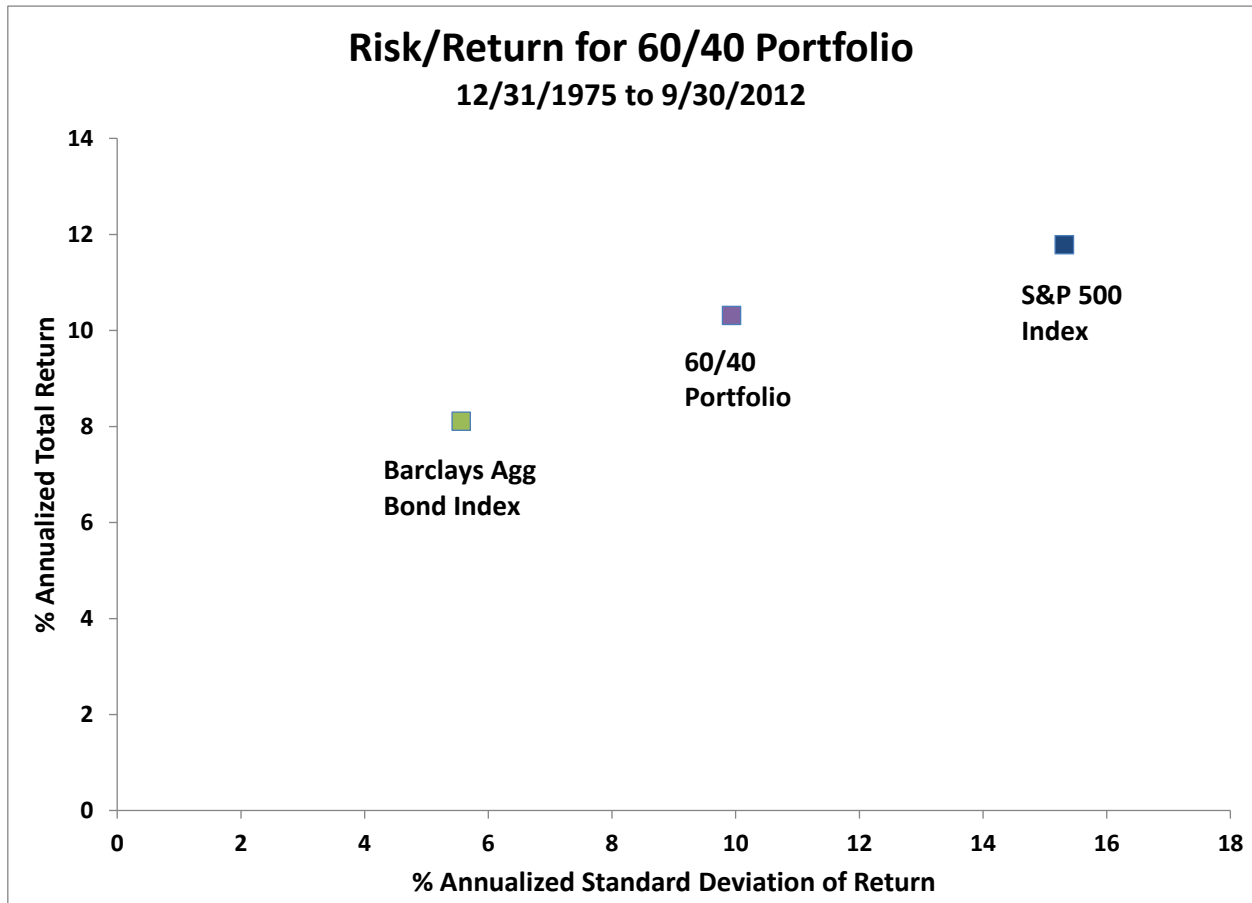


## FORCASTING LONG-TERM RETURNS FOR U.S. STOCKS AND BONDS

### The Traditional 60/40 Portfolio

The default asset mix for many investors, both institutional and individual investors, is a portfolio that is 60% stocks and 40% bonds. This asset mix has worked quite well for most investors for a long time—we present below the risk/return profile since 1975 when the first broad-based bond index started (Treasury indexes are much older).

For many investors this history represents their life experience with investing and therefore informs their expectations, but is it reasonable to expect these average historical returns to be a good **forecast** for the future?



In a word, no. **Not even close.** Let's try to come up with a reasonable set of expectations for stocks and bonds from this point forward, starting with the easy one, bonds.

## Forecasting Bond Returns—What You See Is What You Get

Forecasting the expected return for fixed income instruments is very straightforward. A bond is a loan with specified repayment terms. Held to maturity, unless the seller defaults, the return is the yield-to-maturity, which takes into account the current price, the interest coupons, and the principal repayment at maturity. (For some bonds and bond indexes, if the bond gives the issuer the right to call the bonds—which is common for corporate debt—a better measure is the “yield-to-worst”.)

For example, **the expected return for the Barclays US Aggregate Bond Index** is simply its nominal yield, which on 9/30/2012 was a **paltry 1.61%** (the yield-to-worst). That is all the U.S. bond market is paying investors!

Note that **the best forecast for the bond index is not an average of past return**. Past returns were affected by unique events, such as the inflation of the 1970’s, the subsequent tightening by the Fed in the early 1980s, and the slow wringing out of inflationary expectations in the pricing of bonds that took place afterward. **It would be ludicrous to use past returns to forecast the future for bonds, and yet, the practice is surprisingly common.**

## Forecasting Stock Returns—Great Variation Around A Central Tendency

Though not as intuitively obvious, **it is equally ludicrous to derive a forecast for U.S. stocks by averaging past returns**. Stocks, like bonds and all other financial instruments, have an intrinsic value equal to the present discounted value of future cash flows. Unlike bonds, where the cash flows are known in advance (assuming no default), cash flows for stocks (dividends) are not contractual, and have historically tended to grow over time, which makes forecasting stock returns much more difficult than forecasting bond returns.

**The total return for stocks can be separated into two components: dividend income and capital appreciation, which over the very long term is based upon the dividend growth rate.** The reason that capital appreciation ultimately depends upon the dividend growth rate is that dividends are the cash flows that give a stock its value. If I hold a stock forever, my return is the dividends I collect. If I sell a stock to someone, the selling price is determined by the long-term dividend flow the stock will generate discounted at an appropriate rate. Although the current dividend for stocks is known (2.12% for the S&P 500 as of 9/30/2012), the trick as far as expected return forecasting is concerned is in forecasting the dividend growth rate.

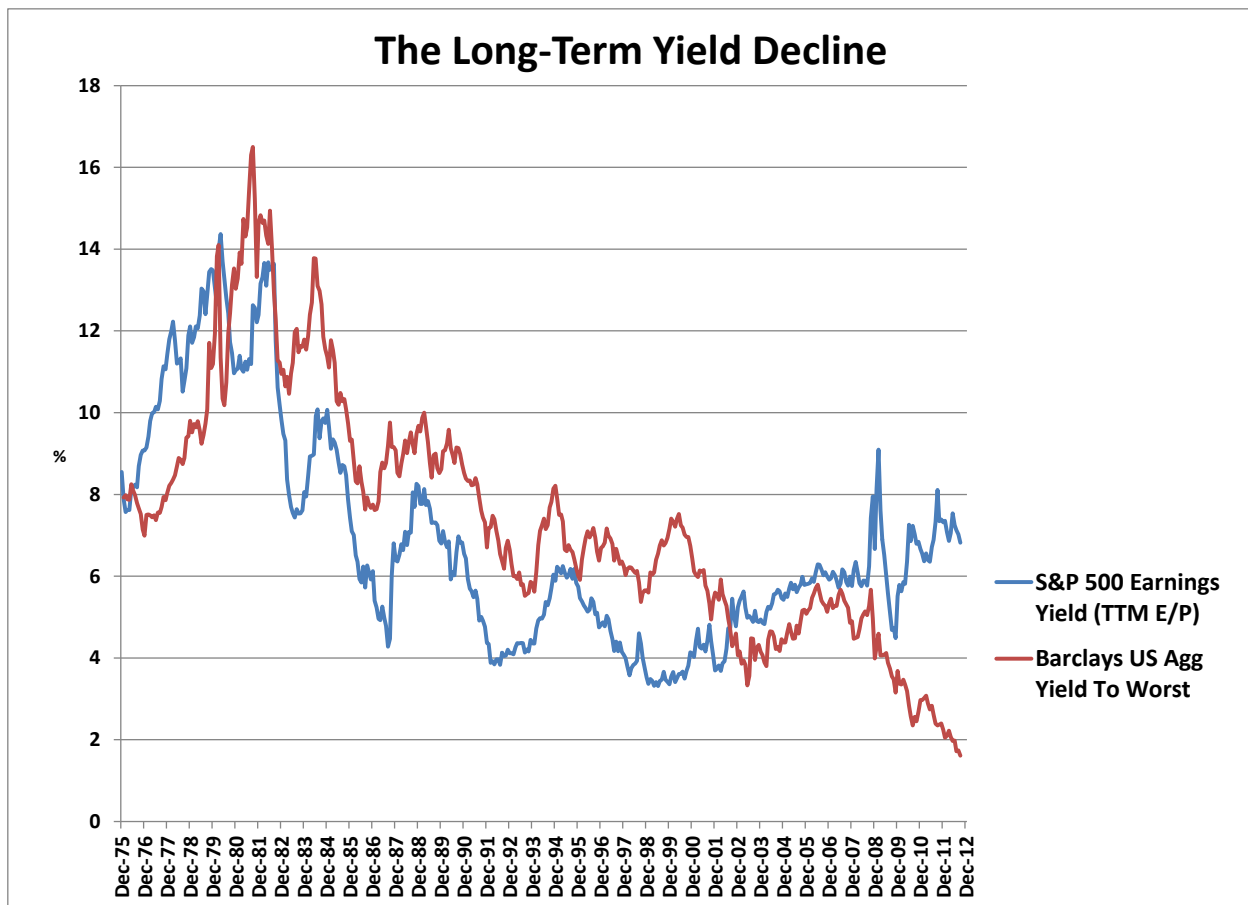
The easiest way to forecast the future is simply to extrapolate the past. One of the easiest ways to extrapolate the past is to use an historical average. Couldn’t we just strip out the dividend component of the historical return and average the capital appreciation component? Unfortunately, it is not that simple. **Forecasting long-term asset class returns by averaging long-term asset class returns from the past is an excellent example of irresponsibly using data without a proper theoretical framework.**

Sad to say that, even among investment professionals, this practice is incredibly widespread. The most commonly misused database is the Ibbotson Associates return series, which dates back to January 1926, a very long time period, to be sure. However, even over this long time period, **the average return is quite sensitive to both initial conditions and terminal conditions**. More importantly, a series of **unique events affected the realized returns** of U.S. securities since 1926, which may not be repeated in the future. In addition, although we cannot know what terminal conditions will prevail at the end of a

forecast period (say, ten years), we know what the initial conditions are, and **current conditions will normally be the most important component of a theoretically sound asset class return forecast.**

Over short to intermediate periods of time, the magnitude of the dividend return is often small relative to the magnitude of the capital appreciation (or depreciation!) return from changes in price. Stock prices are volatile. Small changes in investors' views on the appropriate discount rate or the likely dividend growth rate can greatly affect the present value of a stock. Even over long periods of time, the capital appreciation component of stock return is likely to be a very important component of total return. However, **when analyzing the past for the purpose of forecasting the future, it is vitally important to separate out expected capital appreciation due to long-term growth in earnings and dividends from unexpected capital appreciation due to changes in the discount rate.** The expected component is sustainable, and unexpected component is not.

For example, **changes in the level of interest rates are a major driver of changes in the discount rate applied to stocks.** When interest rates go down, all financial assets benefit with an increase in value. The U.S. has had a long-term decline in interest rates since the early 1980's. That happy period is probably over.



**Investor sentiment also greatly affects the discount rate that investors apply to stock dividends.**

During the heady days of the Internet bubble of the late 1990's, some pundits were arguing that a "zero equity risk premium" of stocks relative to bonds was appropriate. Indeed, it seemed that investors had greatly reduced their required rates of return based upon the ridiculously high prices they were willing

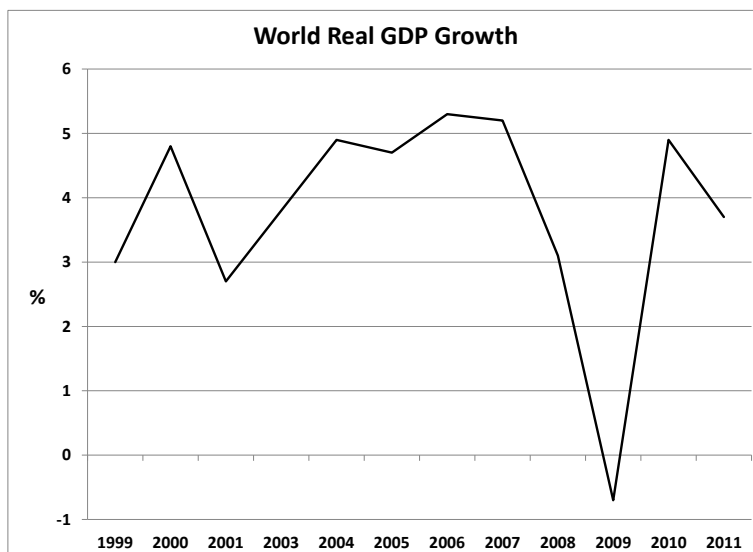
to pay for many stocks. During the early 2000's, investors reverted back to a belief that stocks should be priced to have a positive risk premium relative to bonds. **For long-term forecasting purposes, these changes in the equity risk premium should be ignored, since, like changes in interest rates, they are not predictable or sustainable.** And like interest rate changes, they greatly affect historical returns, even over long periods of time.

My thinking on this subject has been greatly influenced by Arnott and Bernstein (March/April 2002 issue of the *Financial Analysts Journal*), who point out that realized U.S. equity returns since 1926 have been a great deal higher than what investors could have reasonably expected due to a series of "historical accidents." Chief among these was the fact that "between 1926 and 2001, stocks rose from a valuation level of 18 times dividends to nearly 70 times dividends," and they point out "the entire increase occurred in the last 17 years of the period," making averages over shorter time periods particularly sensitive to the recent boom period. **Extrapolating past capital appreciation rates, even over the full time period since 1926, is tantamount to assuming that this upward revaluation of equities will continue ad infinitum.**

**Fortunately, at least the first component of the long-term return for stocks is relatively easy to forecast, the current dividend yield.** Since reductions or eliminations of dividends are a rare occurrence, it is reasonable to simply use the current indicated dividend yield. Some argue for including stock buybacks, since they are another method of returning capital to shareholders. However, buybacks must be balanced by share issuance, and for the S&P 500, the roughly 3% rate of gross buybacks is almost exactly offset by various forms of share issuance, such as conversion of various forms of debt for equity, secondary offerings, and issuance of stock for acquisitions. (Source: [http://www.factset.com/websitefiles/PDFs/buyback/buyback\\_9.28.12.](http://www.factset.com/websitefiles/PDFs/buyback/buyback_9.28.12.))

**The capital appreciation component,** driven over the very long-term by growth in dividends (ignoring the short-term effects of changes in the level of interest rates and the equity risk premium), **must be subjectively forecasted.** Many analysts tie equity earnings and dividend growth rates to the growth rate of the local economy. There is a compelling logic to this. None of the three major sectors of economic activity—personal, business, and government—can always grow faster than the others or it would take over the whole economy. (Though we have seen government's share grow at an alarming rate in recent years.) In this sense, overall GDP growth rate provides a long-term ceiling on the growth of the business sector.

Note that publicly traded companies are only a **component** of the business sector, and tend to be slower growing than privately held business interests that are newer and smaller. On the other hand, large corporations may be able to garner a higher growth rate through their involvement in foreign economies that may be growing at a higher rate than the domestic economy. However, as the graph at right illustrates, global real GDP growth has averaged only 3%-4%, and is widely expected to stay in lower end



of that range as some of the countries that have been the engines of growth slow down a bit, particularly China.

The usual method for forecasting future nominal GDP growth is to separate out the real (inflation-adjusted) growth rate from inflation because of inflation's distorting effect on measuring the true gains in the value of goods and services produced. A separate forecast for inflation can be added to a real GDP forecast to obtain a nominal GDP forecast.

Our objective is to forecast the long-term growth in earnings and dividends for U.S. public companies. Recently, U.S. real GDP growth rates have been running at under 2%, which some are describing as the "new normal." Balancing the fact that public companies tend to have slower growth with their possible participation in higher global real GDP growth might get an optimistic real growth rate of, say, 3%.

However, **Arnott and Bernstein point out that over the very long term, inflation-adjusted dividends and stock prices have both increased at roughly the rate of real per capita GDP growth (not total real GDP growth).** "Because growth in per capital GDP is a measure of productivity growth, the internal growth that can be sustained in a diversified market portfolio should closely match the growth of **productivity** in the economy, not the growth in the economy per se." The empirical evidence they cite, which dates back to 1802, shows that indeed, real dividend growth rates closely parallel real per capita GDP growth rates in the U.S. over that time period.

Also noteworthy is the fact that, **in the 200+ years since 1802, the real return on U.S. stocks has been about 6.6%, with about 5% of that figure (or 75%) coming from dividends.** Because we have become so used to large annual rates of capital appreciation since 1983, this may come as a surprise. **Real dividends grew only 0.9% per year on average since 1802.**

This data would push our forecast of real dividend growth more towards something like 1%. If 3% is optimistic, perhaps 1% is overly pessimistic. So, let's settle on a compromise of 2%, shall we?

Now, we need an inflation forecast. Fortunately, we have two very good sources for this estimate. Recently, the Fed announced a target rate for inflation of 2%. Also, the spreads between TIPS and Treasuries seem to be implying a rate of 2% to 2.5% over 5, 10, and 20 years. Recent inflation rates have been under 2%, so going with the Fed target seems reasonable. After all, they can do a lot to hit that target!

Where does that leave us as far as a methodology for forecasting the return for U.S. stocks? It's simply a matter of adding up the components:

2.12%	Current S&P 500 dividend yield
+ 2.00	+ Forecasted real dividend growth
<u>+ 2.00</u>	<u>+ Inflation forecast (from Fed announcement and TIPS-Treasury yield spread)</u>
= 6.12%	= S&P 500 nominal return forecast

Adding these components together gives us a **theoretically sound forecast for the S&P 500** over the long-term. With some adjustments, similar logic could be applied to the stock indexes of other countries or specific sectors, industries, or groups.

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October 3, 2012

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