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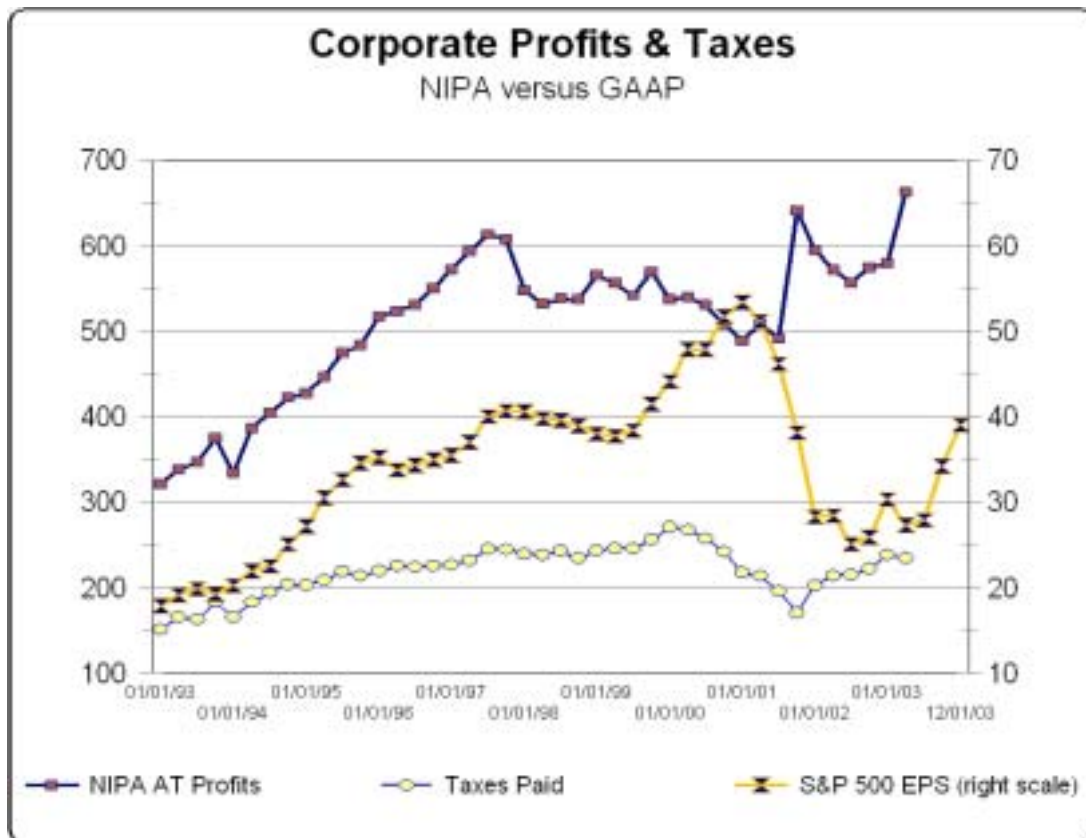
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Independent Research Providers to the  
Professional Investment Community

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# Special Report

## Spotlight on US Equity Valuations Earnings: NIPA versus S&P Why Are They So Different?



All Graphs in this Report were created the week of 8 December 2003  
Source data came from the Federal Reserve and Standard & Poor's

### A Dramatic Divergence in Earnings Measures

Our first chart, on this page, shows how the historical pattern of similarity between two widely used earnings metrics has broken down over the past 5 years.

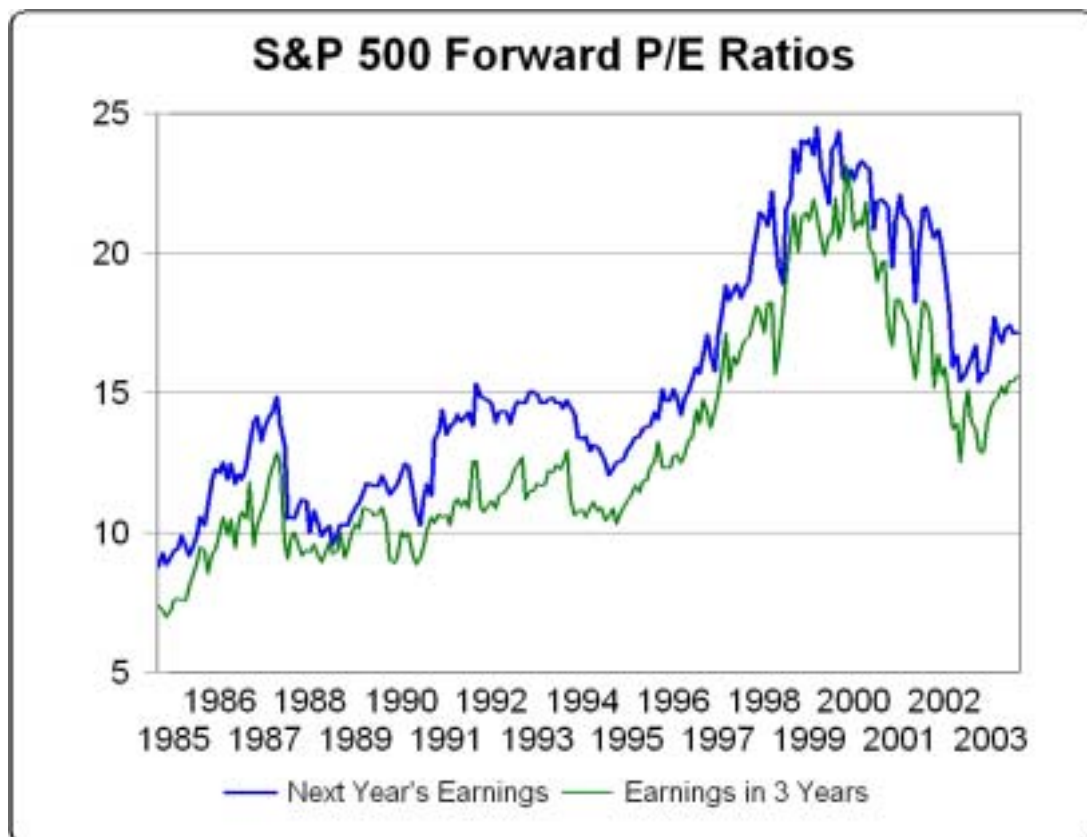
In this report, we suggest some reasons why this may be so, speculate on the future trend of this relationship, and offer some comments on the present state of equity valuations.

### Our conclusions are

- ❑ that the loss of correspondence between national income and product account (NIPA) earnings and S&P earnings is partly a function of the S&P 500 index being a select group of America's most successful companies, and partly simply another symptom of the ".com" craze, in which (GAAP) earnings reported to shareholders were sometimes widely different from those reported to the IRS;
- ❑ that there is some risk this decoupling might continue, making PE ratios a less useful guide to valuation than they might have been in prior market cycles;
- ❑ and that even if one grants that the S&P index earnings distortion may be a thing of the past, it is hard to make the case that equities are an attractive investment at current levels.

### Index Calculations

It is a peculiarity of the way earnings on an index are calculated that PE (price-to-earnings) ratios based on these earnings are neither a simple (equal-weighted) average nor a capitalization-weighted average of the PEs of the companies that comprise the index. Instead, the index PE is somewhere in between these two results.



Normally, this distinction is of little import, since all PEs tend to rise and fall at the same time, more or less in proportion. During the internet bubble, however, the PEs of telecommunications companies and others seen as beneficiaries of the internet boom tended to rise far more than for companies in other industries. The same was true of their earnings.

Of course, we now know that some of the earnings that had been reported were fraudulent, and some turned out to be illusory and have since been written off, but they were, nonetheless, what was being reported at the time.

Many of the internet companies (AOL comes to mind) were wildly successful, and were quickly added to the S&P 500 index, since their huge market capitalizations suggested that they were now an important part of the American economy. As a result, there was probably a greater discrepancy than usual between the earnings growth and PEs of the S&P 500 companies and the ones that were not in the index.

In addition to that, the earnings that S&P uses are “primary earnings” as reported by the companies to their shareholders, or, in other words, GAAP earnings. The earnings in the NIPAs are what are reported to the IRS as taxable earnings, adjusted for an economic concept of depreciation (among other things), so in many cases the end result is not at all the same as GAAP earnings. Also, numbers in the NIPAs are not selective (that is, they include all US companies paying corporate taxes, whether in the index or not, and most are not).

We don’t hold ourselves out to be authorities on corporate accounting, so the thoughts expressed in this section are unsubstantiated but informed speculations on why the chart on page 1 reveals a dramatic run-up in S&P index earnings for several quarters beginning in 1999 at a time when NIPA after-tax profits (and tax receipts) were actually falling.

These two time series have certainly not always moved in lockstep in the past, but the correspondence has generally been much higher than what has been witnessed in the past few years. Over the last two years, it may be that these series are again shadowing each other, although the NIPA data are reported with such a long lag that it’s difficult to be certain.

## The Components of the PE

Moving beyond speculation to a (perhaps) more informed look at why PE ratios ran up during the internet boom years, and subsequently collapsed, we can then speculate on where they might be headed.

We begin our quest for an explanation by falling back on the Gordon-Shapiro constant-growth equity valuation model. Its assumptions are far too restrictive to be useful in valuing most individual equities, but are not too bad an approximation for an aggregate analysis. Please see our 15 October 2002 “[Update on US Equity Valuations](#)” for a more detailed description and discussion of this formula (though in that paper we were discussing dividends, not PE ratios).

$$P_0 = \frac{D_0(1+g)}{k-g}$$

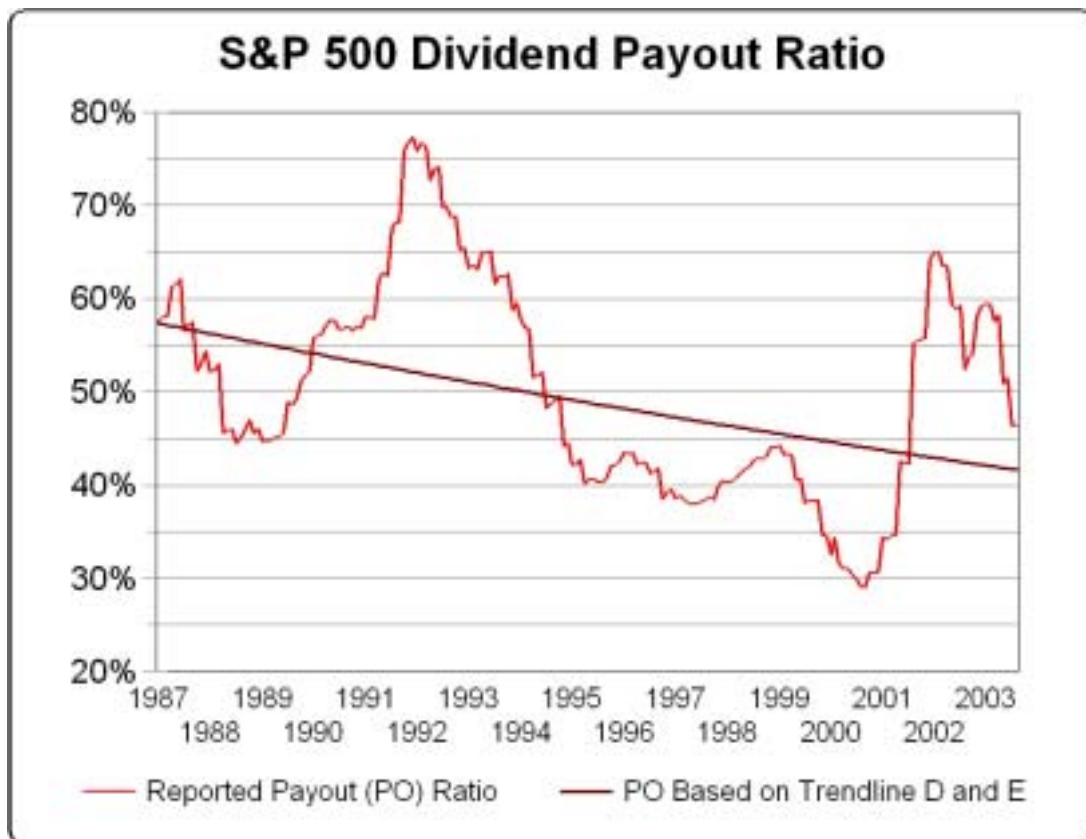
As we noted in that report, this formula can be reduced to the more manageable form  $k = DY + g$ , or: expected return equals {prospective} dividend yield plus the growth rate in earnings/dividends.

With a bit more simple algebra, this equation yields a description of the PE ratio:

$$P/E = (D/E) / (k - g)$$

or, the PE is a function of the payout ratio (D/E), the expected return, and the expected growth in dividends (or earnings, since the payout ratio is assumed to remain constant).

Let's take a look at some of the variables that go into these numbers to judge what the current level of the PE is telling us. First, the payout ratio (the percentage of earnings that are paid out as dividends):

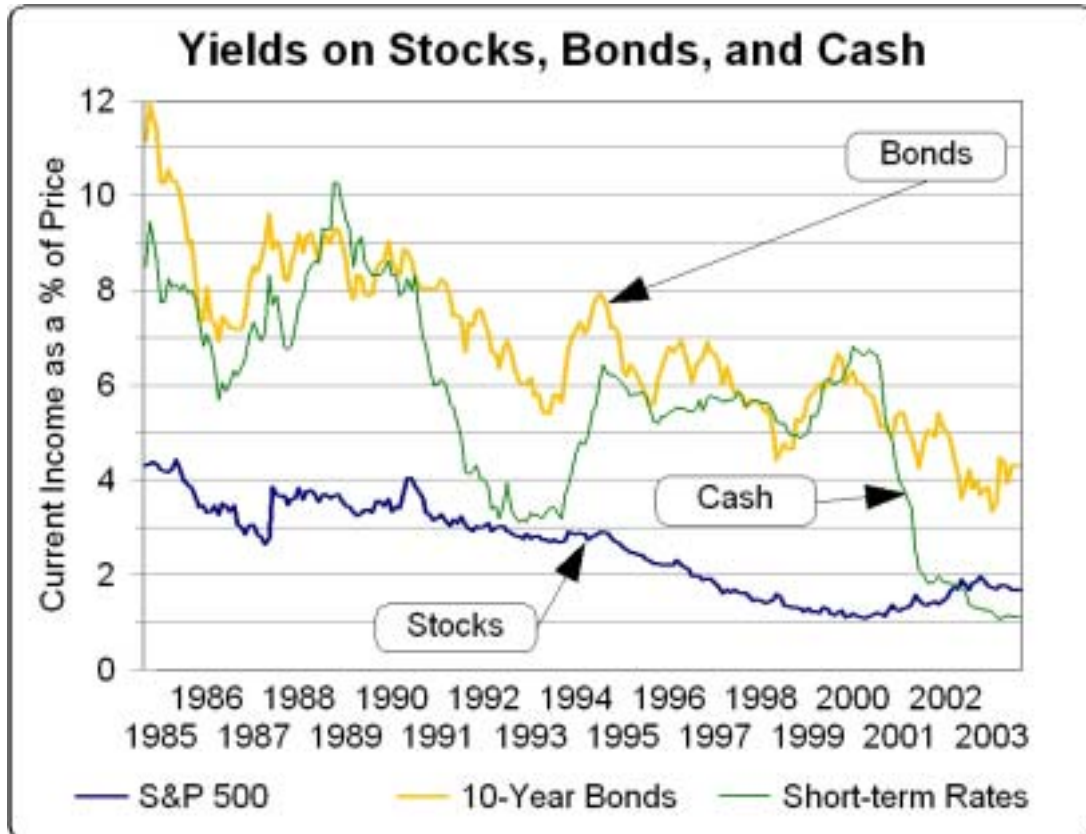


Obviously, this ratio has historically been far from constant (as required by the Gordon-Shapiro model), because companies do not typically raise and lower their dividends in response to short-term earnings fluctuations. Thus, when earnings fall off, as they did a couple of years ago, payouts rise as a percentage of earnings. Still, the downward trend here is quite clear.

Earnings per share (EPS) for the S&P 500 has shown trendline growth of 5.5% over the past 25 years or so, and 5.6% if measured since 1987. Dividend growth has not been as consistent, averaging 5.3% since 1976 but only 3.6% over the past 15 years. On the other hand, dividend growth has risen sharply of late, averaging nearly 14% over the past two years. So, maybe the payout ratio is in the process of being repaired. Perhaps the “vapor” earnings of the internet bubble taught investors that cash is

king; perhaps the more favorable tax treatment of dividend income has had an impact; in any case, dividends seem to be coming back into style.

We've mentioned the growth rates that dividends and earnings have enjoyed over the past couple of dozen years; let's take a look at some statistics having to do with "k" — total return. First, a peek at one component of return, current income:



The clear trend, in recent years, has been for yields to move down. This has helped to produce capital gains in the long-dated instruments (stocks and bonds), though owners of short-term investments have not fared very well by comparison.

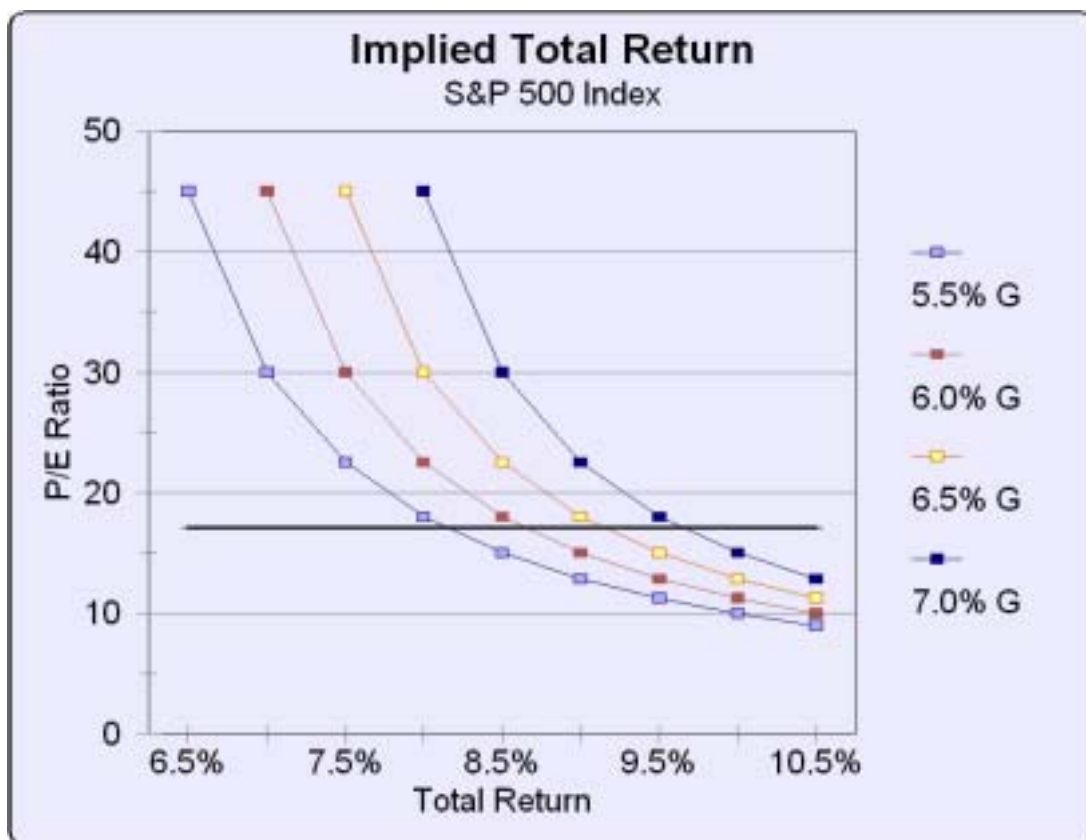
Over the past 25 years, 10-year treasury bond yields have averaged 8.0% and, because yields have declined, on average, over that period, returns have averaged 8.5% per annum. When compared with the approximately 11.0% total return on the S&P 500 index over the same period, that has produced only 250 basis points of equity risk premium. The dividend yield on the S&P 500 index right now is about 1.7%, compared with 1.1% for money-market yields, and 4.3% on the 10-year treasury bond.

## Implied Equity Rates of Return

Combining all of these statistical tidbits with a bit of speculation about where these variables might go in the future, we can infer a broad outline of what the current PE ratio on the S&P index is telling us.

Rather than worry about where the PE "ought" to be, we have simply taken its current value and solved the equation already given for the implied rate of return that equities now offer, under different growth assumptions.

The results are shown at the top of the next page.



Each curve on this graph represents a different scenario for future growth in earnings. The curve to the far left shows the 5.5% level that has been realized over the past quarter of a century. For those who wish to argue that earnings growth will be higher going forward, we have provided some more optimistic curves.

The lines show the PE ratios (left scale) associated with total rates of return (bottom scale) consistent with the various growth rates. The heavy black line at a PE of 17.1 represents the current PE of the S&P 500 index (based on consensus earnings estimates for one year from now).

Note that if earnings growth were expected to remain in the 5.5% region, the implied total return for equities would be about 8%. By assuming more generous growth rates, it is possible to produce higher expected returns, by not dramatically higher.

Given that current long-bond yields are in the vicinity of 4%, an 8% return on equities would produce a “risk premium” that is somewhat higher than has been achieved in recent years. Keep in mind, also, that bond yields are near the low end of their historical range, which might suggest there is more of a chance that they will rise than that they will fall further. If so, the equity risk premium may be larger than it appears from this simple calculation.

Nonetheless, we find other reasons to worry about the future pace of equity returns. On the following pages, we present a few graphics, not to throw a wet blanket on those who favor equities at this time, but to raise some cautionary flags about a few things that we think bear watching.

First and foremost is the issue of the “quality” of the earnings forecasts we just referenced. The PE on trailing earnings is now 27.4, which, if used on our previous

graph (instead of the 17.1 PE on forward-looking earnings), would lower expected returns by nearly a full percentage point.



It seems to us that the Wall Street analysts providing these forecasts may not yet have properly adjusted their mindset to the reality that a portion of the earnings recorded in the years just prior to the recent earnings collapse were illusory, and are not going to reappear (to the extent they were fraudulent or distorted, we can hope they will not reappear!).

The recent gap between what the analysts had been forecasting and what has actually happened is much wider than was historically

the case, and it's hard (for us) to make the case that it is reality that is wrong. Caveat: the forward-looking PE we cited earlier may be a bit too optimistic.

One way to avoid dependence on analysts forecasts is to simply extrapolate a trendline of some reasonable duration into the future. The graph below shows one such effort. Based on this crude analysis, it's clear that earnings have not yet recovered to their historical growth path. Still, a PE analysis based on this trendline does not provide a satisfactorily predictive valuation measure, either. Similarly, the relationship of PEs with (the inverse of) treasury bond yields has not, in recent years, been a reliable guide to valuing equities. Our hunch is that a large part of the blame for the breakdown of these traditional indicators can be laid at the doorstep of the imaginative earnings reporting that was done over the past few years. Not only were the aggregate numbers somewhat illusory, but their very unreliability has spooked investors, who (having been burned once already) no longer use PE ratios as a reliable valuation guide.

Still, to the extent that PE analysis is helpful at all (and we would not want to throw the baby out with the bath water), the various measures



we have discussed in this report all point to the same conclusion (even before worrying about the quality of the earnings forecasts): equities are not attractively priced by historical standards.

Even if one grants, for example, the validity of the consensus forecasts, the chart on page 2 reveals that PE ratios are well above the levels they enjoyed prior to the internet bubble. It is possible to make the case that these higher PEs are justified by higher growth expectations or lower expected returns, or both. Still, even the most optimistic combination of these parameters suggests that, by historical standards, US equity returns are likely to be modest over the next few years.

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