

CHAPTER 3

THIS STOCK IS SO CHEAP! THE LOW PRICE EARNINGS STORY

Graham's Disciple

Jeremy was a value investor, and he had disdain for investors who chased growth stocks and paid exorbitant prices for them. Reading Forbes one day, Jeremy was excited to see the results of an academic study that showed that you could do much better than the market by buying stocks with low price earnings ratios, an approach highly favored by other value investors. Getting on Yahoo! Finance, Jeremy looked for stocks that traded at price earnings ratios less than 8 (a number he had heard on CNBC was a good rule of thumb to use for low PE stocks) and was surprised to find dozens. Not having the money to invest in all of them, he picked the first 20 stocks and bought them.

In the year after his investments, instead of the steady stream of great returns that the academic study had promised, Jeremy found himself badly trailing the market. His friends who had bought technology stocks all were doing much better than he and they mocked him. Taking a closer look at his depleted portfolio, Jeremy found that instead of the safe, solid companies that he had expected to hold, many of his companies were small risky companies with wide swings in earnings. He also discovered that the stocks he picked were unusually prone to reporting accounting irregularities and scandals. Disillusioned, Jeremy decided that value investing was not all it was made out to be and shifted all of his money into a high growth mutual fund.

Moral: A stock that trades at a low PE is not always cheap, and the long term can be a long time coming.

Investors have used price earnings ratios as a measure of how expensive or cheap a stock is for decades. A stock that trades at a low multiple of earnings is often characterized as cheap, and there are rules of thumb that investment advisors and analysts have developed over time. Some analysts use absolute measures – for instance, stocks that trade at less than 8 times earnings are considered cheap – whereas other analysts use relative measures – for example, stocks that trade at less than half the price earnings ratio of the market are cheap. In some cases, the comparison is to the market and in other cases it is to the sector in which the firm operates.

In this chapter, you consider whether price earnings ratios are good indicators of value and whether a strategy of buying stocks with low price earnings ratios generates high returns. As you will see, a stock with a low price earnings ratio may not be under valued and that strategies that focus on just price earnings ratios may fail because they ignore the

growth potential and risk in a firm. A firm that trades at a low price earnings ratio because it has little or no prospects for growth in the future and is exposed to a great deal of risk is not a bargain.

The core of the story

How do you determine if a stock is cheap? You could look at the price of a stock; but stock prices can be easily altered by changing the number of shares outstanding. You can halve your stock price (roughly) with a two for one stock split (where you double the number of shares) but the stock does not get any cheaper. While some investors may fall for the pitch that a stock that trades for pennies is cheap, most investors are wary enough to see the trap. Dividing the price by the earnings is one way of leveling the playing field so that high priced and low priced stocks can be compared. The use of low PE ratios in investment strategies is widespread and there are several justifications offered for the practice:

- *Value investors buy low PE stocks:* Investors in the value investing school have historically measured value using the price earnings (PE) ratio. Thus, when comparing across stocks, a stock that trades at five times earnings is viewed as cheaper than one that trades at ten times earnings.
- *A low PE stock is an attractive alternative to investing in bonds:* For those investors who prefer to compare what they make on stocks to what they can make on bonds, there is another reason for looking for stocks with low price earnings ratios. The earnings yield (which is the inverse of the price earnings ratio, i.e., the earnings per share divided by the current stock price) on these stocks is usually high relative to the yield on bonds. To illustrate, a stock with a PE ratio of 8 has an earnings yield of 12.5%, which may provide an attractive alternative to treasury bonds yielding only 4%.
- *Stocks that trade at low PE ratios relative to their peer group must be mispriced:* Since price earnings ratios vary across sectors, with stocks in some sectors consistently trading at lower PE ratios than stocks in other sectors, you could compare the PE ratio of a stock to the average PE ratio of stocks in the sector in which the firm operates to make a judgment on its value. Thus, a technology stock that trades at 15 times earnings may be considered cheap because the average PE ratio for technology stocks is 22, whereas an electric utility that trades at 10 times earnings can be viewed as expensive because the average PE ratio for utilities is only 7.

The Theory: Determinants of PE Ratio

Investors have always used earnings multiples to judge investments. The simplicity and intuitive appeal of the price earnings ratio makes it an attractive choice in applications ranging from pricing initial public offerings to making judgments on investments, but the price earnings ratio is related to a firm's fundamentals. As you will see in this section, a low PE ratio by itself does not indicate an undervalued stock.

What is the PE ratio?

The price earnings ratio is the ratio obtained by dividing the market price per share by the earnings per share over a period.

$$PE = \frac{\text{Market Price per share}}{\text{Earnings per share}}$$

The PE ratio is usually estimated using the current price per share in the numerator and the earnings per share in the denominator.

The biggest problem with PE ratios is the variations on earnings per share used in computing the multiple. The most common measure of the PE ratios divides the current price by the earnings per share in the most recent financial year; this yields the *current PE*. Others prefer to compute a more updated measure of earnings per share by adding up the earnings per share in each of the last four quarter and dividing the price by this measure of earnings per share using it to compute a *trailing PE ratio*. Some analysts go even further and use expected earnings per share in the next financial year in the denominator and compute a *forward PE ratio*. Earnings per share can also be compute before or after extraordinary items and based upon actual shares outstanding (primary) or all shares that will be outstanding if managers exercise the options that they have been granted (fully diluted). In other words, you should not be surprised to see different PE ratios reported for the same firm at the same point in time by different sources. In addition, you should be specific about your definition of a PE ratio if you decide to construct an investment strategy that revolves around its value.

A Primer on Accounting Earnings

Before you look at whether the price earnings ratio can be used as a measure of the cheapness of a stock, you do need to consider how earnings are measured in financial statements. Accountants use the income statement to provide information about a firm's operating activities over a specific time period. In this section, you will examine the principles underlying earnings measurement in accounting, and the methods that they are put into practice.

Two primary principles underlie the measurement of accounting earnings and profitability. The first is the principle of accrual accounting. In accrual accounting, the revenue from selling a good or service is recognized in the period in which the good is sold or the service is performed (in whole or substantially). A corresponding effort is made on the expense side to match¹ expenses to revenues. This is in contrast to cash accounting, where revenues are recognized when payment is received and expenses are recorded when they are paid. As a consequence, a firm may report high accrual earnings but its cash earnings may be substantially lower (or even negative) or the reverse can apply.

The second principle is the categorization of expenses into operating, financing and capital expenses. Operating expenses are expenses that, at least in theory, provide benefits only for the current period; the cost of labor and materials expended to create products that are sold in the current period is a good example. Financing expenses are expenses arising from the non-equity financing used to raise capital for the business; the most common example is interest expenses. Capital expenses are expenses that are expected to generate benefits over multiple periods; for instance, the cost of buying land and buildings is treated as a capital expense.

Operating expenses are subtracted from revenues in the current period to arrive at a measure of operating earnings from the firm. Financing expenses are subtracted from operating earnings to estimate earnings to equity investors or net income. Capital expenses are written off over their useful life (in terms of generating benefits) as depreciation or amortization. Figure 3.1 presents the breakdown for a typical income statement:

¹ If a cost (such as an administrative cost) cannot be easily linked with a particular revenues, it is usually recognized as an expense in the period in which it is consumed.

Income Statement

| | | |
|--|---|---|
| Gross revenues from sale of products or services | | Revenues |
| Expenses associates with generating revenues. Included in these expenses is the depreciarion and amortization of capital expenses from prior years | - | Operating Expenses |
| Operating income for the period | = | Operating Income |
| Expenses associated with borrowing and other financing | - | Financial Expenses |
| Taxes due on taxable income | - | Taxes |
| Earnings to Common & Preferred Equity for Current Period | = | Net Income before extraordinary items |
| Profits and Losses not associated with operations | - | (+) Extraordinary Losses (Profits) |
| Profits or losses associated with changes in accounting rules | - | Income Changes Associated with Accounting Changes |
| Dividends paid to preferred stockholders | - | Preferred Dividends |
| | = | Net Income to Common Stockholders |

Figure 3.1 – Income Statement

This is the general format for all income statements. There are variations in income statements are put together across different businesses.

While the principles governing the measurement of earnings are straightforward, firms do have discretion on a number of different elements, such as:

- *Revenue recognition*: When firms sell products that generate revenues over multiple years, conservative firms spread revenues over time but aggressive firms may show revenues in the initial year. Microsoft, for example, has had a history of being conservative in its recording of revenues from its program updates (Windows 98, Windows 2000 etc.). On the other hand, telecommunication firms, in their zeal to

pump up revenue growth, in the late 1990s were often aggressive in recording revenues early.

- *Operating versus Capital expenses:* There are some expenses that fall in a gray area between operating and capital expenses. Consider the expenses incurred by a cable company to attract new subscribers. Companies that are more aggressive could legitimately argue that the benefits of these new subscribers will be felt over many years and spread these expenses over time. At the same time, conservative companies will expense the entire amount in the year in which the expense is incurred.
- *Depreciation and Amortization:* While capital expenses are written off over time as depreciation or amortization charges, firms continue to have discretion in how much and how quickly they depreciate assets, at least for reporting purposes. Here again, more aggressive firms can report higher earnings by adopting depreciation and amortization schedules that result in smaller charges against earnings.

The bottom line, though, is that while the same accounting standards may apply to all firms, the fidelity to these standards can vary across firms, making it difficult to compare earnings (and price earnings ratios) across firms. If you are not careful, you can very easily conclude that firms that are more aggressive in measuring earnings are cheaper than firms that are more conservative. The problem gets worse when you are comparing the earnings of firms in different markets – Japan, Germany and US, for example - with different accounting standards.

Determinants of PE ratios

The simplest model for valuing a stock is to assume that the value of the stock is the present value of the expected future dividends. Since equity in publicly traded firms could potentially last forever, this present value can be computed fairly simply if you assume that the dividends paid by a firm will grow at a constant rate forever. In this model, which is called the Gordon Growth Model, the value of equity can be written as:

$$\text{Value per share today} = \frac{\text{Expected Dividend per share next year}}{\text{Cost of Equity} - \text{Expected Growth Rate}}$$

The cost of equity is the rate of return that investors in the stock require, given its risk. As a simple example, consider investing in stock in Consolidated Edison, the utility that serves much of New York city. The stock is expected to pay a dividend of \$2.20 per share next year (out of expected earnings per share of \$3.30) the cost of equity for the firm is 8% and the expected growth rate in perpetuity is 3%. The value per share can be written as:

$$\text{Value per share of Con Ed} = \frac{\$2.20}{(.08 - .03)} = \$44.00 \text{ per share}$$

Generations of students in valuation classes have looked at this model and some of them have thrown up their hands in despair. How, they wonder, can you value firms that do not pay dividends, like Microsoft? And what do you do when the expected growth rate is higher than the cost of equity, rendering the value negative? There are simple answers to both questions. The first is that a growth rate that can be maintained forever cannot be greater than the growth rate of the economy. Thus, an expected growth rate that is 15% would be incompatible with this model; in fact, the expected growth rate has to be less than the 4-5% that even the most optimistic forecasters believe that the economy (US or global) can grow at in the long term.² The second is that firms that are growing at these stable growth rates should have cash available to return to their stockholders; most firms that pay no dividends do so because they have to reinvest back into their businesses to generate high growth.

To get from this model for value to one for the price earnings ratio, you will divide both sides of the equation by the expected earnings per share next year. When you do, you obtain the discounted cash flow equation specifying the forward PE ratio for a stable growth firm.

$$\begin{aligned} \frac{\text{Value per share today}}{\text{Expected EPS next year}} &= \text{Forward PE} = \frac{\text{Expected Dividend per share/ Expected EPS}}{\text{Cost of Equity - Expected Growth Rate}} \\ &= \frac{\text{Expected Payout Ratio}}{(\text{Cost of Equity} - \text{Expected Growth Rate})} \end{aligned}$$

To illustrate with Con Ed, using the numbers from the previous paragraph, you get the following:

$$\text{Forward PE for Con Ed} = (\$2.20/\$3.30)/(.08-.04) = 16.67$$

The PE ratio will increase as the expected growth rate increases; higher growth firms should have higher PE ratios, which makes intuitive sense. The PE ratio will be lower if the firm is a high-risk firm and has a high cost of equity. Finally, the PE ratio will increase as the payout ratio increases, for any given growth rate. In other words, firms that are more efficient about generating growth (by earning a higher return on equity) will trade at higher multiples of earnings.

The price-earnings ratio for a high growth firm can also be related to fundamentals. When you work through the algebra, which is more tedious than difficult, the variables that

² If this sounds high, it is because it is stated in nominal terms. In real terms, the growth rate is only 2-2.5%.

determine the price earnings ratio remain the same – the risk of the company, the expected growth rate and the payout ratio, with the only difference being that these variables have to be estimated separately for each growth phase.³ In the special case where you expect a stock to grow at a high rate for the next few years and grow at a stable rate after that, you would estimate the payout ratio, cost of equity and expected growth rate in the high growth period and the stable growth period. This approach is general enough to be applied to any firm, even one that is not paying dividends right now

Looking at the determinants of price earnings ratios, it should be quite clear that a low price earnings ratio, by itself, signifies little. If you expect low growth in earnings (or even negative growth) and there is high risk in a firm's earnings, you should pay a low multiple of earnings for the firm. For a firm to be under valued, you need to get a mismatch – a low price earnings ratio without the stigma of high risk or poor growth. Later in this chapter, you will examine a portfolio of a low PE stocks to see if you can separate the firms that have low PE ratios and are fairly valued or even over valued from firms that have low PE ratios that may be attractive investments.

Looking at the Evidence

Do portfolios of stocks with low price earnings ratios outperform the market? The answer to this question is central to this chapter and you will look at the performance of stocks with low PE ratios over the last few decades in this section.

Ben Graham and Value Screening

Many value investors claim to trace their antecedents to Ben Graham and to use the book on Security Analysis that he co-authored with David Dodd, in 1934 as their investment bible.⁴ It was in the first edition of this book that Ben Graham put his mind to converting his views on markets to specific screens that could be used to find under valued stocks. While the numbers in the screens did change slightly from edition to edition, they preserved their original form and are summarized below:

1. Earnings to price ratio that is double the AAA bond yield.
2. PE of the stock has to less than 40% of the average PE for all stocks over the last 5 years.
3. Dividend Yield > Two-thirds of the AAA Corporate Bond Yield

³ If you are interested, you can look up the determinants of the PE ratio for a high growth firm in: Damodaran, A, *Investment Valuation*, John Wiley and Sons.

⁴ Graham, B. and D. Dodd, 1934, *Security Analysis*. McGraw Hill.

4. Price < Two-thirds of Tangible Book Value⁵
5. Price < Two-thirds of Net Current Asset Value (NCAV), where net current asset value is defined as liquid current assets including cash minus current liabilities
6. Debt-Equity Ratio (Book Value) has to be less than one.
7. Current Assets > Twice Current Liabilities
8. Debt < Twice Net Current Assets
9. Historical Growth in EPS (over last 10 years) > 7%
10. No more than two years of declining earnings over the previous ten years.

Note that the first screen is a price earnings ratio screen. Only stocks with low price earnings ratios would have a chance of passing this screen. It is interesting the many of the remaining screens are designed to eliminate those stocks that have low PE ratios for the wrong reasons – low growth and high risk.

How well do Ben Graham's screens work when it comes picking stocks? Henry Oppenheimer studied the portfolios obtained from these screens from 1974 to 1981 and concluded that you could have made an annual return well in excess of the market.⁶ Academics have tested individual screens – low PE ratios and high dividend yields to name two – in recent years and have found that they deliver higher returns. Mark Hulbert, who evaluates the performance of investment newsletters, found newsletters that espoused to follow Graham did much better than other newsletters. The only jarring note is that an attempt to convert the screens into a mutual fund that would deliver high returns did fail. In the 1970s, an investor named James Rea was convinced enough of the value of these screens that he founded a fund called the Rea-Graham fund, which would invest in stocks based upon the Graham screens. While it had some initial successes, the fund floundered during the 1980s and early 1990s and was ranked in the bottom quartile for performance.

Low PE Stocks versus Rest of the Market

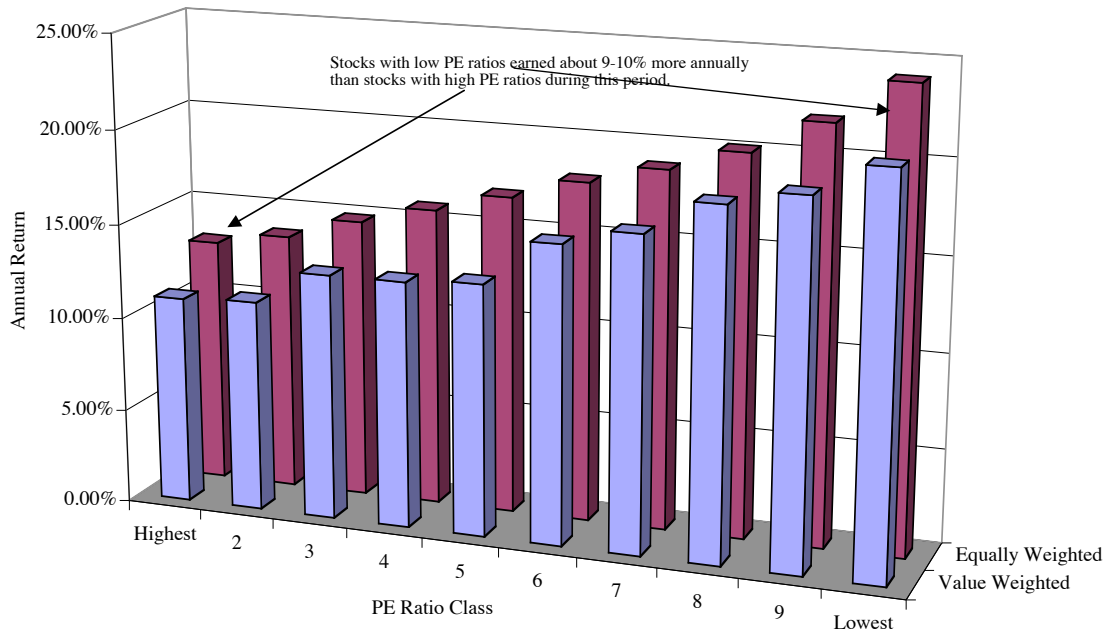
Studies that have looked at the relationship between PE ratios and excess returns have consistently found that stocks with low PE ratios earn significantly higher returns than stocks with high PE ratios over long time horizons. Since some the research is more than two decades old and the results vary widely depending upon the sampling period, it might be best to review the raw data and look at the longest time period for which data is available.

⁵ Tangible Book value is computed by subtracting the value of intangible assets such as goodwill from the total book value.

⁶ Oppenheimer, H R. 1984, *A Test of Ben Graham's Stock Selection Criteria*, (September/October): vol. 40, no. 5 , 68-74.

In Figure 3.2, you begin by looking at the annual returns that would have been earned by U.S. stocks categorized into ten classes based upon PE ratios from 1952 to 2001. The stocks were categorized based upon their PE ratios at the start of each year and the total return, inclusive of dividends and price appreciation, was computed for each of the ten portfolios over the year.

Figure 3.2: PE Ratios and Stock Returns - 1952 -2001



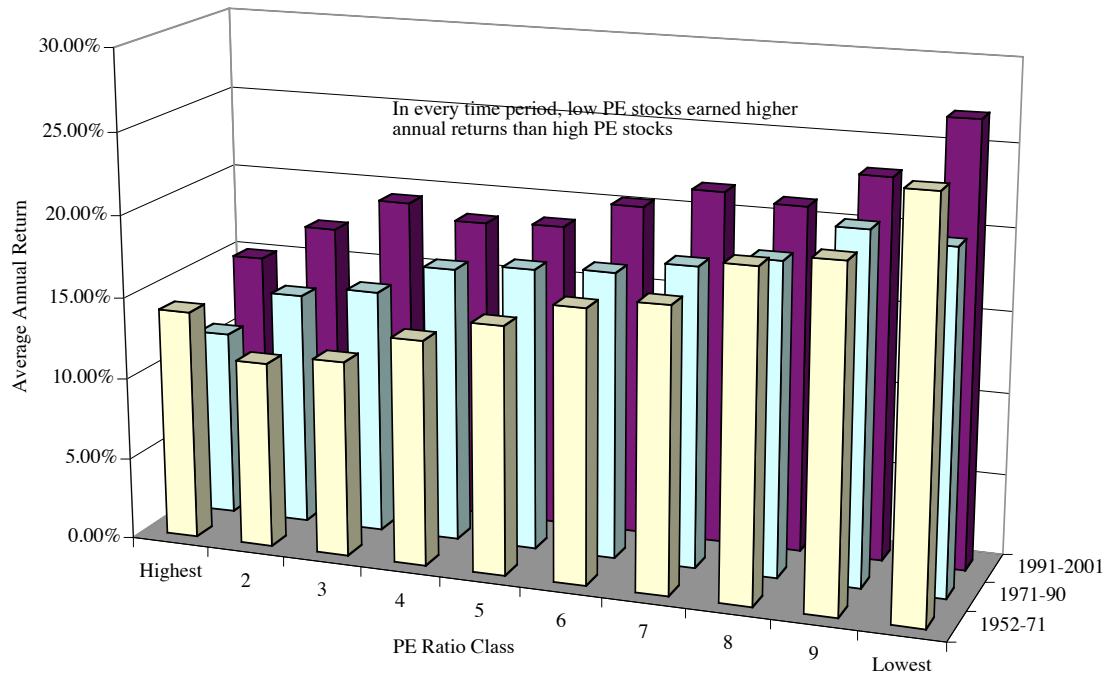
Data from Fama/French. Stocks in the United States were categorized based upon their PE ratios at the beginning of each year from 1928 to 2001 and returns were computed for each portfolio in the following year.

On average, the stocks in the lowest PE ratio classes earned almost twice the returns of the stocks in the highest PE ratio classes. To examine how sensitive these conclusions were to how the portfolios were constructed, you can look at two constructs. In the first, equally weighted portfolios were constructed, where an equal amount of money was put into each firm in each portfolio. In the second, more was invested in the firms with higher market value and less in the smaller firms to create value weighted portfolios. The results were slightly more favorable with the equally weighted portfolio, with the lowest PE ratio stocks earning an average annual return of 24.11% and the highest PE ratio stocks earning 13.03%. With the value-weighted portfolios, the corresponding numbers were 20.85% and

11% respectively. In both cases, though, low PE stocks clearly outperformed high PE stocks as investments.

To examine if there are differences in sub-periods, the annual returns from 1952 to 1971, 1972 to 1990 and 1991 to 2001 for stocks in each PE ratio portfolio are reported in Figure 3.3. Again, the portfolios were created based upon PE ratios at the beginning of each year and returns were measured over the course of the year.

Figure 3.3: Returns on PE Ratio Classes - 1952 - 2001



Data from Fama/French. The annual returns are computed for stocks in different PE ratio classes for sub-periods of history.

Firms in the lowest PE ratio class earned 10% more each year than the stocks in the high PE class between 1952 and 1971, about 9% more each year between 1971 and 1990 and about 12% more each year between 1991 and 2001. In other words, there is no visible decline in the returns earned by low PE stocks in recent years.

Thus, the evidence is overwhelming that low PE stocks earn higher returns than high PE stocks over long periods. Those studies that adjust for differences in risk across stocks confirm that low PE stocks continue to earn higher returns after adjusting for risk. Since the portfolios examined in the last section were constructed using only stocks listed in the United States, it is also worth noting that the excess returns earned by low PE ratio stocks also show up in other international markets.

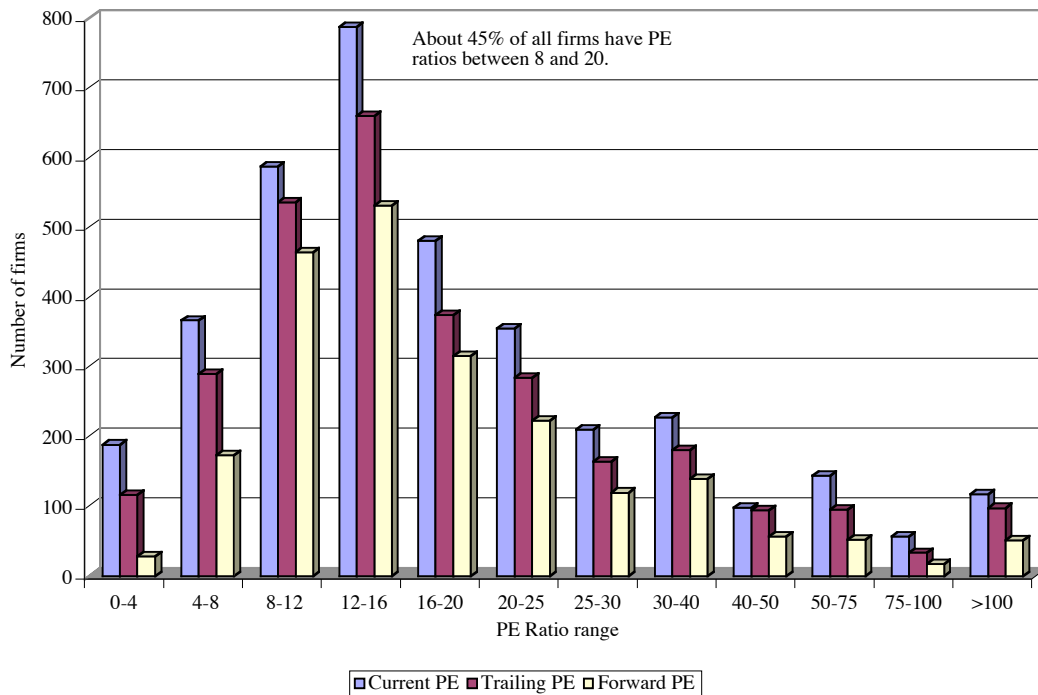
Crunching the Numbers

Earlier in this chapter, reference was made to a rule of thumb that a stock that trades at a PE ratio less than 8 is cheap. While there are numerous benchmarks such as these in the market, you should be wary of these numbers. Many of them are outdated and have no basis in fact. In this section, you will begin by looking at the distribution of PE ratios across the market to get a sense of what would comprise a high, low or average PE ratio. You will then follow up by looking at how PE ratios vary across different sectors and also how they have changed over time. Finally, you will construct a portfolio of stocks with the lowest PE ratios in the market, with the intention of examining it more closely for potential flaws in the strategy.

PE Ratios across the Market

While there are numerous rules of thumb when it comes to PE ratios, it is impossible to assess whether they make sense without looking at how PE ratios vary across stocks in the market. Figure 3.4 presents the distribution of PE ratios for all U.S. stocks in September 2002. The current PE, trailing PE and forward PE ratios are all presented in this figure.

Figure 3.4: PE Ratios across the Market - October 2002



Data from Value Line: The number of firms in the United that fall within each PE ratio class for stocks is reported.

Looking at this distribution, you can see that while there are a large number of companies with PE ratios between 8 and 20, there are also a significant number of companies with PE ratios well in excess of 100. Some of these companies are high growth companies that trade at high prices relative to current earnings, because investors expect their earnings to grow substantially in the future. Some of these companies are cyclical companies whose earnings have dropped as a consequence of a recession. Since investors expect their earnings to bounce back as the economy recovers, the price earnings ratio is high. At the other extreme are companies whose PE ratios are 8 or less. In October 2002, these firms would be considered cheap if you looked at just the PE ratio. A final point about these PE ratios relates to companies where the PE ratio could not be computed because earnings per share were negative. In the sample, which included 7102 companies, 3489 companies had negative earnings in the most recent financial year and current PE ratios could not be computed for them. With trailing and forward earnings, you continue to lose about 40% of the overall sample for the same reason.

The fact that PE ratios cannot be less than zero but can take on very high values has consequences when you compute statistics. The average PE ratio, which is computed by averaging across all companies, will be pushed up by the extreme high values. A far more meaningful statistic would be the median PE; half of all companies will have PE ratios less than this value and half of all companies will have PE ratios that are higher than this value. Table 3.1 presents summary statistics on both measures of the price earnings ratio starting with the mean and the standard deviation, and including the median, 10th and 90th percentile values.

Table 3.1: Summary Statistics – PE Ratios for U.S. Stocks

| □ | <i>Current PE</i> | <i>Trailing PE</i> | <i>Forward PE</i> |
|-----------------|-------------------|--------------------|-------------------|
| Mean | 31.08 | 30.99 | 23.44 |
| Median | 15.30 | 15.00 | 14.99 |
| Minimum | 0.01 | 0.01 | 0.90 |
| Maximum | 7103.00 | 6589.00 | 1081.00 |
| 90th percentile | 69.02 | 53.74 | 36.86 |
| 10th percentile | 4.22 | 5.69 | 7.94 |

Looking at all three measures of the PE ratio, the average is consistently higher than the median, reflecting the fact that PE ratios can be very high numbers but cannot be less than zero. It is not surprising that analysts wishing to sell you stocks often use the pitch that the PE ratio for the stock is below the average for the industry. An effective retort would be to ask them whether the PE ratio for the stock is less than the median for the industry.

PE Ratios across sectors

Price earnings ratio can vary widely across sectors and what comprises a low PE ratio in one sector can be a high PE ratio in another. In Table 3.2, the 10 sectors with the lowest and the highest average PE ratios (current) in the United States in October 2002 are listed.

Table 3.2: Highest and Lowest PE Ratio Sectors

| <i>Industry Name</i> | <i>Average PE</i> | <i>Industry Name</i> | <i>Average PE</i> |
|----------------------|-------------------|----------------------|-------------------|
| Power | 6.94 | Newspaper | 41.14 |
| Steel (Integrated) | 7.98 | Entertainment | 41.43 |
| Homebuilding | 9.46 | Telecom. Services | 43.14 |
| Electric Utility | 10.18 | Precision Instrument | 44.17 |
| Auto Parts | 10.75 | Semiconductor | 47.10 |
| Tobacco | 10.82 | Publishing | 49.06 |
| Insurance (Life) | 10.90 | E-Commerce | 50.32 |
| Apparel | 11.18 | Cable TV | 53.49 |
| Home Appliance | 11.70 | Wireless Networking | 60.49 |
| Thrift | 11.97 | Chemical (Basic) | 60.76 |

What are the reasons for the vast divergences in PE ratios across sectors? The fundamentals that were outlined earlier as the determinants of PE – growth, risk and payout (return on equity) – provide the explanation. In general, the sectors with the lowest PE ratios offer not only the lowest expected growth but also have low returns on equity. The sectors with the highest PE ratios offer higher expected growth and higher returns on equity, albeit with more risk. Table 3.3 contrasts measures of growth, risk and return on equity for the two groups – the ten sectors with the highest PE ratios and the ten with the lowest.

Table 3.3: Comparisons on Fundamentals – High PE versus Low PE sectors

| | <i>Risk Measures</i> | | <i>Expected Growth in</i> | | <i>Returns</i> | |
|-----------------|----------------------|---------------------------|---------------------------|--------------------------------|----------------|------------|
| | <i>Beta</i> | <i>Standard Deviation</i> | <i>EPS - Next 5 years</i> | <i>Revenues - next 5 years</i> | <i>ROIC</i> | <i>ROE</i> |
| Low PE sectors | 0.61 | 0.48 | 11.61% | 5.56% | 7.64% | 9.30% |
| High PE sectors | 1.76 | 0.84 | 17.01% | 7.65% | 14.66% | 16.50% |

^a ROIC: Return on invested capital ; ROE = Return on Equity

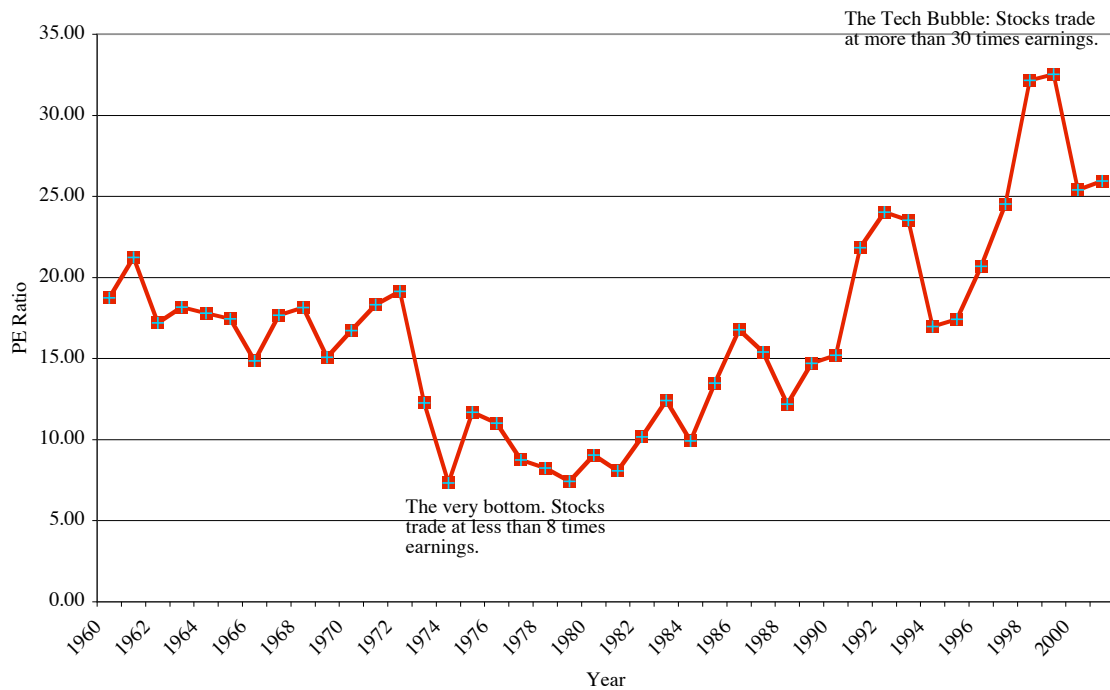
In making the estimates of return on capital and return on equity, the averages over the last 5 years were used to overcome the depressed earnings (and returns on equity) caused by the

recession in 2002. Note that the lowest PE sectors have lower projected growth in earnings and revenues and lower project returns than the highest PE sectors.

PE Ratio across time

A PE ratio of 12 can be considered low in today's market but it would have been high in the equity market of 1981. As PE ratios change over time, the criteria for what comprises a low or a high PE will also change. Consequently, the average PE ratio for all stocks in the United States is examined in Figure 3.5:

Figure 3.5: PE Ratio for S&P: 1960 -2001



Data from Bloomberg: This is the average PE ratio across all U.S. stocks at the end of each year from 1960 to 2002.

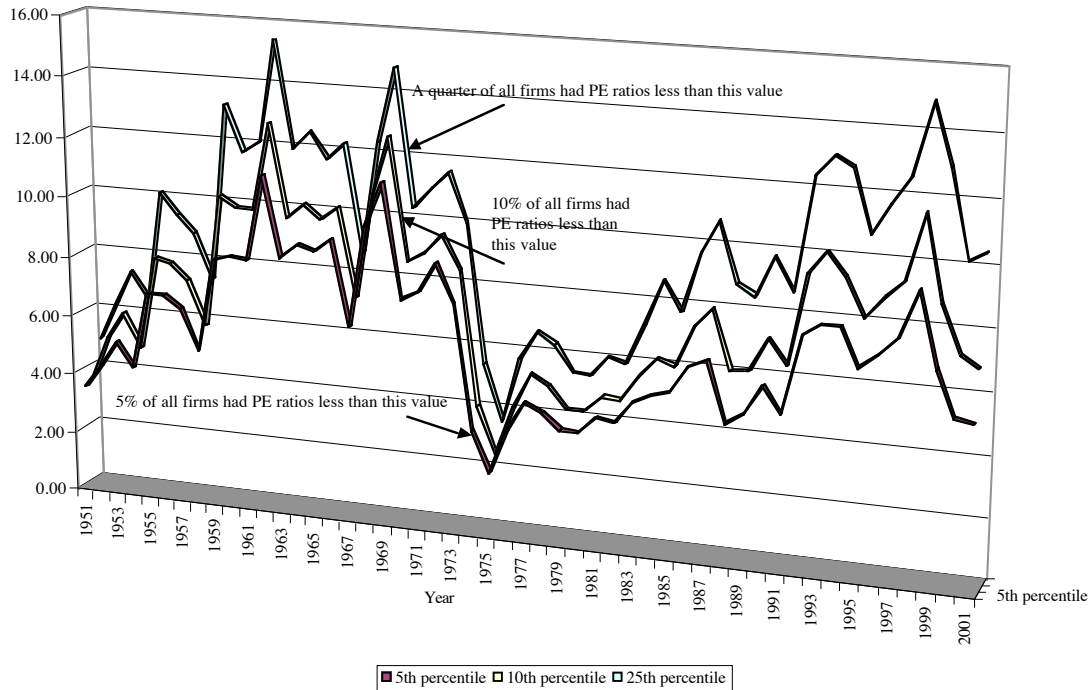
Note that the PE ratios have varied significantly over time, reaching a low of about 7 in 1975 and climbing to a high of 33 at the market peak in 1999.

What causes PE ratios to change over time? The very same factors that determine the PE ratios of individual companies – cash flows, growth and cost of equity – also determine the PE ratios for individual companies. PE ratios were low in the mid 1970s because economic growth was dragged down by the oil embargo and subsequent inflation in the United States and because nominal interest rates were high. In fact, the period between 1975 and 1981 when PE ratios remained low represents a period when government bond rates in the United States reach double digits for the first time in history. The decline

in interest rates in the 1990s accompanied by rapid economic growth and higher productivity in the 1990s contributed to making PE ratios in that decade much higher.

As PE ratios changes over time, the determination of what comprises a low PE will also change. In Figure 3.6, you examine the PE ratios that would have represented the 5th, 10th and 25th percentile of all stocks listed on the New York Stock Exchange every year from 1951 to 2001.

Figure 3.6: PE Ratio: Cut offs over time



Data from Fama/French. The 10th, 50th and 90th percentile of PE ratios across all U.S. stocks is reported for each year.

In 1975, the low point for PE ratios for U.S. stocks, 5% of all stocks had PE ratios less than 2.18, 10% of all stocks had PE ratios less than 2.64 and 25% of all stocks had PE ratios less than 3.56. In contrast, in 1998, 5% of stocks had PE ratios less than 9.42, 10% had PE ratios less than 11.64 and 25% had PE ratios less than 14.88. This is why rules of thumb (PE less than 8 is cheap!) have to be taken with a grain of salt. While it would have been factual in 1998, it would not have in 1975 since more than half of all stocks traded at PE ratios lower than 8 in that year.

A Low PE portfolio

If you decided to adopt a strategy of buying low PE stocks, what would your portfolio look like? The only way to answer this question is to create such a portfolio.

Assume you begin with the all listed U.S. stocks and screen for the stocks with the lowest PE ratios. You have three measures of the PE ratio for each company – the PE based upon earnings in the most recent financial year (current PE), the PE based upon earnings in the most recent four quarters (trailing PE) and the PE based upon expected earnings in the next financial year (forward PE). Each measure has its adherents and there is information in each. Erring on the side of conservatism, you can look for stocks that have PE ratios less than 10 on all three measures. The resulting portfolio in October 2002 is presented in table 3.4.

Taking a closer look at the portfolio, there were 116 stocks in the market (out of an overall sample of 7000+ companies) that met the criteria of having current, trailing and forward price earnings ratios all less than 10. The portfolio is fairly diversified, though utility and financial service stocks are disproportionately represented.

Table 3.4: Stocks with PE Ratios less than 10: United States – October 2002

| Company Name | Industry | Current PE | Trailing PE | Forward PE | Company Name | Industry | Current PE | Trailing PE | Forward PE |
|-----------------------|----------|------------|-------------|------------|-------------------------|----------|------------|-------------|------------|
| Acclaim Entertainment | ENT TECH | 7.45 | 3.88 | 5.73 | Kroger Co. | GROCERY | 9.70 | 9.70 | 7.87 |
| AES Corp. | POWER | 0.70 | 0.70 | 1.31 | Lafarge No. America | CEMENT | 8.59 | 7.53 | 7.70 |
| Aftermarket Tech | AUTO-OEM | 8.14 | 6.44 | 6.29 | LandAmerica Finl Group | FINANCL | 6.29 | 5.79 | 6.52 |
| Allegheny Energy | UTILEAST | 1.22 | 1.74 | 2.68 | Lennar Corp. | HOMEILD | 8.54 | 7.98 | 6.65 |
| Allied Waste | ENVIRONM | 6.93 | 6.81 | 6.57 | M.D.C. Holdings | HOMEILD | 6.22 | 6.27 | 6.15 |
| Allmerica Financial | INSPRPTY | 2.57 | 4.91 | 3.23 | Magna Int'l 'A' | AUTO-OEM | 8.51 | 8.42 | 8.52 |
| Amer. Axle | AUTO-OEM | 9.53 | 7.59 | 7.31 | Marathon Oil Corp. | OILINTEG | 5.12 | 8.07 | 9.41 |
| Aquila Inc. | UTILCENT | 2.83 | 5.55 | 6.81 | May Dept. Stores | RETAIL | 9.60 | 9.60 | 9.80 |
| Argosy Gaming | HOTELGAM | 8.18 | 6.30 | 7.16 | McDermott Int'l | DIVERSIF | 5.69 | 5.69 | 3.59 |
| Ashland Inc. | OILINTEG | 4.27 | 8.76 | 7.59 | Metro One Telecom | INDUSRV | 8.02 | 7.91 | 3.94 |
| Astoria Financial | THRIFT | 9.66 | 9.66 | 7.88 | MGIC Investment | FINANCL | 6.96 | 6.81 | 6.34 |
| Bally Total Fitness | RECREATE | 2.75 | 2.84 | 3.01 | MicroFinancial Inc | FINANCL | 1.34 | 1.34 | 3.17 |
| Beverly Enterprises | MEDSERV | 4.75 | 4.84 | 4.30 | Mirant Corp. | POWER | 0.68 | 0.77 | 1.33 |
| Building Materials | BUILDSUP | 6.16 | 6.16 | 7.02 | Nash Finch Co. | FOODWHOL | 7.52 | 6.00 | 5.73 |
| CAE Inc. | DEFENSE | 5.76 | 5.76 | 6.60 | Nationwide Fin'l | INSLIFE | 8.02 | 8.20 | 7.77 |
| Calpine Corp. | POWER | 1.16 | 1.40 | 2.31 | Nautilus Group Inc. | RETAILSP | 7.17 | 5.49 | 5.18 |
| Can. Imperial Bank | BANKCAN | 7.62 | 7.62 | 8.55 | New Century Financial | FINANCL | 9.94 | 4.21 | 3.44 |
| Centex Corp. | HOMEILD | 7.02 | 6.80 | 5.61 | Petroleo Brasileiro ADR | OILINTEG | 2.97 | 2.97 | 3.23 |
| Chromcraft Revington | FURNITUR | 7.11 | 7.47 | 6.84 | Petroleum Geo ADR | OILFIELD | 3.15 | 3.65 | 2.35 |
| Cleco Corp. | UTILCENT | 7.34 | 6.81 | 7.87 | Philip Morris | TOBACCO | 9.59 | 8.58 | 9.17 |
| CMS Energy Corp. | UTILCENT | 5.92 | 6.90 | 5.48 | Pinnacle West Capital | UTILWEST | 6.67 | 6.67 | 8.23 |
| CryoLife Inc. | MEDSUPPL | 6.01 | 6.01 | 4.19 | PMI Group | INSPRPTY | 8.71 | 8.71 | 7.29 |
| Del Monte Foods | FOODPROC | 8.23 | 8.23 | 8.47 | PNM Resources | UTILWEST | 4.97 | 6.60 | 9.60 |
| Dixie Group | TEXTILE | 0.00 | 9.33 | 6.22 | Precision Castparts | DEFENSE | 5.44 | 5.41 | 6.55 |
| Dominion Homes Inc | HOMEILD | 7.14 | 5.04 | 5.55 | Public Serv. Enterprise | UTILEAST | 5.62 | 6.49 | 6.01 |
| Downey Financial | THRIFT | 8.46 | 9.14 | 9.76 | Pulte Homes | HOMEILD | 8.49 | 7.10 | 6.20 |
| DPL Inc. | UTILCENT | 8.34 | 8.34 | 9.22 | Quaker Fabric | TEXTILE | 9.16 | 7.23 | 7.34 |
| Duke Energy | UTILEAST | 7.78 | 8.27 | 7.65 | Quanta Services | INDUSRV | 1.89 | 1.89 | 4.21 |
| Dura Automotive 'A' | AUTO-OEM | 5.99 | 5.90 | 3.62 | R.J. Reynolds Tobacco | TOBACCO | 8.03 | 5.99 | 5.65 |
| Dynergy Inc. 'A' | GASDIVRS | 0.46 | 0.56 | 3.87 | Radian Group Inc | FINANCL | 9.39 | 8.46 | 7.80 |
| El Paso Electric | UTILWEST | 8.17 | 8.17 | 9.43 | Radiologix Inc | MEDSERV | 7.35 | 6.67 | 7.77 |

| | | | | | | | | | |
|------------------------|-----------|------|------|------|------------------------------|-----------|------|------|------|
| Electronic Data Sys. | SOFTWARE | 5.84 | 5.14 | 4.37 | Republic Bancorp Inc KY Cl A | BANK | 9.87 | 8.64 | 9.09 |
| ENDESA ADR | FGNEUTIL | 8.13 | 9.77 | 8.01 | Ryland Group | HOMEBUILD | 7.21 | 6.26 | 6.87 |
| ePlus inc | INTERNET | 7.70 | 7.87 | 7.80 | Salton Inc. | HOUSEPRD | 2.76 | 2.76 | 6.52 |
| Federated Dept. Stores | RETAIL | 9.62 | 9.05 | 8.63 | Sears Roebuck | RETAIL | 7.77 | 7.13 | 4.69 |
| Fidelity Nat'l Fin'l | FINANCL | 9.09 | 7.26 | 6.48 | Shaw Group | METALFAB | 8.90 | 6.31 | 5.84 |
| First Amer Corp | FINANCL | 9.03 | 8.11 | 9.55 | Sola Int'l | MEDSUPPL | 6.95 | 7.27 | 9.23 |
| FirstFed Fin'l-CA | THRIFT | 8.90 | 8.96 | 9.28 | Sprint Corp. | TELESERV | 8.47 | 8.47 | 8.85 |
| Fleming Cos. | FOODWHOL | 2.47 | 2.47 | 2.23 | Stillwater Mining | GOLDSILV | 3.25 | 3.25 | 5.28 |
| Flowserve Corp. | MACHINE | 8.78 | 6.88 | 5.31 | SUPERVALU INC. | FOODWHOL | 9.02 | 8.19 | 7.03 |
| Foot Locker | RETAILSP | 9.48 | 8.94 | 8.53 | TECO Energy | UTILEAST | 5.71 | 5.71 | 5.79 |
| Gadzooks Inc | RETAILSP | 7.58 | 6.74 | 7.02 | Telefonos de Mexico ADR | TELEFGN | 8.04 | 8.04 | 8.03 |
| Genesco Inc. | SHOE | 7.15 | 7.61 | 9.02 | Toll Brothers | HOMEBUILD | 6.51 | 6.18 | 6.66 |
| Gerber Scientific | INSTRMNT | 9.29 | 9.29 | 5.69 | Tommy Hilfiger | APPAREL | 5.76 | 6.67 | 5.50 |
| Goodrich Corp. | DEFENSE | 5.92 | 5.92 | 6.78 | Trans World Entertain | RETAILSP | 7.50 | 7.50 | 7.52 |
| Greater Bay Bancorp | BANK | 8.24 | 6.33 | 6.45 | Triumph Group Inc | INSTRMNT | 8.41 | 8.92 | 7.94 |
| Green Mountain Pwr. | UTILEAST | 7.78 | 7.78 | 9.43 | TXU Corp. | UTILCENT | 3.58 | 3.19 | 2.70 |
| Group 1 Automotive | RETAILSP | 8.89 | 8.89 | 6.93 | Tyco Int'l Ltd. | DIVERSIF | 5.01 | 5.00 | 7.52 |
| Gulfmark Offshore | MARITIME | 7.09 | 9.88 | 8.78 | UIL Holdings | UTILEAST | 7.08 | 7.88 | 8.35 |
| Handleman Co. | RECREATE | 5.87 | 5.78 | 5.74 | United Rentals | MACHINE | 3.96 | 3.96 | 3.11 |
| Haverty Furniture | RETAILSP | 9.70 | 8.40 | 9.45 | Universal Amern Finl Corp | INSLIFE | 8.99 | 9.76 | 8.31 |
| HEALTHSOUTH Corp. | MEDSERV | 4.41 | 4.41 | 3.84 | Universal Corp. | TOBACCO | 8.35 | 8.35 | 8.62 |
| Helen of Troy Ltd. | COSMETIC | 9.01 | 9.01 | 7.27 | URS Corp. | INDUSRV | 7.37 | 6.24 | 7.37 |
| Household Int'l | FINANCL | 6.59 | 7.06 | 4.52 | Warrantech Corp. | INDUSRV | 7.59 | 5.61 | 3.00 |
| Imperial Chem. ADR | CHEMDIV | 7.01 | 7.01 | 8.97 | Westar Energy | UTILCENT | 0.00 | 3.34 | 9.43 |
| InterTAN Inc. | RETAILSP | 9.00 | 9.00 | 8.59 | Westpoint Stevens | TEXTILE | 0.00 | 5.29 | 1.60 |
| KB Home | HOMEBUILD | 8.51 | 7.13 | 6.32 | Whirlpool Corp. | APPLIANC | 8.41 | 7.49 | 7.13 |
| | | | | | World Acceptance | FINANCL | 6.45 | 6.10 | 6.98 |

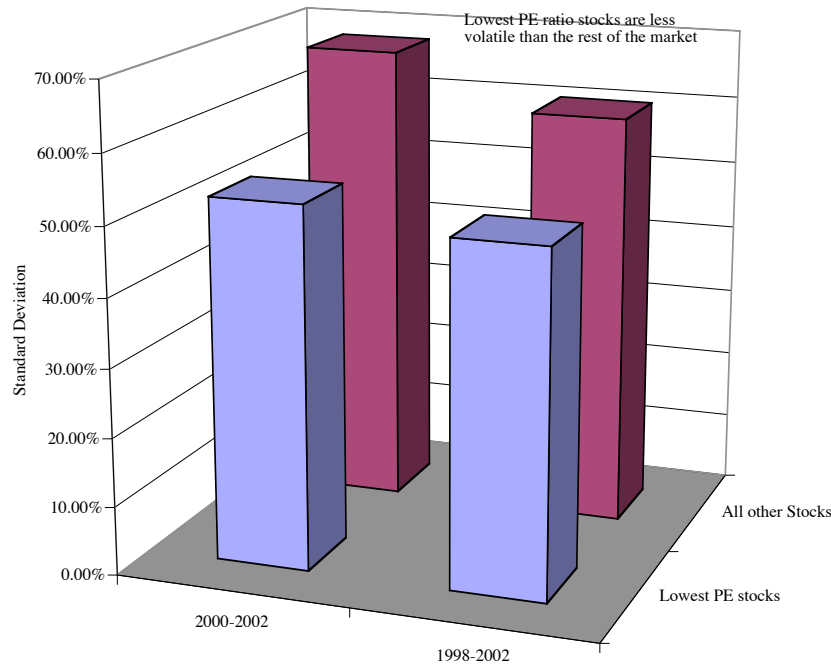
The Rest of the Story

Given the high returns that low PE ratio stocks earn, should you rush out and buy such stocks? While such a portfolio may include a number of under valued companies, it may also contain other less desirable companies for several reasons. First, not all earnings are of equal quality. In recent years, some firms have used accounting sleight of hand and one-time income to report higher earnings. You would expect these firms to trade at lower price earnings ratios than other firms. Second, even if the earnings are not skewed by accounting choices the earnings can be volatile and the low PE ratio may reflect this higher risk associated with investing in a stock. Third, a low PE ratio can also indicate that a firm's growth prospects have run out. Consequently, it could be a poor investment.

Risk and PE Ratios

In the earlier section, you compared the returns of stocks with low price earnings ratios to other stocks in the market over long period and concluded that low PE stocks do earn higher returns, on average. It is possible, however, that these stocks are riskier than average and that the extra return is just fair compensation for the additional risk. The simplest measure of risk you could consider is stock price volatility, measured with a standard deviation in stock prices over a prior period. Consider the portfolio of low PE stocks that you constructed at the end of the last section. The standard deviation in stock prices was computed for each stock in the portfolio. In Figure 3.7, the average standard deviation for the low PE portfolio is compared with the standard deviation of all stocks in the market for a three-year and a five-year period.

Figure 3.7: Standard Deviation in Stock Prices

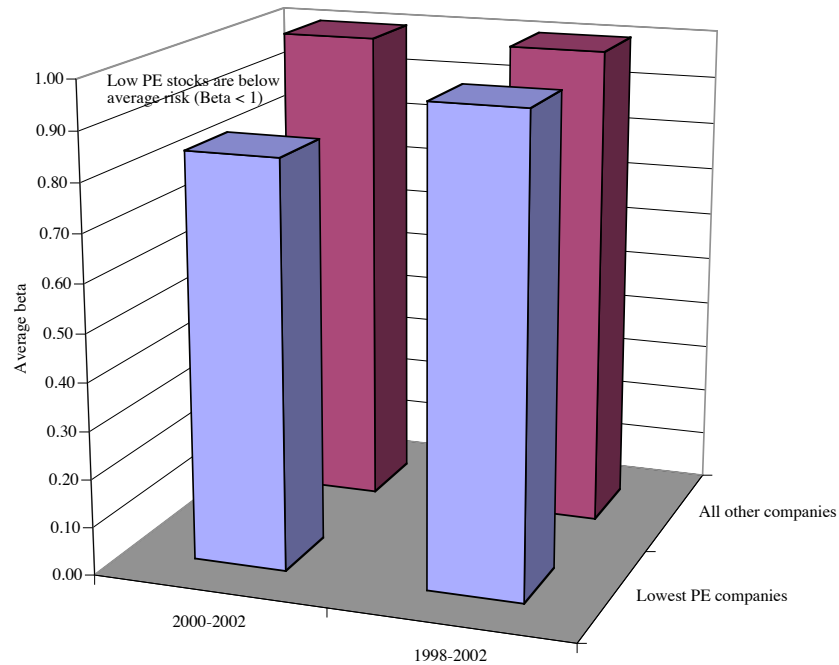


Data from Value Line: The average standard deviation in weekly stock prices over three and five years is reported.

Surprisingly, the lowest PE stocks are, on average, less volatile than the highest PE stocks though there are some stocks in the low PE portfolio that are more volatile than average.

Some studies try to control for risk by estimating excess returns that adjust for risk. To do so, though, they have to use a risk and return model, which measures the risk in investments and evaluates their expected returns, given the measured risk. For instance, some researchers have used the capital asset pricing model and estimated the betas of low PE and high PE portfolios. They come to the same conclusion that the analyses that do not adjust for risk come to – that low PE ratio stocks earn much higher returns, after adjusting for beta risk, than high PE ratio stocks. Consequently, the beta was computed for each of the stocks in the low PE portfolio and the average was contrasted for the portfolio with the average for all other stocks in Figure 3.8:

Figure 3.8: Betas of Low PE Ratio companies



Data from Value Line. This is the average beta (computed over 5 years of weekly returns) across stocks in the portfolio.

On this measure of risk as well, the low PE ratio portfolio fares well, with the average beta of low PE stocks being lower than the average PE for the rest of the market.

While the average beta and standard deviation of the low PE portfolio is lower than the average for the rest of the market, it is still prudent to screen stocks in the portfolio for risk. You could, for instance, eliminate all firms that would fall in the top quintile of listed stocks in terms of risk – beta or standard deviation. Looking at stocks listed in October 2002, this would have yielded cut-off values of 1.25 for beta and 80% for standard deviation. Removing firms with betas greater than 1.25 or standard deviations that exceed 80% from the sample reduces the number of stocks in the portfolio from 115 to 91. Table 3.5 lists the 24 firms removed as a result of failing the risk screen.

Table 3.5: Firms removed from low PE portfolio – Risk Test

| Company Name | Industry | Beta | Standard Deviation |
|---------------------|----------|------|--------------------|
| Beverly Enterprises | MEDSERV | 1.27 | 75.58% |
| Allmerica Financial | INSPRPTY | 1.31 | 49.50% |
| Precision Castparts | DEFENSE | 1.33 | 52.58% |

| | | | |
|-------------------------|----------|-------|---------|
| Federated Dept. Stores | RETAIL | 1.34 | 46.00% |
| Telefonos de Mexico ADR | TELEFGN | 1.4 | 43.74% |
| Petroleum Geo ADR | OILFIELD | 1.4 | 74.49% |
| Shaw Group | METALFAB | 1.44 | 69.20% |
| United Rentals | MACHINE | 1.68 | 58.13% |
| Flowsolve Corp. | MACHINE | 1.71 | 54.84% |
| InterTAN Inc. | RETAILSP | 1.73 | 61.29% |
| Dynegy Inc. 'A' | GASDIVRS | 1.78 | 77.24% |
| Tyco Int'l Ltd. | DIVERSIF | 1.87 | 60.57% |
| Stillwater Mining | GOLDSILV | 1.87 | 65.61% |
| Salton Inc. | HOUSEPRD | 2.05 | 73.57% |
| CryoLife Inc. | MEDSUPPL | -0.34 | 81.08% |
| Dura Automotive 'A' | AUTO-OEM | 2.35 | 81.56% |
| Quanta Services | INDUSRV | 2.48 | 82.67% |
| Calpine Corp. | POWER | 1.95 | 85.18% |
| Metro One Telecom | INDUSRV | 1.74 | 86.70% |
| AES Corp. | POWER | 2.26 | 89.64% |
| Aftermarket Tech | AUTO-OEM | 1.02 | 100.83% |
| ePlus inc | INTERNET | 1.57 | 113.77% |
| Westpoint Stevens | TEXTILE | 0.74 | 126.22% |
| Acclaim Entertainment | ENT TECH | 3.33 | 237.57% |

Note that firms are required to pass both risk tests. Thus, there are firms that have betas less than 1.25 (such as Westpoint Stevens) but standard deviations greater than 80% that are eliminated from the portfolio.

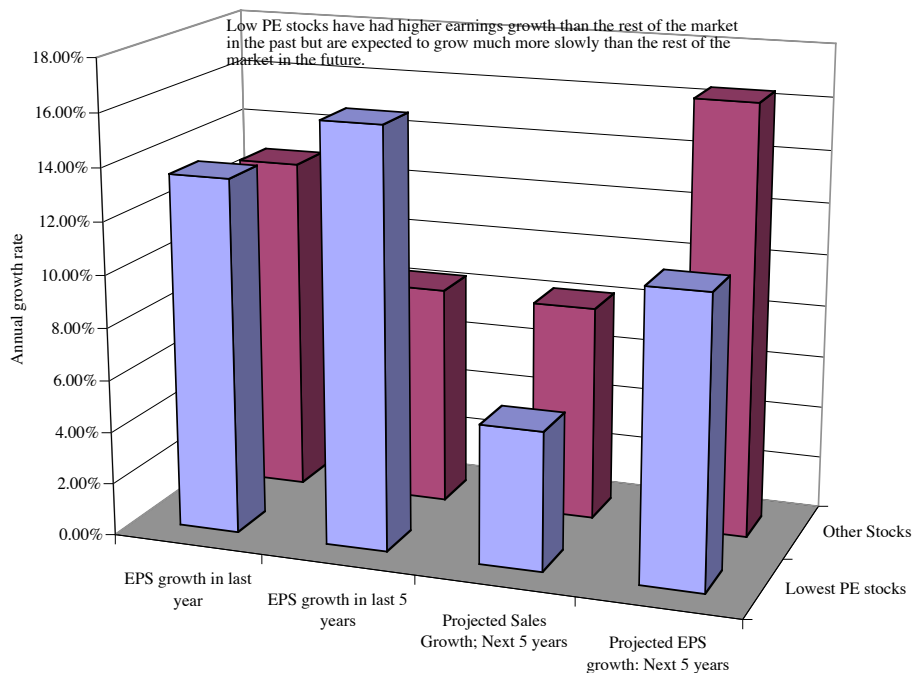
Low Growth and PE Ratios

One reason for a low PE ratio for a stock would be low expected growth. Many low PE ratio companies are in mature businesses where the potential for growth is minimal. If you invest in stocks with low PE ratios, you run the risk of holding stocks with anemic or even negative growth rates. As an investor, therefore, you have to consider whether the trade off of a lower PE ratio for lower growth works in your favor.

As with risk, growth can be measured in many ways. You could look at growth in earnings, over the last few quarters or years, but that would be backward looking. There are stocks whose earnings have stagnated over the last few years, which may be ripe for high

growth, just as there are stocks whose earnings have gone up sharply in the last few years that have little or no expected growth in the future. It is to avoid this peering into the past that investors often prefer to focus on expected growth in earnings in the future. Estimates of this growth rate are available for different forecast periods from analysts and are often averaged and summarized (across analysts) by services such as I/B/E/S or Zacks. The average past and expected growth rates in earnings per share for firms in the low PE portfolio are computed and compared to the same statistics for the rest of the market in October 2002 in Figure 3.9:

Figure 3.9: Growth Rates - Lowest PE stocks versus Other stocks



Data from Value Line: The projected sales and EPS growth for the next 5 years comes from analyst forecasts.

The earnings of the lowest PE ratio stocks have grown faster than the earnings of other stocks, if you look back in time (one year or five years). However, the projected growth in both sales and earnings is much lower for the low PE ratio stocks, indicating that this may be a potential problem with the portfolio and a partial explanation for why these stocks trade at lower values. Consequently, you should consider screening the portfolio of low PE stocks for those with low or negative growth rates. Introducing a minimum expected growth rate of 10% in expected earnings reduces the sample of low PE stocks by 52 firms. A minimum expected growth rate of 5% would reduce the sample by 27 firms. If you believe that analyst estimates tend to be too optimistic and introduce an additional constraint

that historical growth in earnings would also have to exceed 5%, you would lose another 18 firms from the sample. Table 3.6 summarizes the 41 firms that are eliminated by introducing a dual growth constraint – a historical earnings per share growth rate that exceeds 5% and analyst projected earnings per share growth greater than 5%.

Table 3.6: Firms removed from low PE portfolio – Growth Test

| <i>Company Name</i> | <i>Ticker Symbol</i> | <i>Projected EPS Growth</i> | <i>EPS Growth - Last 5 years</i> |
|---|----------------------|-----------------------------|----------------------------------|
| <i>Removed because projected growth less than 5%</i> | | | |
| Aquila Inc. | ILA | -10.00% | 7.00% |
| CMS Energy Corp. | CMS | -4.00% | -0.50% |
| PNM Resources | PNM | -1.50% | 11.50% |
| UIL Holdings | UIL | -1.00% | 4.00% |
| Trans World Entertain | TWMC | -0.50% | 0.00% |
| Stillwater Mining | SWC | 0.50% | 0.00% |
| Allegheny Energy | AYE | 1.00% | 8.50% |
| Allmerica Financial | AFC | 1.00% | 11.50% |
| Marathon Oil Corp. | MRO | 1.00% | 28.00% |
| Imperial Chem. ADR | ICI | 1.50% | -3.50% |
| Pinnacle West Capital | PNW | 2.00% | 9.00% |
| El Paso Electric | EE | 2.50% | 15.50% |
| Salton Inc. | SFP | 2.50% | 72.50% |
| Calpine Corp. | CPN | 3.50% | 0.00% |
| Sprint Corp. | FON | 3.50% | 0.00% |
| Ashland Inc. | ASH | 3.50% | 14.50% |
| Universal Corp. | UVV | 3.50% | 15.50% |
| Westpoint Stevens | WXS | 4.00% | 0.00% |
| ENDESA ADR | ELE | 4.00% | 1.00% |
| Quanta Services | PWR | 4.50% | 0.00% |
| TECO Energy | TE | 4.50% | 4.50% |
| Lafarge No. America | LAF | 4.50% | 17.50% |
| Del Monte Foods | DLM | 5.00% | 0.00% |
| May Dept. Stores | MAY | 5.00% | 6.00% |
| Tommy Hilfiger | TOM | 5.00% | 15.00% |
| Precision Castparts | PCP | 5.00% | 20.50% |
| AES Corp. | AES | 5.00% | 28.50% |
| <i>Removed because historical growth less than 5%</i> | | | |
| Westar Energy | WR | 16.00% | -25.50% |
| Green Mountain Pwr. | GMP | 20.50% | -19.50% |
| Petroleum Geo ADR | PGO | 15.00% | -14.50% |
| Beverly Enterprises | BEV | 9.50% | -12.50% |
| Gerber Scientific | GRB | 14.00% | -9.50% |
| Quaker Fabric | QFAB | 18.17% | -5.50% |

| | | | |
|----------------------|------|--------|--------|
| Sola Int'l | SOL | 6.00% | -3.50% |
| Nash Finch Co. | NAFC | 17.50% | -3.50% |
| Aftermarket Tech | ATAC | 8.50% | 2.00% |
| TXU Corp. | TXU | 9.50% | 2.00% |
| Electronic Data Sys. | EDS | 13.00% | 2.50% |
| Chromcraft Revington | CRC | 13.00% | 4.00% |
| Gadzooks Inc | GADZ | 18.33% | 5.00% |

Earnings Quality and PE Ratios

With its focus on earnings per share, PE ratios put you at the mercy of the accountants who measure these earnings. If you assumed that accountants make mistakes but that they work within established accounting standards to estimate earnings without bias, you would be able to use PE ratios without qualms. In the aftermath of the accounting scandals of recent years, you could argue that accounting earnings is susceptible to manipulation. If earnings are high not because of a firm's operating efficiency but because of one-time items such as gains from divestiture or questionable items such as income from pension funds, you should discount these earnings more (leading to lower PE ratios).

How can you screen stocks to eliminate those with questionable earnings? It is difficult to do, since you learn of troubles after they occur. You could, however, look for clues that have historically accompanied earnings manipulation. One would be frequent earnings restatements by firms, especially when such restatements disproportionately reduce earnings.⁷ Another would be the repeated use of one-time charges to reduce earnings. For example, Xerox had large one-time charges that reduced or eliminated earnings every single financial year during the 1990s. A third is a disconnect between revenue growth and earnings growth. While it is entirely possible for firms to report high earnings growth when revenue growth is low for a year or two, it is difficult to see how any firms can continue to grow earnings 20% a year, year after year, if their revenues growth is only 5% a year.

Lessons for Investors

The primary lesson of this chapter is that firms that have low price earnings ratios may be neither under valued nor good investments. If you combine that with the fact that the primary culprits for low PE ratios are low growth and high risk, it is clear that you want a portfolio of stocks with low PE ratios, high quality earnings with potential for growth and

⁷ When firms restate earnings, they have to file an amended financial statement with the SEC. One easy way of finding firms that have done repeated restatements is to examine the SEC filings data online and to count the number of restatements over a period (three to five years).

low risk. The key then becomes coming up with the screens that will allow you to bring all of these needs into the portfolio.

- (a) *Low PE ratios*: There are two decisions you need to make here. The first is the measure of PE that you will be using. Not only do you have to decide whether you will use current, trailing or forward PE, but you will also have to make a choice on whether you want to use primary or diluted earnings. The second decision you have to make is on what cut-off you will use for a low PE ratio. In other words, will you pick all stocks with PE ratios less than 12 or only those with PE ratios less than 8? As noted earlier in the chapter, what comprises a low PE ratio is relative. In other words, a PE ratio of 12 is low in a market where the median PE is 25 but will be high in a market where the median PE is 7. To scale your choices to the level of the market, you can use the 10th or 20th percentile as the cut-off for a low PE ratio; which one you pick will depend upon how stringent your other screens are and how many stocks you would like to have in your final portfolio.
- (b) *Low Risk*: Here again, you have two judgments to make. The first is the measure of risk that you will use to screen firms. The standard deviation in stock prices and betas were used as screens in the last section, but there are other quantitative measures of risk that you could also consider. You could use the debt equity ratio to measure the risk from financial leverage. In addition, there are qualitative measures of risk. Standard and Poor's, for instance, assigns a letter grade for stocks that resembles the ratings that they assign corporate bonds. An A rated equity, by S & P's measure, is much safer than a BBB rated equity. The second is the level of risk at which you will screen out stocks. With standard deviation, for instance, will you screen out all stocks that have standard deviations that exceed the median or average for the market or will you set a lower standard?
- (c) *Reasonable expected growth in earnings*: While it is unlikely that you will find companies with low PE ratios and high expected growth rates, you can set a threshold level for growth. You could eliminate all firms, for instance, whose expected growth rate in earnings is less than 5%. How do you come up with this cutoff? You could look at the entire market and use the median or average growth rate of the market as an index.
- (d) *Quality of Earnings*: This is perhaps the toughest and most time intensive test to meet. To do it right, you would need to examine the financial statements of each of the firms that make it through the prior screens in detail, and over several years. If you want simpler tests, you could eliminate firms where you have doubts about earnings quality. For instance, you could remove firms that have

- ❑ Repeatedly restated earnings over the last few years: Repeated restatements of earnings can be a sign of underlying accounting problems at firms.
- ❑ Grown through acquisitions rather than internal investments: Companies that go through acquisitions are much more likely to have one-time charges (like restructuring expenses) and non-cash charges (such as goodwill amortization) that make current earnings less reliable.
- ❑ Significant option grants or profits from one-time deals: One time profits complicate the search for “normalized earnings” and large option grants can make forecasting per share numbers very difficult.

Taking into account these screens, stocks that passed the following screens were considered in October 2002:

- ❑ PE ratios (current, trailing and forward) less than 12 (the 20th percentile at the time of the screening).
- ❑ Betas that are less than one and standard deviations in stock prices over the last 5 years of less than 60% (which was the median standard deviation across all traded stocks). To control for the fact that some of these firms may have too much debt, any firms that had debt that exceeded 60% of their book capital were eliminated.
- ❑ Expected growth in earnings per share (from analyst estimates) over the next 5 years greater than 5% and historical growth rates in earnings per share (over the last 5 years) that exceed 5%.

In addition, any firms that had restated earnings⁸ over the previous 5 years or had more than two large⁹ restructuring charges over the previous five years were eliminated. The resulting portfolio of 27 stocks is summarized in the appendix at the end of this chapter. The portfolio is well diversified and come from 23 different industries, as defined by Value Line.

Conclusion

The conventional wisdom is that low PE stocks are cheap and represent good value. That is backed up by empirical evidence that shows low PE stocks earning healthy

⁸ When a company restates earnings, it has to file an amended 10K with the Securities and Exchange commission (SEC). The SEC web site was checked for the number of amended 10Ks over the last 5 years for any firms that passed the PE, growth and risk screens.

⁹ A large charge is one that exceeded 20% of the pre—charge income of the firm. Thus, for a firm with \$ 1 billion in pre-charge income, a restructuring charge that is greater than \$ 200 million would have been viewed as a large charge.

premiums over high PE stocks. If you relate price earnings ratios back to fundamentals, however, low PE ratios can also be indicative of high risk and low future growth rates. In this chapter, this linkage was made explicit by creating a portfolio of low PE stocks and eliminating those stocks that fail the risk and growth tests. Of the 115 stocks that had trailing, current and forward PE ratios that were less than 10, more than 60% of the sample would have been removed because they had above-average risk or below-average growth.

In summary, a strategy of investing in stocks just based upon their low price earnings ratios can be dangerous. A more nuanced strategy of investing in low PE ratio stocks with reasonable growth and below-average risk offers more promise, but only if you are a long-term investor.

Appendix: Companies that pass PE Tests in the United States: October 2002

| Company Name | Identification | | PE Ratios | | | Risk Measures | | | EPS Growth | | Options as % of shares |
|----------------------|----------------|-------------------------|------------|-------------|------------|---------------|-------------|--------------|---------------------|--------------------------------|------------------------|
| | Ticker | Industry | Current PE | Trailing PE | Forward PE | Beta | Sttd. Dev'n | Debt/Capital | Growth Last 5 years | Projected Growth: next 5 years | |
| Washington Federal | WFSL | Thrift | 11.22 | 10.90 | 10.89 | 0.90 | 32.84% | 0.00% | 7.50% | 11.50% | 0.00% |
| CEC Entertainment | CEC | Restaurant | 10.28 | 11.30 | 9.65 | 0.90 | 38.87% | 13.36% | 65.00% | 17.00% | 2.57% |
| Magna Int'l 'A' | MGA | Auto Parts | 8.77 | 9.30 | 8.44 | 0.90 | 27.78% | 24.01% | 9.50% | 10.50% | 17.21% |
| Bank of Nova Scotia | BNS.TO | Bank (Canadian) | 10.65 | 10.80 | 10.05 | 0.90 | 24.71% | 29.40% | 15.00% | 10.00% | 1.68% |
| Centex Construction | CXP | Cement & Aggregates | 9.87 | 10.90 | 9.04 | 0.75 | 38.04% | 29.89% | 20.50% | 8.50% | 0.38% |
| Zions Bancorp. | ZION | Bank | 11.46 | 11.60 | 10.83 | 0.95 | 31.70% | 30.94% | 15.00% | 11.50% | 1.07% |
| Nat'l Bank of Canada | NA.TO | Bank (Canadian) | 10.09 | 11.50 | 9.38 | 0.80 | 22.60% | 31.25% | 13.00% | 9.50% | 0.48% |
| V.F. Corp. | VFC | Apparel | 11.03 | 11.20 | 10.72 | 0.90 | 35.17% | 31.76% | 6.50% | 8.50% | 3.11% |
| Right Management | RMCI | Human Resources | 8.97 | 9.30 | 8.69 | 0.60 | 53.97% | 35.38% | 9.00% | 23.50% | 9.19% |
| Tredegar Corp. | TG | Chemical (Specialty) | 9.46 | 11.40 | 8.64 | 0.80 | 43.01% | 35.63% | 16.50% | 14.00% | 1.90% |
| Ryan's Family | RYAN | Restaurant | 9.00 | 9.70 | 8.70 | 0.75 | 34.50% | 35.97% | 15.00% | 14.00% | 3.53% |
| Loews Corp. | LTR | Financial Svcs. (Div.) | 8.12 | 10.60 | 6.71 | 0.90 | 37.83% | 39.40% | 5.50% | 8.00% | 0.00% |
| Building Materials | BMHC | Retail Building Supply | 7.66 | 7.60 | 7.25 | 0.85 | 39.13% | 40.80% | 7.50% | 8.00% | 0.85% |
| Ameron Int'l | AMN | Building Materials | 7.23 | 7.10 | 6.78 | 0.75 | 33.63% | 42.33% | 14.50% | 5.00% | 3.18% |
| IHOP Corp. | IHP | Restaurant | 10.86 | 12.00 | 9.87 | 0.85 | 32.28% | 43.17% | 15.00% | 12.00% | 1.77% |
| Universal Forest | UFPI | Building Materials | 9.60 | 9.80 | 8.46 | 0.75 | 32.67% | 43.28% | 14.00% | 12.00% | 2.91% |
| TBC Corp. | TBCC | Tire & Rubber | 9.88 | 9.90 | 9.29 | 0.85 | 45.08% | 43.84% | 7.00% | 10.00% | 1.84% |
| Haverty Furniture | HVT | Retail (Special Lines) | 10.57 | 10.20 | 9.70 | 0.85 | 51.68% | 45.48% | 17.50% | 14.00% | 2.39% |
| Brown Shoe | BWS | Shoe | 9.52 | 10.90 | 9.05 | 0.75 | 51.55% | 45.73% | 9.00% | 8.00% | 1.97% |
| Philip Morris | MO | Tobacco | 9.02 | 9.10 | 8.94 | 0.65 | 36.31% | 50.60% | 10.50% | 9.00% | 0.00% |
| Smithfield Foods | SFD | Food Processing | 11.77 | 11.00 | 9.93 | 0.90 | 39.34% | 52.06% | 26.00% | 10.00% | 2.15% |
| Sealed Air | SEE | Packaging | 7.17 | 7.00 | 6.93 | 0.75 | 53.38% | 52.12% | 5.50% | 15.00% | 0.00% |
| SUPERVALU INC. | SVU | Food Wholesalers | 8.21 | 8.70 | 7.31 | 0.75 | 37.58% | 54.11% | 8.00% | 10.00% | 0.81% |
| Duke Energy | DUK | Electric Utility (East) | 8.79 | 11.00 | 8.48 | 0.70 | 36.49% | 55.13% | 6.00% | 7.50% | 0.70% |

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| Safeway Inc. | SWY | Grocery | 8.16 | 8.90 | 7.75 | 0.75 | 31.68% | 55.68% | 25.00% | 12.00% | 1.97% |
| Hovnanian Enterpr. | HOV | Homebuilding | 8.19 | 10.40 | 8.45 | 0.95 | 52.20% | 57.91% | 22.00% | 22.50% | 3.70% |
| CAE Inc. | CAE.TO | Aerospace/Defense | 8.92 | 7.50 | 6.86 | 0.75 | 59.44% | 59.97% | 17.50% | 12.00% | 1.17% |