Understanding Relationships between P/E and Growth

Pegging Expected Growth & Value

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The question and judgment associated with forward looking P/E ratios and their relationship to a company's future growth prospects is a challenging consideration in doing a Stock Selection Guide.

Is there a relationship between a company's P/E and its growth rate that can be useful in making future projections?

It's a good question. The answer is embedded in the estimates that NAIC investors make for future high P/E ratio in Section 4A of their SSGs. This is where the difficulty factor increases, particularly in markets like today when current P/Es for many companies are at historic high levels with investors paying as high a price as ever for every dollar of earnings.

In deciding how much is too much to pay, we first refer to historic P/Es and past growth rates, understanding where a company has been and how it has performed in the past. Then comes the challenge of coming up with "reasonable expectations" for the future. P/Es near or at historic high levels are a concern. But what if growth expectations are near or at historic high levels, too?

Here's where a fundamental ratio known as the PEG ratio could be helpful as an additional guide.

The goal of this article is to learn how to better evaluate P/E ratios. Many investors tend to avoid stocks with high P/E ratios because they appear to be overpriced. It's true that a P/E ratio is a relative measure of the valuation of a stock. You will also hear analysts and the media refer to the "multiple" of a company. When they do this, they are referring to the stock price, expressed as a multiple of earnings per share. In other words, a stock with a price of 20 and annual earnings of $4.00, would be trading at a multiple, or P/E of 5.0x.

P/E ratios are influenced by the expected growth rate of a company. This seems to be one of the largest influences on P/E ratios. Another is inflation and inflation expectations which influence the general level of P/E ratios for the stock market. It is also true that world class brands (household names) tend to trade at a premium, or slighter higher P/E ratio in comparison to their competitors. Coca-Cola and McDonald's are examples of this "brand premium."

But the relationship that we'd like to focus on, because of its influence on our Stock Selection Guide judgments, is the impact of growth rates. Rather than looking at P/E ratios only, consider evaluating them along with the expected growth rates for a company. This is done by calculating the PEG Ratio.

The PEG ratio is calculated by dividing the current P/E ratio by the expected EPS growth rate.

$$\text{PEG Ratio} = \frac{\text{P/E Ratio}}{\text{Growth Rate}}$$

The PEG ratio is a method of "standardizing" the P/E ratio for various growth rates. It is more difficult to compare P/E ratios than it is to compare PEG ratios.

For example, consider the following three firms from the same industry:

	MRK	PFE	BMY
P/E Ratio	28.2x	43.8x	35.0x
Expected EPS Growth Rate	11.0%	18.5%	13.5%
PEG Ratio	2.56	2.37	2.59

A cursory examination reveals that although Pfizer has the highest P/E ratio at 43.8x, accounting for the higher growth rate expectations might change our initial perception of just how high that P/E really is, compared to Merck's 28.2 and Bristol-Myers' 35.0.

When we buy stocks, we are paying for the company's growth prospects. We would like to pay as little for promising growth as possible. How can we identify whether the P/E multiple is too high for an expected growth rate? Calculating the PEG ratio can assist us in making that determination.

Many investors use the PEG ratio as a guideline to determine if they are paying too much for growth. Similar to completing an SSG, investors need to use their judgment when using the PEG ratio. Here are the guidelines our club uses for PEG ratios:

• PEG ratios less than or equal to 1 are ideal as an indicator of capturing growth potential at a reasonable price.

• PEG ratios greater than 1 and less than or equal to 1.2 requires further study and analysis. They may or may not represent capturing growth potential at a reasonable price.

• PEG ratios greater than 1.2 may signify capturing growth potential at a high price.

(Editor's Note: Such guidelines are subjective and can differ significantly among investors who use PEG ratios. NAIC does not present guidelines, rather cautions

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investors, as with any ratio or calculation, to never use a figure as a "black box" — good judgment is always essential, as the writers point out next. Also, see box on right.)

Using the above criteria, all the firms in the above example appear to be "highly priced." Keep in mind, however, that these general guidelines are provided to give us just one more item to consider in evaluating the investment merits of a company. Formulate your own guidelines using your own judgment. Your judgment should be based on other data that you have accumulated about the market, the company and its management team. For example, the PEG ratio of the S&P 500 is shown to be 3.89. Using these guidelines, it suggests that the large-caps may be too expensive at this time.

Expected Growth Rates and P/Es

It is common within the financial industry to utilize multiple methods of calculating one ratio. Unfortunately, the PEG Ratio is no exception. Therefore, when using published PEG ratios, it is essential to understand how the ratios are calculated. Recall that P/E ratios can be calculated using expected EPS, current EPS or trailing EPS. Add to that, the complexity of the different expected growth rates that are available to us, and we have a large variety of possible PEG ratios.

You may want to calculate the PEG ratio using the forecasted EPS growth rate from your SSG and next year's expected EPS. You can justify this method because current prices already reflect the near-term forecast. Your choice of how to calculate the PEG ratio is part of the "art" of investing.

In summary, the PEG ratio is an additional tool that may help you when you summarize the information obtained during a SSG-based stock study. It is not intended to replace the comprehensive aspects of the SSG. Rather, it is one investment tool that we can use to better understand our companies and to further our lifelong commitment to investment education. BI

Research Perspectives on PEG Ratios

"The PEG ratio acknowledges the relationship between a company's growth rate and the multiple that investors seem to be willing to pay for a stock. High growth rates evoke high multiples since the P/E is more or less of an index for investor confidence in the stock. As growth slows – a normal thing in a growing, maturing company – the P/E will also [often] decline. Many folks like to restrict their high P/E estimates by tying them to the growth rate. Some will "peg" the P/E at two times the growth rate, others will use 1.5. I don't do it because I don't have a handle on any real absolute and consider the PEG ratio to be only a comparative variable." — Ellis Traub, Developer - NAIC Investor's Toolkit (Stock Analysis Software)

"The P/E ratio of any company that's fairly priced will equal its growth rate. In general, a P/E ratio that is half the growth rate is very positive. A P/E ratio that is twice the growth rate (or a PEG ratio of 2.0) is generally very negative." — Peter Lynch, *One Up on Wall Street*.

Part of my discomfort with the PEG ratio is that, like many other "comparative variables," the levels fluctuate. Aggregate EPS growth rates for the general stock market have not changed remarkably over the last 5-10 years, but P/E ratios have more than doubled. Therefore, the PEG ratio must be viewed with the knowledge that some overall fluctuation is natural.

We took a closer look at over 1,000 companies in the Value Line database. We found that the historical sales growth rate for the last five years (for this sample) was 12.4 percent. The historical EPS growth rate for our 1,000+ companies was 18.2 percent. Value Line's average expected EPS growth rate for these companies is 14.3 percent. The current average P/E for the group is 23.0x.

The PEG ratios for these 1,000+ companies ranged from 0.4 (e.g. D.R. Horton, Pulte and Keane) up to 4.9. The average PEG ratio (after removing extraordinary numbers) is 1.71. [Value Line Investment Survey, 30-June-1999]

Pegging Future Growth Rates and P/E Expectations on SSGs

We know that growth rates generally decline as a company becomes larger and matures. Cisco Systems is certainly a company that has been "discovered" and has rapidly joined the ranks of world class leaders. As the accompanying SSG excerpt shows, the high P/E ratio for Cisco Systems was 52.1x in 1995, and reached 83.6x and 80.0x in fiscal 1998 and 1999 respectively. With a High Average P/E and expected EPS growth rates of 30 to 40 percent during this period, the High P/E versus growth rate (or "High PEG") has ranged from 1.55 to 2.07.

3 PRICE-EARNINGS HISTORY as an indicator of the future Cisco Systems (CSCO)

This shows how stock prices have fluctuated with earnings and dividends. It is a building block for translating earnings into future stock prices.

PRESENT PRICE 70.938 HIGH THIS YEAR 114.063 LOW THIS YEAR 20.560

	Year	A PRICE HIGH	B PRICE LOW	C Earnings Per Share	D Price Earnings Ratio HIGH A÷C	E Price Earnings Ratio LOW B÷C	EPS Growth Rate (Actual)	
1	1995	9.9	3.6	0.19	52.1	18.9	80.0%	
2	1996	15.4	7.1	0.31	50.5	23.3	67.6	
3	1997	20.2	10.1	0.46	44.4	22.2	56.4	
4	1998	48.9	17.2	0.58	83.6	29.4	47.0	
5	1999	60.0	45.0	0.75	80.0	60.0	40.5	
6	TOTAL		83.0		310.6	153.8		
7	AVERAGE		16.6		62.1	30.8		0.0

8 AVERAGE PRICE EARNINGS RATIO 46.4 9 CURRENT PRICE EARNINGS RATIO 94.6

4 EVALUATING RISK and REWARD over the next 5 years

Assuming one recession and one business boom every 5 years, calculations are made of how high and how low the stock might sell. The upside-downside ratio is the key to evaluating risk and reward.

A HIGH PRICE -- NEXT 5 YEARS

Avg. High P/E 62.1 (3D7 as adj.) X Estimate High Earnings/Share 2.19 = Forecast High Price $ 136.2 (4A1)

For a quick comparison, we might note that Microsoft has an average high P/E of 61.3 and similar EPS growth rate expectations. We can surmise that Microsoft's "High PEG" has ranged from 1.5 to 2.0. For the Cisco SSG shown, the selection of the expected high P/E is shown as the "default" *(i.e., no judgment added)* 62.1x from Section 3D7. With analyst forecasts of 29 percent EPS growth for Cisco, it is easy to see why some investors might consider using (29) x (1.5) or 45.0x instead of the 62.1x shown.

Mark Robertson