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On the Nature of Long Term Returns from Holding Stocks

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If you're at all like me, you're getting pretty tired of hearing 99% of the so-called market experts proclaiming April's mini-meltdown the "bottom" for stock prices in this cycle. Consequently, instead of getting mired down in arguments that ultimately have relevance only to "speculating," as opposed to "investing," I would like to share some common sense insights into current valuations and future return expectations that are somewhat immutable; that is, neither bull nor bear should have much to argue with here.

For purposes of analytical and rhetorical simplicity, I'm going to use the S&P 500 Index as my proxy for the "market." I know, the bulls are already snorting in disapproval, as the S&P doesn't have the explosive firepower of the Almighty Nasdaq, but bear with me (no pun intended)...

First, let's start off with an approximation of future returns on the market. Returns for passive holders of the S&P 500 over the next ten years will be a function of four variables: (1) the index's beginning P/E ratio, (2) the index's beginning dividend yield, (3) earnings growth over the 10 year period, and (4) the index's ending P/E ratio. Thus, to use a specific example, if we take the current P/E ratio on the S&P (23.7x on the current 2001 earnings estimate of $54), the S&P's current dividend yield of 1.2%, assume 7% annual earnings growth over the next decade, and assume that the market in 2011 will be trading at 20x earnings, passive holders of the market will achieve an annualized return of approximately 6.6%. The math is as follows: 7% (earnings growth) + 1.2% (dividend yield) – 1.6% (the annualized effect of the S&P's P/E ratio falling from 23.7x to 20x over the 10 year period) = 6.6%. Although this return is an approximation due to dividend reinvestment issues, it is a very close approximation. Moreover, the relationship between the variables as stated above is axiomatic – there's no escaping this equation when estimating future returns.

Now that we have an unassailable methodology to work with, let's take a stab at estimating what market returns might actually look like over the next decade. Two of the variables mentioned above – the market's beginning P/E ratio and starting dividend yield – are given. Thus, we only have two variables – the earnings growth rate and ending P/E ratios – to estimate.

Let's begin with earnings and a little historical perspective. (I know, I know, the Bulls think history is bunk, but bear with me a little longer.) Between 1920 and 2000, S&P earnings grew at an average annual rate of 5.5%. For the 80 back-to-back ten-year periods between 1920 and 2000 (that is, 1910-1920, 1911-1921, and so on, up to 1990-2000), S&P earnings grew at a median annual rate of 5.1% with a standard deviation of 4.8%. Earnings growth of 8% or greater occurred during only sixteen of these 80 ten-year periods, and negative earnings growth was posted just eleven times. The S&P posted its ninth largest compound annual earnings gain in history – 10.1% – over the ten-year period ending in 2000.

As one might expect, there are explanations for most of the big swings (the "outliers," in statistical parlance) in historical earnings. For example, of the sixteen ten-year periods over which earnings growth exceeded 8% annually, ten followed recessions. To wit, one reason that the decade ending in 2000 experienced such high earnings growth was that during its initial year – 1990 – the U.S. was in a recession and, consequently, earnings were somewhat depressed that year. Likewise, of the eleven ten-year periods over which earnings growth was negative, seven of these periods ended during the 1930s, the decade of the Great Depression. Thus, with 20/20 hindsight, we can see that the reasons underlying the majority of the statistical outliers are not mysterious.

Assuming that the future approximately resembles the past, and using our raw historical numbers of 5.1% median annual earnings growth with a standard deviation of 4.8% over past ten-year periods, suggests that there is a 16% probability that earnings growth will exceed 9.9% over the coming decade. Not too shabby. However, if we take into account the fact that we are currently experiencing near-record profitability and returns on capital in the corporate sector (despite the recent earnings slowdown), and recall the fact noted above that of the sixteen ten-year periods over which earnings growth exceeded 8% annually, ten followed recessions, the rational investor should draw a more grim conclusion. In my view, once the U.S.'s current position in the "profitability cycle" is taken into account, the odds that S&P earnings will grow by more than 8% annually between 2001 and 2011 are less than 1 in 10. In fact, a persuasive argument could be made that the likelihood of S&P earnings growing by more than 5% over the next decade is less than 50%.

Before getting off the subject of earnings altogether, however, one should understand the components of earnings growth. To use the 1920-2000 period, over which S&P earnings grew by 5.5% compounded annually, 3% was the result of inflation, and the remaining 2.5% was split between population growth and productivity growth. It's that simple. Nominal GDP growth – which overall corporate profit growth tracks fairly consistently over the long term – basically arises from population growth, changes in productivity, and inflation. Importantly, over short periods of time, GDP growth and corporate profit growth differ materially as a result of leverage. That is, because companies employ financial leverage (debt) and operating leverage (fixed costs), small changes in revenue result in large changes in profits. Put another way, small changes in GDP (akin to top-line revenues) result in larger changes in corporate profitability. Nevertheless, when one decides to project aggregate corporate profits on a going forward basis *over an extended period of time,* the three elements mentioned above – population, productivity and inflation – are the building blocks of the forecast.

Until the 1990s, profit growth for the S&P tracked growth in nominal GDP relatively closely because the weighted components of the S&P were fairly reflective of the overall U.S. economy. During the 1990s, however, changes in the S&P resulted in an index heavily weighted in technology stocks, and the S&P's growth became decoupled from nominal GDP growth. In fact, many commentators have pointed out that the current S&P 500 Index now more closely resembles a growth index, as opposed to the more value/growth-neutral index of years gone by. Today, technology accounts for approximately 7% of GDP, but represents roughly 20% of the S&P 500's market capitalization. Consequently, because the technology sector is growing faster than aggregate GDP, S&P profits should expand slightly faster than GDP over the long term. This differential, however, should not add more than 150 bps of incremental growth to the S&P 500 over and above overall profit growth for the domestic corporate sector.

What does all this mean for profits going forward? In my view, S&P investors will be very lucky to get meaningfully better than 6.5% compounded annual earnings growth over the coming decade. The math breaks down like this: 2% inflation + 2% productivity growth + 1% population growth + 1.5% of incremental growth (resulting from the S&P's heavier tech weighting) = 6.5%. The bottom line is that in order for the S&P to achieve greater than 6.5% earnings growth over

the next decade, either (1) productivity is going to have to come in well above expectations that rational investors would deem reasonable, or (2) inflation will have to exceed expectations, which won't help investors' total return due to P/E contraction.

Where estimating the future P/E ratio for the S&P is concerned, there are considerable challenges. As Burton Malkiel observed in his classic *A Random Walk Down Wall Street,* "God Almighty doesn't know the proper P/E ratio for a stock." Obviously, we're dealing with an index here, as opposed to a stock, but the point remains the same: estimating the proper P/E ratio for an index is not a simple business.

The most popular method of determining the S&P's "fair-value" P/E is use of the so-called "Fed Model," so named because the Federal Reserve Board uses it as a benchmark for stock valuations. Under the Fed Model, the S&P is approximately fairly valued when its earnings yield (the inverse of the P/E) equals the yield on the 10-year Treasury bond. The logic underlying this approach is that stock investors should require a rate of return equal to the risk-free rate of return (on Treasuries) plus a risk premium. In the Fed Model, the risk premium is equal to the expected rate of earnings growth on the S&P. This model is popular because it (1) makes sense from a theoretical standpoint, (2) is easy to use and, most importantly, (3) has good predictive power over the long term; that is, the historical correlation between the S&P's earnings yield and the yield on 10-year Treasury bonds is very high.

The principal flaw, among others, with the Fed Model is that it assumes a constant rate of long-term earnings growth for the S&P. In other words, if the Fed Model indicates that the S&P is at fair value, and subsequent earnings growth turns out to average 3% over some period instead of an implied 5%, then investors' realized risk premium for holding stocks will be 2% below expectations (and historical averages), holding interest rates steady. Having said that, the Fed Model is adequately robust for this discussion, especially relative to other financial models. Consequently, for purposes of this discussion and despite its flaws, I'm going to use the Fed Model for determining the market's fair value P/E.

With the 10-year Treasury bond yield currently at 5.4%, the implied fair-value P/E for the S&P 500 is 18.5x. The S&P's actual P/E currently stands at 23.7x 2001 estimates, suggesting that market participants expect either (1) long-term interest rates to decline to around 4%, or (2) earnings growth to exceed the historical rate of 5% on a going forward basis. In either case, a P/E of 23.7x *could* be justified. In my view, however, this is wishful thinking of the highest order.

Over the long run, the yield on the 10-year Treasury bond should average around 5.0%. The real 10-year Treasury yield should be equal to the real return global investors would expect to receive on a risk-free asset. This return is the sum of the global economy's real growth potential, which is estimated to be 3%, plus compensation for U.S. inflation, which is estimated to be 2% going forward. (Some analysts also add a small premium for currency risk, as long-term U.S. Treasury yields are set in a global marketplace. For our purposes here, however, I will ignore currency risk by assuming that hedging costs are *de minimus.)* Conveniently, from an empirical standpoint, long-term Treasury bonds have historically been priced to yield approximately 3% above long-term inflation expectations. Consequently, we have in the pricing of Treasury bonds a situation in which theory and empirical evidence support one another.

In my view, the most likely P/E for the S&P 500 a decade out is 20x earnings, which corresponds to a 10-year Treasury bond yield of 5%. Thus, plugging our given variables – a beginning P/E of 23.7x and a 1.2% dividend yield – and my assumptions – earnings growth of 6.5% (this is somewhat optimistic, but I'll run with it to make a point) and an ending P/E of 20x – into the return equation outlined above yields an expected annual rate of return of 6.1% on the S&P 500 over the next ten years. The math is as follows: 6.5% (earnings growth) + 1.2% (dividend yield) – 1.6% (the annualized effect of the S&P's P/E ratio falling from 23.7x to 20x

over the 10 year period) = 6.1%. This, of course, implies that the risk premium for holding stocks over the next decade is roughly 0.7% (6.1% less the 5.4% 10-year Treasury yield) using my assumptions, which is relatively miniscule compared to investors' historical realized risk premium of about 5%.

My point in all of this is to show by means of deductive reasoning that expected returns from owning stocks over the next decade are modest at best from current valuations. Any sentient being should be able to deduce that the odds of achieving greater than 8% returns on stocks over the next decade are exceedingly low. Moreover, it is *not* highly unlikely that returns will ultimately be in the low-single digits. Consequently, one should be somewhat concerned when John Q. Public (and, for that matter, pension fund accountants) still considers double-digit returns over the coming decade a reasonable expectation when, in fact, it is the opposite of reasonable. If, after all, investors need to earn at least 10% annually over the coming decade as an inducement to own stocks – that is, these investors' cost of capital is 10% where the stock market is concerned – then stocks have quite a ways to fall from current levels to reach equilibrium. More precisely, using the assumptions from the previous paragraph (6.5% earnings growth, 1.2% dividend yield, and a terminal P/E of 20x) we find that the current P/E ratio necessary to generate 10% annualized returns on the S&P 500 over the next ten years is 16.2x, or more than 30% below present levels.

Importantly, none of the analysis herein touches on the notion of earnings quality. While a detailed analysis of earnings quality is an exercise for another day, suffice it to say that "quality" is not the appropriate adjective one should use in describing the current state of most corporate earnings reports. As a result of (1) the increased use of options as a primary form of compensation, (2) a frantic acquisition pace by Corporate America (with associated "non-recurring charges"), and (3) the increased use of non-operating gains to shore up income statements, earnings quality over the last decade has declined considerably. Consequently, although the issue was not addressed previously herein, the abysmal state of reported earnings is another reason to view optimistic projections of future stock market returns with a high degree of skepticism.

Sir John Templeton, Bill Gross, and Warren Buffett, among other investment luminaries, have for some time been trying to warn the investing public that current expectations regarding future stock market performance are at considerable odds with likely results, albeit to little avail. I'm fairly certain that the type of analysis performed above is the basis for their reasoning. And when participating in financial markets, it is important to remember that while price and value occasionally go through periods of "trial separation," *there are no divorces;* price and value eventually unite over the long term. Ergo: stocks are likely headed considerably lower. And for anyone that doesn't accept this notion, I have equally bad news to report regarding Santa Claus, the Tooth Fairy and the Easter Bunny.

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