American Funds®

insights

Winter 2007

The "new math" of the distribution phase

Creating sustainable retirement income portfolios is both an art and a science. Multiple uncertainties and assumptions complicate the task, as individual investors must balance portfolio stability and growth in order to meet future liabilities. Furthermore, portfolio withdrawals amplify the impact of market declines in the distribution phase. The shift from the accumulation to the distribution phase of investing requires new thinking about risk and risk metrics.

Protecting and extending an investor's capital base must go beyond careful modeling to include a thorough search for an investment manager with an excellent record of risk control. Analysis of downside resilience and results over meaningful periods, coupled with a detailed qualitative evaluation, can yield revealing patterns about the character of an investment manager.

Executive summary

- Longer life expectancies, future inflation rates and retirement spending habits must be accounted for in distribution plan modeling.
- While historic average returns may be a valuable starting point for modeling in the accumulation phase, distribution modeling is complicated by cash outflows.
- The central concern in the distribution phase is shortfall risk, or outliving one's assets, so investors and advisers must develop a sound distribution strategy.
- The new math of the distribution phase emphasizes the importance of downside risk management and the sequence of investment returns — particularly in the initial years of withdrawals.
- Standard deviations and calendar-year returns are incomplete measures of downside resilience.
- Both qualitative and quantitative analysis is needed in order to gain insight into the character of an investment manager.
- True risk controls are a byproduct of company philosophy and process.

The transfer of risk

A structural shift is changing the landscape of retirement. Traditionally, Social Security and defined benefit plans provided retirees with a financial safety net. Institutions bore the costs and risks of providing lifelong retirement benefits, and retirees received checks in the mail.

Today, the long-term viability of Social Security is in question, with dedicated sources of government revenue inadequate for financing the benefits promised to current and future retirees. At the same time, a growing number of companies — even those with healthy balance sheets — are freezing their defined benefit plans and replacing them with 401(k) plans (see Chart 1). As a result, personal savings are becoming the primary source of income for many current and future retirees. And with this structural change of responsibility comes the transfer of two critical risks from institutions to individuals: investment risk and longevity risk.

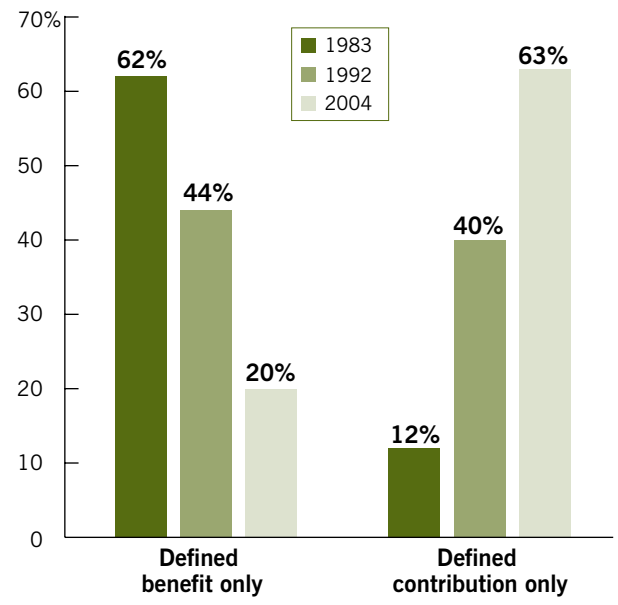
The uncertainties of retirement

A constant concern for investors, both before and after retirement, is investment risk. But a number of other variables add to the uncertainty of the distribution phase. Advisers must make multiple assumptions — about time horizon, investment returns, withdrawal rates, inflation and taxes — each of which can have significant ramifications if oversimplified or underestimated. They must also decide which accounts, and which asset classes, to liquidate first in retirement — qualified or non-qualified accounts, annuities, business interests, trusts, stocks or bonds?

Chart 1

The transfer of risk: Employer to employee

Workers with pension coverage, by pension type



Source: U.S. Board of Governors of the Federal Reserve System (1985, 1994 and 2006).

Longevity risk

If a husband and wife are each 65 years old, what is the probability that at least one of them will live to age 90? Chart 2 shows that there is a 50.3% chance that one spouse could live another 25 years. With each passing decade, as medical advances extend life expectancy rates, those probabilities will continue to climb. Longevity risk, the chance of living longer than expected, must be recognized, managed and incorporated into all retirement income planning.

Chart 2

At age 65, probability of one spouse living to age...	
70	99.5%
75	97.2
80	90.6
85	75.9
90	50.3
95	22.1

Source: Milevsky and Abaimova, "Applied Risk Management During Retirement," June 19, 2005, Society of Actuaries RP-2000 table.

Spending patterns

Many retirees underestimate what their spending patterns will be — call it the "grandparent effect." According to a 2006 study by management consulting firm McKinsey, nearly half of retirees said they had miscalculated their retirement spending needs.* In addition, spending habits change over the course of a long retirement, especially if health problems arise. Withdrawal rates, therefore, do not remain constant. They fluctuate across active, inactive and infirm phases of life.

Tax and inflation rates

There are no "expectancy tables" for future tax rates, so advisers must use current assumptions. While inflation rates seem more predictable, they are by no means certain. According to the U.S. Bureau of Labor Statistics, the rate of inflation for seniors over the last 20 years has exceeded the broad-based CPI by up to 1% per year, influenced primarily by health care costs. Future costs are difficult to estimate due to rapidly changing technology and medical advances.

Faced with these risks and uncertainties, investors and advisers must plan the more complicated distribution phase with care and precision. Accumulation-phase assumptions are no longer sufficient.

*Based on a survey of 3,000 affluent and middle-market retirees and pre-retirees ranging in age from 40 to 75.

The "new math" of distribution planning

Average returns, which are useful in accumulation-phase planning, are less meaningful when cash outflows become a key model assumption. The math changes at the beginning of the distribution phase.

The arithmetic of loss

Asset diversification is an integral part of successful investment planning for both the accumulation and distribution phases. In the accumulation phase, a well-diversified portfolio can help reduce volatility, enhance compounding effects and build wealth. With patience, discipline and the luxury of time, investors can generally withstand shorter term declines and meet their accumulation goals.

The difference in the distribution phase is that regular portfolio withdrawals compound losses. The arithmetic, slow-and-steady approach of the accumulation phase suddenly gives way to more complex calculations based on the compounding effects of negative cash flow. As Chart 3 shows, declines that are compounded by regular withdrawals can lead to a reduced capital base and ultimately to unrecoverable losses.

Chart 3

The arithmetic of loss

		Accumulation (no withdrawals)	Distribution† (5% withdrawal at end of year)
Stock market decline*	Number of occurrences in past 40 years	Return required to break even	Return required to break even
–5%	46	5.3%	11.1%
–10	12	11.1	17.6
–15	6	17.6	25.0
–20	5	25.0	33.3
–25	4	33.3	42.9
–30	3	42.9	53.8
–35	2	53.8	66.7
–40	2	66.7	81.8

*The unmanaged S&P 500, 1967–2006, with reinvestment of dividends.
† Assumes declines lasted 12 months or less.

The anatomy of declines

Clearly, the margin for error narrows in the distribution phase. A portfolio generating an income stream cannot tolerate significant declines before capital is exhausted. Besides the severity of a decline, other factors that influence its impact are whether it is a rapid or protracted decline and how long the portfolio takes to fully recover.

Based on the S&P 500, there have been seven major declines since 1970 (see Chart 4). Some have lasted days; others, months. Measured in calendar years, the S&P 500 has posted a negative one-year return in about one out of every four years. But measured from market high to market low, significant declines have been erratic in frequency, duration and recovery time. An investor taking regular withdrawals primarily from equities could not recover from many of these declines. Yet investors facing 20 to 30 years of retirement are likely to face a number of major and minor market declines.

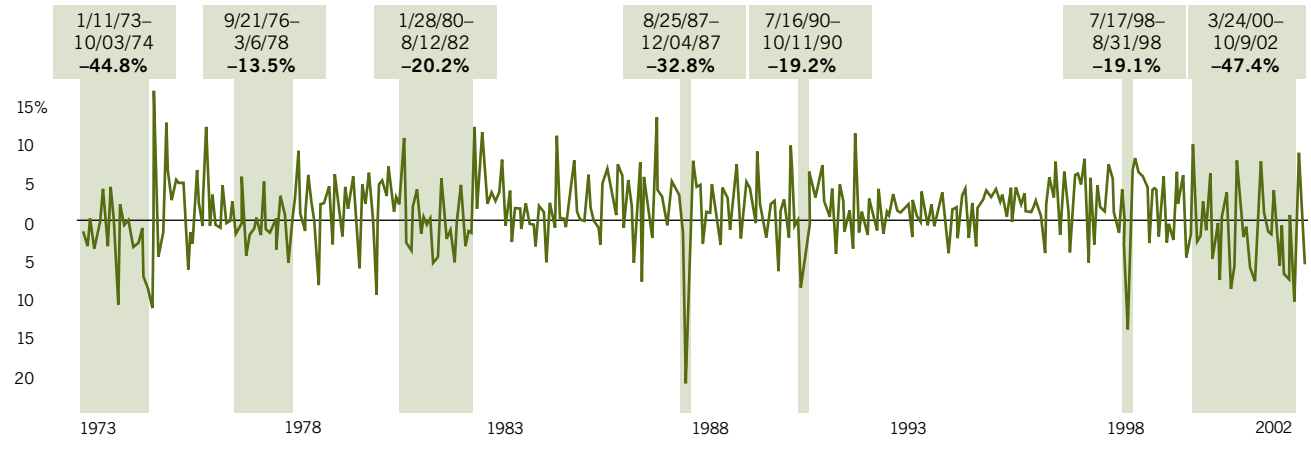
The shift to shortfall risk

Planning for the distribution phase must reflect this shift from simple math to models based on multiple assumptions. While risk in the accumulation phase is often summed up by volatility, the central focus in the distribution phase becomes shortfall risk, or the risk of outliving one's money. Aside from the uncertainties of retirement, there are several investment factors that can contribute to successful management of shortfall risk.

Chart 4

Seven major market declines since 1970

Standard & Poor's 500 Composite Index, monthly returns



Returns reflect reinvestment of distributions.

The sequence of returns matters

One of the most striking differences in the math of the distribution phase is that the sequence of investment returns, which affects only the timing of wealth generation during the accumulation years, can have a dramatic effect when distributions are being taken.

Chart 5 shows two portfolios: Portfolio A reflects actual returns for the S&P 500 from 1966 through 2005. The hypothetical Portfolio B earns the same returns in inverse order. This example illustrates the impact of the return sequence. Both Portfolio A and Portfolio B have average annual total returns of 10.28% and a standard deviation of 16.7. But that's where the similarity ends.

Inverting the sequence of returns has no effect on the value of a $10,000 investment during the accumulation phase. Both portfolios converge at $501,436, and the sequence of returns does not matter for long-term investors (see Chart 6).

But taking annual withdrawals makes a significant difference. Portfolio A begins the distribution phase in 1966 with a negative annual return and suffers three more in the first 10 years of retirement. Struggling to maintain a 5% inflation-adjusted payout, and damaged further by the 2000 decline, this portfolio runs out of money in 2002 (see Chart 7).

Surprisingly, Portfolio B endured three consecutive negative years in the first decade and still comes out ahead — with 12.7 times its original investment — while easily meeting its distribution requirements.

In this case, sequence matters. Over different periods of time or with different withdrawal rates, the sequence of returns has a variable effect — there may be a dramatic difference, or very little. The point of this illustration is that, **despite having identical average annual returns and standard deviations, results in these periods are not symmetric.** Investors in any phase are vulnerable to the market's random gyrations, but investors in the distribution phase are even more sensitive to unfortunate timing. They may retire at a favorable time in the market or during a highly unfavorable period. While there is no way to control the sequence of returns, advisers can add value by focusing on what they *can* control: trying to insulate portfolios from downside risk.

Chart 5

Annual total returns

Year	Portfolio A S&P 500 (actual)	Portfolio B S&P 500 (inverted)
1966	–10.06%	4.91%
1967	23.98	10.87
1968	11.06	28.70
1969	–8.50	–22.10
1970	4.01	–11.88
1971	14.31	–9.11
1972	18.98	21.04
1973	–14.66	28.58
1974	–26.47	33.36
1975	37.20	23.07
1976	23.84	37.43
1977	–7.18	1.31
1978	6.56	9.99
1979	18.44	7.67
1980	32.42	30.55
1981	–4.91	–3.17
1982	21.41	31.49
1983	22.51	16.81
1984	6.27	5.23
1985	32.16	18.47
1986	18.47	32.16
1987	5.23	6.27
1988	16.81	22.51
1989	31.49	21.41
1990	–3.17	–4.91
1991	30.55	32.42
1992	7.67	18.44
1993	9.99	6.56
1994	1.31	–7.18
1995	37.43	23.84
1996	23.07	37.20
1997	33.36	–26.47
1998	28.58	–14.66
1999	21.04	18.98
2000	–9.11	14.31
2001	–11.88	4.01
2002	–22.10	–8.50
2003	28.70	11.06
2004	10.87	23.98
2005	4.91	–10.06
Average annual total return:	**10.28**	**10.28**
Standard deviation:	**16.7**	**16.7**

Returns are inverted

Average annual returns and standard deviations are identical, yet results are not symmetric.

Standard & Poor's 500 Composite Index is unmanaged. Source: Ibbotson

Chart 6

Accumulation phase: results converge

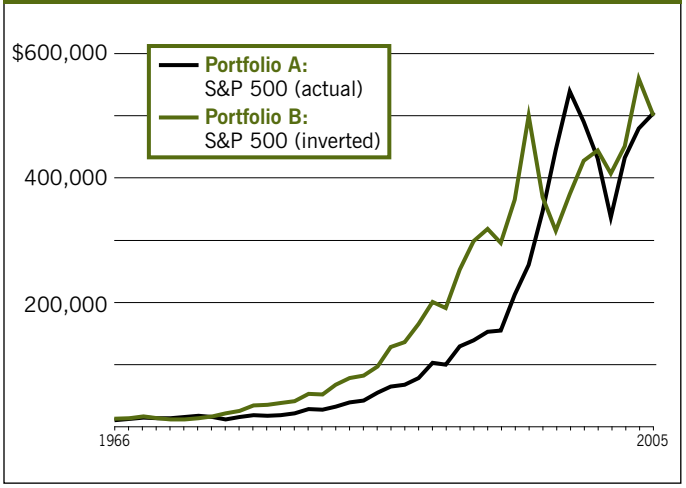
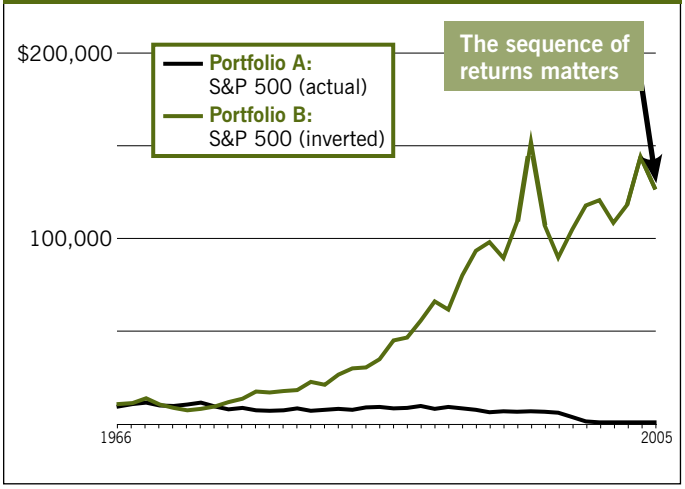


Chart 7

Distribution phase: results diverge



Assumes annual withdrawals of 5%, increased by 4% each year.

Controlling risk in the distribution phase

Former Federal Reserve Chairman Alan Greenspan recently said, "With economic policy, you have to orient policies toward non-probable outcomes." The same can be said of retirement planning. The risk of outliving one's money makes it critical to plan for unfavorable and unlikely — but still possible — scenarios. That means achieving the right balance between risk avoidance and growth opportunities.

A starting point

In addition to estimating realistic future capital market returns, two crucial decisions are withdrawal rates and asset mixes. If miscalculated, any one of these three factors can determine whether or not assets will last a lifetime. Prominent studies of portfolio sustainability suggest a maximum annual withdrawal rate of 5% over 30-year periods, adjusted annually for inflation. Of course, long-term retirement portfolios need healthy exposure to equities, although the optimal mix depends on a retiree's age or phase of retirement.

In our last issue of *Insights*, we highlighted the need for professional management of fixed-income portfolios. This issue emphasizes investment manager selection for equity portfolios, with a specific focus on managing risk in the distribution phase. This requires a thorough investment manager search, consisting of both quantitative and qualitative analysis.

Measuring downside protection

When evaluating an investment manager's ability to limit downside risk, standard deviations and calendar-year returns are incomplete measures. Standard deviations fail to distinguish between upward and downward fluctuations; further, they measure deviation from a mean, not from zero (the point of loss). In addition, calendar-year results measured over irrelevantly short and static time periods can be misleading.

Different ways of measuring results may provide greater insight into the character of a manager. Capture ratios, for example, are helpful in isolating upside and downside results versus an index. They express the ratio of a fund's returns to those of a benchmark or peer group index during periods of positive or negative index returns. Lower numbers are preferable on the downside, as are higher numbers on the upside (see Chart 8).

Capture ratios can help identify investment managers that are generally defensive and conservative in nature. (Of course, the relevance of a fund's benchmark or index comparison can lessen the significance of any measure.)

Chart 8:

Capture ratios: 1997–2006 (based on quarterly data for Class A shares)

Capture ratios reflect the annualized product of fund vs. index returns for all quarters in which the index had a positive return (upside capture) or negative return (downside capture).

		Fund vs. benchmark index			Fund vs. Lipper index	
Fund	Benchmark index	Upside capture	Downside capture	Peer group/ Lipper index	Upside capture	Downside capture
Growth funds						
AMCAP Fund®	S&P 500	101%	80%	Growth Funds	98%	68%
EuroPacific Growth Fund®	MSCI All Country World Index ex USA	109	92	International Funds	113	99
The Growth Fund of America®	S&P 500	126	99	Growth Funds	122	83
The New Economy Fund®	S&P 500	131	130	Growth Funds	128	111
New Perspective Fund®	MSCI World Index	120	96	Global Funds	116	92
SMALLCAP World Fund®	S&P/Citigroup Global/ World Indexes*	125	141	Global Small-Cap Funds†	108	110
Growth-and-income funds						
American Mutual Fund®	S&P 500	68	40	Growth & Income Funds	81	55
Capital World Growth and Income Fund℠	MSCI World Index	108	63	Global Funds	104	60
Fundamental Investors℠	S&P 500	102	80	Growth & Income Funds	117	95
The Investment Company of America®	S&P 500	87	64	Growth & Income Funds	100	76
Washington Mutual Investors Fund℠	S&P 500	78	54	Growth & Income Funds	93	70
Equity-income funds						
Capital Income Builder®	S&P 500	60	8	Income Funds	142	83
The Income Fund of America®	S&P 500	59	18	Income Funds	137	104
Balanced fund						
American Balanced Fund®	S&P 500/Lehman Aggregate Bond Index	90	50	Balanced Funds	97	52

Lipper indexes typically comprise the 30 largest funds in each peer group. Investors cannot invest directly in an index.

*These indexes track more than 8,000 publicly traded small-cap companies.

† Lipper does not compile a small-cap index; these figures reflect fund results versus the Lipper Global Small-Cap Funds Average.

Market cycle returns

Another approach to evaluating investment manager results is to look at specific time periods determined by market events rather than calendar periods. Evaluating results over market cycles — a series of low-to-high and high-to-low periods — allows clear patterns to develop. An investment manager with a value-oriented investment approach should demonstrate a consistent ability to limit losses during stressed market conditions. While many investment managers can generate superior returns during bull markets, the most skilled prove their mettle — consistently — in more difficult environments (see Chart 9).

Over the past five decades, full market cycles (whether low-to-low or high-to-high) have lasted about four years, and two consecutive cycles have spanned about eight to 12 years. If capture ratios and results over specific up or down periods are not available, then results over a series of 10-year (calendar) periods are preferable to short-term results or single-period, point-to-point results.

Risk control: A different barometer

While there is clearly a need for downside risk management and measurement, many elements of risk control cannot be assessed by analyzing past results. Investment returns have a random element and can be misleading as a predictor of future results. When selecting an investment manager for the distribution phase, qualitative analysis can be as important as quantitative analysis.

In addition to considering typical criteria such as expense ratios and manager tenure, the goal is to evaluate how well an investment manager's infrastructure, policies and procedures control risk — at the security level, the fund level and the organization level. Extending the evaluation beyond the investment process to the organization itself provides a deeper, richer understanding of the motivations behind a manager's philosophy and the sustainability of its approach.

Figures shown are past results for Class A shares and are not predictive of results in future periods. Current and future results may be lower or higher than those shown. Share prices and returns will vary, so investors may lose money. Investing for short periods makes losses more likely. Investments are not FDIC-insured, nor are they deposits of or guaranteed by a bank or any other entity. Unless otherwise indicated, results shown are at net asset value with all distributions reinvested. If the maximum 5.75% Class A sales charge had been deducted, results would have been lower. For current information and month-end results, visit americanfunds.com.

Chart 9

Market cycle returns

Class A shares (excluding S&P 500)	Low to high 8/31/98–3/24/00	High to low 3/24/00–10/09/02	Low to low 8/31/98–10/09/02
S&P 500	**62.7%**	**–47.4%**	**–14.3%**
Growth funds			
AMCAP Fund	73.3	–33.1	15.9
EuroPacific Growth Fund	93.4	–47.1	2.3
The Growth Fund of America	142.9	–46.2	30.8
New Economy Fund	110.6	–61.2	–18.3
New Perspective Fund	89.7	–42.7	8.6
New World Fund	—*	–38.1	—*
SMALLCAP World Fund	136.0	–59.3	–4.0
Growth-and-income funds			
American Mutual Fund	12.8	–7.1	4.8
Capital World Growth and Income Fund	58.2	–25.9	17.2
Fundamental Investors	61.4	–35.9	3.5
Investment Company of America	52.6	–28.3	9.5
Washington Mutual Investors Fund	19.8	–16.5	–0.0
Equity income funds			
Capital Income Builder	8.3	9.8	18.9
Income Fund of America	11.5	0.7	12.3
Balanced fund			
American Balanced Fund	16.3	4.2	21.2

*New World Fund began operations on 6/17/99.

The funds' investment adviser is waiving a portion of its management fees. Results shown reflect the waiver, without which they would have been lower. Please see each fund's most recent shareholder report for details. The S&P 500 is unmanaged and does not reflect the effects of sales charges, commissions or expenses. Investors cannot invest directly in an index.

Investment manager selection for the distribution phase

True risk controls are a byproduct of company philosophy and process and should be apparent at every level of an investment management organization. While investment managers may articulate their risk control measures in different ways, it's useful to seek comparable information from each organization (see Chart 10). During the due diligence process, some information can be obtained by asking direct questions, while other topics will require judgments based on careful observation and perception.

Chart 10

	Risk control	
	At the security and fund level	**At the organization level**
	Investment management considerations	Company management considerations
Who	• Decision-makers and organizational structure • Notable changes in management • Succession plan	• Founders and owners — private vs. public • Investment professionals as business managers • Succession plan
What	• Investment philosophy • Competitive advantage • Strength in both equity and fixed-income management	• Philosophy/mission • Businesses and core competency • Shareholder orientation
Where	• Geographic locations • Communication	• Geographic locations • Disaster preparedness
Why	• Compensation structure • Manager investment in funds; equity in firm • Passion	• Why the company is organized the way it is • Compensation (rewarded for results vs. asset growth)
How	• Top-down vs. bottom-up • Idea generation and implementation • Process; buy/sell discipline • Management of growth	• Culture (integrity, fairness) • Management during difficult environments • Emphasis on tenure

Given the seismic shift that the distribution phase represents in an investor's lifetime, advisers must reconsider conventional approaches to retirement planning and investment manager selection. The math of the distribution phase requires new thinking, new metrics and new questions, as well as a broader definition of risk control.

Jon Lovelace on capital preservation and active management

The son of the Capital organization's founder, Jonathan Bell Lovelace, Jon Lovelace joined Capital in 1951. Today he is chairman emeritus of Capital Research and Management Company (CRMC)℠ and The Capital Group Companies.℠

CRMC has always emphasized a long-term perspective, focusing on preserving capital during downturns. How did that idea take hold?

The key is to produce results that are less volatile than the general market. It is important to hold up well in bad periods even if it means not getting the ultimate highest returns in a good period. It doesn't help in the long run to be spectacular in bull markets if you crash in bear markets.

What are your thoughts on active versus passive management?

When people compare indexes with active managers, they often look only at point-to-point long-term returns. But that can ignore a tendency of indexes to be more volatile than conservative actively managed portfolios. In addition, the index approach ensures that you don't stand out either on the upside or the downside as compared with the index you choose to replicate. If you want to take only what the stock market is going to give, you are likely to experience some unhappy periods when it is not going to give you much.

We have managed to do modestly better than the relevant indexes over the majority of cycles, particularly by investing to preserve investors' capital in more difficult environments, and that has made a big difference over the long term. Indexers who went into the stock market in early 2000 are still not whole.* It could conceivably take them as long as it did during the 1929 to 1945 period to recover.

*As of December 31, 2006, on a price basis for the S&P 500. With dividends reinvested, a full recovery was achieved on October 23, 2006.

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Results as of March 31, 2007

Fund name	Average annual total returns for Class A shares						Gross expense ratios
	At net asset value			At maximum offering price			
Growth funds	1 year	5 years	10 years	1 year	5 years	10 years	
AMCAP Fund	7.38%	6.61%	11.39%	1.22%	5.36%	10.73%	0.68%
EuroPacific Growth Fund	16.63	15.50	11.27	9.92	14.15	10.61	0.81
The Growth Fund of America	7.78	8.59	13.04	1.57	7.31	12.37	0.65
The New Economy Fund	12.05	8.90	9.94	5.61	7.62	9.29	0.82
New Perspective Fund	15.30	11.75	11.79	8.66	10.44	11.13	0.75
New World Fund	23.31	20.26	12.80*	16.22	18.84	11.94*	1.06
SMALLCAP World Fund	15.94	15.33	10.60	9.28	13.97	9.94	1.08
Growth-and-income funds							
American Mutual Fund	13.89	7.51	9.43	7.32	6.25	8.79	0.58
Capital World Growth and Income Fund	18.13	16.03	13.77	11.33	14.66	13.10	0.73
Fundamental Investors	13.82	10.61	11.14	7.28	9.30	10.48	0.61
The Investment Company of America	12.50	7.79	10.29	6.04	6.53	9.64	0.57
Washington Mutual Investors Fund	14.10	6.99	9.65	7.52	5.73	9.00	0.60
Equity-income funds							
Capital Income Builder	19.40	12.64	11.38	12.54	11.31	10.73	0.58
The Income Fund of America	17.09	10.75	10.16	10.35	9.45	9.51	0.56
Balanced fund							
American Balanced Fund	9.57	7.08	9.50	3.27	5.82	8.86	0.61

The funds' investment adviser is waiving a portion of its management fees for these funds. Results shown reflect the waiver, without which they would have been lower. Gross expense ratios are as of each fund's fiscal year-end date and do not reflect the waiver; therefore the actual expense ratios for the funds are lower than the amounts shown. Please see each fund's most recent shareholder report for details.

* Fund lifetime return. The fund began operations June 17, 1999.

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