

Expected Return

By Christopher J. Brightman, CFA®

Ten years ago, after two decades of 14-percent annual returns for the traditional 60-percent equity/40-percent bond portfolio, many investors revised their return expectations upward. Some observers warned at the time that, with a dividend yield of less than 2 percent, the equity market was priced to provide lower rather than higher returns. For example, Bradford Cornell (1999) warned in his book *The Equity Risk Premium* that "... future equity returns will not be as high as they have been in the past." A year later, Robert Shiller (2000) explained in *Irrational Exuberance*: "Returns from holding stocks must be low when dividends are low—unless low dividends themselves are somehow predictors of stock market price increases ... Quite to the contrary: times of low dividends relative to stock price ... tend to be followed by price decreases..." The financial media, however, paid less attention to these scholarly works than sensational speculations of a new era of prosperity and ever-higher stock prices.

Now, after a decade of negative real return for the equity market, many of those who prepare financial plans haven't gotten realistic about expected returns. Too many investment plans continue to use simple historical averages of realized market returns as expected future returns. Planners recognize that future returns will differ from past averages, but they do not know how to confidently forecast future returns. One always can find a well-publicized strategist predicting a bull market and another predicting a bear market. Whom should an investor believe? Better it seems to simply base the plan on long-term historical averages.

Over the past 140 years, the annualized return of the U.S. equity market was 8.9 percent, the annualized return of U.S.

bonds was 5.0 percent, and the annualized return of a traditional 60/40 portfolio was 7.6 percent. Is 7.6 percent a good estimate now? No. The expected return of bonds is equal to the beginning bond yield. The expected return of the equity market equals its beginning dividend yield, plus long-term average real growth in earnings per share (EPS), plus implied inflation. At this writing, the expected return for U.S. bonds is 2 percent, for U.S. equities 6 percent, and for the traditional 60/40 portfolio is 4.4 percent.

Historical Returns

The data necessary to estimate expected returns are easily available. Equity market prices, earnings, dividends, and inflation from 1871 through 2010 are provided on Robert Shiller's website (<http://www.econ.yale.edu/~shiller/>) and bond yields are provided by the Federal Reserve. Table 1 provides a 140-year history of U.S. market returns from 1871 through 2010. The long-term historical returns of a traditional mix of 60-percent equities and 40-percent bonds displayed at the top of this table are the basis for the 7.5–8-percent expected return of most pension plans and the 5-percent expected real return of most endowments and foundations.

Over the full 140 years, and over the past century, and in both the first and second half of the past century, the real return of the 60/40 portfolio was approximately 5 percent and inflation was 2–3 percent. So what could be wrong with planning to receive a real return over the next decade of 5 percent and a nominal return of 7–8 percent? The problem is that today's market yields predict much lower returns.

Investors should not confuse historical average realized returns with expected future returns. For a traditional 60/40 portfolio, four of the past

14 decades provided double-digit annualized real returns, while four delivered higher real returns from bonds than from stocks, and two actually provided negative real returns to the stock market investor. An examination of the pattern of historical returns by decade reveals that high returns follow high yields and low returns follow low yields.

Beginning Yield Forecasts Bond Returns

By definition, the buy and hold to maturity return of a 10-year risk-free bond equals its yield to maturity. Of course, few investors buy and hold to maturity. They invest in a portfolio of bonds with an approximate constant average maturity. Figure 1 displays the return of investing in 10-year constant-maturity bonds over the past 14 decades. This constant maturity return does not precisely equal the bond's beginning yield, but it is close. The gain or loss of principal caused by falling and rising interest rates is approximately offset by lower or higher reinvestment income. These technical details are less important than the clearly visible relationship between starting yield and realized return. If 10-year bonds yield 12 percent, then investors should plan for a 12-percent bond return; if 10-year bonds yield 4 percent, then investors should plan for a 4-percent bond return.

The stock market is more complicated than a government bond portfolio, but the general principle is the same: Higher yields predict higher returns and lower yields predict lower returns.

The Building Blocks of Equity Market Returns

The annualized return of the U.S. equity market from 1871 to 2010 of 8.9 percent can be decomposed into four fundamental building blocks: dividend yield, real growth in earnings per share



TABLE 1: REAL GROWTH RATES, INFLATION, AND MARKET RETURNS, 1871–2010

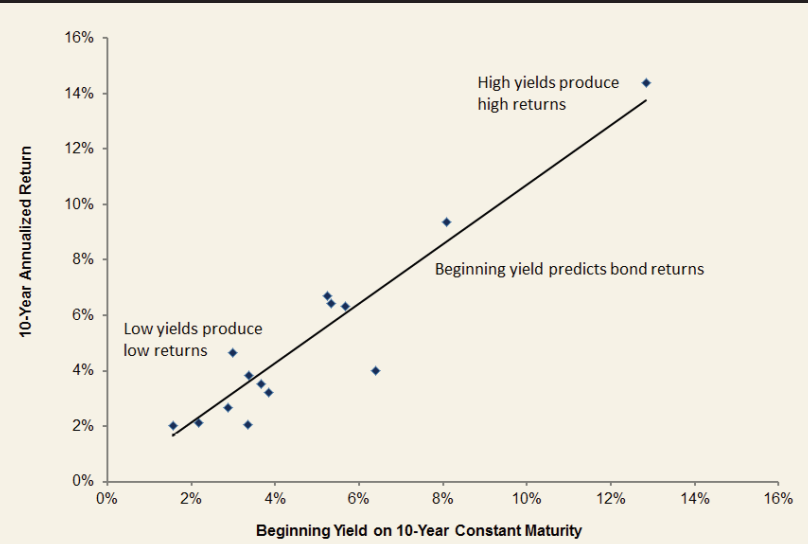
Period	Annualized Nominal Returns				Inflation CPI	Annualized Real Returns			
	Equity	60/40	Bonds	Cash		Equity	60/40	Bonds	Cash
1871–2010	8.9%	7.6%	5.0%	3.7%	2.1%	6.7%	5.4%	2.9%	1.6%
1911–2010	9.6%	8.2%	5.4%	3.8%	3.2%	6.2%	4.9%	2.1%	0.5%
1911–1960	9.5%	7.4%	3.4%	2.1%	2.4%	7.0%	5.0%	1.0%	-0.2%
1961–2010	9.7%	9.0%	7.4%	5.4%	4.1%	5.4%	4.8%	3.2%	1.3%
1871–1880	9.3%	8.3%	6.4%	4.6%	-2.7%	12.3%	11.3%	9.3%	7.4%
1881–1890	2.7%	3.1%	3.5%	3.4%	-1.8%	4.6%	5.0%	5.5%	5.3%
1891–1900	8.7%	6.9%	3.8%	2.8%	-0.4%	9.1%	7.3%	4.2%	3.1%
1901–1910	7.5%	5.7%	2.7%	3.6%	1.9%	5.5%	3.7%	0.7%	1.6%
1911–1920	3.2%	2.9%	2.0%	3.9%	7.7%	-4.2%	-4.5%	-5.3%	-3.5%
1921–1930	14.4%	11.6%	6.3%	3.7%	-1.8%	16.6%	13.7%	8.3%	5.7%
1931–1940	1.8%	3.9%	4.6%	0.4%	-1.3%	3.1%	5.3%	6.0%	1.7%
1941–1950	12.8%	8.6%	2.0%	0.6%	5.9%	6.5%	2.5%	-3.6%	-5.0%
1951–1960	16.3%	10.6%	2.1%	2.2%	1.8%	14.3%	8.7%	0.3%	0.4%
1961–1970	8.1%	6.3%	3.2%	4.4%	2.9%	5.0%	3.2%	0.3%	1.4%
1971–1980	8.4%	6.9%	4.0%	6.9%	8.0%	0.3%	-1.1%	-3.8%	-1.0%
1981–1990	13.9%	14.3%	14.4%	8.8%	4.5%	9.1%	9.4%	9.5%	4.2%
1991–2000	17.6%	14.4%	9.4%	4.8%	2.7%	14.5%	11.4%	6.5%	2.1%
2001–2010	1.2%	3.8%	6.7%	2.2%	2.3%	-1.1%	1.4%	4.3%	-0.1%

Sources: Research Affiliates, based on data from Robert Shiller, the Federal Reserve, and the Bureau of Economic Analysis

(EPS), inflation, and price-to-earnings (P/E) multiple expansion. Over this period, the dividend yield of 4.6 percent provided more than half the market's nominal return and 70 percent of its real return (see figure 2). The other important source of return was EPS growth of 3.8 percent, of which 2.1 percent was inflation and 1.7 percent growth in real EPS. The final building block is multiple expansion, which provided a 0.3-percent return over this period because the ending P/E multiple in 2010 was higher than the starting P/E multiple in 1870.

This picture of the long-term trend of equity market returns is a steady upward accumulation of wealth over the decades. Annual returns are, however, much more volatile. Examining the 140 individual years reveals negative real returns in nearly one out of three years and real losses of more than 30 percent in five of those years—1917, 1931, 1937, 1974, and 2008. The risk of

FIGURE 1: 10-YEAR BOND YIELD VS. REALIZED BOND RETURN



Source: Research Affiliates, based on data from the Federal Reserve.

negative real return is not eliminated by extending the time horizon to decades. As displayed in table 1, two full decades provided negative real returns—the 1910s and the just completed 2000s.

Assuming a constant P/E multiple, the real return of the equity market equals its dividend yield plus growth in EPS. Dividend yield is easily observed. What EPS growth rate should investors expect?



FIGURE 2: U.S. EQUITY RETURN BUILDING BLOCKS, 10-YEAR ROLLING AVERAGES

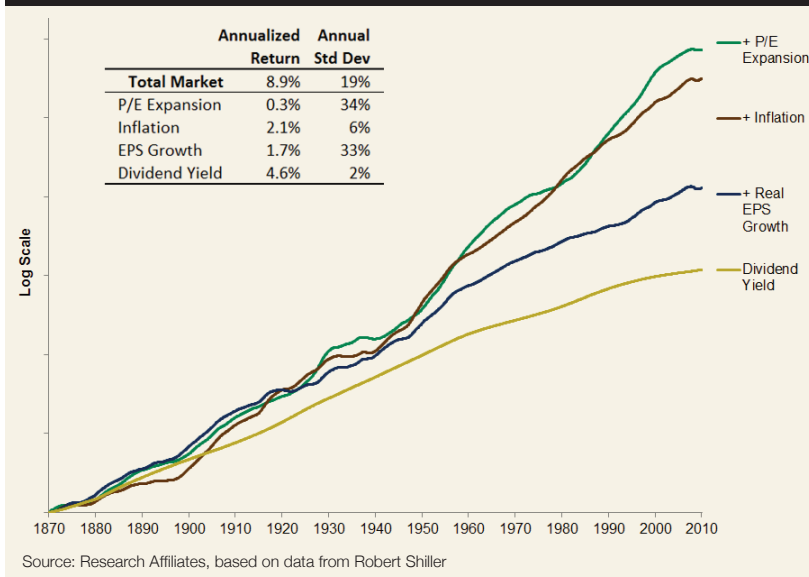
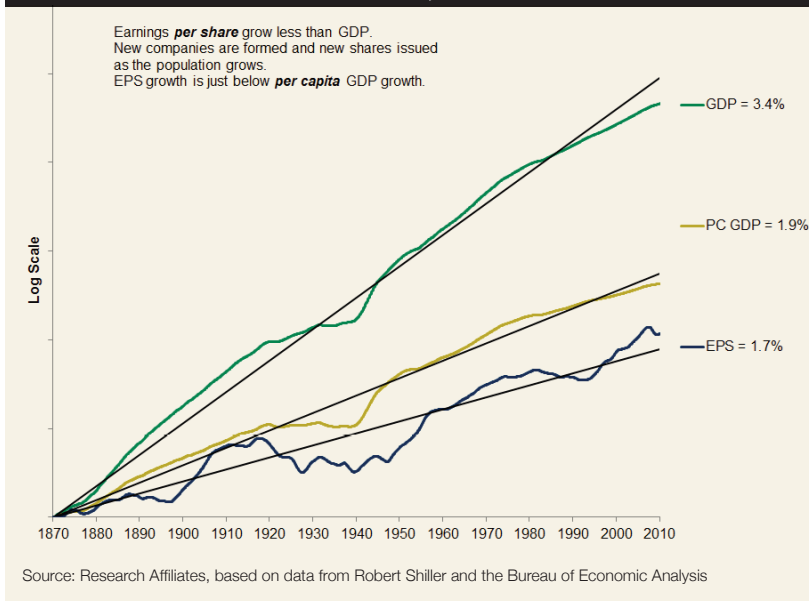


FIGURE 3: LONG-TERM REAL GROWTH, 10-YEAR ROLLING AVERAGES



Historical Real Growth in EPS

The prospects for future earnings growth is the subject of much analysis, commentary, and speculation. Given the historical annual standard deviation in real EPS growth of 33 percent, one should have little, if any, confidence in short-term earnings growth forecasts. The long-term historical picture, however, is much clearer. Annualized EPS

growth was 1.7 percent since 1870, falling to 1.5 percent over the past century.

These growth numbers of less than 2 percent are far below the typically rosy Wall Street forecasts for future growth. Even sober market strategists too often assume that long-term earnings growth should equal the long-term growth of the economy as measured by gross domestic product (GDP). This is a

sensible assumption for growth in total corporate earnings but grossly overstates the growth in EPS. Half of the growth in total corporate earnings flows to new investors through the formation of new companies and new share issuance by existing companies.

Economists measure growth in economic output per person (per capita GDP) by subtracting population growth from GDP growth. In similar fashion, financial analysts measure growth in EPS by subtracting the growth in shares from earnings growth. As shown in figure 3, real growth in EPS tracks real growth in per capita GDP.

Earnings Growth Reverts to Its Long-Term Mean

Some observe the stronger EPS growth of the past two decades and extrapolate this short-term trend. History suggests this is a mistake. Real growth in annualized EPS is volatile even over periods of decades, ranging from +6 percent to -6 percent. These changes in EPS are not random, however. Strong growth in EPS typically follows negative growth and vice-versa. As displayed in figure 4, annualized growth in real EPS exceeded 3 percent in only four decades, three of which followed negative EPS growth in the prior decade and the fourth was the World War II decade of the 1940s, following the Great Depression.

During each historical period of temporarily elevated growth, one can read media discussion of the reasons for a new era of permanently higher growth. At the turn of the 19th century, the development of railroads, automobiles, telegraph, and the first era of globalization created a perception of a new high-growth era. During the roaring 20s, growth expectations were propelled by radio, motion pictures, and commercial air flight. In the 1990s, expectations of a new era were based on commercialization of the Internet and a second wave of globalization. Yet through it all, EPS growth averaged just 1.7 percent.



Today, after two decades of strong growth, EPS is well above its long-term trend growth rate. To forecast growth in real EPS for the next decade above 2 percent is to ignore a long history of mean reversion. Over the coming decade, growth in EPS of below the long-term trend seems more likely than above.

Dividend Payout Link to Subsequent EPS Growth

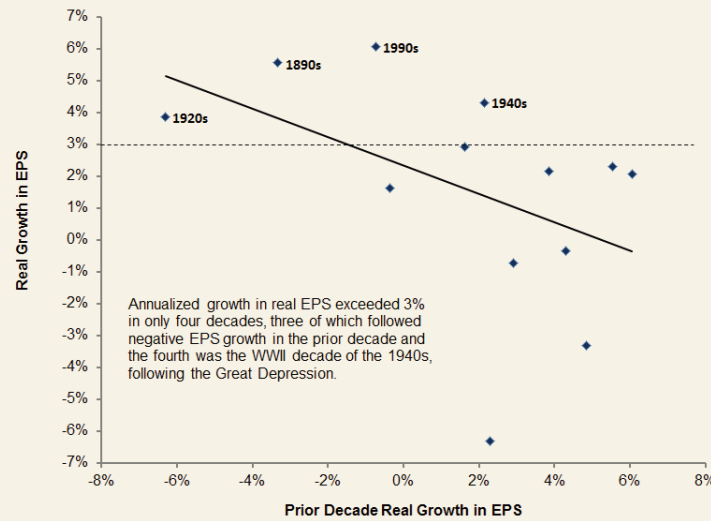
Someone always tells a plausible story about why this time is different. Perhaps the most theoretically compelling story today for why future growth in EPS may be higher than its long-term historical average is the recent decline in the ratio of dividends to earnings (payout ratio). The dividend payout ratio over recent decades of approximately 50 percent is meaningfully below the 70-percent payout for the previous century. The complement of a lower payout ratio is a higher retention rate. More retained earnings means more reinvestment and should, in theory, lead to higher future EPS growth. This theory is not supported by the historical data. As figure 5 shows, lower payout ratios and, hence, higher retention rates, are not associated with higher real growth in the subsequent decade's EPS.

The explanation for the absence of a relationship between payout ratio and future EPS growth is that dividends are much less volatile than earnings. During periods when earnings were cyclically depressed, companies maintained a steadier payout of dividends and the observed payout ratio is unusually high. During periods when earnings were cyclically elevated, companies maintained steadier dividends and the observed payout ratio is unusually low. The simple and obvious explanation for the decline in the payout ratio over recent decades is cyclically elevated earnings.

Share Buybacks

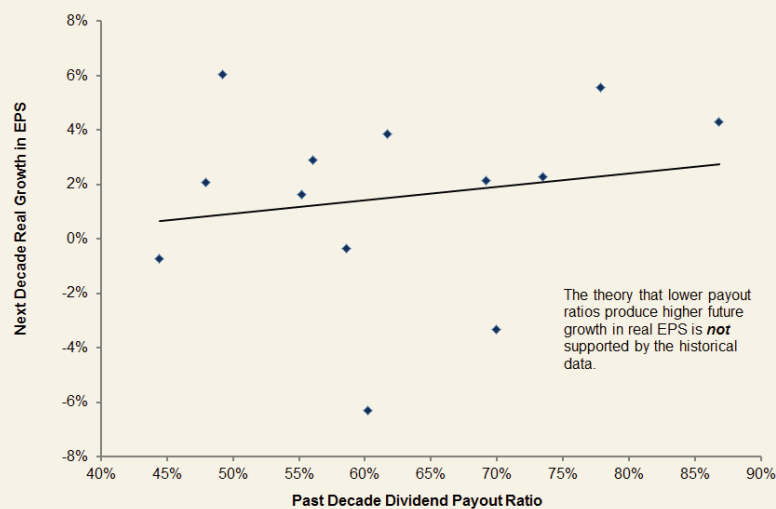
Some explain the decline in dividend payout as a consequence of companies distributing earnings through share

FIGURE 4: MEAN REVERSION OF EARNINGS GROWTH, ANNUALIZED GROWTH IN EPS BY DECADE



Source: Research Affiliates, based on data from Robert Shiller

FIGURE 5: PAYOUT RATIO VS. SUBSEQUENT EPS GROWTH



Source: Research Affiliates, based on data from Robert Shiller

buybacks in place of dividends. For the market in aggregate, share buybacks are mostly a myth. Share issuance exceeds buybacks in most years and on average through the years. From 1960 to 2010, new issuance of shares by publicly traded companies in excess of buybacks (dilution of existing shareholders) has averaged 1.25 percent per year. In the 50 years since 1960,

buybacks have exceeded new issuance by existing publicly traded companies in only eight years.

Much of the growth in aggregate corporate profits comes from new business enterprises and some of those businesses go public each year in initial public offerings (IPOs). Contrary to common perception, however, IPOs are a small fraction of the value of net new



FIGURE 6: U.S. EQUITY MARKET ANNUAL DILUTION

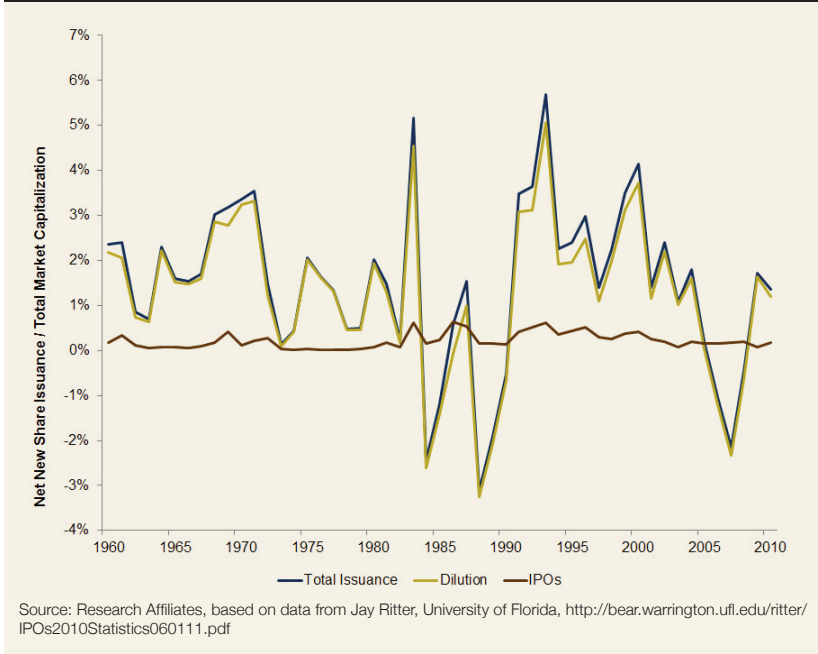
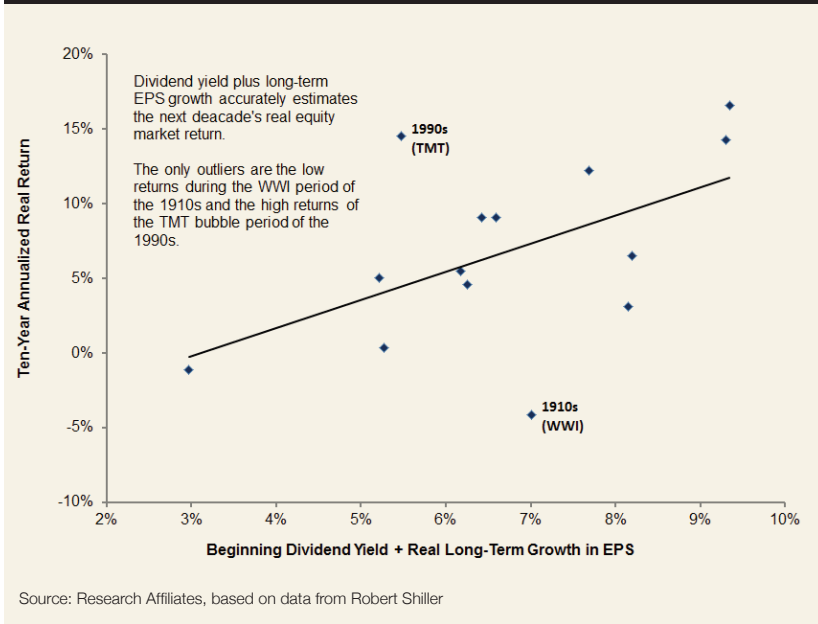


FIGURE 7: DIVIDEND YIELD + EPS GROWTH VS. REALIZED EQUITY RETURN



share issuance. Most issuance of new shares comes from existing companies and dilutes existing shareholders. As figure 6 shows, the value of shares issued by existing publicly traded companies net of buybacks (dilution of existing shareholders) is much greater than the value of IPOs.

Forecasting Expected Real Returns

The seemingly daunting task of estimating the equity market's return for the next decade is easily accomplished by examining the building blocks of equity market returns. Recall that equity returns equal the sum of dividend yield, growth in real EPS, inflation, and P/E

multiple expansion. For purposes of investment planning, the constant prattle of pundits about EPS growth and P/E multiples is best ignored; EPS growth and P/E multiples are too volatile to allow reliable short-term forecasts.

The stability of dividend yield, however, allows reasonably accurate long-term forecasts of equity market returns. As figure 7 shows, the market's starting dividend yield plus the long-term average real growth rate in EPS provides a reasonable estimate of the next decade's real return. Of course, this forecast is neither precise nor infallible. The World War I decade of the 1910s and the tech bubble decade of the 1990s are notable outliers. Still, yield plus real growth is a much better forecast than a simple backward-looking historical average of realized returns.

To forecast the nominal equity market return, an inflation estimate is added to this real return forecast. For planning purposes, future inflation may be forecast as the break-even inflation rate (the difference between nominal and real government bonds).

A Simple Model of Expected Return

The expected return of a traditional portfolio is estimated by simply weighting the expected return for the equity market and the beginning bond yield. Table 2 displays the expected equity market return (sum of beginning dividend yield, long-term average real growth in EPS, and implied inflation), the beginning yield for a 10-year constant maturity bond, and the expected return for a 60/40 portfolio for each of the past 14 decades. The table also displays the realized returns for each decade and the difference between expected and realized returns.

The average expected return of the 60/40 portfolio was 7.2 percent and the average realized return was 7.6 percent. Realized return was greater than expected because the ending P/E multiple was above its average and

TABLE 2: EXPECTED RETURN MODEL FOR A 60-PERCENT EQUITY/40-PERCENT BOND PORTFOLIO

Decades	Beginning Dividend Yield	Long-Term Real EPS Growth	Implied Inflation	Expected Equity Return	Beginning Bond Yield	Expected 60/40 Return	Realized 60/40 Return	Expected Minus Realized
1871–1880	5.9%	1.7%	2.4%	10.3%	5.3%	8.3%	8.3%	0.0%
1881–1890	4.5%	1.7%	0.8%	7.1%	3.7%	5.7%	3.1%	2.6%
1891–1900	4.8%	1.7%	0.5%	7.1%	3.4%	5.6%	6.9%	-1.3%
1901–1910	4.4%	1.7%	0.0%	6.1%	2.9%	4.8%	5.7%	-0.9%
1911–1920	5.2%	1.7%	0.4%	7.5%	3.3%	5.8%	2.9%	2.9%
1921–1930	7.5%	1.7%	2.8%	12.4%	5.7%	9.7%	11.6%	-1.9%
1931–1940	6.3%	1.7%	0.1%	8.2%	3.0%	6.1%	3.9%	2.2%
1941–1950	6.4%	1.7%	-1.3%	6.7%	1.6%	4.7%	8.6%	-3.9%
1951–1960	7.4%	1.7%	-0.7%	8.5%	2.2%	6.0%	10.6%	-4.6%
1961–1970	3.4%	1.7%	0.9%	6.2%	3.8%	5.3%	6.3%	-1.0%
1971–1980	3.5%	1.7%	3.5%	8.9%	6.4%	7.9%	6.9%	1.1%
1981–1990	4.6%	1.7%	9.9%	17.0%	12.8%	15.3%	14.3%	1.0%
1991–2000	3.7%	1.7%	5.2%	10.9%	8.1%	9.8%	14.4%	-4.6%
2001–2010	1.2%	1.7%	2.3%	5.4%	5.2%	5.3%	3.8%	1.6%
Average	4.9%	1.7%	1.9%	8.7%	4.8%	7.2%	7.6%	-0.5%
Standard Deviation							3.9%	2.6%
Current	2.3%	1.7%	2.0%	6.0%	2.0%	4.4%		

Sources: Research Affiliates, based on data from Robert Shiller, the Federal Reserve, and the Bureau of Economic Analysis

the ending level of EPS is above its trend. Investors should not confuse the historical average realized return of 7.6 percent with expected return. At year-end 1980, the expected return of the 60/40 portfolio was 15 percent and the realized return over the next decade was 14 percent. At year-end 1990, the expected return was 10 percent and the realized return over the next decade was again 14 percent (the ending P/E multiple was inflated by the tech bubble). At year-end 2000, the expected return dropped to 5 percent and the realized return over the next decade was 4 percent. The simple and logical model of expected return explained here provides an accurate estimate of future realized return.

The Current Outlook

As of late 2011, the expected annualized 10-year return for the equity market is 6 percent, the 10-year bond yield is 2 percent, and the expected return for a 60/40 portfolio is 4.4 percent. The expected real return for a 60/40 port-

folio is 2.4 percent. Pensions, endowments, and retirees should not plan to receive the realized historical average annual real return of 5 percent for the next decade. Financial plans for the coming decade should assume a 4 percent to 5 percent nominal return and a 2 percent to 3 percent real return.

One can quibble with this simple model of expected return. It ignores P/E multiples. Shiller's cyclically adjusted P/E is, at this writing, 20. If one assumes reversion to the long-term mean of 16, then the expected return of the equity market and the 60/40 portfolio is even lower.

This simple model assumes that the 140-year average growth in EPS is a good estimate for the next decade. With earnings today at a cyclical peak, developed economies mired in an historic debt-fueled economic contraction, unsustainable fiscal deficits, and aging demographics, the 1.7-percent long-term average growth in EPS, and even the 1.5-percent over the past century, may be an overly optimistic growth assumption.

The bond market's break-even inflation of 2 percent may be too low. If inflation is 3 percent instead of 2 percent, then the nominal expected return of a 60/40 portfolio may be 5.4 percent instead of 4.4 percent, but the real expected return remains at 2.4 percent. If inflation is 5 percent, then bonds will realize large losses and P/E multiples will contract to below the long-term average of 16. With high inflation, the 60/40 portfolio is likely to provide a negative real return like in the 1970s.


Some investors will, of course, achieve higher returns through broader diversification, tactical allocation, systematic rebalancing, and illiquid alternative asset classes. However, the 60/40 mix of domestic stocks and bonds has closely tracked the realized returns of the median institutional portfolio. For every investor that exceeds the median, another falls below. Most individual investors realize lower returns than institutions.

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Investment consultants, pension trustees, and endowment staff members convince themselves of the reasonableness of their return expectations. They may have lowered their expected return from 9 percent in 2000 to 8 percent in 2005 and to 7 percent now. But given current market yields, these are more hopes than realistic plans. 

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