relative to the home currency, as has happened over the past several months. Looking forward, however, if the markets expect monetary policy to be less effective overseas than in the U.S., then the dollar would be more attractive as a safe harbor against inflation. In any case, the near-term future of the dollar is muddy, indeed. Judging by forward rates, we should reduce the currency appreciation component of our total return expectations for UK and euro area equities. Portfolio mangers who are overweight in these classes should consider rebalancing.

Our contrarian instinct should also have us asking if allocations should be increased to any of the poor-performing asset classes in 2006 because they are undervalued. Six asset classes fell clearly in the poor-performing category: commodities (-15.1% in 2006 versus a long-term geometric average of +11.2%); Japanese equities (+1.2% versus +10.9%, respectively); venture capital (+6.5% versus +14.5%); long-term U.S. government bonds (+1.2% versus +5.3%); intermediate-term U.S. government bonds (+3.1% versus +5.2%); and long-term, investment-grade, U.S. corporate bonds (+3.2% versus 5.8%). In none of these cases, however, do current valuations warrant a big bet.

The commodities market had an unusual year in 2006; it was the first time in the thirty-seven year history of the Goldman Sachs commodities index (GSCI) that spot prices increased (albeit only 0.5%) and the total return on the index was negative. Since energy comprises the largest component of the GSCI, its performance was heavily influenced by developments in the petroleum market. Energy prices fluctuated widely in 2006 with the price of a barrel of oil starting and finishing the year between $60.00 and $65.00, but peaking at near $80.00 in mid summer. With little or no excess production and refining capacity, oil prices have been especially sensitive to real or potential sources of disruption. The lack of excess capacity and the expectation of future strong demand relative to supply have resulted in a change in the traditional pricing of oil futures relative to spot prices, with futures prices now above spot prices (a condition termed "contango" in the commodities markets). As the energy markets adjust to what looks like a permanent state of contango, we expect commodity returns to revert to levels more closely resembling historical averages, with some discount for the larger flow of capital into this class. In fact, through May 31st, the GSCI total return index is up 3.3%, and the Dow Jones AIG total return commodities index, which is less heavily weighted in the energy sector, is up 3.7%. We do not, however, believe that commodities warrant an allocation higher than the optimal allocation under long-term return and risk expectations. Readers who are unfamiliar with commodities as an asset class should see the article on this topic in the previous issue.

Japanese equities were the exception to the strong performance of most foreign equity markets in 2006. Unlike Europe and most emerging markets that had strong local returns compounded by currency appreciation against the dollar, the Japanese market produced lackluster local returns while the yen suffered a modest decline against the dollar. The broad market index, the TOPIX or Tokyo Stock Price Index, produced a total return of just under 2.0% in 2006, while the yen declined in value 1.1% against the dollar. The NIKKEI 225 fared better, with a total return of 6.3%.

The weak yen performance of the Japanese market was not due to a lack of earnings growth. Estimated forward earnings for the TOPIX increased by 13.0% between year-end 2005 and year-end 2006, while trailing twelve-month earnings before extraordinary items increased by just over 36%. Valuations decreased, however, during the year—from 23.4 times forward

estimated earnings at year-end 2005 to 21.1 times at year-end 2006. Valuation levels have not changed significantly since year-end 2006. In our judgment, the opportunity for above-average returns on Japanese equities is limited and does not warrant an allocation higher than the optimal allocation under long-term return and risk expectations.

Venture capital returns on average continue to fall below their historic average. The 2006 average class return of +6.5% improved on the previous year's +1.1%, but still fell well below the arithmetic historical average of nearly +20% and the geometric historical average of +14.5%. These low recent returns are not necessarily indicative of an individual institution's experience, however. Venture capital is a unique asset class in that it is impossible for an investor to "buy the market" in the same way that an investor can buy a stock, bond, or even commodities fund that mirrors the relevant stock, bond, or commodities market. Venture capital funds are typically closed-end funds that provide limited liquidity to investors in the fund. Although it is now possible to invest in a fund of funds in venture capital (as it is possible to do for hedge funds), the exposure of these funds is not broad, and their performance may vary significantly from the industry average.

Low bond returns in 2006 are not a harbinger of future above-average returns.

Do recent low returns for venture capital signal the potential for a bounce back to higher return levels? Unfortunately not. While the amount of capital flowing into venture capital funds has moderated from the early 00s during the dotcom boom, it is still more than was being invested fifteen or twenty years ago. As a consequence, more capital is seeking the limited number of good ventures, and the robust returns earned before the dotcom bust may not be indicative of forward returns. Until the future is clearer regarding average return levels, endowment managers and trustees must exercise diligence and caution in selecting venture capital funds and moderate their expectations regarding returns from venture capital.

U.S. government and investment-grade bonds were the last of the six asset classes that had sub-par returns in 2006. The below-average returns were entirely a result of a very modest increase in interest rates between year-end 2005 and year-end 2006. Treasuries with five years to maturity were trading in the secondary market in the last week of 2005 to yield 4.33%. Prices on similar bonds in the last week of 2006 were lower, increasing their yield to 4.65%. The decline in prices left a year-end 2005 investor with a capital loss and a total return of only 2.9% for 2006. Similar pricing/yield changes affected the value of long-term Treasuries. Although the increase in required yield was only 0.28% from year-end to year-end, the price effect on the longer-term (higher duration) bonds was greater, resulting in a larger capital loss and a total return of only 0.5% for the year. Long-term corporate bonds would have suffered a similar reduction in total return had it not been for a 0.10% to 0.15% reduction in credit spreads (the premium corporate borrowers pay over the Treasury rates) that ameliorated the capital loss and left investment-grade corporate bonds with a total return of approximately 3% for the year.*

Low bond returns in 2006 are not a harbinger of future above-average returns. Although the majority of forecasters surveyed by Blue Chip Financial Forecasts at the end of April expected that the next move by the Federal Reserve will be to cut the Federal Funds rate, less than half think the rate reduction will occur in 2007, and some forecasters—albeit a minority—believe the next change will be an increase. Following the June 28th meeting of the Federal Open Market Committee, it announced that its "predominant policy concern remains the risk that inflation will fail to moderate as expected." All in all, the prospects for rates decreasing and bond prices increasing are not such that U.S. government or corporate bonds merit an allocation higher than the optimal allocation under long-term return and risk expectations.

With the exception of real estate and, to a lesser extent, some foreign equity markets, therefore, capital market returns in 2006 do not have significant implications for expected returns and asset allocations. Capital market expectations are reviewed in the next article.

* The astute reader will note that the 2006 bond returns described here do not exactly match those reported in Figure H.1, which are from the Ibbotson/Morningstar *Stocks, Bonds, Bills and Inflation 2007 Yearbook*. The small differences are due to the use of different benchmark bonds in the return calculations. The broadest measures of bond market returns, those calculated by Lehman Brothers and encompassing nearly the entire market in each category, show total returns of 3.5% for intermediate-term Treasuries, 0.9% for 20+ year Treasuries, and 3.0% for long-term AAA rated corporate bonds for 2006.