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The Importance of Expectations

The Question that Bears Repeating: What's Priced in?

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Source: The Official Report of the Olympic Games of Stockholm 1912.

- **The key to generating excess returns is the ability to distinguish between price and value—two very distinct concepts.**

- **The factors that create market inefficiencies are challenging for investors to deal with, making the mispricings difficult to exploit.**

- **The most basic question you must always answer: what's priced in?**

- **This report walks through an expectations analysis for a large retailing company.**

Introduction

Investing, at its core, is the act of delaying consumption today in order to consume more at some point in the future. *How much more* depends on the rate of return of the investment. Naturally, no one knows the future rate of return on various assets—including bonds, stocks, real estate, and commodities—but common sense tells us, and history generally confirms, that there is a reasonable relationship between risk and return. Just as you don't expect a puny payoff from betting on a long shot or a windfall from wagering on the favorite in horseracing, you don't expect risk and reward to be unrelated in markets over time.

Active portfolio managers seek to generate attractive returns. Often, but not always, these returns are benchmarked against an appropriate index. The logic is straightforward: an investor can buy an index fund at a relatively low cost, so only portfolio managers who generate returns in excess of the index add value.

A portfolio manager acting as a long-term investor, in contrast to a speculator, seeks to buy securities that trade at a price less than value (and sell, or sell short, those that trade at a price greater than value.).[1] The key to doing this successfully is the ability to distinguish between price and value—two very distinct concepts.

The value of a financial asset is the present value of future cash flows. Accordingly, value reflects the magnitude, risk, and timing of cash flows. For some financial assets, the payment of these cash flows is a contractual obligation. For example, a bond is a contract between a company and a lender that specifies timely interest payments and the return of principal at maturity. Since the magnitude and timing of cash flows are set, a bond buyer only has to worry about the risk.

Equities also derive their value from future cash flows but are distinct in that there is no contractual obligation. (Even dividend payments are at best a quasi-contract.) As a result, a stock's value is based primarily on the *expectations* of the magnitude, risk, and timing of cash flows.

The price of a financial asset is the result of an arms-length transaction that reflects a set of expectations about the future. In an informationally-efficient market, the stock price reflects all of the known information about a company and its prospects. In an allocatively-efficient market, all capital has been put to its best and highest use and price and value are aligned. [2]

Academics who speak of market efficiency generally don't mean that every stock price perfectly reflects its value. [3] A better way to think about it is that prices may be too high or too low, but there is no systematic bias. In other words, they reflect fair value *on average*.

Researchers have dedicated an enormous amount of effort to show that markets are not efficient. We have booms and crashes. Spin-offs generate excess returns. Momentum is persistent. Arbitrageurs sometimes fail to exploit arbitrage opportunities. Fortunes are made by skillful (or lucky) investors. Sociological factors that cause collectives to fail are at the core of many of these inefficiencies. The wisdom of crowds becomes the madness of crowds.

At this point, there should be no doubt that price and value diverge—and sometimes significantly. The problem is in taking advantage of it. And therein lies the key: *The very factors that cause market inefficiencies make them difficult to exploit.* [4] That's why finance professors are so smug when they condemn active money managers—the professors don't doubt the existence of inefficiencies; they doubt the existence of investors who can systematically exploit those inefficiencies (especially after costs).

Think of a boom as a "bullish" disease that makes people buy stocks of dot.com companies. There is a population of 100 investors and each has a different threshold of susceptibility to the disease. The disease starts to spread as the early bulls are infected, giving a little lift to the

dot.com stocks. If the right conditions are in place, the bullish disease spreads past a tipping point. That means that investors with low and moderate susceptibility are eventually infected. Finally, all of the investors have the bullish disease—even those who were skeptical until the end—and all buy the dot.coms. At that point, the population has been completely infected and there is no one left to buy. The bullish disease has exhausted itself, and the natural course for the price of dot.com stocks is lower.

In the market for goods and services, prices transmit very useful information. For example, if the demand for a good exceeds the supply, the price will rise and producers will have an incentive to create more. This holds most strongly when demand and supply are largely independent and when the good in question is well specified and has utility.

The market for goods and services works because prices generate negative feedback. Constant adjustments to supply or demand lead to a price level that is at or below a buyer's willingness to pay and at or above a seller's ability to generate a satisfactory return on invested capital. Basically, this allows buyers to get what they want at a price they are willing to pay and allows sellers to provide what consumers want while making a sufficient profit.

In the market for financial assets, prices also reveal useful information. But unlike the market for goods and services where buyers and sellers know the underlying product in question—say, an apple or an Apple computer—in financial markets the price reveals the expectations about the future. While negative feedback also works in markets—it's at the core of arbitrage—the setup also allows for positive feedback. Since no one really knows what the future holds, investors take the price as a cue—higher prices suggest a rosier future. That's how you get a bubble. In this sense, *prices not only inform investors, they influence them*.[5]

The key to successful investing, then, is to explicitly distinguish between fundamentals—the value of the company based on financial results in the future—and expectations—the market price and what it implies about those results. This is really difficult for at least a couple of reasons. The first is that *normal humans prefer to be part of the crowd* and that preference is what simultaneously leads to market inefficiency and an inability to take advantage of it.

The second is that the person who is evaluating the fundamentals is generally the same person who's evaluating the expectations. The natural tendency is to blur the distinction between the two. When fundamentals are good we want to buy; when they're bad we want to sell—all this irrespective of the most basic question: what's priced in?

A good example of where fundamentals and expectations are clearly different is betting on horse races. The fundamentals are how fast a horse is likely to run. A handicapper might estimate that based on factors that include the horse's past finishes, the track condition, the jockey, the distance, and the strength of the field. The expectations are the odds on the tote board, which can be translated into a subjective probability of a horse's likelihood of winning. Studies of bets on horse races find that they are generally efficient.[6]

Making money through betting on horses is not at all about predicting which ones will win or lose. It's about picking the ones with odds—or a price—that fail to reflect their prospects—or value. In other words, expectations are out of sync with fundamentals. In horse racing, you get feedback promptly. The horse runs as you had thought or it doesn't. In financial markets, the feedback generally comes with a delay. Still, the analogy of horse racing makes clear one of the essential tasks for successful investing: determining the expectations represented by the asset price.

This report shows how to do that, using a large, multi-national retailer as a case study. The idea, developed in *Expectations Investing*, is to start with the stock price and reverse engineer the expectations consistent with that price.[7] I will go through this analysis step by step, and provide some discussion of the analytical challenges along the way. The goal will be to have a sense of what this retailer's stock price implies about future financial results, including sales growth,

operating profit margins, capital intensity, and returns on incremental capital. If you want a metaphor, it would be where the bar is set for the high jumper.

A full "expectations investing" analysis makes a judgment about how the fundamental results are likely to look. This report makes no attempt to address this topic at all (it is in the book). Accordingly, this analysis in no way represents an investment recommendation. The goal is to highlight the distinction between fundamentals and expectations, which is frequently overlooked, and to demonstrate how to get a handle on expectations based on the prevailing stock price and some sources that reflect the consensus of the financial community.

The Expectations Approach

The stock price of the retailer we will analyze is at $74 at the time of this writing. Our goal is to understand what expectations for the magnitude, risk, and timing of cash flows are embedded in that price.

The value of a company is the present value of free cash flows. Free cash flow is the cash available for distribution to all of the capital providers of the company. More technically:

Free cash flow (FCF) = net operating profit after tax (NOPAT) – investments in future growth (I).

NOPAT is the cash earnings a company would have assuming there was no financial leverage. Investments consider all outlays a company needs to make to support growth in profits. These include changes in working capital, capital expenditures, and acquisitions.

The present value of future free cash flows allows us to calculate the value of the company. We then have to subtract debt and other liabilities to determine the value of the equity—a residual claim:

Debt + equity = PV of FCFs

Equity = PV FCFs – debt

To get a sense of the company we're analyzing, Exhibit 1 shows the last three fiscal years of free cash flow. [8] (The fiscal year ends in January. The full income statement, balance sheet, and statement of cash flows are at the end of this report.) The company's earnings before interest and taxes (EBIT) have grown steadily and NOPAT has been in the range of $16.1 to $18.9 billion.

Over these three years, the company reduced its net working capital balance from about $1.2 billion to negative $1 billion, freeing about $2.2 billion. This means that the company's non-interest bearing current liabilities exceed its current assets net of excess cash. In plain language, the company now gets paid for the goods it sells before it has to pay its suppliers.

Exhibit 1: Derivation of a Retailer's Last 3 Years of Free Cash Flow

NOPAT

	F2010	F2011	F2012
EBIT	24,262.0	25,542.0	26,558.0
Cash taxes:			
Tax provision	7,156.0	7,579.0	7,944.0
Deferred taxes	354.0	(919.0)	(976.0)
Interest shield	602.5	645.3	703.3
Total	8,112.5	7,305.3	7,671.3
NOPAT	16,149.5	18,236.7	18,886.7
Investment			
Δ working capital	(3,820.0)	2,023.0	(408.0)
Capital spending	12,184.0	12,699.0	13,510.0
Depreciation	(7,157.0)	(7,641.0)	(8,130.0)
Δ fixed capital	5,027.0	5,058.0	5,380.0
Acquisitions (net)	(564.0)	(506.0)	3,099.0
Investment	643.0	6,575.0	8,071.0
Free cash flow	15,506.5	11,661.7	10,815.7

Source: Company reports and LMCM analysis.

Capital spending, which includes the cost of building new stores, information systems, and remodeling existing ones, is the company's largest investment item. We measure fixed capital investment as capital spending minus depreciation expense. This allows us to reflect the fact that depreciation is a non-cash charge. By treating fixed capital investment this way, we also make a simplifying assumption that it is only capital spending in excess of depreciation that is considered an investment. Said differently, we can say that the model assumes that maintenance capital spending and depreciation are roughly equivalent, and only spending above depreciation is an investment.

Fixed capital investment was close to $5 billion for each of the past three fiscal years. Based on the company's disclosure, that is also a reasonable sum for fiscal 2013.

The last component of investment is mergers and acquisitions (M&A). Here we measure how much the company spends to acquire other businesses net of how much it receives for operations that it sells. It comes as no surprise that M&A is lumpy. The company received about $0.5 billion for asset sales in fiscal 2010 and 2011, and spent $3.1 billion on M&A in fiscal 2012.

Free cash flow has therefore been in a range of $10.8 billion—a year when there was prominent M&A—to $15.5 billion, when the company sharply reduced working capital and divested businesses. We can characterize free cash flow as stable and substantial.

A calculation of the value drivers for the last five years also provides insight into the operating characteristics of this retailer. Value drivers, a term coined by Alfred Rappaport, are measures that determine shareholder value. There are five operating value drivers: sales growth, operating profit margins, cash tax rate, working capital investment rate, and fixed capital investment rate. [9]

Legg Mason Capital Management

The working and fixed capital investment rates reflect the investment as a percentage of the change in sales. For example, a fixed capital investment rate of 29% says that for every dollar of sales the company added during the period, the company invested $0.29 into fixed capital. We have broken out M&A as a separate investment category, although it could be subsumed into working and fixed capital investment.

Exhibit 2: Value Drivers for the Last Five Years (F2007-2012)

Last Five Years

Sales growth	5.1%
Operating profit margin	5.9%
Cash tax rate	33.2%
Working capital change	-4.2%
Fixed capital change	29.3%
M&A change	2.0%

Source: Company reports and LMCM analysis.

Exhibit 2 shows the results for this retailer. Sales growth was 5.1 percent, a rate somewhat higher than global GDP growth. Operating profit margins were very stable, averaging 5.9 percent. The cash tax rate was 33 percent during the period. Combined, these value drivers determine NOPAT.

Over the past five years, the company invested $0.27 for every additional dollar of sales. Capital spending and M&A combined were over $0.30 on the dollar, while working capital actually came down during the period, generating cash. Said differently, for every new dollar of sales, the retailer was able to *reduce* its working capital by $0.04. These value drivers determine the investment in future growth, I.

We can also get a sense of how efficiently the company has invested its capital by examining the return on invested capital (ROIC). Exhibit 3 shows that ROIC drifted lower in fiscal 2012 versus fiscal 2011, but remains well above the company's cost of capital. This suggests that the company has a strong competitive advantage but one that may dissipate slowly.

Exhibit 3: Return on Invested Capital (F2010-2012)

		F2010	F2011	F2012
NOPAT		16,149.5	18,236.7	18,886.7
Invested capital				
	2009	2010	2011	2012
Cash	7,275.0	7,907.0	7,395.0	6,550.0
A/R	3,905.0	4,144.0	5,089.0	5,937.0
Inventory	34,511.0	32,713.0	36,437.0	40,714.0
Other	3,258.0	3,268.0	3,091.0	1,774.0
Current assets	48,949.0	48,032.0	52,012.0	54,975.0
NIBCLs	47,721.0	50,624.0	52,581.0	55,952.0
Net working capital	1,228.0	-2,592.0	-569.0	-977.0
Net PPE	95,653.0	102,307.0	107,878.0	112,324.0
Other	18,827.0	20,068.0	20,892.0	26,107.0
Invested capital	115,708.0	119,783.0	128,201.0	137,454.0
Average invested capital		117,745.5	123,992.0	132,827.5
ROIC		13.5%	14.2%	13.7%
ROIC (average IC)		13.7%	14.7%	14.2%

Source: Company reports and LMCM analysis.

Magnitude, Risk, and Timing of Cash Flows

With this background in mind, we are now set to do an expectations analysis of the retailer. We will take on the task in three parts. First, we'll get a sense of consensus expectations for the company's value drivers. Next, we'll estimate the cost of capital. Finally, we'll consider the market-implied forecast period, or the period of time the company can be expected to generate returns above the cost of capital on its incremental investments. [10]

Magnitude

To get a sense of expected cash flows we consulted a number of analyst reports, company guidance, consensus forecasts, and *Value Line*. The picture that emerged is as follows:

Sales growth: roughly 6.0 percent for F2013, 4.0 percent for the next few years, and fading lower after that. While this company has grown well in excess of global GDP over time, the growth in years 2-4 is less than three-quarters of estimated global GDP growth. [11]

Operating profit margin: approximately 6.0 percent for F2013 and F2014, 5.9 percent for the next five years and fading lower after that.

Working capital investment: Assume a 5 percent rate, which means that every new dollar of sales will require an increase in working capital of $0.05.

Fixed capital investment: Assume a 30 percent rate, which means that every new dollar of sales will require an increase in fixed capital of $0.30. This includes acquisitions.

Tax rate: Assume 33 percent throughout.

These expectations assume that sales growth in the next five years is slower than the previous five (4.3 percent versus 5.1 percent), that operating margins are comparable, and that investment needs grow modestly. As a result, return on average invested capital declines from 14.2 percent in fiscal 2012 to 12.8 percent in fiscal 2019.

Risk

Now we turn to the issue of risk, which is captured in the opportunity cost of capital. The cost of capital typically has two components: the cost of debt and the cost of equity.

The cost of debt is relatively straightforward, and is estimated as the rate a company would pay on a new issuance of debt. For practical purposes, the yield to maturity on the company's long-term debt serves as a good proxy for this rate. That rate is currently 2.0 percent (35 basis points over the U.S. 10-year Treasury note). Since interest expense is tax deductible, we need to adjust for the tax shield (i.e., multiply the yield by [1- tax rate]) to come up with the after-tax cost of debt of 1.3 percent.

The cost of equity is more difficult to estimate because the cost is implicit, not explicit. Debt is a contract while equity is effectively a claim. The most widely-used approach to estimating the cost of equity is the capital asset pricing model (CAPM). The CAPM starts with a risk-free rate and adds an equity risk premium (ERP). The ERP captures the additional return investors require for owning stocks versus risk-free bonds to reflect that stocks are riskier than bonds. The ERP is further modified by beta, a measure of how much a stock moves relative to the market. The formula for the CAPM is:

Cost of equity = risk-free rate + (beta x equity risk premium)

The most widely used risk-free rate in the U.S. is the yield on the 10-year Treasury note. [12] At the time of this writing, the yield is 1.65 percent.

For an estimate of the equity risk premium, we turn to Aswath Damodaran, a professor of finance at the Stern School of Business at New York University. Damodaran provides an estimate of the equity risk premium monthly. As of August 1, 2012, the figure was 5.9 percent. Damodaran not only offers a current estimate, he also provides historical ERP's. Over the last 50 years or so, the ratio of the ERP to the risk-free rate has averaged about 0.7. At 3.6 times today, it appears something has to give. [13]

Value Line estimates this stock's beta to be 0.60. [14] *Value Line* calculates beta by looking at weekly percentage changes in the stock versus the NYSE Index over five years. *Value Line* and Bloomberg use adjusted betas, which revert the raw beta toward 1.00 to reflect the tendency of betas to move toward 1.00 over time.

With these assumptions, we can estimate the cost of equity to be 5.2 percent (1.65 + [0.60 x 5.9]). As the company is financed with roughly 80 percent equity and 20 percent debt, the weighted average cost of capital comes out to 4.5 percent.

Certainly, the cost of capital appears low by any historical standard. One way to think about it is the yield on debt is 2 percent—a visible number derived from a liquid security—and the equity's return is 320 basis point higher. Further, the cost of credit default swaps—basically the price of insuring against bankruptcy—is *lower* for this company than for the U.S. government. Market prices of well-traded securities provide support for the cost of capital calculation.

Timing

The last component of the analysis is the period of excess returns, which we like to call the *competitive advantage period* (CAP). [15] More specifically, during the CAP the company is expected to make investments that generate a return in excess of the cost of capital. At the end of the CAP, we can assume that incremental investments earn returns equal to the cost of capital. This does not mean the company will stop growing. It means only that the company no longer creates additional value. A perpetuity assumption, which capitalizes the NOPAT in the last year of the CAP at the cost of capital, captures this economic scenario.

In the case of this international retailer, the expectations are modest with regard to future value creation. A straightforward way to test how much value is reflected in expectations is to express the value of a company in two parts: [16]

Value = steady state value + future value creation

To make this apply solely to the stock price, we can subtract debt from both sides of the equation:

Equity = steady state value + future value creation - debt

We calculate steady state value by capitalizing the base year of NOPAT (assuming that there are no unusual items included). Collecting the components for our retailer, we have base year NOPAT of $18.9 billion, a cost of capital of 4.5 percent, debt of $54 billion, and 3.46 billion shares outstanding. What we find is that the steady state value is higher than the current stock price:

$$\text{Equity per share} = \frac{\$18,889/4.5\% - \$53,500}{3,460} = \$105$$

Said differently, this result suggests that the market is pricing in no value creation and, indeed, that the company will invest below the cost of capital.

Given that the next few years for this company are quite visible, a more sensible interpretation of the market price is that there is an expectation for value creation in the near term, followed by a period of declining cash flow.

Exhibit 4 shows a snapshot of market expectations given the estimated value drivers and cost of capital. To reflect a decline in long-term cash flows, we assume a *perpetual* decline in cash flows after year 7 of the DCF model. [17] (For those replicating the numbers, we use mid-year discounting since the company's fiscal year ends in January.)

Exhibit 4: Market-Implied Expectations

Sales	446,950.0	476,449	495,507	515,327	535,940	552,018	568,579	585,636	603,205
Sales growth	--	6.6%	4.0%	4.0%	4.0%	3.0%	3.0%	3.0%	3.0%
Operating income	26,558	28,587	29,730	30,404	31,620	32,569	33,546	34,553	34,986
Operating margin	5.9%	6.0%	6.0%	5.9%	5.9%	5.9%	5.9%	5.9%	5.8%
Tax rate	28.9%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%	33.0%
NOPAT	**18,887**	**19,153**	**19,919**	**20,371**	**21,186**	**21,821**	**22,476**	**23,150**	**23,441**
Working capital (chg)	(408)	1,475	953	991	1,031	804	828	853	878
Fixed Capital (chg)	8,479	6,000	5,717	5,946	6,184	4,823	4,968	5,117	5,271
Investment in future	**8,071**	**7,475**	**6,670**	**6,937**	**7,215**	**5,627**	**5,796**	**5,970**	**6,149**
Free Cash Flow	**10,816**	**11,678**	**13,249**	**13,434**	**13,971**	**16,194**	**16,680**	**17,180**	**17,291**
PV of FCF	10,816	11,423	12,398	12,027	11,967	13,270	13,077	12,886	
Cumulative PV of FCF	10,816	11,423	23,821	35,848	47,815	61,085	74,161	87,047	
Residual Value	246,919	256,795	262,616	273,121	281,314	289,754	298,446	302,190	
PV of Residual Value	246,919	251,176	245,751	244,519	240,953	237,440	233,977	226,657	
Corporate Value	257,734	262,599	269,572	280,367	288,768	298,524	308,139	313,705	
Debt	53,537	53,537	53,537	53,537	53,537	53,537	53,537	53,537	
Shareholder value	**204,197**	**209,062**	**216,035**	**226,830**	**235,231**	**244,987**	**254,602**	**260,168**	
Shares outstanding	3,460	3,460	3,460	3,460	3,460	3,460	3,460	3,460	
Shareholder value per share	**$59.02**	**$60.42**	**$62.44**	**$65.56**	**$67.99**	**$70.81**	**$73.58**	**$75.19**	
Year		1	2	3	4	5	6	7	

Source: Company reports and LMCM analysis.

Provided this is a plausible scenario, this retailer can be expected to earn above the cost of capital for approximately seven years, after which the company makes no additional value-creating investments and sees its NOPAT decline 3 percent annually. The market-implied return on investment during the CAP is 7.3 percent, well below the company's historical return on invested capital. [18] Historically, we have observed that high-quality retailers have CAP's of around 10 years.

While it is impossible to know precisely what's priced in, this analysis gives us some sense of what has to be true for today's stock price to make sense. The goal is to do this analysis while remaining agnostic as to whether the market is right or wrong.

The next step in the expectations investing approach is to do strategic and financial analysis to judge whether the prevailing price reflects results the company is likely to meet, exceed, or miss. This includes scenario analysis of the company's primary value driver, sales growth, as well as the impact of differing levels of sales on operating profit margin and return on invested capital. We can value these scenarios, and the expected value of the stock is the sum of the products of the probability and outcome of each scenario. Stocks that trade at a large discount to expected value generally carry a sufficient margin of safety.

Making the Expectations Approach Work for You

Great investors distinguish between fundamentals and expectations. For investors in equities, both require analysis. Gaining a grasp of fundamentals involves the study of a company's growth rates, returns on investment, and sustainable competitive advantage. Factors including the quality of the industry and management's ability to allocate capital are also important, as is the consideration of macroeconomic developments. A grasp of expectations necessitates reverse engineering what the current stock price implies about future results. Most investors acknowledge this point but few go through the exercise explicitly.

Those who seek to succeed as long-term investors need time, capital, and fortitude. Time is important because gaps between fundamentals and expectations are not always closed quickly. So even in cases where the analysis is correct, the ability to see an investment idea to fruition is important. This ability is increasingly challenged in an increasingly short-term oriented world. [19]

A stable base on investment capital is also crucial because great investment ideas aren't worth anything if you have no money to invest. Investors, both individuals and institutions, are known to chase performance. As a consequence, dollar-weighted returns for investors are generally below time-weighted returns for investment funds and asset classes. Said differently, rising asset prices draw additional investment, leading to potential overvaluation, and declining asset prices lead to investment withdrawal, pushing prices lower and possibly creating attractive opportunities. [20]

So when investments are most attractive, the pool of capital available to invest is often modest. And when investments are least attractive, capital is plentiful. Money management, the ability to properly allocate capital to investments based on their attractiveness, is an essential skill that is frequently overlooked. Investors with a stable and countercyclical base of capital stand at a huge advantage to those who work with fleet-footed capital. [21]

The final ingredient is fortitude. Owning a stock with a large margin of safety that goes nowhere, or down, is not easy. Every day, Mr. Market is sending a signal that your investment case is incorrect. Pressure is only exacerbated by the risk of negative fund flows. But in this case, it's useful to turn to the words of the father of security analysis, Ben Graham, who said, "You are neither right nor wrong because the crowd agrees with you. You are right because your data and reasoning are right." [22] A firm grasp of expectations can help shape this conviction.

Endnotes

[1] As Benjamin Graham wrote, "An investment operation is one, which upon thorough analysis, promises safety of principal and an adequate return. Operations not meeting those requirements are speculative." From Benjamin Graham, *The Intelligent Investor, Updated and revised* (New York: McGraw Hill, 2003), 18.

[2] Alfred Rappaport, "The Economics of Short-Term Performance Obsession," *Financial Analysts Journal*, Vol. 61, No. 3, May/June 2005.

[3] The term "efficiency" comes from physics and measures output as a quantity of input. For example, an engine that translates a high percentage of energy (input) into work (output) is efficient, and one that requires a great deal of energy for a modest amount of work is inefficient. Here, "value" is the input and "price" is the output. In a perfectly efficient market, value and price are the same.

[4] Michael J. Mauboussin, "Capital Ideas Revisited," *Mauboussin on Strategy*, March 30, 2005; and Michael J. Mauboussin, "Capital Ideas Revisited—Part II," *Mauboussin on Strategy*, May 20, 2005.

[5] James Surowiecki has a good discussion of this in *The Wisdom of Crowds*. See James Surowiecki, *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies, and Nations* (New York: Doubleday, 2004).

[6] Two well-known anomalies in horseracing are the favorite and long-shot bias. Bettors wage too little on favorites and too much on long-shots. These biases are extremely difficult to exploit because the track takes a percentage of each bet. Still, the aggregate results show that horse betting is remarkably efficient. See Marshall Gramm and Douglas H. Owens, "Efficiency of Pari-mutuel Betting Markets across Wagering Pools in the Simulcast Era," *Southern Economic Journal*, Vol. 72, No. 4, April 2006, 926-937.

[7] Alfred Rappaport and Michael J. Mauboussin, *Expectations Investing: Reading Stock Prices for Better Returns* (Boston, MA: Harvard Business School Publishing, 2001).

[8] We have chosen not to capitalize leases as we believe this exercise does not add much insight into this analysis. For details on how to do this analysis, see: http://people.stern.nyu.edu/adamodar/pdfiles/papers/newlease.pdf.

[9] Alfred Rappaport, *Creating Shareholder Value: The New Standard for Business Performance* (New York: Free Press, 1986).

[10] *Expectations Investing*, 69-77.

[11] World Bank estimates are for real global GDP growth of 3.0 percent in 2013 and 3.3 percent in 2014. These rates are roughly equivalent to 5.5-6.0 percent nominal growth. See http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/EXTGBLPROSPECTSAPRIL/0,,contentMDK:20370107~menuPK:659160~pagePK:2470434~piPK:4977459~theSitePK:659149,00.html.

[12] Michael T. Jacobs and Anil Shivdasani, "Do You Know Your Cost of Capital?" *Harvard Business Review,* July-August 2012.

[13] See http://pages.stern.nyu.edu/~adamodar/.

[14] *Value Line Investment Survey* dated August 3, 2012. Beta calculated monthly for the past five years, as compared to the S&P 500, equals = 0.54 (as of July 31, 2012). Beta calculated monthly for the past five years, as compared to the MSCI World Index, equals 0.49 (as of July 31, 2012).

[15] More accurately, timing is about when the company will generate cash flows, CAP is about the duration of value creation.

[16] Merton H. Miller and Franco Modigliani, "Dividend Policy, Growth, and the Valuation of Shares," *The Journal of Business*, Vol. 34, No. 4, October, 1961, 411-433.

[17] The formula for growth in perpetuity is NOPAT x (1+g)/(WACC – g). A negative "g" lowers the NOPAT to be capitalized and increases the discount rate. For example, $100 capitalized at a cost of capital is worth $2,222 ($100/4.5%). With a 3% decline in NOPAT, the value is $1,293, a 42 percent reduction.

[18] See how to calculate market-expected rate on investment (MEROI) in Michael J. Mauboussin and Alexander Schay, "Where's the Bar? Introducing Market-Expected Return on Investment (MEROI), *Frontiers of Finance, Credit Suisse Equity Research*, June 12, 2001. Also, Alfred

Rappaport, *Creating Shareholder Value: A Guide for Managers and Investors* (New York: Free Press, 1998), 103-109.

[19] Alfred Rappaport, *Saving Capitalism from Short-Termism: How to Build Long-Term Value and Take Back Our Financial Future* (New York: McGraw Hill, 2011), 69-88.

[20] See Michael J. Mauboussin, "The Coffee Can Approach: Why Doing Less Can Leave You with More," *Mauboussin on Strategy*, March 25, 2011. Also http://www.ici.org/pdf/2012_factbook.pdf.

[21] Michael J. Mauboussin, "Size Matters: The Kelly Criterion and the Importance of Money Management," *Mauboussin on Strategy*, February 1, 2006.

[22] Benjamin Graham, *The Intelligent Investor: A Book of Practical Counsel, Fourth Revised Edition* (New York: Harper & Row, 1973), 287.

Appendix:

Income Statement

	2007	2008	chg.	2009	chg.	2010	chg.	2011	chg.	2012	chg.
Net sales	348,368.0	377,023.0	8.2%	404,254.0	7.2%	408,085.0	0.9%	421,849.0	3.4%	446,950.0	6.0%
Cost of sales	263,979.0	284,137.0	7.6%	303,941.0	7.0%	304,106.0	0.1%	314,946.0	3.6%	335,127.0	6.4%
Gross income	84,389.0	92,886.0	10.1%	100,313.0	8.0%	103,979.0	3.7%	106,903.0	2.8%	111,823.0	4.6%
Gross margin	24.2%	24.6%	--	24.8%	--	25.5%	--	25.3%	--	25.0%	--
S, G & A	63,892.0	70,724.0	10.7%	77,546.0	9.6%	79,717.0	2.8%	81,361.0	2.1%	85,265.0	4.8%
Operating income	20,497.0	22,162.0	8.1%	22,767.0	2.7%	24,262.0	6.6%	25,542.0	5.3%	26,558.0	4.0%
Operating margin	5.9%	5.9%	--	5.6%	--	5.9%	--	6.1%	--	5.9%	--
Interest expense	1,809.0	2,103.0	16.3%	2,184.0	3.9%	2,065.0	-5.4%	2,205.0	6.8%	2,322.0	5.3%
Other (net)	(280.00)	(309.00)	10.4%	(284.0)	-8.1%	(181.0)	-36.3%	(201.0)	11.0%	(162.0)	-19.4%
Pretax income	18,968.00	20,368.00	7.4%	20,867.0	2.4%	22,378.0	7.2%	23,538.0	5.2%	24,398.0	3.7%
Income tax	6,354.00	6,889.00	8.4%	7,133.0	3.5%	7,156.0	0.3%	7,579.0	5.9%	7,944.0	4.8%
Net income	12,614.00	13,479.00	6.9%	13,734.0	1.9%	15,222.0	10.8%	15,959.0	4.8%	16,454.0	3.1%
Minority	(1,330.00)	(538.00)		(353.0)		(592.0)		430.0		(755.0)	
Earnings per share	$2.71	$3.18	17.4%	$3.40	6.7%	$3.78	11.4%	$4.48	18.5%	$4.54	1.2%
Shares outstanding	4,164.0	4,066.0	-2.4%	3,939.0	-3.1%	3,866.0	-1.9%	3,656.0	-5.4%	3,460.0	-5.4%
Tax rate	33.5%	33.8%	--	34.2%	--	32.0%	--	32.2%	--	32.6%	--

Balance Sheet

	2006	2007	2008	2009	2010	2011	2012
Cash and equivalents	6,193.0	7,767.0	5,492.0	7,275.0	7,907.0	7,395.0	6,550.0
Accounts receivable	2,575.0	2,840.0	3,642.0	3,905.0	4,144.0	5,089.0	5,937.0
Inventories	31,910.0	33,685.0	35,159.0	34,511.0	32,713.0	36,437.0	40,714.0
Other current assets	3,147.0	2,690.0	3,727.0	3,258.0	3,268.0	3,091.0	1,774.0
Current assets	43,825.0	46,982.0	48,020.0	48,949.0	48,032.0	52,012.0	54,975.0
Net PP&E	77,865.0	88,440.0	96,867.0	95,653.0	102,307.0	107,878.0	112,324.0
Other assets	16,497.0	16,165.0	18,627.0	18,827.0	20,068.0	20,892.0	26,107.0
Total assets	138,187.0	151,587.0	163,514.0	163,429.0	170,407.0	180,782.0	193,406.0
S-T debt	8,633.0	8,283.0	11,269.0	7,669.0	4,919.0	6,022.0	6,348.0
Accounts payable	25,101.0	28,484.0	30,344.0	28,849.0	30,451.0	33,676.0	36,608.0
Accrued expenses	13,274.0	14,675.0	15,725.0	18,112.0	18,734.0	18,701.0	18,154.0
Income taxes	1,817.0	706.0	1,140.0	760.0	1,439.0	204.0	1,190.0
Current liabilities	48,825.0	52,148.0	58,478.0	55,390.0	55,543.0	58,603.0	62,300.0
Long-term debt	30,096.0	30,735.0	33,402.0	34,566.0	36,421.0	43,860.0	47,189.0
Other liabilities	129.0	0.0	0.0	2,921.0	2,766.0	3,023.0	3,135.0
Deferred taxes	4,501.0	4,971.0	5,087.0	3,076.0	2,722.0	3,641.0	4,617.0
Common stock/paid in	3,013.0	3,247.0	3,425.0	4,313.0	4,181.0	3,929.0	4,034.0
Retained earnings	49,105.0	55,818.0	57,319.0	63,660.0	66,357.0	63,967.0	68,691.0
Treasury stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cummulative translation adj	1,053.0	2,508.0	3,864.0	(2,688.0)	(70.0)	646.0	(1,410.0)
Equity	53,171.0	61,573.0	64,608.0	65,285.0	70,468.0	68,542.0	71,315.0
Minority interest	1,465.0	2,160.0	1,939.0	2,191.0	2,487.0	3,113.0	4,850.0
Total liabilities/equity	138,187.0	151,587.0	163,514.0	163,429.0	170,407.0	180,782.0	193,406.0

Statement of Cash Flows

	2007	2008	2009	2010	2011	2012
Net earnings	11,284.0	12,731.0	13,381.0	14,370.0	16,389.0	15,699.0
Depreciation	5,459.0	6,317.0	6,739.0	7,157.0	7,641.0	8,130.0
Intangible amortization	0.0	0.0	0.0	0.0	0.0	0.0
Changes in operating working capital	2,949.0	428.0	1,137.0	3,295.0	1,080.0	359.0
Gains on divestitures, pension funding and other	543.0	1,166.0	1,890.0	1,427.0	(1,467.0)	67.0
Net cash provided by operating activities	20,235.0	20,642.0	23,147.0	26,249.0	23,643.0	24,255.0
Capital expenditues	(15,666.0)	(14,937.0)	(11,499.0)	(12,184.0)	(12,699.0)	(13,510.0)
Purchases of businesses	(68.0)	(1,338.0)	(1,576.0)	0.0	(202.0)	(3,548.0)
Divestitures and other	1,271.0	605.0	2,333.0	564.0	708.0	449.0
Net cash used in investing activities	(14,463.0)	(15,670.0)	(10,742.0)	(11,620.0)	(12,193.0)	(16,609.0)
Net increase in short-term debt	0.0	2,376.0	0.0	0.0	503.0	3,019.0
Proceeds from long-term debt	7,199.0	11,167.0	6,566.0	5,546.0	11,396.0	5,050.0
Principle payments on long-term debt	(7,291.0)	(9,066.0)	(9,484.0)	(7,412.0)	(4,443.0)	(4,939.0)
Net purchases of treasury stock	(1,718.0)	(7,691.0)	(3,521.0)	(7,276.0)	(14,776.0)	(6,298.0)
Dividends paid	(2,802.0)	(3,586.0)	(3,746.0)	(4,217.0)	(4,437.0)	(5,048.0)
Other	(510.0)	(622.0)	267.0	(832.0)	(271.0)	(242.0)
Net cash provided (used) in financing	(5,122.0)	(7,422.0)	(9,918.0)	(14,191.0)	(12,028.0)	(8,458.0)
Currency	97.0	252.0	(781.0)	194.0	66.0	(33.0)
Increase (decrease) in cash	747.0	(2,198.0)	1,706.0	632.0	(512.0)	(845.0)

Source: Company reports.

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