PEGs, P/Es and the Value Premium

Several years ago, we did an analysis of companies starting with a specific starting growth rate, and assumed that they would do a straight-line ten-year fade to a growth rate equalling inflation. We treated all the earnings as if they were free cash flows, assumed $100 \%$ equity financing, and then determined a value for each theoretical security. We then divided that model stock price by the current earnings to arrive at a "proper P/E ratio". We also sensitized on discount rates just to see what the impact might be on that "proper $\mathrm{P} / \mathrm{E}$ ratio".

The next stop was calculating the PEG ratio. At the time, the PEG was a very popular metric (it was during the internet bubble) and most stockpickers had a lot of trouble understanding the right "level". The
 chart to the right shows why.

Basically, the notion that the PEG is a linear tool for valuation is a myth, and a PEG greater or less than a certain level (say of 1.0) isn't necessarily expensive or cheap. The convexity of the PEG relationship impacts the "fair" value, as the second derivative of the PEG line is always positive.

While it seems counterintuitive at first blush (that very slow growers should have high PEGs), it actually makes perfect sense after thinking about it. As the denominator in the PEG ratio becomes so small, companies with almost no growth are still worth something, and have nearly infinite "proper" PEG ratios. Then, as you move from $0 \%$ growth to the right, the proper PEG ratio drops and appears to bottom somewhere between 20\%$30 \%$ EPS growth as a starting point.

As mentioned, this analysis was done during the tech bubble, and there were plenty of names that were benefitting from the convexity of the relationship. If we cut off those abnormally high growth names, we got a picture that looked more like this one.


And there is another interesting phenomenon when looking at the "proper P/E ratio" in different regimes of interest rates. Basically, the lower the interest rate, the greater the difference in fair valuation between "value" stocks (the supposed lowgrowers) and "growth" stocks.

Essentially, the difference in outperformance of growth stocks over value stocks accelerates as interest rates drop toward zero.

This mathematical fact may help to explain some or all of the consistent underperformance of the value factor over the last several years.


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