Jeremy Siegel, Rob Arnott and Other Experts
Forecast Equity Returns
By Laurence B. Siegel
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A forecast of the equity risk premium (ERP) tells you how much to save, how to allocate assets between equities and fixed income, and how much you can consume. Given its great importance, the CFA Institute recently convened a group of top-level academics and practitioners to forecast future ERPs – and to reflect on similar predictions they had made a decade ago.

The ERP is defined as the total return, including dividends, that one can expect from a stock index over the long term, minus the expected return or yield on a riskless bond, typically a 10-year U.S. Treasury bond. It is what investors require or expect as compensation for taking the risk of equities instead of investing in (presumably) default-free bonds.

I was honored to be a part of the group the CFA Institute employed in this project. I'll discuss what I and the other experts foresaw, and then turn to the implications for advisors in their financial planning and asset management practices.

CFA Institute discussions of the equity premium

The CFA Institute convened its original panel of experts on the topic in 2001, just after the stock market reached its tech-bubble peak, to discuss various issues relating to the equity premium. The predictions ran the gamut, with Roger Ibbotson projecting a +6% premium and Rob Arnott expecting -1.5%. Among the other luminaries who contributed to the 2001 discussion were Cliff Asness, John Campbell, Robert Shiller, and Jeremy Siegel, as well as Marty Leibowitz, who organized the group.

There wasn't a consensus in 2001 but, given the personalities involved, the discussion was as fascinating as you might expect. The most accurate forecaster was the pessimistic Arnott, but even he overshot the miserable decade that was to follow; the realized ERP from 2002 to 2011 was an abysmal -4.14% per year. (This number consists of the S&P total return of +2.92% per year, minus the astonishingly high, and almost certainly unrepeatable, Treasury bond return of +7.06% per year[1] – so it is not entirely the stock market's "fault.")

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[1] The 7.06% compound annual return is actually for the Barclays Capital 7-10 Year U.S. Treasury bond index, not for a "pure" strategy of rolling over a single 10-year bond.

A decade later, a respectable subset of the group was reconvened, with me among a handful of new people added to the mix. Our intent was to revisit the previous forecasts, offer new ones, and turn the resulting discussion into a book, which has now been published by the CFA Institute's Research Foundation under the title, *Rethinking the Equity Risk Premium*. It is available as a free download, or for purchase in hard copy format at a low price, [here](#).

The estimates were much closer together this time. Most of the participants agreed on a premium of 4% or a little less. My estimate was 3.6% over 10-year Treasury bonds. (These Treasury bonds yielded 3.4% as of April 2011, when I wrote my chapter of the book; now, they yield 1.9%.) The ERP estimate of 3.6% is a geometric mean, so I expected stocks to compound upward at 7% per year in nominal terms, including reinvestment of dividends. The key assumption behind my estimate, and that of several of the other participants, was the link between GDP growth, corporate profit growth, and share price growth. Share prices must grow more slowly than GDP, because new issues are required to bring new companies to market; but the relation between the two variables is pretty tight.

What changed between 2001 and 2011?

The most obvious change between 2001 and 2011 was that two stock market crashes chastened the hardcore stocks-for-the-long-run crowd. Even Jeremy Siegel softened his aggressively bullish forecasts around 2005, when he was working on his book, *The Future for Investors*. (There were hints of his doubts as far back as 1999.[2]) On the other side, the fact that the bearish forecasts made by Arnott and Asness, among others, were realized caused these low expectations, projected forward indefinitely, to seem too pessimistic. As a result, the forecasts converged on a middle number.

Another change in the intellectual climate was a coalescing agreement around the GDP-linked ERP model that I helped to develop in the early 1980s. (My original work on this approach, with Jeff Diermeier and Roger Ibbotson, published in 1984, was largely ignored; use of a GDP-linked model first caught on in earnest a decade later, with work by researchers such as Peter Bernstein, Cliff Asness, and Rob Arnott.) A GDP-linked model asserts that corporate earnings cannot grow faster than GDP indefinitely, or else they would eventually take over the entire economy, with nothing left for wages or other needs. Since stock prices are a relatively predictable multiple of earnings, varying widely but always returning sooner or later to 15 times or 20 times earnings, the capital-gain component of stock returns must also be bounded by GDP growth.[3]

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[2] See Siegel, Jeremy J., 1999, "The Shrinking Equity Premium," *Journal of Portfolio Management,* vol. 26, no. 1 (Fall), pp. 10-17.

[3] To this number – the expected capital gain – one must add the dividend yield to arrive at the expected stock total return.

The simple projection of the historical premium forward – the future-equals-past method that Ibbotson and Sinquefield pioneered – was all but abandoned by 2011. Even Roger Ibbotson's own recent work moved decisively away from the future-equals-past forecasts for which he first became known. (The future-equals-past method involves calculating the historically achieved ERP, by subtracting bond returns or yields from achieved equity total returns, and treating the result as the expected or forward-looking ERP.) The article by Ibbotson's frequent co-author Peng Chen in *Rethinking the Equity Risk Premium* used a blended method, one that takes into account both the past premium and GDP-related forecasts.

It is not a big surprise that a forecast that extrapolates data from the most successful century of the most successful country in the history of the world might be too high. What is perhaps more surprising is that the future-equals-past forecast is not too high by all that much. Chen calculated that the difference between the future-equals-past ERP and the GDP-related ERP was only 0.80% per year.

Views of the discussion participants

Each contributor to *Rethinking the Equity Risk Premium* made a distinctive contribution. Some of these have already been noted. Here are brief summaries of the work of some others:

- Brett Hammond of TIAA-CREF and Marty Leibowitz of Morgan Stanley, writing together, focused on the idea that different investors experience differently sized equity premiums, due to differences in tax status, holding period, and other circumstances specific to the investor. They concluded that no single equity risk premium estimate can be correct.

- Cliff Asness, the founder of AQR Capital Management, who called the bear market of the 2000s correctly, argued that the stock market is still expensive. His analysis relied on the Shiller P/E (current price divided by trailing 10-year average real earnings). He expects an equity total return – not a risk premium – in the range of 4%.

- The London Business School professors Elroy Dimson, Paul Marsh, and Mike Staunton examined evidence across many countries. Over the period from 1900 to the present, , the equity premium has been substantially positive in all of the countries, even some of the less successful ones. The authors used a GDP-linked model to estimate that the forward-looking premium will be 3.5% to 4.0% (geometric). They argued that the future premium will be lower than the historical premium because they expect lower dividend growth going forward.

- Rob Arnott, the founder of Research Affiliates, debunked a number of myths surrounding the equity premium. Among these myths are: that the premium is a

stable 5 percentage points over bonds; that the risk of stocks all but goes away in the long run; that earnings grow as rapidly as GDP; and that dividends do not matter. He shows how each of the myths came to be widely accepted as truth and demonstrates why they are untrue or misleading. Arnott's forecast was for 2.5% to 3% equity total return in excess of inflation, making him the most pessimistic author in 2011. Arnott was also the most pessimistic author in 2001.

- The hedge fund manager Antti Ilmanen demonstrated that the equity premium has varied substantially over time and will continue to do so. He forecast below-average returns over the next decade. He also presented evidence that the "sweet spot" for equities is mild inflation, which he believes will not continue because monetary policy has been too inflationary. If his forecast is correct over the next decade, however, he expects "normal" returns after that, because what he regards as the overpricing of equities will have been corrected by that time.

- Jeremy Siegel looked back in history to the founding of the U.S. to argue that the equity premium has been high and surprisingly stable when measured over very long periods. He noted that the two recent bear markets have not greatly affected the historical risk premium when it is measured over a long time span. Siegel expects real stock returns of 6% to 7%, which translate to a risk premium of 5% to 6% (because real yields on Treasury bonds are only 1%).

Implications for advisors

An ERP in the 3.5% to 4% range would have important implications for advisors. Because this prediction falls below the historical average of 4.5%,[4] this consensus projection means that anyone who uses historical data to directly forecast the future is likely overselling equities.

But even if the historical ERP *were* the correct number to expect in the future – and it isn't – equity risk would still be pretty scary. Over a more than 40-year period (January 1969 to February 2009), a strategy of rolling the long Treasury bond would have beaten the S&P 500. If 40 years isn't a long enough time horizon for the so-called virtual certainty of stocks beating bonds to take root, I don't know what is. Admittedly the stock market bounced back strongly after February 2009, and a strategy of rolling the long bond is rarely followed, but the mere fact that any kind of Treasury bond portfolio would have beaten stocks over a more than 40-year period should be a wake-up call for advisors promoting an equity-heavy strategy.

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[4] Data from *Ibbotson SBBI 2011 Classic Yearbook*, Chicago: Morningstar Inc. (table 6-7 on page 86). We use the arithmetic difference of the geometric means of annual S&P 500 total returns and intermediate-term Treasury bond total returns.

Equities are oversold in many investment settings, particularly in 401(k)'s and IRAs where investors nearing retirement were crushed by the 2008 mega-bear market. Investors had no business holding equities beyond a 30% or 40% allocation. These investors were led to believe that their only chance for a prosperous retirement lay with high-risk investments. In fact, the best odds lie with low-risk investments and a very high savings rate. Taking risk may or may not work out well. That is why it is called "risk."

But many institutions, and not a few individuals – myself included, and I'll admit to being a chicken – are underinvested in equities, if these ERP projections are to be believed.[5] These investors have over-weighted illiquid assets, hedge funds, and perhaps bonds because they have implicitly presumed that the horrible equity returns of the last decade will repeat themselves forever. An equity nominal return (including dividends) of 6% or 7% is not horrible, and a 7% return implies doubling one's nominal wealth every 10 years. An institution with a long time horizon, or a young or early middle-aged individual with the ability to earn extra money to make up for potential investment losses, should not shy away from equities. After two bear markets and a partial recovery, they've landed at a P/E ratio of about 15, and thus are, arguably, fairly priced, offering a fair rate of return for the risk taken.

Inputs for Monte Carlo and other simulations

Many advisors use Monte Carlo simulations to illustrate the range of outcomes possible with a given investment strategy, or to compare different strategies. In such simulations, it is critical to have good estimates of both the expected return and the expected risk of each asset.

In most Monte Carlo set-ups, the best expected return to use for equities is the *arithmetic mean* ERP over the 10-year Treasury bond – higher than the compound annual return or geometric mean – plus the yield on the 10-year bond itself. The forecast, or expected, arithmetic mean premium, from my article with Richard Grinold and Ken Kroner in the 2011 book was 4.6%. Adding this to the current 10-year Treasury bond yield of 1.9%, we arrive at an arithmetic mean equity total return of 6.5% to use in simulating the future.

The risk of stocks may have increased recently, but it is not likely to be higher, going forward, than the long-term historical average. There were low-risk periods in the 1960s and 1990s, and high-risk periods, much like the current one or even riskier, in the 1930s, 1970s, and 1987. The best equity risk estimate for simulation purposes is the long-term (1926-2011) average risk, represented by a standard deviation of 20.5%. (This is the annualized standard deviation of monthly returns. The standard deviation of annual

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[5] See, for example, Table 1 in Keating, Timothy, 2011, "How the Harvard and Yale endowment models changed to avoid a repeat of 2009," in *RIABiz* (February 15), accessed at http://www.riabiz.com/a/5599309 on February 1, 2012. As of 2009, Harvard University had allocated 33% of its total endowment to global public equities, plus 13% in private equity. Yale had 25% in global public equities, plus 20% in private equity. The average educational endowment had 42% in global public equities, plus 9% in private equity.

returns, which is lower, hides a good deal of intra-year volatility.) The most important lesson to draw from this observation is that you shouldn't throw away old data because you don't like it or think it is irrelevant! Data from the turbulent 1930s has turned out to be crucial for getting the current level of stock market risk right.

What factors will influence the equity premium in the future?

The two most important factors affecting the size of the equity premium are (1) the going-in price, for which the price/earnings ratio is a proxy, and (2) growth expectations. If stocks are cheap relative to their history – with, let's say, a P/E below 15 – then the equity premium should be above its long-term average. Likewise, if the market expects earnings growth to be faster than average, then the equity premium should again be above average. If stocks are expensive (P/E over 20) or earnings are expected to grow more slowly than average, however, then the premium should be below its long-run average.

Today, stocks are selling at a P/E of almost exactly 15 times one-year trailing reported earnings. (Some articles in the book used price divided by 10-year trailing real earnings, or the "Shiller P/E." I am using the more conventional one-year measure in my analysis.) Thus, stocks are roughly fairly priced. Earnings growth expectations are probably below average, because earnings have recently zoomed to record levels and it is hard to grow from there. Thus, the current equity premium of 3.6% (geometric) reflects a somewhat weak, but not really alarming, outlook. If the economy strengthens substantially, a slightly higher estimate would be warranted.

One must be careful, though. The level of the market itself is forward-looking. If the stock market soars upward in anticipation of a strengthening recovery, the ERP will decrease if the move in stock prices is greater than the amount justified by the change in earnings expectations.

The most important principle to remember is that higher prices imply a lower equity premium, all other things being equal. Thus, the future looks brightest when the recent past has been dismal, and one should be wariest of the future when recent events have been favorable. Investors who want to take an active approach to asset allocation should keep this contrarian principle in mind. That being said, just rebalancing to a policy mix accomplishes much the same thing, adding to risky assets when their expected return is higher than usual, and taking risk off the table when the expected return is lower.

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