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# Expectations Investing: Reading Stock Prices for Better Returns

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Investing relies on expectations, and revisions in expectations trigger changes in stock prices. Accurately measuring expectations, therefore, is the key to improving stock selection. Expectations investing requires (1) the development of a conceptual framework, (2) a clear understanding of valuation, including cash flow, the cost of capital, and the forecast horizon, and (3) accurate estimations of price-implied expectations and expectations gaps.

**T**he key to a long marriage, a recent study shows, is for each spouse to have low expectations of the other. Putting that premise in a more positive light, I would posit that successful spouses are probably good at gauging accurately what they should expect from their partners. In a different field of endeavor, gauging expectations accurately is the key to improving the stock selection process.

In this presentation, I will begin by discussing the conceptual framework behind expectations investing. I will then discuss a discounted cash flow valuation model and how it intersects with expectations investing, and I will conclude by describing the expectations investing process.

## Conceptual Framework of Expectations Investing

Having been on the sell side for many years and then on the buy side, I can say categorically that the single greatest error I have observed among investment professionals is the failure to distinguish between knowledge of a company's fundamentals and the expectations implied by the company's stock price. If the fundamentals are good, investors want to buy the stock. If the fundamentals are bad, investors want to sell the stock. They do not, however, fully consider the expectations built into the price of the stock. Whenever I assert that stock prices are based on

expectations, investment professionals shrug their shoulders and say, "Well, of course. That's obvious." But as obvious as the assertion sounds, few investors take the time to understand those expectations and determine whether they make sense.

**Fundamentals vs. Expectations.** In the world of handicapping horse races, Steven Crist is considered one of the stars, and in a book on betting, he has written a 13-page chapter that has as much to say about investing as anything written by Benjamin Graham or Warren Buffett. By substituting the word "stock" for the word "horse," the reader can gain remarkable insights into successful investment behavior:

The issue is not which horse in the race is the most likely winner, but which horse or horses are offering odds that exceed their actual chances of victory. . . . This may sound elementary, and many players may think they are following this principle, but few actually do. *Under this mindset, everything but the odds fades from view. There is no such thing as "liking" a horse to win a race, only an attractive discrepancy between his chances and his price.* (Crist 2001, p. 64) [Italics added for emphasis.]

Michael Steinhardt has something similar to say, but in his case, it is applied directly to the stock market:

I defined variant perception as holding a well-founded view that was meaningfully different from the market consensus. . . . *Understanding market expectation was at least as important as, and often different from, the fundamental knowledge.* (Steinhardt 2001, p. 129) [Italics added for emphasis.]

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The point I want to emphasize is that understanding fundamentals and expectations are two different things, and each must be examined in light of the value it provides.

Investing relies on expectations, and revisions in those expectations trigger changes in the stock price. The key for the investor, therefore, is to anticipate revisions in expectations and thus the changes in the prices of stocks. In order to anticipate the revisions accurately, the investor must understand three points:

- Expectations are based on long-term cash flow.
- Expectation revisions are not all the same. Some revisions are more important than others.
- The best way to anticipate important revisions is to combine competitive strategy frameworks with finance. Strategy and valuation must be joined in a multidisciplinary approach.

**Three Market Myths.** Unfortunately, certain long-standing market myths have created misconceptions that obscure the clarity of investor perceptions. The first myth is that the market is a short-term-oriented mechanism. A specific example that causes investors to believe in this myth is the high turnover rate for mutual fund portfolios. The average holding period in the 1950s and 1960s was five to six years. Today, the average holding period is less than one year. Another example is quarterly earnings releases: When earnings come out, stock prices often react violently.

But to understand the market's expectations, do not consider what investors are doing. Instead, consider what the market itself is implying. By going through the mechanics of discounting future cash flows or dividends, an investor will discover that the market is recognizing and paying for cash flows many years into the future. The market, in fact, takes a long-term view. Put more succinctly, the market appears to be a short-term-oriented mechanism because investors make short-term bets on what are ultimately long-term outcomes. My discussion of expectations investing, therefore, focuses on the long term.

The second myth that obscures investor understanding is that EPS dictates value. In reality, EPS tells very little about value because EPS does not explicitly take into account capital intensity. In other words, two businesses can have the same EPS growth rates but different returns on capital; therefore, they will have, quite understandably, different valuations.

The third myth is that P/E multiples determine value, whereas the fact is that P/E multiples are a function of value. Read almost any Wall Street research report and it will have evaluations that say, in effect, earnings will be X and multiples should be Y; therefore, the value is the product of earnings and multiples. But a closer examination of the equation—earnings multiplied by P/E equals value—shows that the equation is, in fact, a tautology: The earnings on

the left side of the multiplication symbol is the same number as the earnings on the right side of the multiplication symbol. The typical analyst response is to use historical averages, not current numbers. Historical averages, however, are relevant only if economic conditions—that is, returns, growth prospects, and the macroeconomic backdrop—are completely unchanged. Therefore, one should be extremely cautious when using multiples because multiples tend to follow, and certainly do not lead, the economics.

Corporations and investors worry far too much about earnings growth. What they should be focusing on is the relationship between earnings growth and return on capital. To demonstrate the value of this relationship, I have developed a grid describing growth and return for a theoretical company, shown in **Table 1**. To simplify the math, I assume that the company is entirely equity financed, that its weighted average cost of capital (WACC) is 8 percent, and that the forecast is based on a 20-year period. Even when one applies more realistic assumptions, the fundamental findings remain the same. The rows show various EPS growth rates; the columns reflect various returns on invested capital (ROIC); and the body of the table shows the resulting P/E multiples.<sup>1</sup> After studying this grid, three observations become obvious.

**Table 1. ROIC and P/E Multiples: Theory**

Earnings Growth	ROIC			
	4%	8%	16%	24%
4%	6.1×	12.5×	15.7×	16.7×
6	1.3	12.5	18.1	20.0
8	NM	12.5	21.3	24.2
10	NM	12.5	25.5	29.9

NM = not meaningful.

Note: Assumes all equity financed; 8 percent WACC; 20-year forecast period.

Source: LMCM analysis.

■ **Observation 1.** If a company is earning exactly its cost of capital—in this case, an 8 percent ROIC—earnings growth has no effect on its P/E multiple. The company's earnings can grow 5 percent, 50 percent, or 500 percent, but its P/E multiple will remain the same.

■ **Observation 2.** If a company is earning returns greater than its cost of capital, its P/E multiples increase both with growth in earnings and with increased returns on invested capital. For example, if a company with an 8 percent earnings growth rate

<sup>1</sup>ROIC is defined as the numerator being EBIT plus amortization less cash taxes paid in the absence of debt and the denominator being total debt plus equity equivalents, preferred stock, and shareholders' equity.

can figure out ways to become more capital efficient, and thus raise its ROIC from 16 percent to 24 percent, its P/E multiple will increase. Thus, a higher ROIC, even with no change in earnings growth, will lead to more value.

■ *Observation 3.* If a company is earning less than its cost of capital, the faster it grows, the more wealth it destroys. Analysts may ask, “Where does this occur in the real world?” My response is that in the current economic period, the likelihood of such wealth destruction stands at a higher-than-ordinary level. Companies today are flush with cash and debt capacity. In the past 10–15 years, 80–85 percent of investments have been funded through internally generated cash, which means that companies do not have to raise capital through shareholders or debtholders. They can redeploy internally generated capital, and they often do just that. Thus, allocating capital is a central task for many managers, and earning more than the cost of capital is essential in determining shareholder returns. Otherwise, companies will redeploy their capital at returns below cost, thus generating EPS growth but destroying shareholder value. Investors, therefore, must be alert to the capital allocation process. Returns should be the first order of consideration, and earnings growth should come second because earnings growth can be good, bad, or indifferent based on the economic returns.

## How the Market Values Stocks

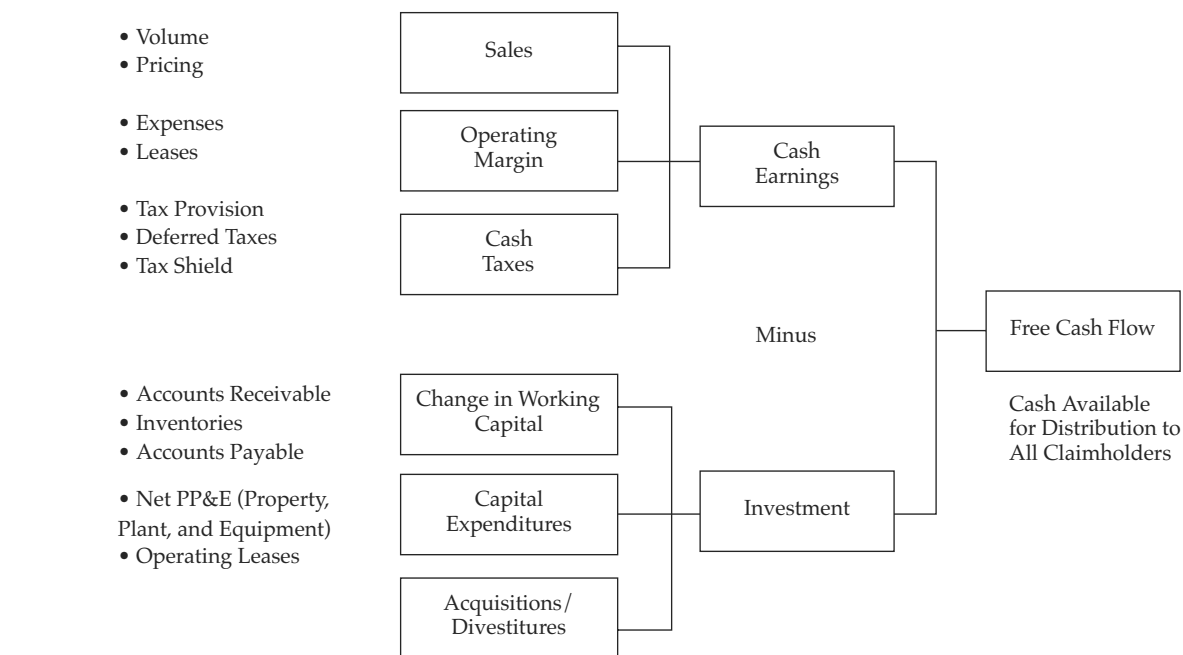
First principles indicate that three elements are needed to value any financial claim. First is a stream

of cash flows. Second is a measure of risk with its associated reward. Third is an appropriate forecast horizon. In the fixed-income world, and in many cases in commercial real estate, at least two out of these three elements are contractually obligated. For example, if a company issues a bond, it is contractually obligated to pay cash flows and then principal at the end of the period. In the stock market, however, all three elements are expectational. Investors cannot be certain of the cash flows, the discount rate, or the forecast period.

**Free Cash Flow.** Figure 1 offers a way to understand and value a company’s free cash flow, which is the cash available for distribution to all the company’s claimholders. Typically, when people discuss free cash flow, they are not referring to this finance concept. They are almost always referring to a sources and uses sum, which typically means the cash flow from operations net of capital expenditures. Here, I define free cash flow as cash earnings minus investments. Cash earnings are a function of sales, operating margins, and cash taxes. Investments are typically the outflows and include working capital changes, capital expenditures net of depreciation, and acquisitions and divestitures.

One should keep in mind two insights when analyzing cash flow. First, business and investment professionals tend to place too much emphasis on the income statement (i.e., sales growth and margins) and not enough on the balance sheet. Understanding

**Figure 1. Cash Flow Derivation**



the balance sheet and, in particular, the magnitude and return on investments provides the analyst with especially valuable perceptions of a company's future earnings growth rate or earnings power. Second, the U.S. economy is shifting away from tangible assets to intangible assets. The investments of many companies are not capital expenditures or on inventory but, rather, research and development, training, and marketing, which show up as expenses rather than balance sheet assets. The valuation thus becomes less tidy, but the distinction is an important one to keep in mind.

For a specific example of how earnings and cash flow can differ, consider Microsoft Corporation's financial statements for 2005. As **Table 2** shows, net income may not be representative of the actual cash flows the company generates. For fiscal year 2005, which ends in June for Microsoft, the company had earnings of roughly \$12.2 billion but its cash flows were almost \$15.6 billion, a 22 percent difference.

Another interesting point is that research and development costs were approximately \$6.2 billion in contrast to just over \$1.0 billion in capital expenditures—a 6:1 ratio. Without question, we should define research and development as an investment.

**Cost of Capital.** Think of the cost of capital as the opportunity cost of the company's capital providers. Although the cost of capital can be difficult to determine with precision, the analyst's task should be to develop an estimate that is sensible and economically sound. An analyst will not create much incremental value by estimating the cost of capital better than another analyst.

**Forecast Horizon.** When developing their discounted cash flow (DCF) models, analysts tend to use forecast horizons of 5 or 10 years, although both are arbitrary. To better reflect financial reality, I recommend that analysts think more about the life cycles of

**Table 2. Basics of Valuation: Microsoft, 2005**  
(\$ in millions)

Item	Earnings	Adjustment	Cash Flow	Cash Flow as a Percentage of Income Statement Item
Sales	\$39,788.0			
+ Increase in unearned revenue		\$13,831.0		
– Recognition of unearned revenue from prior periods		(12,919.0)		
– Increase in accounts receivable		(1,243.0)	\$39,457.0	99%
Cost of revenue	(\$ 6,200.0)			
+ Increase in other assets		\$ 172.0		
– Increase in other liabilities		1,245.0	(\$ 4,783.0)	77%
Depreciation and amortization expense				
+ Depreciation expense		\$ 855.0		
– Capital expenditures		(1,019.0)	(\$ 164.0)	
Research and development	(\$ 6,184.0)			
Compensation				
– Stock-based compensation		\$ 2,448.0		
Sales and marketing	(8,677.0)			
General and administrative	(4,166.0)		(\$16,579.0)	
Operating income	\$14,561.0			
Losses on equity investees and other	0.0			
Investment income	\$ 2,067.0			
+ Investment income		(\$ 527.0)	\$ 1,540.0	
Income before income taxes	\$16,628.0			
Income tax expense	(\$ 4,374.0)			
– Deferred taxes		(179.0)		
– Stock option tax benefits		668.0	(3,885.0)	89%
Reported net income	\$12,254.0			
Operating net income	\$12,254.0			
Cash flow			\$15,586.0	127.2%

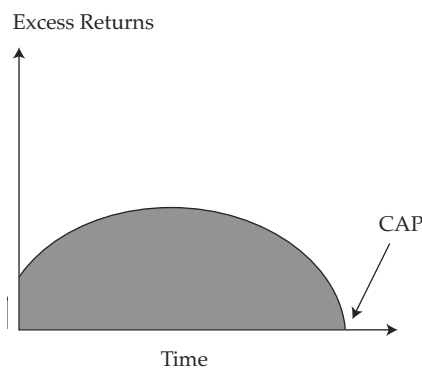
Source: Legg Mason Capital Management analysis.

companies and the amount of time it takes for returns on capital to revert back to the cost of capital. To reflect this view, I use a model based on the competitive advantage period (CAP), or the period of time during which a company can generate excess returns on its new investments (see **Figure 2**). CAPs differ from company to company and particularly among types of companies, but a powerful force that affects CAPs is reversion to the mean, which has been substantiated in dozens of empirical studies. To illustrate the power of reversion to the mean, I took 615 industrial companies, ranked them in quintiles, and followed them for 10 years (see **Figure 3**). By the end of the period, each quintile demonstrated a significant reversion to the mean. Return on capital for the top quintile went down about 800 bps, and return on capital for the bottom quintile went up about 700 bps. Therefore, analysts should assume that most companies are unlikely to generate excess returns for an extended

period of time, although some businesses—Coca-Cola Company and Procter & Gamble, to name a couple—have historically found ways to defy this general economic gravity. Another point to keep in mind is that reversion to the mean tends to be fastest in fast-changing industries. Short product life cycles lead to short CAPs. For example, technology companies have to renew themselves constantly to remain competitive.

Finally, CAPs tend to cluster into investment neighborhoods. Businesses with similar economic characteristics tend to have comparable CAPs. For example, PepsiCo and Coca-Cola tend to have similar, rather than dissimilar, CAPs. Therefore, analysts should try to project CAPs for groups of related companies rather than for individual companies. Furthermore, at the end of a CAP, analysts should use an economically consistent residual value—a perpetuity assumption equal to net operating profit after tax capitalized by the cost of capital. Using a perpetuity assumption does not mean that the company will not grow beyond the explicit forecast period, but it does mean that the company will not generate returns in excess of the cost of capital.

**Figure 2. Competitive Advantage Period**

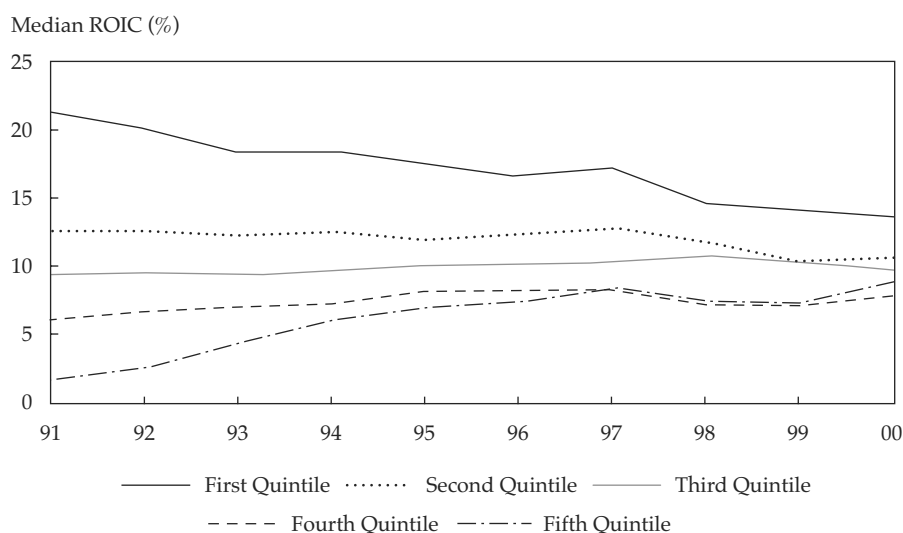


### Expectations Investing Process

Expectations investing represents a fundamental shift in stock selection and consists of three steps:

1. Estimate price-implied expectations: Investors should have no prior point of view when taking this step. They should try to understand only what the world thinks and then quantify that thinking. I liken this step to measuring the height of a high-jump bar. I do not judge whether the bar is high or low; I only want to know the height.

**Figure 3. Effect of Reversion on the Competitive Advantage Period, 1991–2000**



Source: Based on data from CSFBEdge database.

2. Identify expectations opportunities: This step requires the application of strategic and financial analysis to determine whether a company is likely to meet expectations. Is it likely to go over the bar, under the bar, or simply come even with the bar?
3. Make buy and sell decisions based on the results of the first two steps.

**Estimate Price-Implied Expectations.** A number of elements are needed to estimate these expectations—that is, to estimate the height of the bar. First, the analyst should become familiar with the market’s consensus expectations for the value drivers of a company, such as sales growth, operating profit margins, and capital intensity. One simple way to do this is to use Value Line, which provides extensive historical data and projects five years into the future. Value Line tends to avoid taking extreme positions on companies, which means that it tends to reflect the consensus thinking. Another step is to amass as many analyst reports as possible; the sell side is often indicative of consensus. After gathering such information, run the inputs through the DCF model. This step bypasses the need to create a forecast that imposes the analyst’s own point of view and ensures that the outcome is more likely to reflect the market’s consensus. It also overcomes the shortcomings of traditional analysis, such as the reliance on P/E multiples. Remember, multiples are not valuations; they are merely shorthand for the valuation process. The value of any financial asset has to be the present value of the future cash flows.

I am often told that DCF models require too many assumptions—assumptions about sales growth rates, capital intensity, margin structures, and so forth. Yet, remarkably, analysts feel perfectly comfortable using a P/E multiple without acknowledging that they are also making assumptions. In fact, instead of making their assumptions explicit, as the DCF model requires, they are leaving them implicit, which means that they are obscuring the details behind the analysis.

**Identify Expectations Opportunities.** For Legg Mason Capital Management (LMCM), this step is where the rubber meets the road. It is where we ask our analysts to spend most of their time. First, we apply an appropriate competitive strategy framework—one that weds strategy with valuation.

After applying an appropriate competitive strategy framework, the next step is to determine which expectations revisions matter most. Revisions and expectations are not created equally. When examining a value-neutral business—that is, one that is earning the cost of capital or close to it—incremental return is the factor that counts most, as demonstrated in Table 1. Consider the following example. A num-

ber of years ago, I was invited by a large distribution company to talk to its board about shareholder value. In the three years prior to my visit, the company had grown sales roughly 20 percent compounded annually, so it was delivering good growth. Yet the stock was trading at a small premium to book and at about 12 or 13 times earnings. The valuation was quite depressed, and the CEO was genuinely frustrated. After running the numbers, I was not surprised to see that the company was earning exactly its cost of capital. The company was growing 20 percent a year, but it was creating no value, and the market understood that, which is why the stock was trading at something close to book and at a commodity P/E multiple. When I moved the growth rate up or down, the value needle did not move, but when I moved the incremental return on capital up, the firm’s value moved sharply. In fact, when I moved the return on capital up 300 bps, the value of the firm almost doubled.

In contrast, when examining a value-creating business, the revision that matters most is incremental sales growth, not incremental returns. In this case, consider Dell. It has done an extraordinary job gaining market share with a business model that requires little investment and has a negative cash conversion cycle, which occurs when customers pay a company before the company has to pay its suppliers. Dell’s return on capital is in the triple digits. Suppose Dell could change its incremental returns—for example, by reducing its days in inventory from seven to six. Doing so will not materially change its valuation, and the market understands this. But if Dell’s rate of sales growth moves from 9 percent to 11 percent or drops to 7 percent, that change will be extraordinarily important, and the market will respond.

At LMCM, our analysts use a 50-page document to guide them through their competitive strategy analysis—basically, an analysis that attempts to assess the nature of the industry and each company’s specific sources of advantage. I strongly encourage all investment professionals to develop and follow such a systematic approach to understanding the strengths and weaknesses of companies.

**Expectations Infrastructure.** When Al Rappaport and I wrote *Expectations Investing* in 2001, we assumed that we would discuss how different companies have different sensitivities to the various value drivers.<sup>2</sup> For example, some companies are sensitive to sales growth rates, others are sensitive to operating profit margins, and others still are sensitive to incremental investment rates. But as we developed our analysis, we realized that a fundamental interactivity

<sup>2</sup>See [www.expectationsinvesting.com](http://www.expectationsinvesting.com) for a number of free tools and resources.

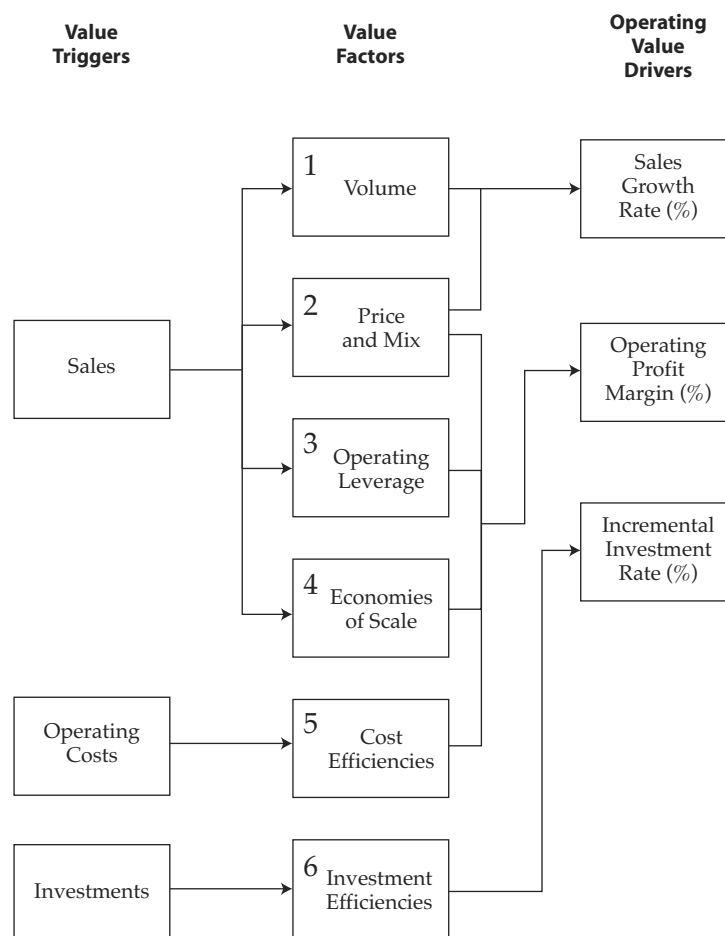
exists among the value drivers themselves. For example, when sales go up, margins often go up with them; when sales go down, so do margins. To capture such interactivity, we developed a model called the “expectations infrastructure,” which I think is quite powerful and grossly underused. The expectations infrastructure, shown in **Figure 4**, identifies three value triggers: sales, operating costs, and investments. Every company, everywhere, no matter what its business, has these three triggers. But the value triggers are too broad to map directly to the value drivers. So, we refined the outflows of the value triggers into six microeconomic features called “value factors.” The factors shape the operating value drivers—sales growth rate, operating profit margin, and incremental investment rate.

The value factors can be interpreted as follows:

- *Volume*: Volume is self-explanatory. It is the amount of product being provided.

- *Price and mix*: Prices can go up or down, and a company can sell varying mixes of high- or low-margin goods.
- *Operating leverage*: Assume a company is making 50 widgets and has a factory that can make up to 100 widgets. Until the company makes 100 widgets, it does not need to add any more physical capacity. Analysts often refer to this as economies of scale. Rappaport and I call it “operating leverage.”
- *Economies of scale*: As a company gets larger, it can do things more cheaply, and when it reaches a significant size (Wal-Mart is the most frequently mentioned example), it can squeeze its suppliers by virtue of its size and nothing else.
- *Cost efficiencies*: Cost efficiencies are efficiencies that are independent of sales growth. Such efficiencies relate only to taking out costs. Sales can go up or down, but cost efficiencies will remain insensitive to that movement.

**Figure 4. Expectations Infrastructure**



- *Investment efficiencies*: Investment efficiencies occur when a company learns how to generate the same rate of sales and margins of profit while using less capital. Through standardization, global sourcing, and purchasing power, McDonald's trimmed its average U.S. unit development costs significantly in the early 1990s from \$1.6 million per new store to \$1.1 million per new store with the same revenues and margins, which obviously increased its net present value substantially.

For every company we analyze, Rappaport and I like to do two things. First, we identify which of the value triggers is most important for that company. For example, Dell is sales driven, so sales growth is the most important trigger for Dell. Second, we work through "if, then" scenarios. For example, assume that the market's consensus expectation for Dell is an 11 percent sales growth. If the consumer electronics market continues to grow and international markets do well, then assume that sales growth goes from 11 percent to 13 percent. Which of the value factors will then come into play, and what will that mean for the operating value drivers? With the answers to such questions in hand, I can define a value, and the process becomes completely computational. But what if the "if, then" scenario says that things do not go well, that competition with Hewlett-Packard becomes formidable, that international markets slow down, and that growth goes from 11 percent to 8 percent? Which of the value factors are then triggered, and what does that mean for operating value drivers?

One note of interest along these lines: Analysts consistently underestimate how changes in sales lead to changes in margins. When sales go up, analysts

underestimate the operating leverage on the upside. Companies can make more money than people realize. Similarly, when sales drop, analysts underestimate not only how bad margins can get but also how quickly they can get there. The Street and the financial community are always chasing sales and margins up and down. The expectations infrastructure offers a systematic model for anticipating the changes caused by the relationship between sales and margins.

**Make Buy and Sell Decisions.** After identifying expectations opportunities and conducting a thorough expected value analysis, it is time to make buy and sell decisions. I recommend keeping three thoughts in mind. First, use expected value analysis when making buy and sell decisions, and remember that the frequency of correctness in making decisions is not as important as the magnitude of correctness. Second, incorporate Benjamin Graham's idea of a margin of safety, meaning that buy decisions should be made only when they can be done at a substantial discount to expected value. Using the margin of safety concept allows the investor to incorporate certain elements quite explicitly, such as the turnover of the portfolio, transaction costs, and taxes. Third, remain vigilant for behavioral-based decision-making errors. For example, investors tend to be overconfident about outcomes. That is, investors tend to project ranges of outcomes that are too narrow, whereas experience indicates that the ranges of outcomes tend to be much broader than people realize. So, be aware of pitfalls of this nature, and be rational in analyzing habitual flaws in thinking.

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# Question and Answer Session

Michael J. Mauboussin

**Question:** In Table 1, if return on capital is 4 percent and the WACC is 8 percent, why is the P/E multiple 1.3?

**Mauboussin:** Because this is a business that cannot sustain itself. The return on invested capital in Table 1 represents the maximum supportable growth rate of the business, excluding external financing. Therefore, if a company is growing at 8 percent and has an 8 percent return on capital, its free cash flow is zero. If, in contrast, the company is growing at 8 percent but has a 16 percent return on capital, it will generate free cash. If a company is growing at 8 percent and has a 4 percent return on capital, it must access external capital to sustain itself. In fact, the “NM” in the bottom left-hand corner of the table represents companies that have negative value because they need more money than they can generate to fund their own growth.

To consider this in the most simplistic way, assume that any time a company needs money, it goes to a lender with limited capital, and the lender provides dollar bills with an expected return of 8 percent. The company has a machine into which it inserts the lender’s dollar bills, and for every dollar inserted, the company’s machine spits out 4 cents—a 4 percent return on capital. How fast can the company grow? As fast as it wants. But it has a problem because the lender expects 8 cents back on every dollar, and the company is getting only 4 cents from its machine. The company is digging itself into a hole that it can’t climb out from.

**Question:** When you do your scenario analysis, how do you apply probabilities?

**Mauboussin:** There are three standard ways to do probabilities. The first way is to use subjective probabilities, which are especially useful for unique events. There is nothing wrong with using subjective probabilities as long as all the rules of probability are consistent so that all the outcomes add up to 100 percent.

The second way is called the “propensity approach,” which is to consider the actual propensity of the physical system itself without doing repeated trials. For example, if you look at a die, you see immediately that it has six sides that are equally balanced. The probability of rolling any single number is 1:6. That is the system. It has certain known or assumed propensities, and the probabilities are based on those propensities. Engineers frequently use the propensity approach.

The third way is called the “frequency approach”; it requires the taking of a representative sample. For example, rather than assuming that a die is a perfect cube with known propensities, the frequency approach requires the analyst to roll the dice thousands of times, record what happens, and derive a distribution.

The frequency approach is the one used most often in the world of finance because we look at past statistics to determine what is happening and to project what is likely to happen. But for the frequency approach to work, the system being tested has to be stationary. That is, it has to be the same statistically in the past as it is today. If that is not the case, then the data are said to be nonstationary, in which case the frequency approach can provide nonsensical results.

This is known as the problem of nonstationarity, and it is a fundamental concern in financial analysis. For example, people say that the P/E has averaged 14 during the past 200 years; hence, it should be 14 today. That would be true if the factors that determine the P/E were stationary. But if that is not the case, if the system is nonstationary, then all bets are off. For the sake of argument, therefore, consider the factors that determine P/Es, such as tax rates, inflation expectations, and the equity risk premium. All of these are either unlikely to be or are demonstrably nonstationary. Perhaps the financial community should reconsider its reliance on frequency probabilities.

**Question:** Have you applied the expectations tools to determining the downside risk?

**Mauboussin:** Yes. Recognizing downside scenarios and asking “if, then” questions to determine how bad things could be is absolutely critical and should be an explicit part of expected value calculations. When considering expected value, some scenarios will occur in which a stock, even if it is well regarded, will move down—perhaps significantly. An expected value mindset prepares investors psychologically for such unpleasant events because the investors will know *a priori* that, in a probabilistic world, they will be wrong some percentage of the time. The expectations infrastructure provides a powerful way to quantify potential downside risk.

**Question:** What is a good source for understanding the long-term strategy of a company, specifically, its plan for reaching the critical variables?

**Mauboussin:** A lot of valuable literature is available. But let me put it in the framework that we use. First, we develop an industry map—a model in which we place the company under consideration and then draw around it every company that will affect the economics of the company under analysis. Typically, we go from the supplier side to the customer side and include regulators where applicable, and this gives us a visual picture of all the actors that will affect that company. Next, we consider profit pools. Bain & Company has been the leading thinker in that area for many years. Profit pools consider the economic profits for a particular industry and particularly how and why those profits change over time. For example, 20 years ago, discount airlines held very little of the air-

line industry profit pool; now, they hold a significant portion of it.

The next thing we measure is market stability. Bruce Greenwald and Judd Kahn have a new book out called *Competition Demystified* (2005) that focuses largely on barriers to entry, but they also discuss tools for measuring industry stability, such as a pricing test and a market share test. Next, we examine the classic Porter five forces, which everyone does superficially and almost no one does with the sort of detail or rigor it deserves.

The value chain is another factor we consider. We also spend a lot of time thinking about Clayton M. Christensen's work on disruptive innovation—*The Innovator's Dilemma* (1997)—and *The Innovator's Solution* (Christensen and Raynor 2003). *Seeing What's Next* (Christensen, Anthony, and Roth

2004) is his latest book. I also like Carl Shapiro and Hal R. Varian's book called *Information Rules* (1999), which discusses such matters as the economics of information goods and network effects.

Finally, we get down to a specific company's source of advantage, and we consider entry and exit statistics, for which there are a lot of models. The literature is extensive.

**Question:** Which change comes first—expectations or fundamentals?

**Mauboussin:** Fundamentals often lead expectations. Sometimes expectations race ahead of fundamentals, which is clearly the case in any sort of boom and bust scenario. Certainly, expectations are more volatile than fundamentals.