The Trouble with Earnings and Price/Earnings Multiples

Wall Street is a world filled with rules of thumb and shortcuts. And while the objective of these shortcuts is to save time—ostensibly to improve investment performance—they are fraught with severe and crippling shortcomings.

The core of expectations investing is to correctly anticipate changes in the market's implied expectations for a company's long-term cash flows. The evidence notwithstanding, the investment community's focus on short-term earnings and price/earnings is ubiquitous. In light of this, we address the following questions:

- How do we know the market is long-term oriented?
- Why do investors focus on earnings?
- Why are earnings unreliably linked to stock price?
- How is the earnings expectations game played and why should you avoid it?
- What are the shortcomings of the most widely used performance and investment yardsticks—return on equity (ROE) and the price/earnings (P/E) multiple.

The market takes the long view

Expected long-term cash flows, discounted by the cost of capital—not reported earnings—determine stock prices. How do we know this? The most direct evidence comes from stock prices themselves: we can estimate the expected level and duration of cash flows that today's price implies.

One way to measure the market's time horizon is to see how much value is attributable to dividends, say, over the next five years. As it turns out, we can only attribute about ten-fifteen percent of the stock price of the Dow Jones Industrial companies to expected dividends over the next five years.[1] The percentage is likely to be even lower for broader indices that include many companies that pay no dividends. In either case, it takes many years of dividends to justify the current stock price.

Another way to assess the market's implied time horizon is to estimate the number of years of value-creating discounted free cash flow it takes to justify the current stock price. This period, which we call the market-implied forecast period, can exceed twenty or more years for companies that demonstrate formidable competitive advantages. We find that the market-implied forecast period for U.S. stocks clusters between ten and fifteen years—once again, an indication that the market has a long, not short, horizon.

A less direct way to understand the stock market's long-term orientation is to compare an investment in stocks with an investment in government bonds. As we write this in July 2001, the average dividend yield is about 1 percent. An investment in thirty-year bonds yields in the neighborhood of 6 percent. Why would rational investors ever buy stocks when they can realize substantially higher current yields by buying less risky bonds?

While the investor's primary interest is in stock price appreciation rather than in dividends, both depend on future cash flows. The long-term dividend growth rate of the Standard & Poor's 500 stocks is approximately 6 percent. At that rate, it takes just over thirty years for the current 1-percent dividend yield to reach the bond yield of 6 percent. The yield difference between stocks and bonds tells us the long-term cash flow growth prospects of companies are enough to compensate for today's lower yield.

Surprisingly, many executives and investors persist in the belief that the stock market has a short time horizon. Doug Geoga, president of Hyatt Hotels, expresses the mainstream view:

> "Wall Street has a tendency to overemphasize short-term benefits at the expense of long-term benefits. . . . There is a reward given to pursue short-term actions that provide a short-term benefit at the expense of long-term value to your company."[2]

How can so many investors and managers continue to believe that short-term reported earnings rather long-term cash flows fuel stock prices? There are three plausible explanations. The first is that market participants misinterpret the stock market's response to earnings announcements. The second is that the stocks of businesses with great long-term prospects do not always perform well. The final explanation is that portfolio managers have short (and shortening) holding periods. We will look at each of these explanations.

If it's all about cash flow, why does the market respond—and sometimes strongly—to earnings announcements? When quarterly earnings provide investors with *new* information about a company's long-term cash flow prospects, the stock price will change. But the market does not react mechanically to reported earnings. Instead, when appropriate, the market uses unexpected changes in earnings as a signal to revise expectations about a company's future cash flows. If the market sees a disappointing earnings announcement as a harbinger of the future, it drives the stock price down. Research studies confirm that announced changes in accounting methods that alter reported earnings, but not cash flows, do not affect the stock price. Where there is no signal about future cash flows, there is no stock price response.

We can view restructuring announcements in much the same way. Significant hits to current earnings and stock price increases often accompany disclosure of management's intention to cut its losses and exit value-destroying lines of business. In these situations, the market does not respond to the unexpected decrease in current earnings. Rather, it focuses on the long-term expected benefits of redeploying corporate resources to higher-valued uses.

There is a second reason that investors and managers mistakenly believe the market to be short term. They note that well-managed companies with enduring competitive advantage do not always produce superior returns for their shareholders. The combination of long-term competitive advantage and average, or poor, short-term stock price performance seems incongruous. But there is a perfectly sound reason for this. If a company's stock price fully incorporates its competitive advantage, there is no

reason to expect that shareholders will earn anything greater than a normal, market-required rate of return. Superior returns are only bestowed on investors who correctly *anticipate changes* in a company's competitive position (and the resulting cash flows) that are not reflected in the current stock price**.**

Even those investors who recognize the market's long-term horizon must understand management's viewpoint. When managers see that their investments consistently increase shareholder value at the same time that their stock price produces only average market returns, they sometimes jump to two mistaken and dangerous conclusions:

1. The market does not value the company's expected long-term performance but judges it solely by its short-term performance.
2. Management must abandon the long-term orientation of the shareholder value model and focus on short-term results in order to increase its stock price.

The claim that the stock market places undue weight on short-term results is essentially a claim that investors ignore valuable information about a company's long-term prospects when they assess stocks. This claim asks us to believe that there is a $100 bill on the sidewalk for all to see, but that no one chooses to pick it up—an unlikely prospect. Manager claims of the market's obsession with the short run are also curiously asymmetric. Managers complain that the market does not accord enough weight to the *good news* about a company's long-term prospects, but never express such complaints about the *bad news*. Importantly, if management acts as if the market is short-term oriented, it may forgo significant value-creating opportunities.

A third explanation for the popular belief that the market has a short time investment horizon is that portfolio managers are obsessed with their own short-term performance. They compete frantically against target benchmarks and their peers in the pursuit of acceptable quarterly returns. They constantly move in and out of the market, and in and out of individual stocks, in an attempt to outpoint other investors. John Bogle notes that the average holding period for funds was about seven years until the mid-1960s. Today, the holding period is just over a year.[3] Add day traders to the mix and it becomes deceptively easy to conclude that the market is myopically addicted to the short term. How can an investor who holds a stock for days have an interest in a company's long-term outlook?

This puzzle has a simple solution. The key is to distinguish between the daily scurrying of investors and the forces that determine market prices. In other words, *there's a world of difference between investor holding periods and the market's investment time horizon.* To understand the market's investment time horizon, one must look to the stock price itself, not investor holding periods. As pointed out earlier, studies consistently confirm that it is not possible to justify stock prices without extending expected cash flows over many years. So even though the stock of some high-technology start-ups is only held for a few days, it often takes ten or more years of value-creating performance to justify the current price. Investors make short-term bets on long-term outcomes.

Why do investors focus on earnings?

There is a fixation on earnings per share (EPS) as the scorecard of corporate performance. The *Wall Street Journal* and other leading financial publications report on quarterly earnings. Analyses of corporate strategies by *Business Week, Fortune,* and *Forbes* are replete with references to EPS growth and price/earnings multiples. This broad dissemination fuels the belief that reported earnings strongly influence, if not totally determine, stock prices. Couple this with the frequent stock price reactions to earnings announcements and it is no surprise that earnings have come to dominate the thinking in publicly traded companies as well as in the investment community. In short, earnings are the most widely spoken language in the financial community. But as we will see, those who depend on superficial measures such as earnings jeopardize their understanding of the essential drivers of shareholder value.

The focus on earnings goes beyond its convenient availability and single-number simplicity. It is also that auditors provide presumed authority to the number. And earnings offer a shortcut, freeing investors from the subjective and time-consuming need to assess long-term cash-flow prospects. But this shortcut exacts a significant toll because it views value through the rear-view mirror. Investors, however, must squarely face the future. The choice comes down to one between convenience and relevance. In this case, we believe that the relevance of long-term cash flows clearly outweighs the convenience of short-term earnings. As the saying goes: “Those who can’t measure what they want frequently settle for wanting what they can measure.”[4]

Why are earnings unreliably linked to stock price?

There is compelling evidence that it typically takes ten or more years of cash flows to justify current stock prices. Nonetheless, most investors avoid the difficulty of forecasting long-term cash flows by simply ignoring them. Instead, they focus on short-term earnings growth prospects.

But why would investors have an interest in earnings? Earnings are useful in valuing stocks only if they help forecast a company’s future cash flows. Unfortunately, last year’s earnings, or a forecast of next year’s earnings, tell us very little about the magnitude and timing of future cash flows. This is increasingly true as technology, globalization, and accelerating competition trigger greater uncertainty and volatility in a company’s prospects. And where do we turn to value young technology companies with extraordinary growth potential but no meaningful sales or current earnings due to high start-up costs? In these cases, traditional earnings yardsticks are not only unreliable, they are unusable because the required input does not exist.

The deficiency of short-term earnings as a proxy for long-term cash flows applies to other short-term performance measures as well. Consider short-term cash flow. There is no reason to believe that last year’s or next year’s cash flow necessarily tells us any more about future cash flows than short-term earnings does. To the contrary, because accrual accounting earnings figure smoothes out the unevenness in year-to-year cash flows, the Financial Accounting Standards Board (and many accountants) contend that earnings, not cash flow, are the best platform for projecting into the future.[5]

But the short-term earnings versus cash flow debate is pointless. No short-term performance measure can substitute for competitive strategy analysis to assess long-term cash flow prospects and shareholder value.

If we stopped right here, investors would have ample reason to abandon their fascination with short-term earnings. Clearly, it is analytically dangerous to extrapolate from single-period performance measures in a dynamic economy. Yet there is more.

We now turn to the earnings figure itself and examine how it differs from the discounted cash flows required to calculate shareholder value. There are three fundamental differences.

1. The earnings calculation includes no charge for the cost of capital.
2. Earnings exclude the incremental investments in working capital and fixed capital a company needs to support its growth.
3. It is possible to compute earnings using alternative, equally acceptable accounting methods.

As a consequence of these differences, earnings fail to measure shareholder value. Further, and to the surprise of many, we show that earnings growth does not necessarily lead to higher shareholder value or a stock price increase.

Shareholder value calculations and stock prices embed the idea that a dollar received today is worth more that a dollar due a year from now. This is because we can invest today's dollar to earn a return over the next year. So when a company invests, it must compare the return it generates to the opportunity provided by alternative, equally risky investments. The cost of capital reflects this opportunity cost. Recall that the cost of capital includes compensation for bearing risk as well as for expected inflation. It is the rate used to discount a company's future free cash flows. Operating earnings, in contrast, ignore the cost of capital.

This important difference between accounting earnings and shareholder value means that *earnings growth does not necessarily translate into shareholder value added (SVA).* Shareholder value only increases if the company earns a rate of return on new investments that exceeds the cost of capital. *Management, however, can achieve earnings growth not only when it is investing at or above the cost of capital but also when it is investing below the cost of capital.*

Earnings growth is not only unreliably related to changes in shareholder value, it is unreliably linked to changes in a company's stock price. This is the case when a company achieves growth without any increase in shareholder value. More fundamentally, changes in expectations about future shareholder value creation drive changes in share price. So reported earnings growth, even when accompanied by increases in shareholder value, can trigger reduced investor expectations and a fall in the stock price. For an example, see the end of this article.

We now move on to the second disparity between shareholder value and earnings—required investments in working capital and fixed capital for corporate growth.

Consider the case of operating working capital, which is equal to operating current assets (accounts receivable and inventory) minus non-interest-bearing current liabilities (accounts payable and accrued liabilities). As a business grows, there is normally an associated growth in its level of accounts receivable, inventory, and accounts payable. An increase in receivables between the beginning and end of the year means that the cash flow that sales generate is *less* than the revenue figure on the income statement. For accounting purposes, companies recognize revenue at the time goods or services are delivered. For valuation purposes, recognition must await the receipt of cash from customers. So for companies with expanding receivables, revenues on the income statement always overstate the cash flow from sales. This is precisely why an increase in receivables is an investment in working capital that must be deducted from net operating profit to arrive at free cash flow.[6]

Investment in inventory is another important component of working capital that contributes to differences between earnings and cash-flow-based valuations. An increase in inventory involves cash outlays for materials, labor, and overhead. For accounting purposes, the investment in additional inventory is recorded as an asset on the balance sheet and is *not* included in the cost-of-sales figure on the income statement. Therefore, for companies with expanding inventory levels, the cost of goods sold understates the cash outflow for inventory expenditures. In summary, increases in accounts receivable and inventories cause the earnings figure to exceed cash flow for growing businesses.

Accounts payable typically acts as a countervailing force to receivables and inventory. Payables represent unpaid bills for items already included either as expenses in the income statement or, for increases in inventory, reflected on the balance sheet. As a consequence, expenses overstate cash outflow by the amount of the increase in payables. In other words, cash is disbursed after the company records the expense.

We now turn from investment in working capital to investment in fixed assets. Depreciable assets such as property, plant, and equipment are initially recorded at cost and included in the fixed asset section of the balance sheet. Accountants then allocate this cost—through a depreciation expense—over the estimated useful life of the asset. So depreciation is a convention for allocating historical cost, and is not meaningful to the valuation process. Even though accountants deduct depreciation to arrive at earnings, it does not involve a cash outlay. On the other hand, earnings do not reflect the capital expenditures made during the year. Thus, we need two adjustments to move from earnings to cash flow: we must add depreciation back to earnings and we must deduct capital expenditures.

This brings us to the third and final shortcoming of the earnings number: companies can calculate earnings using a wide range of permissible accounting methods. Prominent examples include alternative methods of computing depreciation expense and different inventory costing methods (e.g., first-in first-out, average cost, and last-in first-out) to determine cost of sales.

A change in accounting method for financial reporting purposes, whether mandated by the Financial Accounting Standards Board or chosen by management,

can materially affect earnings but ordinarily does not alter a company's cash flows. Therefore, it should not affect a company's economic value.[7] How accountants choose to depict a business event does not alter the economics of the business itself. It is what it is!

Of course, it is possible that the market sees an accounting change as a signal for more fundamental shifts in a company's prospects. For example, investors may conclude that a change to an earnings-increasing accounting method is the company's response to reduced earnings prospects. In this situation, the accounting change will trigger a decrease in the share price. However, the decrease is not due to the accounting change *per se* but rather reflects the information inferred from management's decision to make the accounting change.

Research consistently finds that stock prices do *not* behave as if investors focus exclusively on reported earnings. Analysts generally adjust reported earnings for accounting method differences across companies and over time. Furthermore, stock prices respond to a wide variety of other qualitative and quantitative information, including new product announcements, mergers and acquisitions, strategic alliances, sale or spin-off of businesses, and litigation. Earnings are only one of many sources of information that affect stock prices.

Before we discuss the flexibility in earnings calculations in greater detail, it is useful to step back and place the role of accounting and financial reporting in perspective. Accountants are not in the business of estimating economic income. Enlightened accountants readily acknowledge that neither they, nor their conventions, have a comparative advantage in assessing the value of a business. The more appropriate objective of corporate financial reporting is to provide useful information to those who seek to estimate value.

Once we understand that reported earnings do not measure shareholder value added during the period, we can gain the best insights on earnings by examining the calculation itself. Two fundamental steps—revenue recognition and matching expenses with revenues—determine earnings. First, a company recognizes revenue when it delivers products or services and can reasonably establish the amount it will collect from customers. Next, the company records the costs incurred to create revenue as expenses in the period that the revenue is recognized. This matching principle is easy to grasp in concept but is hopelessly arbitrary in implementation. It is relatively easy to link certain costs, such as the cost of goods sold, to revenue. But it is virtually impossible to establish the timing and magnitude of revenue that will materialize from this year's outlays for research, employee training, and advertising. In this latter case, when uncertainty governs the situation, accounting convention calls for expensing the cost in the period that it is incurred. Nevertheless, whether accountants choose to expense an outlay in the current period or expense it over several future periods by depreciation or amortization, they cannot avoid an implicit estimate of the future.[8]

Accountants cope with the uncertainty of the amounts and timing of prospective cash flows by arbitrarily allocating the entire cost of knowledge investments such as R&D to the period in which the cost is incurred. By contrast, they allocate the cost of

tangible investments such as plant and equipment over their estimated useful life by straight-line depreciation or by one of a variety of accelerated depreciation methods. Simply stated, so-called “old-economy” companies capitalize most of their investments while knowledge companies expense most of their investments. *The shift from physical to knowledge-intensive certainly affects earnings and other accounting ratios, but has no impact on shareholder value calculations*.[9] In the final analysis, all cost allocations to time periods are arbitrary, because there is no sound basis for matching costs with revenues without perfect knowledge of the future. *It is precisely this arbitrariness that promotes flexibility and permissiveness in earnings calculations, encouraging companies to push the limits of acceptable accounting behavior*. Let’s briefly examine some examples.

On the revenue recognition side, there is the case of a number of software companies that prematurely booked revenue from future software upgrades. The Securities & Exchange Commission recently directed these companies to restate their earnings. One of them, Microstrategy, lost over 60% of its market value on the day (March 20, 2000) it announced its restatement of a previously reported $12.8 million 1999 profit into a loss about three times as large.

In addition to the question of when to recognize revenue, there is the even more basic question of the appropriate amount of revenue to recognize. This is a particularly important when revenue serves as an essential yardstick to assess the performance of dot.coms (many of which have no earnings to date). For example, traditional travel agents book just the commissions they receive on airline tickets and hotel rooms. In contrast, online brokers such as priceline.com Inc. book the full price of the tickets and rooms they sell. Priceline.com management contends that unlike travel agents, it owns and is liable for airline tickets and hotel rooms—albeit for a very short time—until they are sold to the traveler. The full-price approach yields revenues about six or seven times greater than those based on earned commissions.

Recent developments on the accounting front further diminish the usefulness of current earnings to reflect corporate performance. Multibillion-dollar corporate restructuring charges, commonly referred to as “big-bath accounting,” are eye-popping examples of the accountant’s matching concept gone seriously awry. These “one-time” charges cover the costs of unusual and nonrecurring events such as closing facilities, integrating an acquired company, paying severance for laid-off workers, and streamlining operations. The frequency with which these charges appear brings a whole new meaning to the term “one-time.”

To see how it works, consider the following example. Management announces a $4 billion restructuring charge against this year’s earnings. The actual outlays will take place over the next three years. While the charge penalizes this year’s earnings $4 billion, it eliminates the same amount from expenses over the next three years. In other words, front-loaded restructuring charges provide a significant boost to subsequent earnings. For those who uncritically accept the bottom line at face value, it creates an illusion of growth. But there is more. Managements sometimes inflate the $4 billion charge. Suppose that in this case management expects the restructuring cost to total only about $3 billion. So management not only buries substantial future operating

expenses into the current year's restructuring charge, it creates a $1 billion "cookie jar" reserve that it can use to further fuel future earnings. Simply stated, management establishes an earnings machine with as-needed, performance-enhancing capabilities.

The necessarily arbitrary process of matching costs with revenues provides other robust opportunities to manage earnings. For example, acquiring companies increasingly write off significant portions of an acquisition price as "purchased in-process research and development" to avoid large goodwill amortization charges against future earnings.

The justification is that since the commercial viability of "in-process" research is uncertain, it should be immediately expensed. Every dollar that the acquirer assigns to purchased in-process research and development is one less dollar it must allocate to goodwill. Lower goodwill means less goodwill amortization and higher postacquisition earnings. The generous leeway in valuing R&D motivates buyers to make the write-off as large as reasonably possible. IBM popularized the write-off of purchased R&D when it eviscerated more than half of its $3.2 billion purchase of software developer Lotus in 1995. Today, multibillion-dollar write-offs are commonplace.

We have focused on the wide range of possible earnings results under present financial reporting practices. But the uncritical acceptance of reported earnings is even more risky because of what the earnings figure *excludes.* Under present accounting rules, companies must disclose the cost of employee stock options in footnotes to their financial statements. But they are not required to charge the cost against earnings. The cost can be significant, particularly for high-technology start-ups.

Finally, the uncritical acceptance of the bottom line without understanding what the number *includes* is equally risky. Fueled by a bull market, the value of pension fund assets has increased substantially in most companies. Under accounting rules for defined benefit plans, companies can revise their assumptions for the expected return on plan assets to reflect portfolio performance. If the expected return amount exceeds the annual plan costs, the difference is included in earnings. Since management has a degree of freedom in establishing the assumptions for the expected return and costs of pension plans, it has the discretion to determine the pension expense (or income) in the income statement. Investors are well advised to separate pension fund results from a company's earnings from continuing business operations. Unfortunately, pension details are often buried in practically impenetrable footnotes to the financial statements.

In summary, an increase or decrease in earnings does not provide a clear picture of the corresponding increase or decrease in shareholder value. This is because the earnings figure does not reflect the company's level of risk, does not take into account the investments needed for anticipated growth, and is subject to a wide variety of accounting conventions. Such accounting conventions do not ordinarily affect cash flow and hence do not affect a company's value.

The Earnings Expectations Game

We hope that the case for the unreliable link between short-term earnings and shareholder value is sufficient to discourage investors from participating in the very

popular earnings expectations game. *This is simply the wrong expectations game for investors that seek superior long-term returns!* This is true not only because of the shortcomings of earnings but because of the way the game is played.

The basic rules of the earnings expectations game are as follows:

> "Analysts have to guess how much a company will earn each quarter. But a company is allowed to provide the analysts with clues, or so-called guidance, about what is thinks earnings will be. This guidance number usually shows up as the consensus estimate among analysts. If the company's actual earnings meet or just beat the consensus, both the company and the analysts win: the stock goes up, and everyone looks smart. The game might not sound so hard, but it requires a lot of cooperation. Companies are under enormous pressure to achieve the consensus earnings estimates while analysts rely on those same companies to help them form their earnings expectations in the first place."[10]

It is essentially a ritual dance between management and analysts. Consensus-earning trackers such as First Call Corp., IBES International Inc., and Zacks Investment Research Inc. keep the score. Former Securities and Exchange Commission Chairman Arthur Levitt called it a "game of winks and nods."

Companies have two levers in this game. They can manage expectations, manage earnings, or both. They manage expectations by guiding analysts to an earnings number that they can beat. To make it easier to beat expectations, companies often downplay their near-term prospects. In the event a company sees difficulty in meeting or beating expectations, it can either manage expectations downward or turn to its second lever: earnings management. This lever avoids unfavorable earnings surprises. Managements are often able to report earnings that beat expectations even in the face of an unexpected slowdown in business as a result of the flexibility in applying accounting conventions. Not surprisingly, about 20% of the S&P 500 companies in a typical quarter beat the consensus earnings estimate by just a penny. Nor is it a surprise that the overwhelming majority of earnings surprises are positive rather than negative.

All of the above increasingly challenge investors to separate companies that genuinely achieve better-than-expected operating performance from those that have honed their skills at managing expectations and earnings. To further complicate matters, the rules of the game have changed for companies that perennially beat consensus expectations. These companies are held to an even higher standard—meeting so-called "whisper numbers." Whisper numbers are higher-than-consensus earnings expectations. These numbers are unofficial, but in many cases prove to be closer to reported results than the "official" consensus estimates. Companies that top consensus estimates but fall short of whisper numbers often see their shares fall as investors trim expectations.

The earnings expectations game has two unintended consequences. First, it compels securities analysts to become fixated on quarterly earnings estimates that depend on management guidance. As a result, they spend less time conducting independent research on the companies they cover. This makes Wall Street research reports less useful for expectations investors. Second, in a misguided attempt to please investors, management may mislead itself. The smooth progression of *reported* earnings may well mask fundamental business problems that urgently require management attention. It is hard to overstate the danger of management believing its own press clippings.

Should expectations investors have an interest in the earnings expectations game? No. For long-term investors, it is a losing game for two reasons. First, short-term earnings tell us precious little about a company's long-term cash flows and shareholder value. Second, both consensus estimates and reported earnings are subject to arbitrary accounting choices that have little to do with actual operating performance. The best advice is to quickly exit this game and enter the expectations investing arena.

There is, however, one opportunity that emerges from the earnings expectations game. Earnings surprises, favorable and unfavorable, sometimes lead to a market overreaction. While it is hard to assess whether the market overreacts without conducting a full expectations investing analysis, companies that experience relatively large stock price responses to earnings surprises are logical candidates for such analysis.

Consider, for example, the June 2000 announcement by Electronic Data Systems Corp. that it expected to meet Wall Street earnings estimates for the second quarter and full year. But the company warned that its second-quarter sales growth would be "in the low single digits" compared with consensus expectations of seven to eight percent growth. EDS attributed the lower-than-expected revenues to a recent sales reorganization and slower start-ups of new contracts. It characterized the sales slowdown as a "temporary softening." The market response was swift and brutal. On the day of the announcement, the stock fell twenty-six percent on trading volume nearly nine times its average daily level. If the company's statement is a signal to lower expectations for long-term revenue and earnings, it warrants the steep decline. On the other hand, if the interruption in growth is truly temporary, a lower stock price represents a buying opportunity.

What are the shortcomings of traditional investment yardsticks?

We now turn our attention to the price/earnings multiple, unquestionably the single most popular valuation metric in the investment community. This *market* multiple purports to measure how much investors are willing to pay for a company's stock given its earnings.

Before embarking on this discussion, it is worth sharing a few thoughts on *financial* ratios. Unlike market ratios, financial ratios are benchmarks of a company's performance rather than of the value of its stock. The numerators and denominators come either from the income statement or the balance sheet. Examples include asset

turnover ratios, debt-to-equity ratio, return on sales, return on assets, and return on equity. ROA is calculated by dividing net income by the book value of assets. Managers frequently use this measure to assess the performance of individual business units or divisions. ROE, net income divided by the book value of shareholders' equity, is widely used to assess overall corporate performance. In the investment community, ROE is also a favorite benchmark of corporate performance, second only to earnings.

We tried to convincingly establish that short-term earnings are unreliably linked to shareholder value and to a company's stock price. That being the case, taking an unreliable numerator (i.e., earnings) and dividing it by an investment denominator (i.e., assets or equity) generated by the same accounting process does not improve the situation.[11] Earnings do not correspond to shareholder value because earnings exclude cost of capital, investments needed to support growth, and can be computed using alternative accounting methods. For many companies, the denominator of ROE, shareholders' equity, has shrunk owing to aggressive corporate restructuring charges and significant stock buybacks. These wholesale accounting charges and stock buybacks, along with the shift from tangible to expensed knowledge assets, have lifted ROE to unprecedented levels. Before the mid-1990s very few companies achieved a twenty percent ROE. The so-called "twenty percent club" is substantially less exclusive these days. Consider, for example, that since 1994 the S&P Industrials index has had, an average, ROE exceeding twenty percent. This is well above the low-teen average of the preceding three decades.

The price/earnings multiple is the most widely used valuation metric among professional securities analysts as well as individual investors. The P/E is calculated as the stock price (P) divided by a company's earnings (E). It is commonly described as the price that investors are willing to pay for a company's earnings. A stock's P/E is easy to understand and is published daily in newspaper stock tables. Its apparent simplicity and ready availability play a major role in its popularity. But as we will demonstrate, traditional P/E analysis can be misleading, and potentially very costly, to unwary investors.

Traditional P/E analysis employs the following deceptively simple valuation formula:

shareholder value per share = earnings per share* P/E.

Since an estimate of earnings per share is available, investors must decide only on the appropriate P/E multiple to calculate a stock's value, then compare the result to the stock's current price and determine whether it is undervalued, overvalued, or fairly valued. The calculation is easy, but the results will surely disappoint.

Look at the formula closely. Since we know last year's EPS or next year's consensus EPS estimate, we need only to estimate the appropriate P/E. But since we know the earnings, the denominator, the only unknown is the appropriate share price, or the "P" of P/E. *We are therefore left with a useless tautology: to estimate value we require an estimate of value*.

This flawed logic underscores the fundamental point: the *price-earnings multiple does not determine value; rather, it derives value.* P/E analysis is not an analytic shortcut. It is an economic cul-de-sac.

Some analysts argue that they can identify investment opportunities by looking at P/E multiples of comparable companies. According to this relative P/E approach, low P/E stocks are more attractive than high P/E stocks. Once again, without proper analysis it is difficult to know whether low P/E stocks are truly bargains or whether they simply deserve the lower expectations their prices imply. To show how P/E multiples provide misleading value signals, we present case examples that demonstrate the danger of ignoring risk and the shareholder value added by growth. These appear at the end of the article.

So far we have focused on the numerator of the P/E multiple. We now shift our attention to the denominator. When assessing the "E" in P/E, keep in mind the shortcomings of earnings. Yet there is an additional problem in P/E analysis. There is a wide range of practice in the choice of the most appropriate earnings number. Is it earnings before or after nonrecurring items? Is it trailing (last 12 months) or leading (next 12 months) earnings? In light of its limitations, *no* earnings number can resuscitate an economically anemic P/E multiple.

Nonetheless, it is useful to acknowledge that earnings numbers often contain components that have more or less relevance for estimating future cash flows. Revsine, Collins, and Johnson[12] classify earnings into three components—permanent, transitory, and value-irrelevant. Permanent earnings include income from continuing operations (exclusive of special or nonrecurring items). They view these earnings as value-relevant because they are generally regarded as sustainable. Transitory earnings are not expected to persist and include items such as gains or losses from discontinued operations and extraordinary gains or losses. They have no continuing impact on value. Value-irrelevant earnings are those due to a change in accounting that has no future cash flow consequences.

Most analysts include only permanent earnings in their P/E calculations. However, as the research director of First Call observes, "What's nonrecurring or nonoperating is all in the eyes of the beholder."[13] So we are left not only with arbitrarily calculated earnings but also arbitrarily chosen components of the earnings number to include as the denominator of the P/E multiple.

Another frequently used rule of thumb in the investment community is that stocks are attractive when they have P/E multiples less than the company's projected three- to five-year EPS growth rate. This so-called PEG ratio is expressed as the ratio of the P/E divided by the growth rate. The basic idea is that the lower the PEG ratio, the less you are paying for a company's future earnings. This rule of thumb is no more defensible than the simple P/E. After all, the numerator of the PEG ratio is the P/E itself. Further, we see no economically sound relationship between the P/E multiple and earnings growth projected over an arbitrarily short period. To illustrate the absurdity of the PEG ratio, we examine the extreme case of a no-growth company. What should an investor be willing to pay for shares of a company expected to generate earnings (and cash flow)

of $10 per share indefinitely, assuming a 10% cost of capital and no inflation? The answer, of course, is $100 per share, or a P/E of 10. If the shares were trading below $100, they would represent a buying opportunity for the investor. By contrast, an infinitely high PEG ratio suggests the stock is unattractive.

Another variant of the P/E multiple that has gained considerable popularity among professional analysts is Enterprise Value/EBITDA, or the EBITDA multiple.[14] Enterprise value is equal to the market value of equity plus the book value of debt minus a company's excess cash. EBITDA stands for earnings before interest, taxes, depreciation, and amortization. EBITDA champions claim that it is a better measure of operating performance than earnings because it eliminates differences among companies in financing, taxes, and depreciation and amortization policies. Nonetheless, we cannot lose sight of the fact that it is still a single-period earnings number. As such, it suffers from the same fundamental deficiencies detailed earlier. Consequently, we can express the same reservations about EBITDA multiples as we did for P/E multiples.

The Shortcomings of EPS

To illustrate to shortcomings of earnings growth, consider the example of EG, Inc. (formally known as Earnings Growth Incorporated). To simplify calculations, assume that EG has no debt, that EG requires no incremental investment, and that the expected inflation rate is zero. None of these simplifying assumptions affects the conclusions from the analysis. EG's most recent year's income statement appears below:

	($ in millions)
Sales	$100
Operating expenses	85
Operating profit margin before taxes	15
Taxes (40%)	6
NOPAT (and cash flow)	$ 9

Suppose the company maintains its present sales level and margins for the foreseeable future. With a 12 percent cost of equity capital, EG's shareholder value is $9/12%, or $75 million.

Now let's say that EG has the opportunity to invest $7.5 million of its internally generated cash today, which will allow it to expand its sales by 10% while maintaining its pretax margins at 15 percent. Here is EG's projected income statement for next year and subsequent years.

	($ in millions)
Sales	$110.00
Operating expenses	93.50
Operating profit margin before taxes	16.50
Taxes (40%)	6.60
NOPAT (and cash flow)	$9.90

EG's shareholder value is now $82.50 million ($9.90/12%) minus the $7.50 million investment, or $75 million ($82.5 - $7.5 = $75.0). Note that despite 10 percent earnings growth, shareholder value remains the same. This is true because the $7.50 million investment increases annual after-tax cash flow by $900,000, which, when discounted at 12 percent, is worth exactly $7.50 million. So when the present value of incremental cash inflow is identical to the present value of the cash outflow (investment), shareholder value is unchanged.

When new investments yield a return below the cost of capital, shareholder value can decrease even as earnings increase. For example, assume that EG's sales growth next year will be 20 percent with a $15 million investment. However, the pretax margin on incremental sales will be 10 percent rather than the 15 percent rate projected earlier. Here is the revised income statement for next year and subsequent years:

	($ in millions)
Sales	$120.00
Operating expenses	103.00
Operating profit margin before taxes	17.00
Taxes (40%)	6.80
NOPAT (and cash flow)	10.20

While earnings are growing from $9 million to $10.20 million or 13.33 percent, shareholder value decreases by $5 million—from $75 million to $70 million. ($10.20/12%) - $15.

Now let's introduce risk. We now present the most recent year's income statements for EG alongside competitor, Beta:

	EG ($ in millions)	Beta ($ in millions)
Sales	$100	$2,000
Operating expenses	85	1,700
Operating profit before taxes	15	300
Taxes	6	120
Net income	$ 9	$ 180
Shares outstanding (in millions)	1	20
Earnings per share (EPS)	$9.00	$9.00

EG is trading at $75 and Beta at $90 per share. If we divide each stock price by the $9.00 EPS, we get a P/E of 8.3 for EG and a P/E of 10 for Beta. Is EG a bargain relative to Beta because of its lower P/E? Should Beta shareholders sell because it is overpriced? Once we properly incorporate risk into the analysis, we find that EG is not a bargain and that Beta is not overvalued.

Assume that because of highly competitive conditions in the industry, EG and Beta are both expected to operate at the threshold margin. In other words, they will generate no shareholder value added. Under these circumstances, each company is appropriately valued at its base-line value (i.e., its earnings—and cash flow—divided by the cost of capital). We previously estimated EG's cost of capital to be 12%. Beta is twenty times larger than EG and enjoys great stability in its established customer base. The volatility of its stock is substantially less than EG's. As a result, Beta's estimated cost of capital is only 10%. Dividing each company's $9.00 EPS by its risk-adjusted cost of capital yields a value of $75 for EG and $90 per share for Beta. These values are identical to their stock prices. Employing a low P/E strategy without taking risk into account is an unlikely road to superior returns.

Continuing this example, suppose that both companies are trading at $81 per share, or a P/E multiple of 9. A simplistic P/E analysis might elicit indifference to the investment prospects for the two companies. Based on our previous valuation, which incorporated risk, we would instead find that EG is overvalued by $6 and that Beta is undervalued by $9 per share. Once again, the P/E multiple sends a misleading valuation signal.

P/E multiples send false signals when we ignore risk and when we don't properly account for shareholder value added that is generated by growth. We established that EG is fairly valued by the market at its current stock price of $75, which equates to a P/E of 8.3. Suppose there are two competitors with identical costs of capital, current stock prices, and P/E multiples. Assume that the first competitor has significant competitive advantages that lead you to forecast that it will operate substantially above the threshold margin. In other words, its growth will create value. The resulting shareholder value added from growth leads to an estimated value of $90 per share. The second competitor has none of the advantages of the first competitor. In fact, you believe that it will operate below the threshold margin and consequently estimate its value at about $63 per share.

Now we have three companies, each with a P/E multiple of 8.3. But the multiple provides absolutely no hint that EG's growth adds no value, that one competitor adds substantial growth-related value, and that the other competitor's growth destroys value. In other words, the P/E multiple offers no means to discriminate among the three companies. On the other hand, analysis that incorporates growth-induced value concludes that at a current stock price of $75 (and a P/E multiple of 8.3) the first competitor is undervalued by $15 while the second competitor is overvalued by $12 per share. Simple P/E analysis translates into a missed opportunity and an unfortunate stock purchase, respectively.

[1] Alfred Rappaport, "CFOs and Strategists: Forging a Common Framework," *Harvard Business Review*, May-June 1992, pp. 87.
[2] Geoffrey Colvin, "Stop Whining About Wall Street," *Fortune*, February 2, 1998, pp. 153.
[3] Jonathan Clements, "Vanguard Founder Blasts Funds' Focus," *Wall Street Journal*, 16 May 2000.
[4] Russell L. Ackoff, *"Management in Small Doses,"* (New York: John Wiley & Sons, 1986) pp. 35.
[5] Lawrence Revsine, Daniel W. Collins, and W. Bruce Johnson, *Financial Reporting & Analysis* (Upper Saddle River, N. J.: Prentice Hall, 1999) pp. 215-6.
[6] Analysts often focus on "days sales outstanding," or DSOs. DSOs are the number of days between the sale of a product and the receipt of a cash payment.
[7] We assume that the change in accounting is for financial reporting purposes and does not affect the computation of income taxes.
[8] Peter L. Bernstein offers the following perspective on accounting: "We should recognize that the accounting data we see are a fiction, even when prepared with the best of intentions. *The whole purpose of accrual accounting is to smooth the data. Yet accrual accounting is an act of faith.* It records as revenue money not yet received. It excludes from expenses money actually laid out if it is spent on assets expected to produce cash revenues in the future. The more the accountants accrue, the more vulnerable the company will be to a future that is different from what the accountants have assumed it will be. Every financial statement we look at is exposed to this risk. *The Journal of Portfolio Management,* Autumn 1979, p.9.
[9] For purposes of estimating shareholder value, $1 million invested in expensed knowledge and $1 million invested in depreciable tangible assets are treated identically. It matters not whether accountants choose to expense or capitalize the expenditure. What is recognized is that $1 million has been spent and estimated cash flows generated by the investment determine its value.
[10] Erick Schonfeld, "The Guidance Game," *Fortune,* December 21, 1998, pp. 255.
[11] For a more detailed discussion of the shortcomings of ROA and ROE, see Alfred Rappaport, *Creating Shareholder Value: A Guide for Managers and Investors* (New York: Free Press, 1998) pp. 21-31.
[12] Op. Cit., pp. 221.
[13] Greg Ip, "Resilient Stock Market Sparks Debate on P/Es" *The Wall Street Journal,* 9 November 1998.
[14] For a detailed critique of EBITDA, see Patricia M. Stumpp, "Putting EBITDA in Perspective," Moody's Investors Service Global Credit Research, June 2000.