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Capital Allocation: Evidence, Analytical Methods, and Assessment Guidance*

by Michael J. Mauboussin and Dan Callahan, Credit Suisse

Capital allocation is the most fundamental responsibility of a senior management team of a public corporation. Successful capital allocation means converting inputs—money, things, ideas, and people—into something more valuable than they would be otherwise. The net present value (NPV) test is a simple, classic, and, for most companies, effective way to determine whether management is living up to this responsibility. Passing the NPV test means that \$1 invested in the business is worth more than \$1 in the market. This occurs when the present value of the long-term cash flow from an investment exceeds the initial cost.

Why should value determine whether a management team is living up to its responsibility? There are two main reasons. The first is that companies must compete. A company that is allocating its resources wisely will ultimately prevail over competitors that are allocating their resources foolishly. The second is that inputs have an opportunity cost, which is the value of the next best alternative. Unless an input is going to its best and highest use, it is underperforming relative to its opportunity cost.

The process of making inputs more valuable has a number of aspects. A logical starting point is a strategy. Properly conceived, a strategy requires a company to specify the trade-offs it will make to establish a position in the marketplace that creates value. A strategy also requires a company to align its activities with its positioning and to execute effectively.

Since a company's strategy is often already in place when a new chief executive officer (CEO) takes over, capital allocation generally becomes his or her main responsibility. While a useful and comprehensive discussion of capital allocation requires consideration of intangible and human resources, our focus here is on how companies spend money.

The problem is that many CEOs, while almost universally well intentioned, don't know how to allocate capital effectively. Warren Buffett, chairman and CEO of Berkshire Hathaway, describes this reality in his 1987 letter to shareholders when explaining how Berkshire Hathaway's corporate

office allocates the capital of the companies it controls. In Buffett's words,

This point can be important because the heads of many companies are not skilled in capital allocation. Their inadequacy is not surprising. Most bosses rise to the top because they have excelled in an area such as marketing, production, engineering, administration or, sometimes, institutional politics.

Once they become CEOs, they face new responsibilities. They now must make capital allocation decisions, a critical job that they may have never tackled and that is not easily mastered. To stretch the point, it's as if the final step for a highly-talented musician was not to perform at Carnegie Hall but, instead, to be named Chairman of the Federal Reserve.

The lack of skill that many CEOs have at capital allocation is no small matter: After ten years on the job, a CEO whose company annually retains earnings equal to 10% of net worth will have been responsible for the deployment of more than 60% of all the capital at work in the business.

CEOs who recognize their lack of capital-allocation skills (which not all do) will often try to compensate by turning to their staffs, management consultants, or investment bankers. Charlie [Munger] and I have frequently observed the consequences of such "help." On balance, we feel it is more likely to accentuate the capital-allocation problem than to solve it.

*In the end, plenty of unintelligent capital allocation takes place in corporate America. (That's why you hear so much about "restructuring.")*¹

Intelligent capital allocation requires understanding the long-term value of an array of opportunities and spending money accordingly. It also includes knowing the value of a firm's individual assets and being willing to sell them when they are worth more to others.

We believe that long-term growth in value per share should guide capital allocation decisions. A necessary corollary is that there is a time when shrinking the business is the most beneficial course for shareholders. In some cases, for

* This is a shortened version of the authors' report that was published by Credit Suisse in August of 2014. For the full version, see <https://research-and-analytics.csfb.com/docView?docid=YIYB1g>. The authors thank the Credit Suisse HOLT team for their essential contributions to this research, particularly the assistance of Ron Graziano, Tom Hillman, David Matsumura, Bryant Matthews, and Chris Morck.

1. Warren E. Buffett, "Letter to Shareholders," *Berkshire Hathaway Annual Report*, 1987. See www.berkshirehathaway.com/letters/1987.html.

instance, buying back shares is a wiser choice than expanding by means of capital expenditures or acquisition.

Capital allocation is a dynamic process, so the correct answer to most questions is, “It depends.” Sometimes acquiring makes sense and other times divesting is the better alternative. There are times to issue equity and times to retire it. Because the components that determine price and value are changing constantly, so too must the assessments that a CEO makes. As Buffett says, “The first law of capital allocation—whether the money is slated for acquisitions or share repurchases—is that what is smart at one price is dumb at another.”²

Buffett also discusses the generally negative role in corporate decision-making of what he calls the “institutional imperative.”³ The force has multiple aspects as he describes it, but a pair of them are relevant here. One is that subordinates will readily create spreadsheets and studies to support the business craving of the leader. Another is that companies will “mindlessly” imitate one another, whether in M&A or executive compensation.

The message here should be clear. A decision isn’t good just because someone in the organization can justify it or because some other company is doing it. Proper capital allocation requires a sharp analytical framework and independence of mind.

In our experience, very few CEOs, and chief financial officers for that matter, have what we call the “North Star of value.” The North Star is not the brightest star, but it doesn’t move much throughout the night or year. As a result, it provides a reliable sense of direction. Likewise, companies that have a North Star of value have an unwavering view of value no matter what is going on. It is common for executives to solicit input from a range of stakeholders, hear varying points of view, and walk away confused and unsure about the proper course of action. This doesn’t happen to executives with the North Star of value, especially since they may have better information about their company’s prospects than the market does.

Incentives are another barrier to proper capital allocation. An executive who is paid to deliver a target based on short-term earnings per share may well act very differently than an executive who is focused on building long-term value per share. In assessing management, ask a fundamental question: If there is a conflict between maximizing a reward based on the incentive plan and creating long-term value per share, which route will the executive select?

The rest of this article has three parts:

1. *Laying the groundwork:* This part starts by showing the main sources of capital. It then specifies capital allocation options, shows how companies have allocated capital in the

past 30 years, and explains why this issue of capital allocation is particularly relevant and challenging today.

2. *Evaluating the capital allocation alternatives:* This section documents how much money companies have allocated to each alternative over time, offers an analytical framework for judging value creation, summarizes the academic research on the payoffs to such investments, and provides a brief outlook for spending.

3. *Assessing a company’s capital allocation skills:* This part discusses methods for assessing past capital allocation choices, proposes a number of ways to evaluate incentives, and presents five principles of capital allocation that should guide corporate decision-making.

Groundwork: Where Does the Money Come From and Where Has It Gone?

Given that the job of management is to deploy capital in ways that add the most value, it makes sense to start with a discussion of where capital comes from and how management teams have spent it in the past. There are two main sources of capital: “internal”—that is, the cash generated by the business; and “external”—the capital that could be provided by the capital markets, including various forms of debt and equity. A company can also sell an asset, which results in a one-time realization of the NPV of the cash flows the asset is expected to generate over the rest of its life. One essential tenet of thoughtful capital allocation is that all capital has an opportunity cost, whether the source is internal or external.

The uses of capital are where the money goes. Executives can invest in the business through capital expenditures, increases in working capital, research and development, or mergers and acquisitions. These investments allow a company to grow. But growth in and of itself is never the goal of a thoughtful capital allocator. The proper metric of success is an increase in long-term value per share.

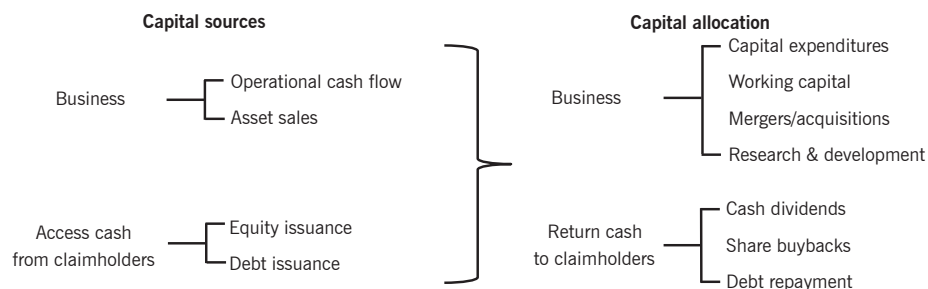
A company can also return cash to debt and equity holders. Debt repayment, a return of some or all principal and interest a company owes, is straightforward. A company can return cash to shareholders either by paying a dividend, where all holders receive the same amount, or by buying back stock. In a buyback, shareholders sort themselves: Those who want cash sell their shares and those who want to increase their stake in the company hold their shares. A dividend treats all shareholders the same (apart from tax effects), no matter what the stock price turns out to be. But in buybacks, selling shareholders benefit at the expense of ongoing shareholders if the stock is overvalued, and ongoing shareholders benefit at the expense of selling shareholders if the stock is undervalued. All shareholders are treated uniformly only if the stock

2. Warren E. Buffett, “Letter to Shareholders,” *Berkshire Hathaway Annual Report*, 2011. See www.berkshirehathaway.com/letters/2011ltr.pdf.

3. Warren E. Buffett, “Letter to Shareholders,” *Berkshire Hathaway Annual Report*, 1989. See www.berkshirehathaway.com/letters/1989.html.

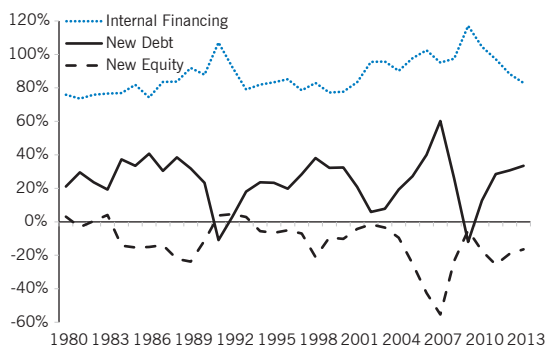
4. See Michael J. Mauboussin and Dan Callahan, “Disbursing Cash to Shareholders: Frequently Asked Questions about Buybacks and Dividends,” *Credit Suisse Global Financial Strategies*, May 6, 2014.

Figure 1 Sources and Uses of Financial Capital



Source: Credit Suisse.

Figure 2 U.S. Sources of Capital, 1980-2013



Source: Board of Governors of the Federal Reserve System, Division of Research and Statistics, Flow of Funds Accounts Table F.102.

is purchased at what proves to be fair value.⁴ (For a summary of both the sources and uses of financial capital, see Figure 1.)

Sources of Capital. Figure 2 shows the sources of capital for companies in the U.S. during the 24-year period from 1980 through 2013. Internal financing, or the cash generated by the businesses, represented almost 90% of the total sources of capital during this period. Issuance of new debt is the next most significant source of capital. And equity has actually been a net negative source of capital, in the sense that companies have bought back more shares than they have issued. (This analysis does not reflect equity issuance for compensation.)

Internal financing represents a larger percentage of the total

source of capital for companies in the U.S. than for companies in other developed countries. For example, internal financing has been about 70% of the total source for the United Kingdom, 66% for Germany, 55% for France, and 50% for Japan.⁵ Moreover, for any given country, the ratio of internal financing to the total source of capital tends to correlate with the underlying return on invested capital. Countries with high ROICs can fund higher percentages of their investments with internally generated cash than countries with low ROICs.

There are pros and cons to having internal financing represent a high percentage of investment funding. The main advantage is that companies that are earning high returns on capital in general need not rely on capital markets to fund their growth during periods when outside capital is relatively scarce or expensive. The downside is that such companies can waste internally generated funds on value-destroying investments. The need to raise money from the capital markets creates an external check on management's spending plans.

Indeed, Peter Bernstein, the late renowned financial historian and economist, once suggested that all companies should be required to pay out 100% of their earnings and then appeal to the markets when they want funds for investment. He argued that markets are generally more effective than companies at allocating capital and that, as a result, the overall effectiveness of capital allocation would improve if entrusted entirely to the discretion of the market.⁶

Uses of Capital. Figure 3 shows how the top 1,500 U.S. companies, excluding those in the financial services and regulated utility industries, deployed capital in the year 2013. While just a snapshot for a particular year, the

5. Stephen A. Ross, Randolph W. Westerfield, Jeffrey F. Jaffe, *Corporate Finance – Sixth Edition* (Boston, MA: McGraw-Hill/Irwin, 2002), 385.

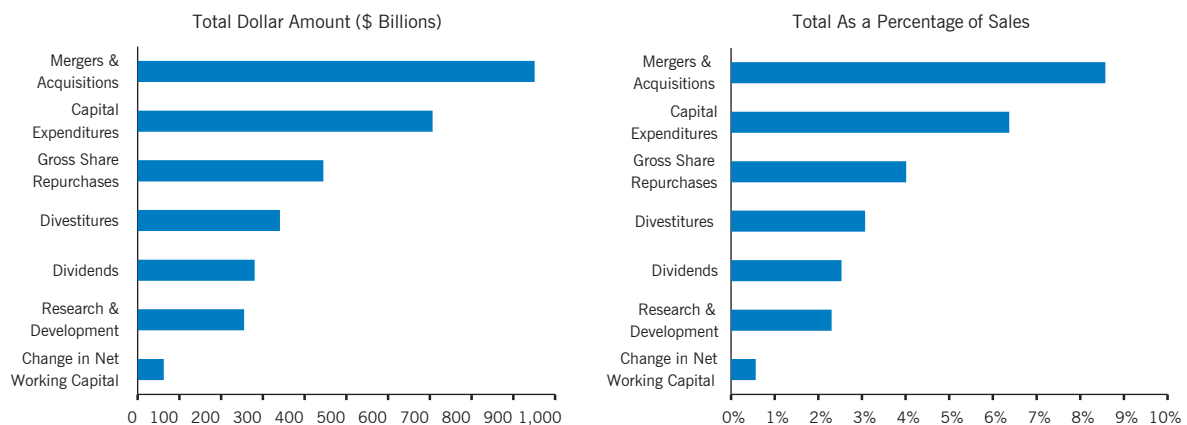
6. Jason Zweig, "Peter's Uncertainty Principle," *Money Magazine*, November 1994, 143-149.

See http://money.cnn.com/2004/10/11/markets/berstein_bonus_0411/index.htm. Here is Zweig's question and Bernstein's answer:

Q: Hugh Liedtke, the former CEO of Pennzoil, used to joke that he believed in the "bladder theory": Companies pay dividends so that management can't p--s all the money away.

A: It's hard to improve on that. In the 1960s, in "A Modest Proposal," I suggested that companies should be required to pay out 100% of their net income as cash dividends. If companies needed money to reinvest in their operations, then they would have to get investors to buy new offerings of stock. Investors would do that only if they were happy both with the dividends they'd received and the future prospects of the company. Markets as a whole know more than any individual or group of individuals. So the best way to allocate capital is to let the market do it, rather than the management of each company. The reinvestment of profits has to be submitted to the test of the marketplace if you want it to be done right.

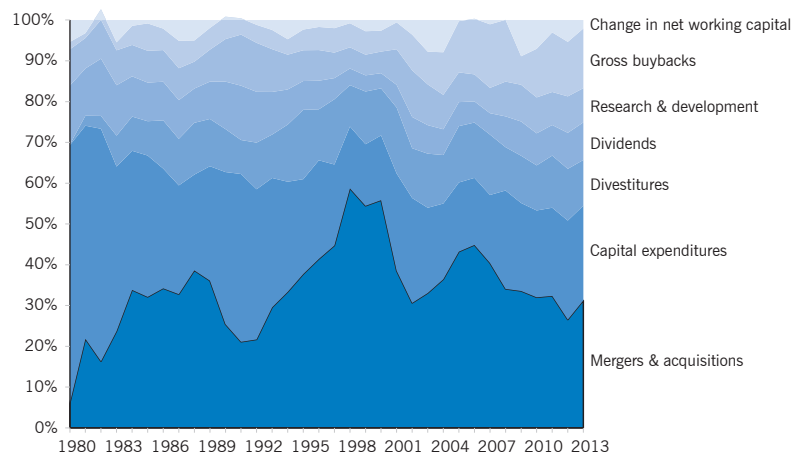
Figure 3 **U.S. Capital Deployment, 2013**



Source: Credit Suisse HOLT, Thomson Reuters DataStream.

Note: Data for R&D, Capital expenditures, Buybacks, and Dividends exclude financial companies and regulated utilities; data for Mergers & Acquisitions and Divestitures include all industries.

Figure 4 **U.S. Capital Deployment, 1980-2013**



Source: Credit Suisse HOLT, Thomson Reuters DataStream.

Note: Data for R&D, capital expenditures, buybacks, and dividends exclude financial companies and regulated utilities; data for mergers & acquisitions and divestitures include all industries.

ranking provides a reliable reflection of how U.S. companies have allocated capital over time. This can be confirmed by looking at Figure 4, which shows the breakdown of spending by source during the entire period from 1980-2013.

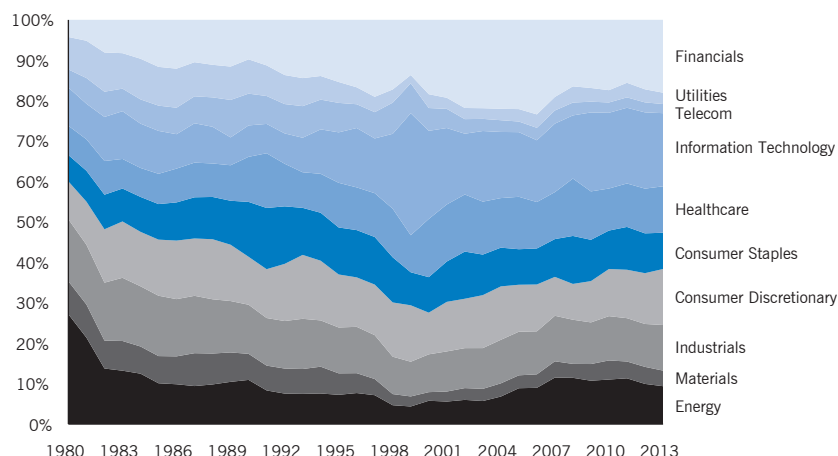
As was true in 2013, mergers and acquisitions (M&A) and capital expenditures have been far and away the largest corporate uses of capital during the 24-year period. An examination of the changes over this time reveals some notable patterns:

- M&A is by far the largest use of capital, but it is very cyclical, ranging from a low of less than 1% of sales in 1980 to almost 30% at the peak in the late 1990s. M&A activity tends to be greatest when the economy is doing well, the

stock market is up, and access to capital is easy. As a result, companies often do deals when they can, rather than when they should.

- Capital expenditures went from roughly 10% of sales to approximately 6% over this period. The simplest explanation is that the composition of the economy has changed, with businesses that require less capital investment replacing those that require more. For example, as shown in Figure 5, the energy, materials, and industrial sectors that represented 50% of the market capitalization of the top 1,500 U.S. companies in 1980 had fallen to just 25% in 2013. During the same period, the healthcare and technology sectors went from 17 to 30% of the market capitalization. This shift also helps

Figure 5 U.S. Sector Composition, 1980-2013



Source: Credit Suisse HOLT.

Figure 6 U.S. Capital Deployment, 1980-2013

Compound Annual Growth Rate (CAGR) and Standard Deviation							
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
CAGR	9.2%	0.8%	3.7%	1.0%	10.7%	17.7%	2.5%
St. Dev.	68.2%	10.0%	5.1%	3156.6%	47.0%	269.6%	5.1%

Source: Credit Suisse HOLT, Thomson Reuters DataStream, and Credit Suisse.

Note: All figures in 2013 U.S. dollars (millions); R&D, capital expenditures, buybacks, and dividends is the top 1,500 "industrials" (ex-financials and regulated utilities), whereas M&A and divestitures include all industries.

explain the significant increase in corporate cash holdings.⁷

- But another possible explanation of the dip in capital expenditures is that public companies are now investing too little. One recent study suggests that public companies invest less than comparable private companies because they want to maximize short-term earnings.⁸

- Share buybacks went from virtually nonexistent in 1980 to a large use of capital in the last decade. In 1982, the Securities and Exchange Commission defined rules that created a safe harbor for companies to repurchase shares, eliminating the threat of stock manipulation and opening the floodgates for buybacks. Over the past 30 years, companies have shifted their payouts from mostly dividends to a combination of dividends and buybacks. Nevertheless, studies show that the propen-

sity to distribute cash to shareholders (whether as dividends or buybacks) has held remarkably steady after accounting for firm characteristics that include size, age, and profitability.⁹

- Research and development (R&D) expenditures have risen steadily, growing from 1.4% of sales in 1980 to 2.3% percent in 2013. The shift in the composition of the economy away from the energy and industrial sectors and toward healthcare and high tech that accounts for the decline in capital expenditures also explains the rise in R&D. Further, companies that rely on R&D tend to hold more cash than companies that are less reliant on R&D. This partially accounts for the swell of cash on corporate balance sheets.

But as can be seen in Figure 6, there are major differences in the volatility of these uses of capital. The standard deviations of the growth rates are small for R&D, dividends, and capital spending relative to those of buybacks, M&A, and divestitures. These standard deviations provide a glimpse into how managers think about each use of capital. The lower the standard deviation, the more sacrosanct management deems that investment.

Recent Trends in Cash Flow Return on Investment and Asset Growth.

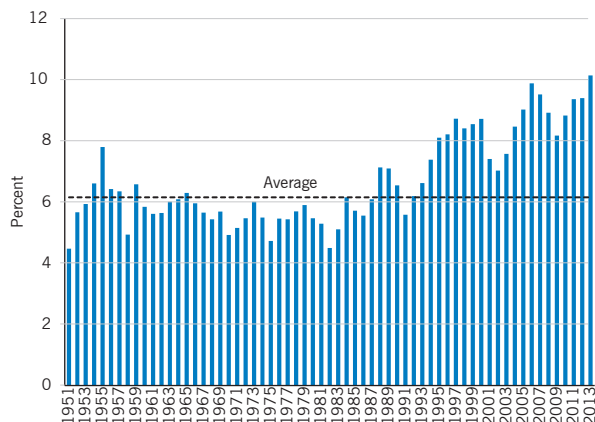
To be sure, the issue of judicious capital allocation is certainly nothing new. Buffett's quote about capital allocation is more than a quarter century old. Still, the issue feels particularly

7. Thomas W. Bates, Kathleen M. Kahle, and René M. Stulz, "Why Do U.S. Firms Hold So Much More Cash than They Used To?" *Journal of Finance*, Vol. 64, No. 5, October 2009, 1985-2021.

8. John Asker, Joan Farre-Mensa, and Alexander Ljungqvist, "Corporate Investment and Stock Market Listing: A Puzzle?" *European Corporate Governance Institute (ECGI) - Finance Research Paper Series*, January 27, 2014.

9. For the mix shift, see Douglas J. Skinner, "The Evolving Relation Between Earnings, Dividends, and Stock Repurchases," *Journal of Financial Economics*, Vol. 87, No. 3, March 2008, 582-609. Also, Gustavo Grullon, Bradley Paye, Shane Underwood, and James P. Weston, "Has the Propensity to Pay Out Declined?" *Journal of Financial and Quantitative Analysis*, Vol. 46, No. 1, February 2011, 1-24. Also, Jacob Boudoukh, Roni Michaely, Matthew Richardson, and Michael R. Roberts, "On the Importance of Measuring Payout Yield: Implications for Empirical Asset Pricing," *Journal of Finance*, Vol. 63, No. 2, April 2007, 877-915.

Figure 7 U.S. CFROI, 1951-2013



Source: Credit Suisse HOLT.

Note: All U.S. industrial firms with a market capitalization of more than \$250 million scaled through time.

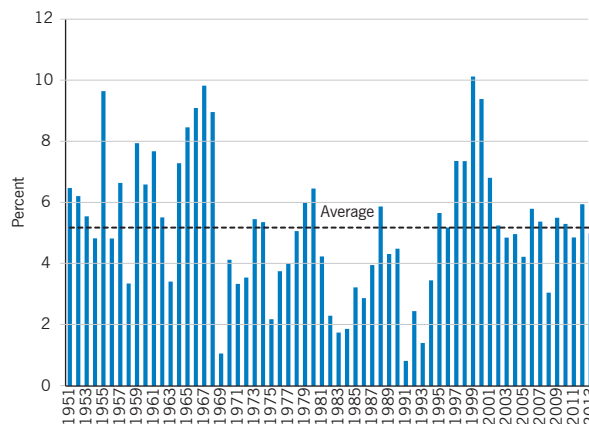
pressing today. Larry Fink, the CEO of BlackRock, captured the current zeitgeist in a letter dated March 2014. Addressed to the leaders of U.S. corporations, the letter argued that many companies are shying away from investments with long-term payoffs in favor of returning cash to shareholders via dividends and buybacks. In effect, Fink argued that the chiefs of U.S. industry are misallocating capital.¹⁰

Let's turn to some concepts and numbers to try to evaluate Fink's assertion. The maximum earnings growth rate a company can achieve through internal funding is a function of its ROIC and payout ratio. High ROICs and low payout ratios allow for higher achievable growth rates than low ROICs and high payout ratios. Low ROIC or high payout businesses can certainly grow, but they need to raise debt or equity capital to do so.

As can be seen in Figure 7, cash flow return on investment (CFROI¹¹) is at an all-time high in the U.S. CFROI measures the cash returns a business earns on the investments it makes. Since CFROI is also adjusted for inflation, it is an ideal tool for comparing results over time. The current level, which is in excess of 10%, is well above the historical average of approximately 6% from 1951-2013. The number is even higher if we attempt to estimate and then exclude the amount of excess cash parked on the balance sheets of many companies. The current levels of ROIC and CFROI suggest that companies today can fund substantial growth through internally generated funds.

But, as shown in Figure 8, in recent years the annual rate of asset growth—and the level of corporate capital spending—has been well below the long-term average, a finding

Figure 8 U.S. Real Asset Growth Rate, 1951-2013



Source: Credit Suisse HOLT.

Note: All U.S. industrial firms with a market capitalization of more than \$250 million scaled through time.

that seems especially striking when set against the record-high CFROIs. It's hard to know exactly why companies have been so reluctant to invest, but executives commonly point to political and economic uncertainty.

This combination of high return on investment and modest growth implies that businesses are generating sizeable sums of cash. For example, companies in the S&P 500, excluding the financial services sector, had a balance of cash and marketable securities in excess of \$1.7 trillion at the end of 2013, which amounts to roughly 10% of the market capitalization of the index. This cash balance is even more remarkable considering that companies in the S&P 500 returned close to \$800 billion to their shareholders through buybacks and dividends in 2013.

Cash balances are high today, and it is common to hear market commentators say that we are at all-time highs. But we are by no means in uncharted waters if you measure cash as a percentage of assets. As can be seen in Figure 9, today's cash as a percentage of assets, at 13%, is well below the peak of 18% in the post-World War II period. Further, a sizable sum of today's cash balance is offshore, and companies cannot repatriate it without incurring an additional tax burden. So between the shift in the composition of the economy and tax policy, some increase in cash holdings should come as no surprise.

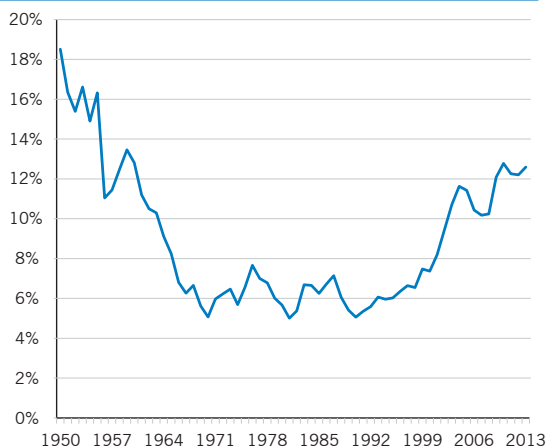
We can summarize the discussion thus far, then, as follows:

- Internal financing represents the vast majority of the source of capital for U.S. companies. Internal financing supplies less capital to companies in other developed countries, in part because those countries have lower ROICs.

10. See <http://online.wsj.com/public/resources/documents/blackrockletter.pdf>.

11. CFROI® is a registered trademark in the United States and other countries (excluding the United Kingdom) of Credit Suisse Group AG or its affiliates.

Figure 9 **U.S. Cash as a Percentage of Total Assets, 1950-2013**



Source: Credit Suisse HOLT.
Note: Top 1,500 U.S. industrial firms.

- The primary uses of capital by U.S. companies are M&A and capital expenditures, although M&A is very cyclical. Over the last 30 years, both capital expenditures and dividends have declined as a percentage of sales, while R&D and share buybacks as a percentage of sales have increased. These changes reflect the shift in the structure of the underlying economy.

- ROIC is high in the U.S., and the rate of investment is middling. As a consequence, companies are generating strong free cash flow, and capital allocation is more important than ever.

Before providing more detail about each of the specific uses of capital, let's briefly consider what the academic research says about capital allocation. The findings are easy to summarize:

In the past, asset growth rates have been reliable predictors of future abnormal returns, both in U.S. and international markets.¹² More specifically, companies with low asset growth rates have earned substantially higher shareholder returns, after adjusting for risk, than firms with high asset growth rates. Further, companies that have actually reduced their total assets—through divestitures and distributions of capital—have tended to generate higher shareholder returns than companies that expanded their assets. High returns to shareholders have also tended to follow events such as spin-offs, dividend initiations, share repurchases, and debt prepayments, whereas low returns to shareholders generally follow events such as acquisitions and stock and debt issuance.

12. Michael J. Cooper, Huseyin Gulen, and Michael J. Schill, "Asset Growth and the Cross-Section of Stock Returns," *Journal of Finance*, Vol. 63, No. 4, August 2008, 1609-1651. For non-U.S. results, see Akiko Watanabe, Yan Xu, Tong Yao, and Tong Yu, "The Asset Growth Effect: Insights for International Equity Markets," *Journal of Financial Economics*, Vol. 108, No. 2, May 2013, 259-263.

13. Gerry McNamara, Jerayr Haleblan, and Bernadine Johnson Dykes, "The Perfor-

The academic research thus supports the notion that capital allocation is challenging and that growth is not inherently good. But we must keep in mind that context is very important. Recall that the correct answer to almost every capital allocation question is, "It depends." We need to look beyond base rates, as informative as they are, to understand what truly drives or impedes value creation. We now turn to the details of the major uses of capital.

Capital Allocation Alternatives

For each alternative, we will consider four aspects: the trend in spending; how to think about the alternative from an economic standpoint; the empirical research; and the outlook for future spending.

Mergers and Acquisitions.

M&A is by far the largest use of corporate resources. For many companies, M&A is the most significant, and costly, way of pursuing strategic goals. And if M&A volume continues to average 9% of the equity market capitalization of the U.S., as it has since 1980, nearly all companies and investment portfolios will feel the effect of M&A at some point.

As can be seen in Figure 10, M&A tends to follow the stock market closely, with more M&A activity when the stock market is up. And it's no surprise that companies that act early in an M&A cycle tend to generate higher returns than those that act later. The first movers in an M&A wave enjoy the benefits of a larger pool of acquisition targets and cheaper valuations than companies that acquire later in the cycle. Later acquirers are encouraged to act based on "bandwagon effects," or what Buffett calls the institutional imperative, and an accommodating environment for financing.¹³

Private equity has also played an increasingly prominent role in M&A. As shown in Figure 11, private equity rose from essentially nothing in 1980 to 7% of deal volume at the peak of the leveraged buyout boom in the 1980s. In the early 2000s, private equity's percentage of M&A rose steadily, reaching a peak in 2007 at 37%. There was a substantial drop-off in participation during the financial crisis, but private equity has returned to a range of 15-20% of volume in recent years.

How should companies assess the merit of an M&A deal? Mark Sirower, a consultant at Deloitte, has proposed that acquirers use the following formula:¹⁴

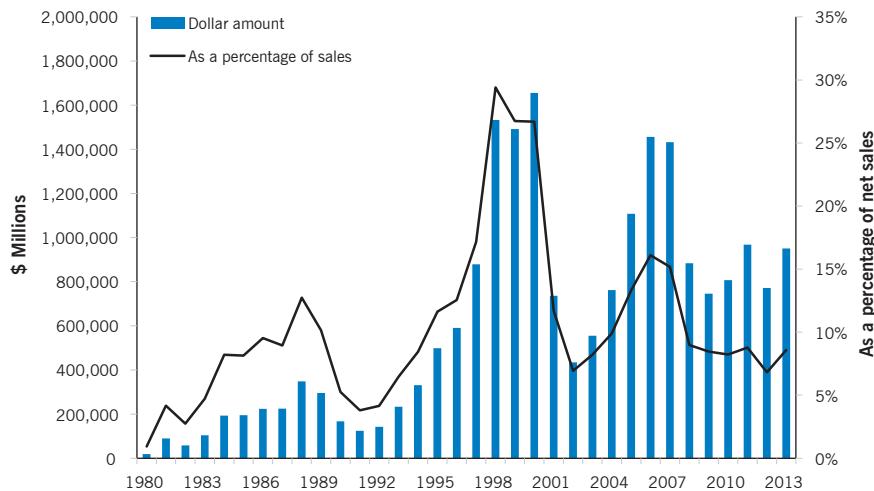
$$\text{Net present value of deal} = \text{present value of synergies} - \text{premium}$$

Simply stated, the formula says that a deal is good if the

mance Implications of Participating in an Acquisition Wave," *Academy of Management Journal*, Vol. 51, No. 1, February 2008, 113-130.

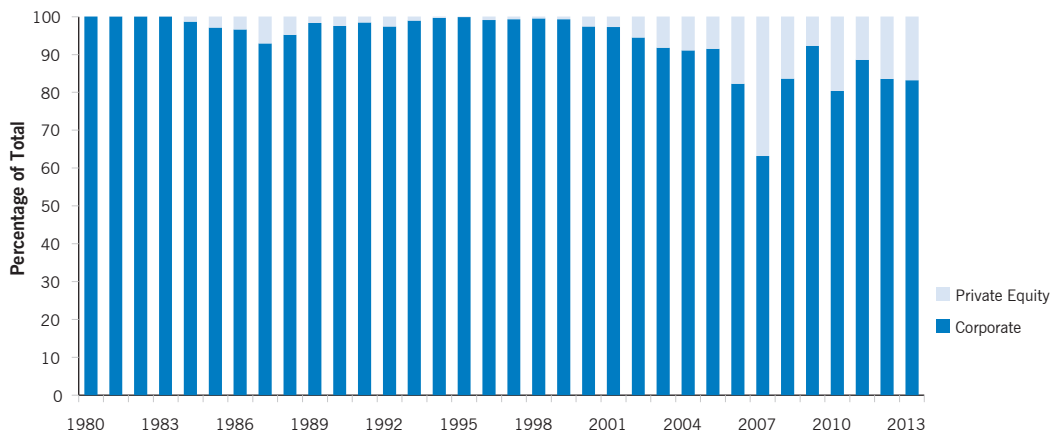
14. Mark L. Sirower, *The Synergy Trap: How Companies Lose the Acquisition Game* (New York: Free Press, 1997). For a tutorial and spreadsheet that guides this analysis, see www.expectationsinvesting.com/tutorial10.shtml.

Figure 10 U.S. Mergers and Acquisitions, 1980-2013



Source: Dollar amounts are not inflated. U.S. announced domestic mergers; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases.
Source: Thomson Reuters DataStream, Credit Suisse HOLT, Credit Suisse.

Figure 11 Private Equity Percentage of M&A Volume, 1980-2013



Note: Dollar amounts are not inflated. U.S. announced domestic mergers; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases.
Source: Thomson Reuters DataStream, Credit Suisse HOLT, Credit Suisse.

acquirer gets more than it pays for. The underlying premise is that the target's stock price just before the deal is announced is an accurate reflection of the present value of the company's future free cash flow. And this means that the deal will create value for the buyer only if the synergies from putting the businesses together exceeds the control premium the acquirer must pay to close the deal. This equation is more fundamental than superficial metrics such as accretion to

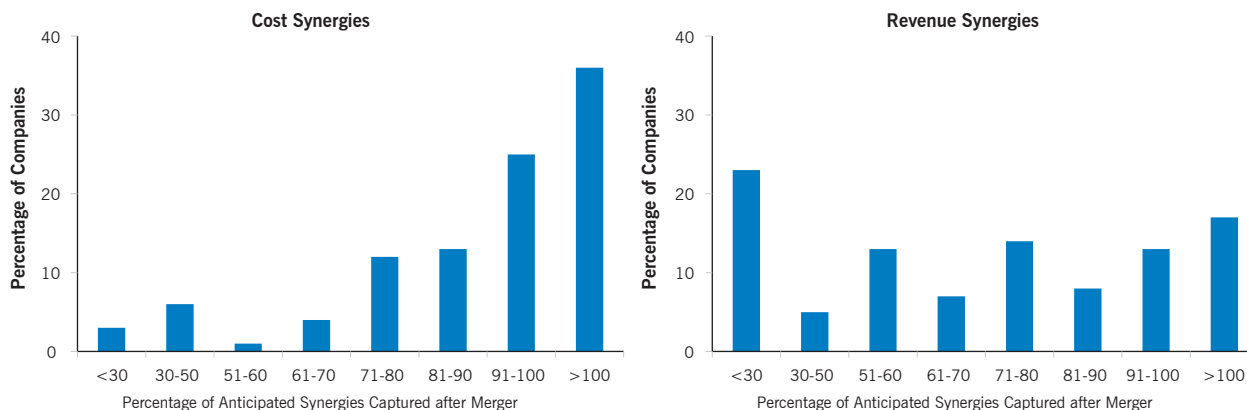
earnings per share, which doesn't appear to factor into the market's reaction.¹⁵ As a result, the formula provides much more insight into a deal's economic value added.

Let's take a closer look at the terms in the equation. Figure 12 shows the results of a McKinsey survey of corporate executives about the prospects for synergies in M&A deals. There is a clear difference between cost synergies, the costs companies expect to save by removing redundancies,

15. Tim Koller, Marc Goedhart, and David Wessels, *Valuation: Measuring and Managing the Value of Companies – Fifth Edition* (Hoboken, NJ: John Wiley & Sons, 2010), 453. Also, Connor Lynagh, "Does the Market Reward Accretive Deals? An Investigation

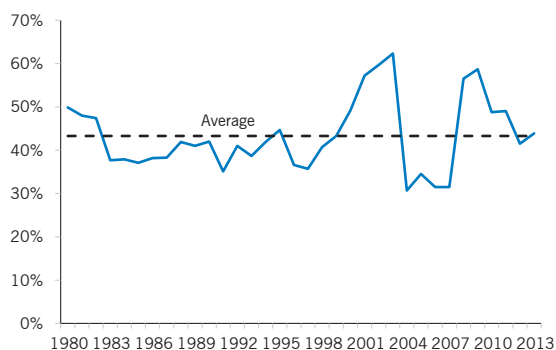
of Acquirer Performance and Earnings per Share Accretion," *Glucksman Institute for Research in Securities Markets Working Paper*, April 1, 2014.

Figure 12 **Cost Synergies Are More Reliable than Revenue Synergies**



Source: Scott A. Christofferson, Robert S. McNish, and Diane L. Sias, "Where Mergers Go Wrong," *McKinsey on Finance*, Winter 2004, 1-6.

Figure 13 **U.S. Average Deal Premium, 1980-2013**

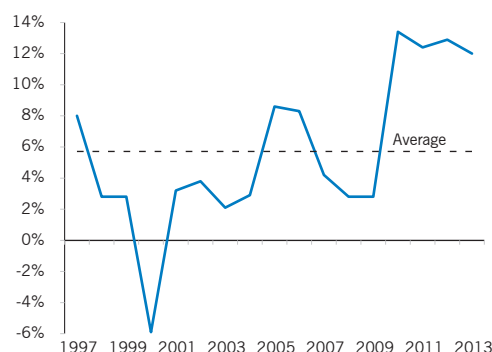


Source: Patrick A. Gaughan, *Mergers, Acquisitions, and Corporate Restructurings-5th Ed.* (Hoboken, NJ: John Wiley & Sons, 2011), 572; Credit Suisse.

and revenue synergies, the anticipated increase in sales from combining businesses.¹⁶

Cost synergies are much more reliable than revenue synergies. About one-third of the executives surveyed said that their company achieved all or more of the anticipated cost synergy, while a quarter of the companies overestimated their cost synergy by 25% or more. But roughly 70% of mergers fail to deliver the anticipated revenue synergy. The most common challenges cited for realizing synergies were delays in implementing planned actions, underestimation of costs and complexities, and flat-out overestimation of synergies.¹⁷

Figure 14 **Average Deal Value Added, 1997-2013**



Source: Patrick A. Gaughan, *Mergers, Acquisitions, and Corporate Restructurings-5th Ed.* (Hoboken, NJ: John Wiley & Sons, 2011), 572; Credit Suisse.

As shown in Figure 13, the average deal premiums—which is the difference between the price a buyer is willing to pay and the prevailing market price prior to any anticipation of a deal—have averaged around 44% since 1980. Such premiums, which reached levels of around 60% both in the early 2000s and during the recent financial crisis (likely reflecting the depressed level of prices during those periods), have trended down toward the average in recent years.

Any analysis of M&A should focus on the difference between the synergy and the premium. Succeeding at M&A is challenging for a number of reasons. First, if the premium

16. Other forms of synergies have historically played a less substantial role. See Erik Devos, Palani-Rajan Kadapakkam, and Srinivasan Krishnamurthy, "How Do Mergers Create Value? A Comparison of Taxes, Market Power, and Efficiency Improvements as Explanations for Synergies," *Review of Financial Studies*, Vol. 22, No. 3, March 2009, 1179-1211. One exception is the recent surge in "inversions," cases where U.S. companies change domiciles after acquiring foreign targets to reduce their taxes. Congress

passed a law in 2002 that was meant to stop inversions, but companies figured out how to circumvent the rules a few years ago.

17. "How Synergies Drive Successful Acquisitions: Identifying, Realizing, and Tracking Synergies in the M&A Process," *Transaction Services Roundtable-PricewaterhouseCoopers*, 2010.

Figure 15 **The Stock Market Takes a Long-Term View When It Judges M&A**

Stock Reaction	# of Deals	Announcement Return	One-Year Return	Premium
Persistent positive	52	5.6%	33.1%	25.8%
Initial positive	103	5.7%	4.9%	30.7%
Full sample	302	-4.1%	-4.3%	35.7%
Initial negative	199	-9.2%	-9.0%	38.4%
Persistent negative	133	-10.3%	-24.9%	40.5%

Source: Mark L. Sirower and Sumit Sahni, "Avoiding the 'Synergy Trap': Practical Guidance on M&A Decisions for CEOs and Boards," *Journal of Applied Corporate Finance*, Vol. 18, 3, Summer 2006, 85.

is too large, the acquiring company cannot recoup its investment, no matter how strategic the deal. Second, competitors can often replicate the benefits of a deal or take advantage of a company's lack of focus as it goes through an integration process. Third, M&A requires payment up front for benefits

down the road, which creates legitimate skepticism for investors. Finally, M&A deals are generally costly to reverse.¹⁸

The empirical evidence on M&A underscores these challenges for buyers.¹⁹ Over time, it appears that a majority of acquirers see their stock prices decline following the announcement of a deal. Research by McKinsey concluded that about one-third of the deals transacted between 1997 and 2013 created value while the other two-thirds were either value-neutral or value-destroying.²⁰ That said, it's also important to recognize that M&A creates value when you consider the gains to the sellers as well as the buyers. As seen in Figure 14, using a measure called "deal value added," the McKinsey study has shown that, during the past 15 years, the percentage increase in the combined market capitalizations of the buyer and seller has averaged about 6%, with the only negative year in 2000 at the peak of the dot-com bubble.

But if M&A creates substantial value, the research also shows, as already noted, that most of that value goes to the sellers, not the buyers. One explanation for this finding that we hear consistently from management is that the market is short-term oriented and fails to recognize the longer-run value of announced acquisitions. But when Mark Sirower and

Figure 16 **Probability of M&A Success Based on Type of Deal**

Success Rate	Category	Type	Description	Example(s)	Success Threats (Ex-Pricing, Phase)
87-92	Opportunistic	Bottom-trawlers	Dying competitor signals exit, advantage to fast, cash bidders	Marconi, Palm	Obsolescence, incompatible technologies
80-85	Operational	Bolt-ons	Fills void in acquirer's existing product/service offer, quickly	P&G/Pantene	Hidden integration difficulties cancel timing advantage
65-70	Operational	Line extension equivalents	Next generation/different variant of existing product/service	Volkswagen/Skoda	Actual synergies limited to scale, insufficient to cover APP
55-60	Transitional	Consolidation - mature	Same industry contraction: scale, overhead synergies	Pharma, telecoms	Overestimation of market share gain importance
40-45	Operational Multiple core-related complementary	Multiple core-related complementary	Logical complements to present offer: products/channels/areas Two or more related elements	Disney/ABC; P&G/Gillette; Coty/Avon	Mistaken judgment of development potential (r-synergies)
37-42 Transitional	Transitional	Consolidation - emerging	Same industry contraction: Picking winners	ABC Capital Cities/Dumont	Overstated premiums (APP) based on target's prior performance
30-35	Operational	Single core-related complementary	Similar to complementary but one or less related elements	Daimler Chrysler	Exaggerated benefits attributed to target in 'marriage made in heaven'
20-25	Transformational	Lynchpin strategic	Major change in emphasis in acquiring company's business mix and forward strategy	IBM/PwC Consulting	Dependent on extraordinary acquiring company
15-20	Transformational	Speculative strategic	Radical, high-risk experimentation with company's business mix and model	AOL/TW; Vivendi (Messier)	CEO's imagined vision inconsistent with market realities

Based on Peter J. Clark and Roger W. Mills, *Masterminding the Deal: Breakthroughs in M&A Strategy and Analysis* (London: Kogan Page, 2013), 182.

18. Alfred Rappaport and Mark L. Sirower, "Stock or Cash? The Trade-Offs for Buyers and Sellers in Mergers and Acquisitions," *Harvard Business Review*, November-December 1999, 147-158. Further, academic research suggests that serial acquirers fail to create value. See Tomi Laamanen and Thomas Keil, "Performance of Serial Acquirers: Toward an Acquisition Program Perspective," *Strategic Management Journal*, Vol. 29, No. 6, June 2008, 663-672.

19. Jerayr Halebian, Cynthia E. Devers, Gerry McNamara, Mason A. Carpenter, and Robert B. Davison, "Taking Stock of What We Know About Mergers and Acquisitions: A Review and Research Agenda," *Journal of Management*, Vol. 35, No. 3, June 2009, 469-502.

20. Koller, Goedhart, and David Wessels, 434-437.

his colleague Sumit Sahni examined the market reaction to the announcements of more than 300 deals, their findings (summarized in Figure 15) failed to support this assertion.²¹

First, they reported finding that in about one third of the deals (103/302), the market raised the stock price of the buyer (net of the market's change)—a finding consistent with McKinsey's and other past studies. Second, there was a clearly negative correlation between the premiums paid by the buyers and the market's responses to the deals. Smaller premiums were associated with positive stock returns, and higher premiums with negative returns. This is consistent with Sirower's formula for estimating a deal's net present value for the buyer.

But more telling, when Sirower and Sahni went on to examine the accuracy of the market's initial reaction by checking on the deals one year later, they found that the cumulative stock returns of those acquirers whose deals were initially well received remained positive, on average, with a one-year total shareholder return of 4.9%. And more than half of the initially well-received deals were still positive a year later. By contrast, the deals that were initially negative remained so on average, with a total shareholder return of -9.0%—and two-thirds of the negative deals were persistently negative.

These findings thus suggest that while the market's initial read of a deal isn't perfect, there does not appear to be any short-term bias. Indeed, if there is a bias, it is that the market is too optimistic, since whereas half of the positive deals turned negative, only a third of the negative deals turned positive.

In short, the story for buyers is not as bad as it has often been made out to be. And there are ways to shade the odds of a deal to be more favorable. One clear finding of the voluminous academic research on M&A is that different types of deals have different probabilities of success.

Drawing on the findings of this research as well as their own experience, Peter Clark and Roger Mills, two finance practitioners with a focus on M&A, have found substantially different success rates for the various categories of deals that are listed in Figure 16. For example, the transactions that classify as "opportunistic"—deals in which weak competitors sell out to stronger ones—are reported to succeed at a rate of around 90%. And "operational" deals, or cases where there are strong operational overlaps, also have an above-average chance of success. By contrast, the rate of success varies widely for "transitional" deals, in part because the premiums buyers must pay to close those deals can be prohibitive. Finally, the success rate of "transformational" deals, large leaps into different industries, tends to be very low.²²

Another factor that can work in favor of acquirers is the source of deal financing. The research suggests the market

responds to cash deals much more favorably than stock deals.²³ There are a number of plausible explanations for this. First, acquisitions funded with stock can be viewed as two separate transactions: sale of stock to the public, and use of the proceeds to buy the target. Management teams generally sell their stock when it's expensive, providing a negative signal to the market. Second, in cash transactions all of the deal's risk and reward accrues to the buyers. In stock-for-stock deals, the buyers share the risk with the sellers. This, too, provides a weaker signal of conviction.

Cash deals have become a much higher percentage of the total than a decade or so ago. This reflects sizeable cash balances, good access to the debt markets, and the perception of many executives that the stocks of their companies remain undervalued.

Although M&A has been slow to rebound in the current cycle, especially given the level of the stock market and low interest rates, it has recently perked up. One notable aspect of this M&A cycle is the market's generally positive reception to the deals. As can be seen in Figure 14 earlier, the average deal value added is today nearly double the average since 1997.

But perhaps even more surprising is the larger share of the value added that is now being captured by the buyers. Figure 17 shows McKinsey's calculation of the percentage of companies overpaying in each year from 1997 through 2013. Companies are judged to overpay if their stock goes down relative to the market on the announcement of the deal. As can be seen in Figure 17, although an average of about 58% of acquirers since 1997 appear to have overpaid for acquisitions, that percentage dropped to 45% in 2013. In other words, a majority of deals now appear to have created value for buyers as well as sellers.

Capital Expenditures

Capital expenditures are the second largest use of capital for U.S. companies. In 2013, capital expenditures were about three-quarters of the amount companies spent on M&A. But in contrast to M&A, capital expenditures have had vastly lower variance and, in fact, tend to be fairly steady and predictable.

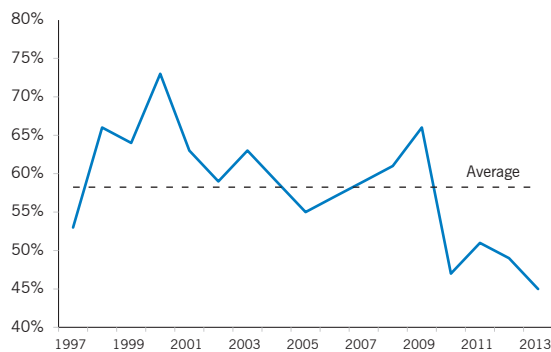
But even so, as shown in Figure 18, capital expenditures as a percentage of sales fell from 10% to 5% in 2004, but then rebounded to more than 6% in 2013. A substantial part of the pickup in capital spending since 2004 has been related to the resurgence in commodity prices, which led to sharp increases in spending in the energy and materials sectors. For instance, capital expenditures of the energy sector jumped from around 13% of the total in the early 2000s to 37% a decade later. But as the commodity cycle has cooled, so too has capital spending.

21. Mark L. Sirower and Sumit Sahni, "Avoiding the 'Synergy Trap': Practical Guidance on M&A Decisions for CEOs and Boards," *Journal of Applied Corporate Finance*, Vol. 18, No. 3, Summer 2006, 83-95.

22. For a similar analysis, see Joseph L. Bower, "Not All M&A's Are Alike—and That Matters," *Harvard Business Review*, March 2001, 92-101.

23. Tim Loughran and Anand M. Vijh, "Do Long-Term Shareholders Benefit From Corporate Acquisitions?" *Journal of Finance*, Vol. 52, No. 5, December 1997, 1765-1790.

Figure 17 **Percentage Overpaying for Deals, 1997-2013**



Source: Richard Dobbs, Marc Goedhart, and Hannu Suonio, "Are Companies Getting Better at M&A?" *McKinsey on Finance*, Winter 2007, 7-11; David Cogman, "Global M&A: Fewer Deals, Better Quality," *McKinsey on Finance*, Spring 2014, 23-25.

Note: The percentage of overpayers is the percentage of transactions in which the relative price movement of stocks was negative for the acquirer from two days prior to two days after the announcement.

Executives and investors distinguish between "maintenance" capital expenditures and "discretionary," or "growth-stimulating" capital expenditures. Maintenance spending is the minimum required to maintain or replace the long-term assets in place. We can assume that capital expenditures beyond the maintenance level are in pursuit of growth.

Using depreciation expense as a proxy for maintenance capital spending,²⁴ Figure 19 shows capital expenditures net of depreciation for U.S. companies. Measured as a percentage of sales, growth capital expenditures are roughly one half of overall capital expenditures. That maintenance capital expenditures are essential and a high priority for spending explains a good deal of the stability of spending. Further, it suggests that when assessing the value creation prospects of capital expenditures, analysts and investors are best served by focusing on the component that supports growth.

But what does all this tell us about whether U.S. companies are investing too little, or too much? When attempting to assess whether capital expenditures are creating value for given companies, consideration of the industry is a good starting point. Companies that invest in industries with high returns on invested capital and good growth prospects are more likely to create value.²⁵

The cyclical nature of the industry is another important consideration in assessing the optimal level and expected payoffs from capital expenditures. Spending in cyclical industries tends to follow the same pattern we have seen in M&A and buybacks: companies spend when things look good and hunker down when they don't. As a consequence, many companies tend to add too much capacity at the top of the cycle and suffer when the cycle recedes.

Finally, be mindful that relative comparisons of capital expenditures can be tricky. For example, analysts and executives generally compare the level of a company's spending to that of its peers. The retail industry is known for this. The crucial question is not whether one company is spending more or less than another, but rather whether a company is spending the right amount—the one that aims to maximize its NPV.

The fallacy of relative spending can be seen on the country level as well. For example, in the early 1990s there was a palpable fear that U.S. companies were investing too little relative to peer companies in countries such as Japan and Germany.²⁶ But what received almost no attention at this time was the possibility that Japanese companies were investing too much and hence failing to create value with many of their investments. The goal is not to spend more or less than the competitor but rather to spend the correct amount given the economic opportunity at hand.

Academic work on capital expenditures provides broad support for the idea that the market rewards promising investment, and almost no support for the idea that investors prefer short-term earnings gains at the expense of long-term value creation.²⁷ The research shows that the stock market rewards companies that invest in high-quality projects, which is generally signaled by a record of investments that have generated returns in excess of the cost of capital, and penalizes companies that invest in low-quality projects. And for businesses with high economic returns, the market responds positively to unexpected increases in capital expenditures and negatively to unexpected decreases in capital expenditures.²⁸

But there are also clear limits to how rapidly most companies can grow without reducing long-run returns on capital (to below competitive levels) and value. Companies that increase their investments the most tend to suffer from poor relative total shareholder returns in the years following the growth. This is consistent with the thesis that empire-

24. For a more detailed, and likely more accurate, approach see Bruce C. N. Greenwald, Judd Kahn, Paul D. Sonkin, and Michael van Biema, *Value Investing: From Graham to Buffett and Beyond* (Hoboken, NJ: John Wiley & Sons, 2001), 96. Specifically, they recommend three steps: 1. Calculate the ratio of gross property, plant, and equipment (PPE) to sales for each of the past five years and find the average; 2. Use this to indicate the dollars of PPE it takes to support each dollar of sales; 3. Multiply this ratio by the growth (or decrease) in sales dollars the company achieved in the current year. The result of that calculation is capital expenditures dedicated to growth.

25. This analysis can be refined by considering whether the company in question has a specific competitive advantage as a low-cost producer or through differentiation. For a general framework for competitive strategy analysis, see Michael J. Mauboussin and Dan Callahan, "Measuring the Moat: Assessing the Magnitude and Sustainability of Value Creation," *Credit Suisse Global Financial Strategies*, July 22, 2013. For more specific issues

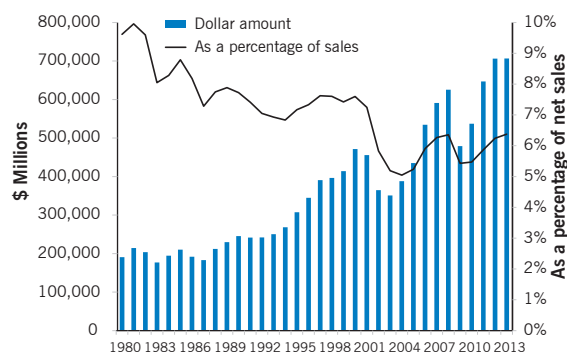
surrounding capital expenditures, see Alan C. Shapiro, "Corporate Strategy and the Capital Budgeting Decision," *Midland Corporate Finance Journal*, Spring 1985, 22-36.

26. Michael E. Porter, "Capital Choices: Changing the Way America Invests in Industry," *Journal of Applied Corporate Finance*, Vol. 5, No. 2, Summer 1992, 4-16.

27. J. Randall Woolridge and Charles C. Snow, "Stock Market Reaction to Strategic Investment Decisions," *Strategic Management*, Vol. 11, No. 5, September 1990, 353-363.

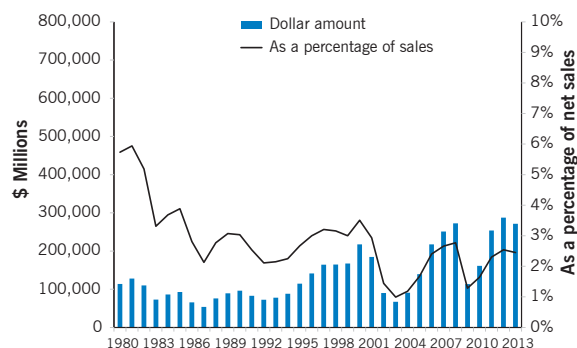
28. John J. McConnell and Chris J. Muscarella, "Corporate Capital Expenditure Decisions and the Market Value of the Firm," *Journal of Financial Economics*, Vol. 14, No. 3, September 1985, 399-422. Also, Kee H. Chung, Peter Wright, and Charlie Charoenwong, "Investment Opportunities and Market Reaction to Capital Expenditure Decisions," *Journal of Banking & Finance*, Vol. 22, No. 1, January 1998, 41-60.

Figure 18 **U.S. Capital Expenditures, 1980-2013**



Note: Top 1,500 U.S. industrial firms. Dollar amounts are not inflated.
Source: Credit Suisse HOLT.

Figure 19 **U.S. Capital Expenditures Net of Depreciation, 1980-2013**



Note: Top 1,500 U.S. industrial firms. Dollar amounts are not inflated.
Source: Credit Suisse HOLT.

building generally results in low operating returns on capital and stock market underperformance. It also confirms the evidence that rapid asset growth is generally associated with low stock returns.²⁹

Research and Development

Unlike M&A and capital expenditures, R&D is a capital allocation choice that shows up on the income statement rather than the balance sheet. Accountants expense R&D in the period the company incurs it, notwithstanding the potential long-term benefits, because they deem the outcomes too uncertain and difficult to quantify. R&D is a set of activities that seeks to develop new products or the tools to create new products.

In the U.S., businesses account for about 70-75% of total R&D spending, with the government and academia splitting the other 25-30%. The industries that spend the most are information technology, healthcare, materials, and aerospace and defense. Technology and healthcare combined represent more than two-thirds of all R&D spending in the U.S., and technology R&D spending is roughly 1.5 times that of healthcare.

As shown in Figure 20, total R&D spending by the largest 1,500 U.S. companies increased from 1.4% of sales in 1980 to a peak of 2.6% at the time of the dot-com bubble, and appears to have stabilized at its current level of about 2.3%. The substantial rise in R&D as a percentage of sales since 1980 reflects mainly changes in the composition of the market. During this time, R&D-intensive sectors such as

technology and healthcare have become a significantly larger part of the economy than other, less R&D-intensive sectors.

But what do we know about the productivity of R&D expenditures, the rate of return on such corporate investments? Assessing productivity in the case of R&D is especially challenging because of the longer than usual lag between investment and outcomes. Making the problem somewhat more tractable, analysts have found it useful to distinguish between the cost to launch, which is referred to as “R&D efficiency,” and the value per launch, or “R&D effectiveness.” Some companies are good at bringing products to market (R&D efficiency) while others may be able to create more value for the product as the result of better design, marketing, or distribution capabilities (R&D effectiveness).³⁰

One approach to assessing a company’s R&D productivity is to capitalize R&D, amortize it over an appropriate period, and then calculate the return on invested capital (ROIC) to make it comparable to the returns of businesses with no material R&D.³¹ The capitalization of R&D has the effect of increasing both profit (since the R&D amortization amount is almost always less than expensed R&D) and invested capital (since R&D is reclassified as a capital item rather than an expense). The challenge when using this approach is to determine the appropriate amortization period, or roughly the time to develop a product.

One of the best ways to study the expected productivity of corporate investment is to examine the market’s reaction to “unexpected” changes in the level of spending on that investment. In one study of more than 8,000 unexpected increases

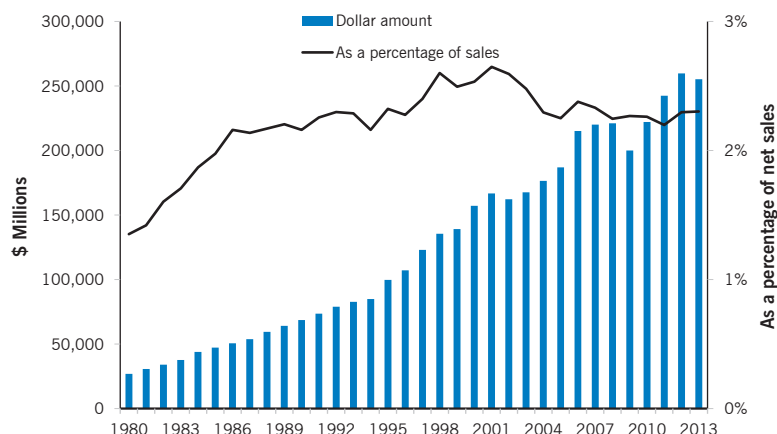
29. Sheridan Titman, K. C. John Wei, and Feixue Xie, “Capital Investments and Stock Returns,” *Journal of Financial and Quantitative Analysis*, Vol. 39, No. 4, December 2004, 677-700.

30. Steven M. Paul, Daniel S. Mytelka, Christopher T. Dunwiddie, Charles C. Persinger, Bernard H. Munos, Stacy R. Lindborg, and Aaron L. Schacht, “How to Improve R&D Productivity: The Pharmaceutical Industry’s Grand Challenge,” *Nature Reviews*

Drug Discovery, Vol. 9, March 2010, 203-214.

31. Aswath Damodaran, “Research and Development Expenses: Implications for Profitability Measurement and Valuation,” *NYU Working Paper No. FIN-99-024*, 1999.

Figure 20 U.S. Research and Development, 1980-2013



Note: Top 1,500 U.S. industrial firms. Dollar amounts are not inflated.
Source: Credit Suisse HOLT.

in R&D spending over the 50-year period from 1952 to 2001, the authors found that the stocks of those companies rose, on average, in response to the announcements of such increases.³² Other studies have confirmed this finding, showing that the returns to corporate R&D are not only positive, but higher than those on other kinds of capital investments.³³

But, of course, it's reasonable to ask whether the stock market's immediate response is a reliable reflection of the expected value of R&D spending. One large study of this question found that the market's expectations are accurate, or at least unbiased, in the sense that companies that spend a large percentage of sales on R&D realize stock market returns similar to those companies that spend a small percentage of sales on R&D. The same study came to similar conclusions about the market's ability to reflect the value of spending on advertising, which has been about half as large as R&D in the aggregate.³⁴

Studies have also found that larger companies that acquire their R&D by buying R&D-intensive businesses tend to perform poorly in the stock market.³⁵ This is consistent with the view that most if not all of the value of the R&D spending in such cases ultimately accrues to the seller, not the buyer. That said, companies with strong execution capabilities can create value by enhancing R&D effectiveness.³⁶

Somewhat surprisingly, recent research suggests that the

technology companies that are in the bottom one-third of R&D spending as a percentage of sales have actually delivered higher returns to shareholders than those in the top third.³⁷ This finding underscores how tricky it is to assess R&D spending—in part because a number of technology companies have benefited from R&D that was funded by the government.

Mariana Mazzucato, a professor of economics at the University of Sussex, addresses this issue in her provocative book, *The Entrepreneurial State*.³⁸ Her thesis is that the government funds a great deal of high-risk R&D that companies go on to exploit commercially. Using the example of the iPhone from Apple Inc., she notes that four of the main technologies inside the iPhone, including the Global Positioning System (GPS), the Internet, touch screen, and voice recognition software, were developed by the U.S. government. As Mazzucato argues, Apple's contribution was to do a brilliant job of integrating these technologies, designing an attractive and intuitive product, and marketing effectively. But because it did not develop some of the key technologies inside the phone, the company's shareholders did not have to shoulder those expenses.

Net Working Capital

Net working capital is the capital a company requires to run its day-to-day operations. It is defined as current assets

32. Allan C. Eberhart, William F. Maxwell, and Akhtar R. Siddique, "An Examination of Long-Term Abnormal Stock Returns and Operating Performance Following R&D Increases," *Journal of Finance*, Vol. 59, No. 2, April 2004, 623-650.

33. Bronwyn H. Hall, Jacques Mairesse, and Pierre Mohnen, "Measuring the Returns to R&D," in Bronwyn H. Hall and Nathan Rosenberg, eds., *The Handbook of the Economics of Innovation—Volume 2* (Amsterdam: Elsevier, 2010), 1033-1082.

34. Louis K. C. Chan, Josef Lakonishok, and Theodore Sougiannis, "The Stock Market Valuation of Research and Development Expenditures," *Journal of Finance*, Vol. 56, No. 6, December 2001, 2431-2456.

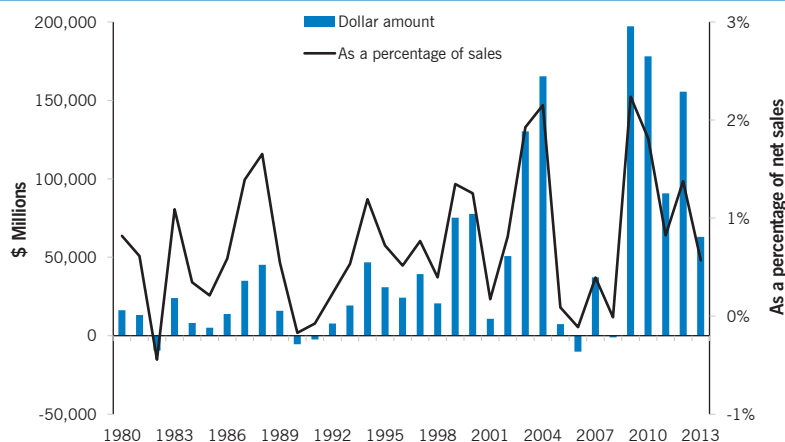
35. Mohsen Saad and Zaher Zantout, "Empirical Evidence on Corporate R&D Investment, Risk and Security Returns," *Working Paper*, May 6, 2008.

36. Tom Hillman and Chris Morck, "Using the HOLT Framework to Assess Acquisition Skill," *Credit Suisse HOLT Research*, July 2014.

37. Patrick Seitz, "Top Tech Stocks Not Big R&D Spenders, Surprising Study Shows," *Investors.com*, July 7, 2014.

38. Mariana Mazzucato, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths* (London: Anthem Press, 2013).

Figure 21 **U.S. Change in Net Working Capital, 1980-2013**



Note: Top 1,500 U.S. industrial firms. Dollar amounts are not inflated.
Source: Credit Suisse HOLT.

minus non-interest-bearing current liabilities. Net working capital equals about one-quarter of assets on average for U.S. companies.³⁹ The primary components of net working capital are inventory, accounts receivable, and accounts payable. Interest-bearing current liabilities, which include short-term debt and the current maturities of long-term debt, are a form of financing and therefore not considered part of net working capital.

At the end of 2013, net working capital stood at \$1.8 trillion for the top 1,500 public firms in the U.S. But our analysis focuses on changes in rather than absolute levels of net working capital because such changes represent the incremental investment by companies. As can be seen in Figure 21, which shows the annual changes in net working capital from 1980 through 2013, there is a lot of variation in both the dollar and percentage (of sales) amounts of working capital investment; and because our measure of working capital includes cash on the balance sheet, such variation is likely to reflect variations in profitability as well as actual changes in corporate working capital policy.

We have thus far defined net working capital to include cash. The picture changes dramatically if we exclude cash. Two trends become especially clear. First, the percentage of companies that are financed solely with equity has increased from 6% in 1980 to 20% today. Second, the cash held by the all-equity financed firms has jumped from 9% of assets to 33% over the same time.⁴⁰ As a result, increases in cash make up a substantial fraction of the increase in net working

capital (as conventionally measured). At the end of 2013, net working capital excluding cash was only about \$200 billion for the top 1,500 U.S. industrial companies, which amounts to only about one-tenth of the total net working capital sum (with cash included).

The cash conversion cycle (CCC), which is a measure of how long it takes a company to collect on the sale of inventory, is the standard way to analyze working capital efficiency.⁴¹ For example, Cisco Systems, Inc.'s CCC in fiscal 2013 was 78 days while Apple's was -28 days. A negative CCC means that the company receives cash on the sale of inventory before it pays its suppliers. This effectively makes the company's suppliers a source of financing and can be relevant in competitive interactions. In 2013, for instance, Walmart Stores Inc.'s CCC was 12 days whereas Amazon.com's was -30 days.

With a CCC for each company in hand, we can compare the efficiency of working capital use from one company to the next. Figure 22 shows the cash conversion for sectors within the S&P 500, excluding financials.

Academic research shows a strong relationship between lower CCCs and higher operating returns on capital both within, and across, industries.⁴² In other words, good working capital management is associated with high returns on invested capital. The impact on total shareholder returns, however, is less clear. Research suggests that a dollar invested in working capital is worth less than a dollar either held in cash or invested in the firm. Further, extending credit to

39. Robert Kieschnick, Mark Laplante, and Rabih Moussawi, "Working Capital Management and Shareholders' Wealth," *Review of Finance*, Vol. 17, No. 5, September 2013, 1827-1852.

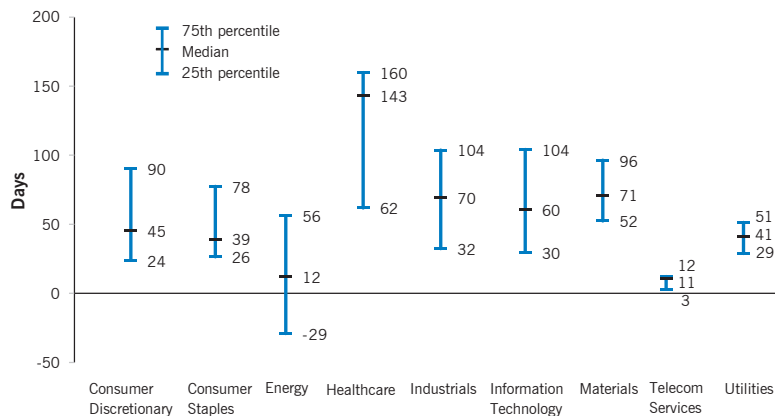
40. Michael Kisser, "The Real Option Value of Cash," *Review of Finance*, Vol. 17, No. 5, September 2013, 1649-1697.

41. The CCC equals days in sales outstanding (DSO) plus days in inventory outstanding (DIO) less days in payables outstanding (DPO).

42. Manuel L. Jose, Carol Lancaster, and Jerry L. Stevens, "Corporate Returns and Cash Conversion Cycles," *Journal of Economics and Finance*, Vol. 20, No. 1, Spring 1996, 33-46.

43. Kieschnick, Laplante, and Moussawi.

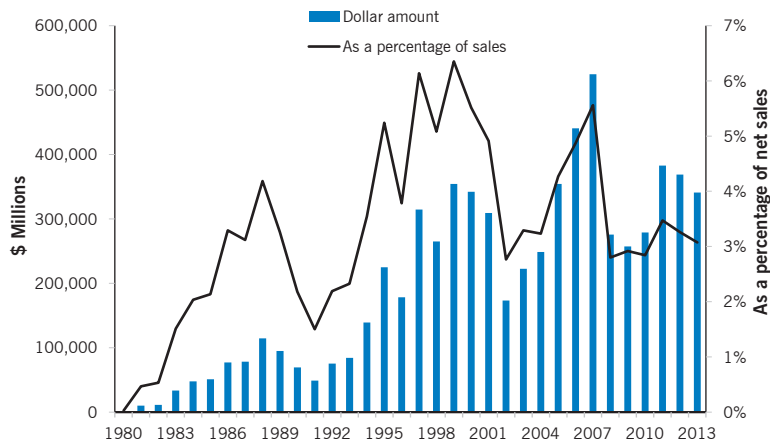
Figure 22 Cash Conversion Cycles for Sectors within the S&P 500, 2013



Note: S&P 500 companies excluding financials.

Source: FactSet and Credit Suisse. Format of exhibit from Ryan Davies and David Merin, "Uncovering Cash and Insights from Working Capital," *McKinsey & Company*, July 2014.

Figure 23 U.S. Divestitures, 1980-2013



Note: U.S. announced divestitures; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases. Dollar amounts are not inflated.

Source: Thomson Reuters DataStream, Credit Suisse HOLT, Credit Suisse.

customers by increasing receivables has been shown to have a more positive effect on shareholder value than increasing inventory.⁴³

The main issue in the outlook for net working capital is what companies choose to do with their cash hoards. Research suggests that, for companies with substandard governance, investors value cash on the balance sheet at somewhere between \$0.40 and \$0.90 on the dollar, presumably with the expectation that such companies will waste

much of the cash on value-reducing investments.⁴⁴

M&A continues to be a common use of cash; but at the same time, as we will see, companies continue to return cash to shareholders through buybacks and dividends at a steady clip.

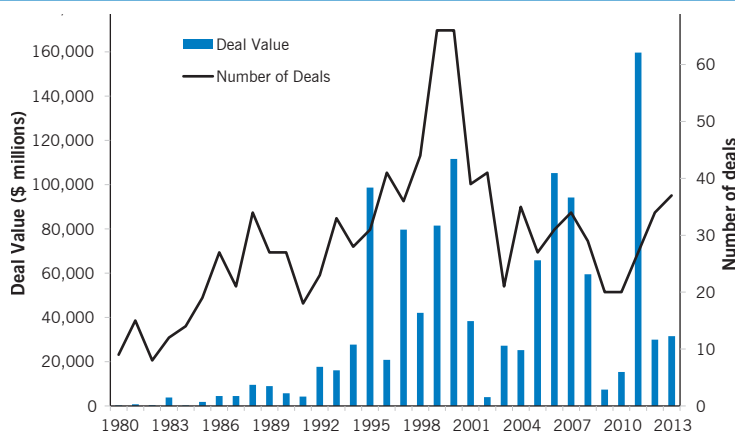
Divestitures

Companies use divestitures to adjust their business portfolios. By divestitures we mean outright sales, spin-offs, or

43. Amy Dittmar and Jan Mahrt-Smith, "Corporate Governance and the Value of Cash Holdings," *Journal of Financial Economics*, Vol. 83, No. 3, March 2007, 599-634.

44. James M. McTaggart, Peter W. Kontes, and Michael C. Mankins, *The Value Imperative: Managing for Superior Shareholder Returns* (New York: Free Press, 1994), 241.

Figure 24 U.S. Spin-Offs, 1980-2013



Note: Dollar amounts are not inflated.

Source: Thomson Reuters DataStream, Spin-Off Research, and Hemang Desai and Prem C. Jain, "Firm Performance and Focus: Long-Run Stock Market Performance Following Spinoffs," *Journal of Financial Economics*, Vol. 54, No. 1, October 1999, 81.

equity carve-outs of divisions. A company will divest an operation when it perceives the value to another owner to be higher, or if the divestiture adds focus to the parent and hence improves results.

Figure 23 shows the value of divestiture activity from 1980-2013. While divestitures generally draw less attention than M&A, they represent a substantial component of capital allocation. In the last decade, divestitures have averaged 3.6% of sales for the top 1,500 U.S. companies, a level that is comparable to that of gross buybacks and larger than dividend payments and R&D spending.

Spin-offs are a prominent form of divestiture. In a spin-off, a company distributes shares of a wholly owned subsidiary to its shareholders on a pro-rata and tax-free basis. A recent example is Time Warner Inc.'s spin-off of its magazine subsidiary, Time Inc., in June 2014. After the spin-off, Time Warner shareholders owned shares in Time Warner and Time. As can be seen in Figure 24, which shows both the value of announced spin-offs and the number of completed spin-offs from 1980-2013, the number of spin-offs has been rising since the end of the recent financial crisis.

There are a number of important considerations in assessing the expected value effects of divestitures. First, research has established that most of the value creation for a typical company comes from a relatively small percentage of its assets.⁴⁵ This in turn implies that most companies have businesses or assets that do not earn the cost of capital and that may be more valuable to another

owner. In such cases, a divestiture can lead to "addition by subtraction" when a company that divests an operation with a low return on invested capital receives more than what the business is worth as an ongoing part of the firm. And this in turn means that companies often experience increases in their values even as—and, in many cases, precisely because—the scale or scope of their operations has been cut back.

Second, we have already reviewed the evidence showing that M&A creates value in the aggregate but that acquirers struggle to capture much, if any, of that value. This finding suggests that it is better to be a seller than a buyer, at least on average. This point is particularly relevant when there are multiple bidders for an asset. Contested deals often lead to what economists call the "winner's curse." When the top bidder ends up paying too much for the asset, there is a wealth transfer, over and above the value of the asset, from the buyer to the seller.

Finally, public companies have a natural tendency to want to grow rather than shrink. As companies grow and diversify, capital allocation and strategic control can become more challenging. When a CEO who understands capital allocation takes the helm of a company with underperforming assets, there is a great opportunity to create value through divestitures.⁴⁶

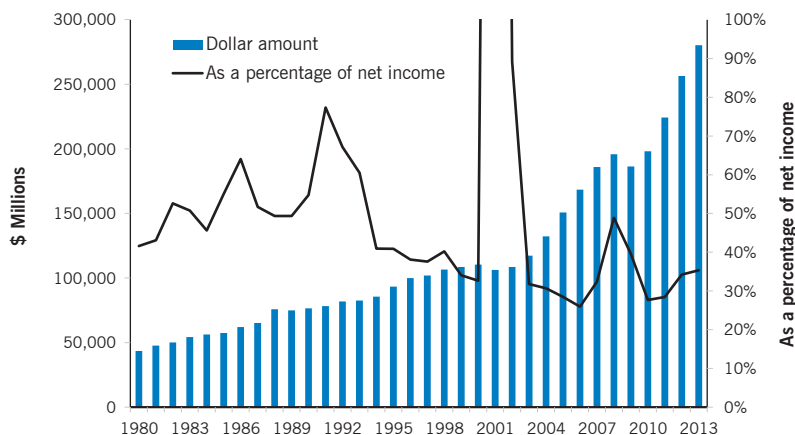
Notwithstanding their potentially important role in capital allocation, divestitures have received substantially less attention than M&A in the academic literature. But what research we have has generally supported the hypothesis

45. Robert E. Hoskisson and Thomas A. Turk, "Corporate Restructuring: Governance and Control Limits of the Internal Capital Market," *Academy of Management Review*, Vol. 15, No. 3, July 1990, 459-477. For a discussion of investment of proceeds from divestitures, see Thomas W. Bates, "Asset Sales, Investment Opportunities, and the Use

of Proceeds," *Journal of Finance*, Vol. 60, No. 1, February 2005, 105-135.

46. Donghum "Don" Lee and Ravi Madhavan, "Divestiture and Firm Performance: A Meta-Analysis," *Journal of Management*, Vol. 36, No. 6, November 2010, 1345-1371.

Figure 25 **U.S. Common and Preferred Dividends, 1980-2013**



Note: Top 1,500 U.S. industrial firms. Dollar amounts are not inflated.
Source: Credit Suisse HOLT.

that divestitures create value.⁴⁷ Studies of spin-offs in particular have provided especially strong evidence that spin-offs create value for the spun-off businesses as well as the corporate parents.^{48,49} The main contributors to these value increases are said to be sharpened focus, stronger managerial incentives, better information, and, in some cases, favorable tax treatment.

Dividends

Dividends and share buybacks are the main ways companies return cash to shareholders. The most important difference between buybacks and dividends may well be the attitude of the executives of the companies that pay them. Most corporate managers behave as if they believe that once a dividend is established, paying it is on par with investment decisions such as capital spending. In contrast, managers tend to view buybacks as paid out of “residual cash flow—that is, what is left over after the company has made its dividend payments and all investments that are expected to create profitable growth.”⁵⁰

There are a couple of consequences of this difference in attitude. The first is that dividend payments are vastly less volatile than buybacks. As shown in Figure 25, the growth in total U.S. corporate dividend payments has been remarkably

stable throughout the entire period of 1980 to 2013, with only minor pauses during the recession in the early 2000s and during the financial crisis from 2007-2009.⁵¹

How do corporate managers (and their investors) think about dividend policy? First, dividends must be considered in the context of operating cash flow. To sustain cash dividends, companies have to generate cash flow that exceeds their basic requirements to maintain the business and support its growth. And for that reason, investors often view changes in the dividend as conveying a “signal” of management’s confidence (or lack thereof) in companies’ cash flow prospects.⁵²

In addition to companies’ ability to generate the cash to pay dividends, another important consideration is the taxes investors must pay when receiving them. Academic research has long supported the view that the higher marginal tax rates on payouts reduce the overall shareholder returns of high-dividend-paying stocks.⁵³ But the good news for dividends is that the top marginal tax rate on dividends has fallen to (or even slightly below) the marginal rate on capital gains, thereby eliminating much of the earlier tax disadvantage of dividends.

Share Buybacks

Stock repurchase is the second main way that companies return cash to shareholders. Whereas all shareholders are

47. Patrick J. Cusatis, James A. Miles, and Randall Woolridge, “Restructuring through Spinoffs: The Stock Market Evidence,” *Journal of Financial Economics*, Vol. 33, No. 3, June 1993, 293-311. Also, Hemang Desai and Prem C. Jain, “Firm Performance and Focus: Long-Run Stock Market Performance Following Spinoffs,” *Journal of Financial Economics*, Vol. 54, No. 1, October 1999, 75-101. For a non-academic treatment, see Joel Greenblatt, *You Can Be a Stock Market Genius (Even if you’re not too smart!)*: *Uncover the Secret Hiding Places of Stock Market Profits* (New York: Fireside, 1997).

48. A review of more than 25 papers in the spin-off literature summed up their findings this way: “The main conclusion is consistent: spin-offs are associated with strongly significant abnormal returns.” See Chris Veld and Yulia V. Veld-Merkoulova, “Value Creation through Spinoffs: A Review of the Empirical Evidence,” *International Journal of Management Reviews*, Vol. 11, No. 4, December 2009, 407-420.

49. Alon Brav, John R. Graham, Campbell R. Harvey, and Roni Michaely, “Payout Policy in the 21st Century,” *Journal of Financial Economics*, Vol. 77, No. 3, September 2005, 483-527.

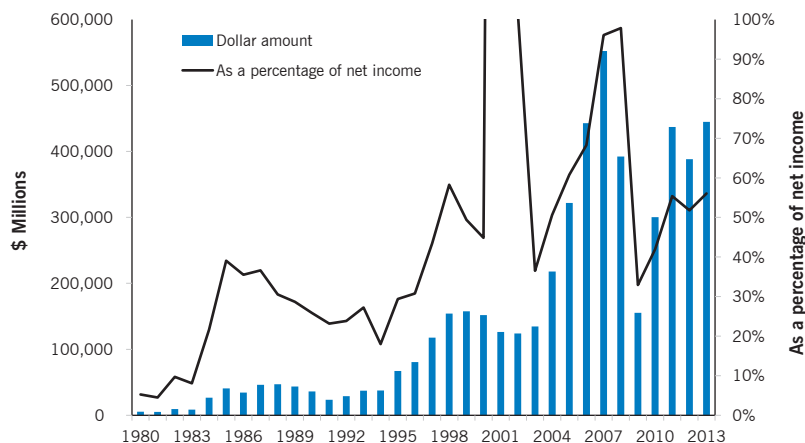
50. Eric Floyd, Nan Li, and Douglas J. Skinner, “Payout Policy Through the Financial Crisis: The Growth of Repurchases and the Resilience of Dividends,” *Chicago Booth Working Paper*, No. 12-01, July 1, 2014.

51. Douglas J. Skinner and Eugene Soltes, “What Do Dividends Tell Us About Earnings Quality?” *Review of Accounting Studies*, Vol. 16, No. 1, March 2011, 1-28.

52. Bo Becker, Marcus Jacob, and Martin Jacob, “Payout Taxes and the Allocation of Capital,” *Journal of Financial Economics*, Vol. 107, No. 1, January 2013, 1-24.

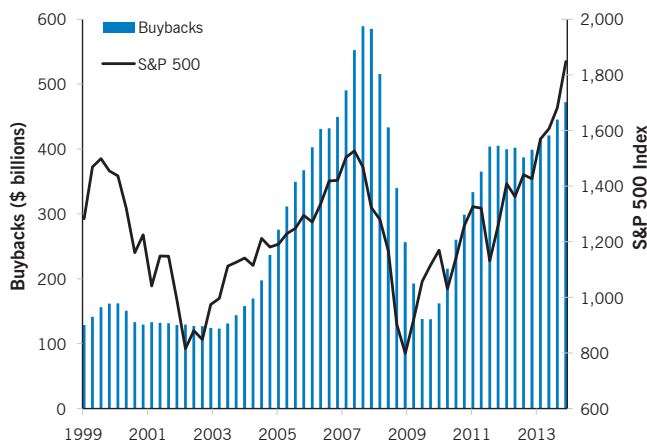
53. Alfred Rappaport and Michael J. Mauboussin, *Expectations Investing: Reading Stock Prices for Better Returns* (Boston, MA: Harvard Business School Press, 2001), 174.

Figure 26 **U.S. Gross Share Buybacks, 1980-2013**



Note: Top 1,500 U.S. industrial firms. Dollar amounts are not inflated.
Source: Credit Suisse HOLT.

Figure 27 **S&P 500 Gross Buybacks and Index Price, 1999-2013**



Source: S&P Dow Jones and Credit Suisse.

treated equally with a dividend, in buybacks only shareholders who sell to the company receive cash. This means that shareholders can realize very different outcomes based on whether they choose to sell or hold the stock when they deem it to be overvalued, fairly valued, or undervalued.

Figure 26 shows the remarkable growth of buybacks from the early 1980s to the present. But as the figure also makes clear, buybacks are much more cyclical than dividends, which reflects the widespread corporate tendency to fund buybacks with cash left over after all other commitments, including dividends, have been satisfied.

In an attempt to see whether and how buybacks are influenced by the general level of stock prices, Figure 27 narrows the sample to companies in the S&P 500 Index over a shorter time period (from 1999 through 2013), and then compares the volume of buybacks to the level of the index. The figure makes clear that buybacks hug the results for the market, rising and falling with the general level of prices. This pattern is consistent with the argument that buybacks are viewed as a corporate use of residual cash in the sense that corporate cash flow and cash balances are likely to be higher when stock prices are higher. But what the figure also implies is a common criticism of buybacks—namely, the tendency of corporate managements to buy high instead of low (and we will return to that in a moment).

When considering repurchase programs, corporate managers (and investors) should keep in mind the following golden rule of share buybacks: Companies should repurchase their shares only (1) when there are no investment opportunities that are expected to earn above the cost of capital and (2) when their stocks are trading no higher than their expected values.⁵⁴ Ideally, corporate executives should rank their investment opportunities by expected return and fund all from highest to lowest that are expected to earn at least the cost of capital. While access to capital can be a constraint, most companies generate sufficient cash flow to fund their internal investments.

The second important consideration when assessing buybacks is their expected impact on selling and holding shareholders under different conditions. Only if a stock trades exactly at intrinsic value do buybacks and dividends treat all shareholders the same. If a stock is overvalued or undervalued, the effect of a buyback is different for selling shareholders than it is for those who continue to hold.

54. For details on calculating the rate of returns for buybacks, see Mauboussin and Callahan, "Disbursing Cash to Shareholders."

From the company's standpoint, corporate value is conserved or increased no matter how the company chooses to pay out cash. What differs is who wins and who loses as the result of buying stock below or above intrinsic value. Since management should focus on building value per share for continuing shareholders, it should always try to buy back shares that if not undervalued, are not overvalued.

Say we have a company with an intrinsic value of \$100,000 and 1,000 shares outstanding that decides to return \$20,000 to its shareholders. And let's assume there are two possible outcomes for the stock price. In Scenario A, we assume that the current stock price is \$200, and thus twice its fair value of \$100 ($\$100,000/1,000$). If the company buys 100 shares for \$20,000, that leaves \$80,000 of value and 900 shares outstanding. In this case, the selling shareholders end up gaining \$100 per share, and the continuing shareholders lose \$11.11 per share ($\88.89 continuing value - \$100 initial value = $-\$11.11$). Buying back overvalued stock benefits sellers at the expense of buyers.

In Scenario B, we assume the stock trades at half of fair value, or \$50 per share. In this case the company buys 400 shares, with \$80,000 of remaining value and 600 shares outstanding. In this case, the selling shareholders end up losing \$50 per share ($\50 proceeds - \$100 value = $-\$50$), and the continuing shareholders gain \$33.33 per share ($\133.33 continuing value - \$100 initial value = $\$33.33$).

But now, for comparative purposes let's consider a third case, Scenario C, in which the company pays a \$20 dividend to all shareholders. Just as in the prior scenarios, the firm value drops to \$80,000, but each shareholder receives identical treatment, leaving aside tax considerations.

This analysis suggests a couple of points that are commonly overlooked in most discussions of buybacks. First of all, shareholders who choose to hold the shares instead of selling a pro-rated amount into buyback offers are effectively increasing their percentage ownership in the company. But having said that, it is logical for investors who are committed to owning certain companies to prefer that those companies buy back stock rather than pay a dividend. For those shareholders who believe the company is undervalued, buybacks increase value per share by definition. The only exception to this rule would be a case in which an increase in the dividend would provide a more powerful signal to the market, thereby creating more immediate value than a buyback.

Tying together these thoughts, there are basically three schools of thought regarding buybacks: fair value, intrinsic value, and accounting-motivated.

The fair value school takes a steady and consistent approach to buybacks. Management believes that over time it will buy back shares when they are both overvalued and undervalued, but for the most part when they are about fairly priced. This approach offers shareholders substantial flexibility since it allows them to hold shares and to defer tax liabilities or create homemade dividends by selling a pro-rated number of shares.

The fair value school is consistent with the "free cash flow" hypothesis, which says that managers who have excess cash are all too likely to invest it in projects with a negative net present value. By disbursing cash, a company buying back its shares reduces the risk of doing something foolish with the funds.⁵⁵ In support of the fair value approach, studies suggest that most companies would have been better off buying back stock consistently over time instead of their actual behavior—buying heavily in some periods and lightly, or not at all, in others.⁵⁶

The intrinsic value school believes that companies should buy back shares only when they deem them to be undervalued. But to pursue this approach with any degree of confidence, corporate managers must have asymmetric information or beliefs, as well as analytical prowess. Asymmetric information means that company management has information that the stock price fails to reflect. Differences in belief are situations where management has the same information as the market but comes to different conclusions about what that information means.

Analytical prowess means that the executives at the company know how to translate their different view into an estimate of the relationship between the stock price and intrinsic value. Investors should not assume that management has this ability. Indeed, surveys consistently show that executives believe their stock to be cheap. For example, in a survey from mid-2013, 60% of chief financial officers (CFOs) thought that U.S. equities were overvalued, but only 11% thought their own stock was overvalued.⁵⁷

Management can act on its conviction by being bold with its buyback program, buying back a substantial percentage of the shares or even buying them at a premium to the prevailing price through a tender offer.⁵⁸ This school fits the signaling hypothesis, which suggests that companies buy back shares when they deem them to trade below intrinsic value.

For the third school of buybacks, the main motive and method is boosting short-term accounting results, especially

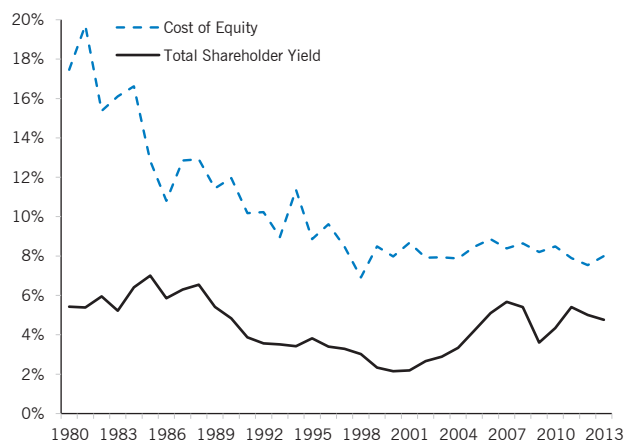
55. Michael C. Jensen, "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review*, Vol. 76, No. 2, May 1986, 323-329.

56. Chao Zhuang, "Share Repurchases: How Important Is Market Timing?" *Working Paper presented at USC FBE Finance Seminar*, September 30, 2013. Also, Alice A. Bonaimé, Kristine W. Hankins, and Bradford D. Jordan, "Wiser to Wait: Do Firms Optimally Execute Share Repurchases?" *SSRN Working Paper*, March 6, 2014.

57. "CFO Signals™: What North America's Top Finance Executives Are Thinking—and Doing," *Deloitte Research*, Second Quarter 2013.

58. Jin Wang and Lewis D. Johnson, "Information Asymmetry, Signaling, and Share Repurchase," *Working Paper*, February 2008.

Figure 28 **U.S. Total Shareholder Yield versus Cost of Equity, 1980-2013**



Note: Top 1,500 U.S. industrial firms.

Source: Credit Suisse HOLT and Aswath Damodaran.

earnings per share (EPS).⁵⁹ According to surveys, three-fourths of CFOs cite increasing EPS as an important or very important factor in the decision to buy back shares. Two-thirds of CFOs say that offsetting the dilution from option or other stock-based programs is important. This underscores another essential point: you should consider buybacks net of equity issuance.

The problem with the accounting-motivated school is that its actions are not necessarily consistent with the principle of value creation.⁶⁰ For example, there may be a case where buying back overvalued stock boosts EPS and helps management reach a financial objective that prompts a bonus. In this case the motivation is misguided because management's proper goal is to allocate capital in an economically sound fashion for shareholders.

What does academic research tell us about the effects of buybacks on corporate values?

One clear finding is that companies appear increasingly to be using buybacks as a substitute for dividends, and that both corporate payout ratios and reinvestment rates

have remained relatively constant over time.⁶¹ As can be seen in Figure 28, the total shareholder yield—that is, the sum of dividends and buybacks divided by equity market capitalization—for the top 1,500 U.S. public companies has been remarkably stable during the period 1980-2013. And this in turn implies that companies have continued to pay out roughly the same proportions of both their earnings and value over time, even though their cost of equity appears to have been falling throughout the period.⁶²

But if overall payout ratios have not changed much, studies also suggest that the market's reaction to buybacks has become less enthusiastic over time. Buybacks were especially well received by the stock market in the 1980s and 1990s. This is likely the result of a couple of factors, including the novelty of buybacks and hence the stronger signal they sent, as well as the fact that more buybacks took the form of Dutch auctions and tender offers versus open market purchases, which are more prevalent today. Analysis of recent buybacks suggests a more muted market effect.⁶³

Nevertheless, buybacks continue at a healthy clip. For example, during the 12 months ending with March 2014, buybacks for the companies in the S&P 500 rose almost 30%.⁶⁴ This is consistent with the idea that managements buy when they feel confident. And in the first quarter of 2014, buybacks and dividends combined reached an all-time record for the S&P 500 that was just shy of \$250 billion.

Assessing Management's Capital Allocation Skills

"All roads in managerial evaluation lead to capital allocation."

The final part of this report provides a framework for assessing a management team's capital allocation skills. This framework has four components. It begins with a study of how a company has allocated capital in the past. Next it examines the company's return on invested capital and, more importantly, its return on incremental invested capital. Third is a careful consideration of incentives and corporate governance. And it ends with an assessment of the extent to which management's actions are consistent with what we take to be the "five principles of capital allocation."

59. While buybacks do boost the EPS of individual companies, they don't enhance value. See Jacob Oded and Allen Michel, "Stock Repurchases and the EPS Enhancement Fallacy," *Financial Analysts Journal*, Vol. 64, No. 4, July/August 2008, 62-75. Further, buybacks have a negligible impact on the S&P 500 Index. Howard Silverblatt, a senior index analyst at S&P, writes, "The S&P index weighting methodology adjusts for shares, so buybacks are reflected in the calculations. Specifically, the index reweights for major share changes on an event-driven basis, and each quarter, regardless of the change amount, it reweights the entire index membership. The actual index EPS calculation determines the index earnings for each issue in USD, based on the specific issues' index shares, index float, and EPS. The calculation negates most of the share count change, and reduces the impact on EPS." See Howard Silverblatt, "Buybacks and the S&P 500® EPS," *Indexology Blog*, March 7, 2014.

60. Konan Chan, David L. Ikenberry, Inmoo Lee, and Yanzhi Wang, "Share Repurchase as a Potential Tool to Mislead Investors," *Journal of Corporate Finance*, Vol. 16, No. 2, April 2010, 137-158.

61. Gustavo Grullon and Roni Michaely, "Dividends, Share Repurchases, and the Substitution Hypothesis," *Journal of Finance*, Vol. 57, No. 4, August 2002, 1649-1684. See also Gustavo Grullon and David L. Ikenberry, "What Do We Know about Share Repurchases?" *Journal of Applied Corporate Finance*, Vol. 13, No. 1, Spring 2000, 31-51.

62. Antti Ilmanen, *Expected Returns: An Investor's Guide to Harvesting Market Rewards* (Chichester, UK: John Wiley & Sons, 2011), 129.

63. For older announcements see David Ikenberry, Josef Lakonishok, Theo Vermaelen, "Market Underreaction to Open Market Share Repurchases," *Journal of Financial Economics*, Vol. 39, Nos. 2 and 3, October-November 1995, 181-208. For more recent announcements, see Fangjian Fu, Sheng Huang, and Hu Lin, "The Persistence of Long-Run Abnormal Stock Returns: Evidence from Stock Repurchases and Offerings," *SSRN Working Paper*, December 4, 2012, see: <http://ssrn.com/abstract=1936187>.

64. Shirley A. Lazo, "Buybacks Surge, Led by Apple," *Barron's*, June 21, 2014.

Past Spending Patterns

The first step in assessing a company's capital allocation skills is to see how management has allocated capital in the past. This analysis should be broken into two parts, one dealing with investments in the operations (M&A, capital expenditures, R&D, and working capital) and the other with distributions of cash to claimholders (dividends, buybacks, and debt repayment).

A useful first step in assessing capital allocation is to see how much was invested in each of the three main categories of corporate investment—working capital, fixed capital, and M&A—for an incremental dollar of sales over time. We like to calculate results for a minimum of three years and prefer to go back five to ten years when possible. Here are the numbers for WalMart over the past five years (fiscal 2009-2014):⁶⁵

Incremental working capital investment rate	= 3.7 percent
Incremental fixed capital rate	= 33.5 percent
Incremental M&A rate	= 1.3 percent

From these numbers you can see at a glance whether the company is investing in working capital, capital expenditures, or M&A. That allows you to focus your attention. In this case, it is clear that capital expenditures are the most important use of capital.

Here are the numbers for Emerson Electric over the past four years (fiscal 2009-2013):

Incremental working capital investment rate	= 44.9 percent
Incremental fixed capital rate	= 10.8 percent
Incremental M&A rate	= 65.2 percent

Now you can see that M&A has been more important than capital expenditures. In this case, you would roll up your sleeves and figure out how management approaches its M&A decisions. You might also review past deals to see how the market reacted.

This analysis is also useful to assess the change in practices from one CEO to the next. Some CEOs may seek to grow primarily organically, which will raise one set of analytical issues. A successor may be more acquisitive, raising a separate set of issues. Assuming past behavior provides some basis for anticipating future behavior, this analysis is very useful.

Look for inflection points as well. Are capital expenditures ramping up versus prior levels of spending? Is the company improving its cash conversion cycle? You want to note changes in spending patterns so as to align your analysis with the developments at the company.

The second component of this analysis is to understand how and why management has returned cash to claimholders. This also requires considering a company's capital structure and whether it can or should change. The key is to understand the rationale and motivation for the decisions management makes to understand whether they are consistent with the principles of building long-term value per share.

In assessing a company's past capital allocation, it's interesting to determine who exactly is making the decision. Researchers surveyed executives and found that CEOs are least likely to delegate decisions about M&A but much more likely to defer to colleagues on issues such as capital structure and payout ratio. CEOs delegate less if they have a master's degree in business administration, have been around for a long time, or are particularly knowledgeable about a project. CEOs delegate more when the firm is large or complex. Most companies say they use the net present value rule to make investments, but the reputation of the division manager requesting resources is important, and so is senior management's "gut feel."⁶⁶

It's also useful to understand how the process works. As a practical matter, many companies approach capital allocation through a budgeting process. In a simple version, each division has a capital budget and can either accept that amount or ask for more. Such a request may be subject to a value audit. Research shows that such a budgeting process can lead to overinvestment in low-return projects if the budget exceeds the opportunities and underinvestment if the opportunities exceed the budget.⁶⁷

Calculating Return on Invested Capital and Return on Incremental Invested Capital. The second component to assessing capital allocation is determining the output of management's decisions through an analysis of return on invested capital (ROIC) and return on incremental invested capital (ROIIC). ROIC provides a picture of the company's overall performance while ROIIC dwells on the efficiency of incremental spending.⁶⁸

When calculating ROIC, the numerator is NOPAT. Because NOPAT assumes no financial leverage, the sum is the same whether a company is highly levered or free of debt. This is essential for comparability within and across industries.

Invested capital is the denominator of ROIC. You can think of invested capital in two ways that are equivalent. First, it's the amount of net assets a company needs to run its business. Alternatively, it's the amount of financing a company's creditors and shareholders need to supply to fund those net assets. These approaches are the same since dual-entry accounting requires that both sides of the balance sheet equal one another.

65. This analysis does not reflect capitalized leases.

66. John R. Graham, Campbell R. Harvey, and Manju Puri, "Capital Allocation and Delegation of Decision-Making Authority within Firms," *SSRN Working Paper*, December 18, 2013, see: <http://ssrn.com/abstract=1571527>.

67. Milton Harris and Artur Raviv, "The Capital Budgeting Process: Incentives and Information," *Journal of Finance*, Vol. 51, No. 4, September 1996, 1139-1174.

68. See Michael J. Mauboussin and Dan Callahan, "Calculating Return on Invested Capital: How to Determine ROIC and Address Common Issues," *Credit Suisse Global Financial Strategies*, June 4, 2014.

You should calculate ROIC using the assets side of the balance sheet if given a choice, since that allows you to see how efficiently the company is using capital. In contrast, the right-hand side shows only how much capital the firm has and how it has chosen to finance the business. Ideally, you should calculate ROIC from both the left- and right-hand sides of the balance sheet.

In fiscal 2014, Walmart's NOPAT was \$18.8 billion and its average invested capital was \$145.8 billion, for an ROIC of 12.9%. This is well in excess of the company's cost of capital. Since strategies, and the bundle of investments through which they are carried out, must earn a return in excess of the cost of capital in order to pass the NPV test, ROIC can be a rough proxy for value creation.

Academic research shows that the market rewards investment in organic growth in high-return businesses. Typically, companies that earn high ROICs are said to have some kind of competitive advantage. A quick analysis of ROIC indicates whether a company has a competitive advantage and, if so, what lies at the foundation of that advantage.⁶⁹

Having defined and discussed ROIC, we now emphasize that it's not the absolute ROIC that matters but rather the change in ROIC. Or, even more accurately, what's crucial is the expectation for changes in ROIC. Needless to say, the market is not always perfect at anticipating change in ROIC, so having a sense of where ROIC is going can be of great value.⁷⁰

One potentially useful measure is return on incremental invested capital, or ROIIC. ROIIC properly recognizes that sunk costs are irrelevant and that what matters is the relationship between incremental earnings and incremental investments.

The definition of ROIIC is as follows:

$$\text{ROIIC} = \frac{\text{Year}_2 \text{ NOPAT} - \text{Year}_1 \text{ NOPAT}}{\text{Year}_1 \text{ invested capital} - \text{Year}_0 \text{ invested capital}}$$

In words, ROIIC compares the change in NOPAT in a given year to the investments made in the prior year. Let's say a company's Year₀ invested capital is \$2,000 and it invests \$200 during the year (making Year₁ invested capital \$2,200). Further, NOPAT from Year₁ to Year₂ climbs from \$300 to \$350. Given these assumptions, ROIIC is 25% [(\$350-\$300)/(\$2,200-\$2,000)].

69. Bruce Greenwald, a professor at Columbia Business School, argues that there are two sources of competitive advantage: consumer advantage and production advantage. The key to each advantage is the creation of barriers to entry that fend off competition. Barriers to entry are particularly strong when a company enjoys economies of scale. See Bruce Greenwald and Judd Kahn, *Competition Demystified: A Radically Simplified Approach to Business Strategy* (New York: Portfolio, 2005).

70. Michael J. Mauboussin and Dan Callahan, "Economic Returns, Reversion to the Mean, and Total Shareholder Returns," *Credit Suisse Global Financial Strategies*, December 6, 2013.

71. Michael J. Mauboussin and Alexander Schay, "Where's the Bar? Introducing Market-Expected Return on Investment (MEROI)," *Credit Suisse First Boston Equity*

Research, June 12, 2001.

It is preferable to calculate ROIIC on a rolling three- or five-year basis for businesses with investments or NOPAT that are lumpy. At the other extreme, you can take quarterly changes and annualize them if you want to see if there are any recent trends or improvements. Obviously these results will be the most volatile, but they can give you some insights into how the business is doing. As an example of the calculation, Walmart's ROIIC is -2% for the last fiscal year, 2% for a rolling three-year period, and 21% for the rolling five-year period.

High ROIICs generally indicate that a business is either capital efficient or has substantial operating leverage (which often proves transitory). Calculating a company's historical ROIIC can be very helpful in understanding potential earnings moves.

A final note of warning: ROIIC, for a host of technical reasons, is not really an economic measure of value. Further, ROIIC makes the strong underlying assumption that the ROIC on the base business remains stable. This is clearly not always true. So use the measure to determine the likelihood of change and to understand past patterns, but don't compare it with the cost of capital or consider it a true return measure.⁷¹

Incentives and Corporate Governance

One of the essential lessons of economics is that incentives matter. But it is also the case that incentives designed to achieve one objective can have unintended consequences. The goal of this section is to consider whether the incentives a company has in place encourage judicious capital allocation.

Agency theory is the classic way to explain why the managers of a company may not act in the interests of the shareholders.⁷² The basic idea is that conflicts can arise when there is a separation between ownership and control of a firm. There are three areas where these conflicts tend to arise.⁷³

The first is that while it is clear that shareholders want management to maximize the value of their holdings, management may derive benefits from controlling resources that don't enrich shareholders. For example, if remuneration is roughly correlated with the size of the firm, management may seek to do value-destroying M&A deals to grow.

The second area of conflict is with tolerance for risk. Since shareholders tend to hold stocks as part of a diversified portfolio and managers are disproportionately exposed to their own company, managers may seek less risk than shareholders would deem appropriate.

Research, June 12, 2001.

72. Michael C. Jensen and William H. Meckling, "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics*, Vol. 3, No. 4, October 1976, 305-360. For the empirical validity of agency theory, see Kathleen M. Eisenhardt, "Agency Theory: An Assessment and Review," *Academy of Management Review*, Vol. 14, No. 1, January 1989, 57-74.

73. Richard A. Lambert and David F. Larcker, "Executive Compensation, Corporate Decision Making, and Shareholder Wealth: A Review of the Evidence," in Fred K. Foulkes, ed., *Executive Compensation: A Strategic Guide for the 1990s* (Boston, MA: Harvard Business School Press, 1991), 98-125.

Figure 29 **Most Commonly Used Long-Term Incentive Metrics**

	2013	2012
Total shareholder return	50%	45%
Profit (EPS, etc.)	49	50
Capital efficiency	39	36
Revenue	18	18
Cash flow	11	12
Other	16	15

Source: Frederic W. Cook & Co., "The 2013 Top 250 Report: Long-Term Incentive Grant Practices for Executives," September 2013.

The final conflict is with time horizon. To the degree that compensation plans have a shorter time horizon than the period shareholders use to assess the merit of an investment, there can be a mismatch. So managers may dwell on short-term boosts in earnings. Indeed, research shows that a large majority of managers are willing to forgo value-creating investments to deliver near-term earnings.⁷⁴

So what kind of executive compensation scheme provides the proper incentives for management to build value? You can start with what you don't want, which is incentive compensation that is completely independent of value creation. In this case, an executive would have limited incentive to build value because he or she would not benefit directly from that increase. At the other extreme would be the case where the CEO owns 100 percent of the company, blunting any concerns about agency theory.

As a broad characterization, compensation for CEOs in the past 30 years has moved from one based heavily on salary and bonus to one much more sensitive to stock price performance.⁷⁵ But the shift to stock-based compensation, seemingly a step in reducing agency costs, has brought with it a host of other challenges. Most troubling is that many executives are now focused on boosting the stock price by whatever means they can rather than focusing on creating value, which ultimately gets reflected in the market price.

There is a spirited debate about whether equity-based compensation is doing a proper job of encouraging management to focus on long-term performance.⁷⁶ In practice, there are two challenges to equity-based compensation that make it less effective than it might be. The first stems from the

fact that a company's stock price is at best a rough measure of corporate performance. Factors outside of management's control, including changes in general economic conditions, interest rates, inflation expectations, and the equity risk premium, can play a larger role in stock price changes than corporate results.⁷⁷

The second challenge is that while the stock market does provide managers with information about investment opportunities and the past decisions of managers, that information can be noisy in the short run.⁷⁸ That few managers understand market expectations effectively compounds this challenge.⁷⁹

Before discussing how to address these challenges, let's take a look at the metrics that companies most commonly use in their incentive compensation programs. Frederic W. Cook & Co., a consulting firm dedicated to executive compensation, does an annual survey of the largest 250 companies in the S&P 500. Figure 29 summarizes the results of the two most recent surveys. In 2013, and for the first time in the history of the survey, TSR became the most common incentive metric, followed by measures of profit and capital efficiency.⁸⁰

On the surface it may appear encouraging that TSR is on top of the list. But there are a couple of reasons for caution. Using TSR as an incentive metric doesn't really matter if a company doesn't know how to create value. Having the right goal isn't helpful if you don't know how to achieve that goal. And since TSR is measured in absolute terms (as opposed to relative to some market or industry benchmark), external factors may play a bigger role in compensation than company-specific factors. So unless TSR is relative to an appropriate benchmark, it fails to reflect the efforts of the firm.

The Credit Suisse HOLT team built a scorecard to assess the quality of management incentives. Unlike the Frederic W. Cook & Co. survey, the HOLT approach awards points for positive incentive measures such as operational drivers, return on capital, relative TSR, and long-term plans, and it deducts points for a large option expense and the absence of disclosure, financial targets, and a long-term plan. The sample includes the full S&P 500.⁸¹

Figure 30 shows the average management incentive score by sector using the proxy statements filed in 2013. The sectors with the most positive scores include materials and industrials, while financials and information technology fare relatively poorly.

So what elements should you look for in an effective

74. John R. Graham, Campbell R. Harvey, and Shiva Rajgopal, "Value Destruction and Financial Reporting Decisions," *Financial Analysts Journal*, Vol. 62, No. 6, November/December 2006, 27-39.

75. Brian J. Hall and Jeffrey B. Liebman, "Are CEOs Really Paid Like Bureaucrats?" *Quarterly Journal of Economics*, Vol. 113, No. 3, August 1998, 653-691.

76. For the negative case see Lucian A. Bebchuk and Jesse M. Fried, "Paying for Long-Term Performance," *University of Pennsylvania Law Review*, Vol. 158, No. 7, June 2010, 1915-1960. For the affirmative case see Steven N. Kaplan, "Weak Solutions to an Illusory Problem," *University of Pennsylvania Law Review*, Vol. 159, 2010, 43-56 and Steven N. Kaplan and Joshua Rauh, "Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes?" *Review of Financial Studies*, Vol. 23, No. 3, March 2010, 1004-1050.

77. Florian Hoffmann and Sebastian Pfeil, "Reward for Luck in a Dynamic Agency Model," *Review of Financial Studies*, Vol. 23, No. 9, September 2010, 3329-3345.

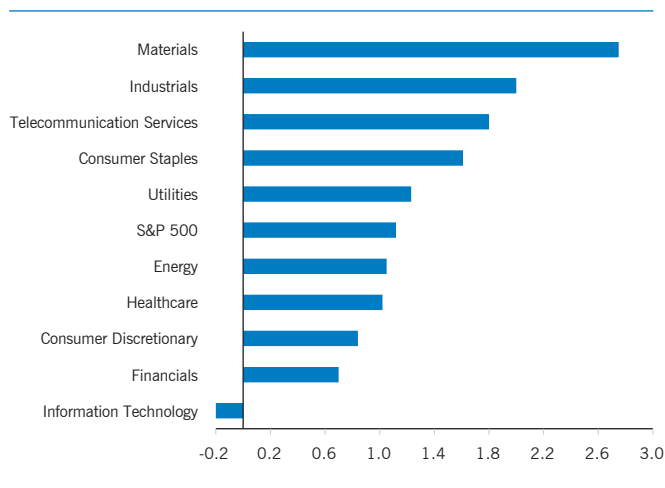
78. James Dow and Gary Gorton, "Stock Market Efficiency and Economic Efficiency: Is There a Connection?" *Journal of Finance*, Vol. 52, No. 3, July 1997, 1087-1129.

79. Rappaport, *Creating Shareholder Value*, 148-168.

80. Frederic W. Cook & Co., "The 2013 Top 250 Report: Long-Term Incentive Grant Practices for Executives," September 2013, see: www.fwcook.com/alert_letters/The_2013_Top_250_Report_Long-Term_Incentive_Grant_Practices_for_Executives.pdf.

81. Tom Hillman and David Matsumura, "The Board Score: Linking Corporate Performance and Valuation to Management Incentives," *Credit Suisse HOLT*, July 2014.

Figure 30 **Average Management Incentive Scores by Sector, 2013**



Source: Credit Suisse HOLT.

incentive program? The key is to look for a company that seeks to build long-term value per share with the belief that the stock market will ultimately recognize that value. If the market fails to reflect that value, management can take action by sharpening communication or buying back stock.

There are three elements to an incentive compensation program that supports judicious capital allocation.⁸² The first is to compensate senior executives with stock options or restricted stock units that are indexed to either the market overall or an appropriate peer group. Assuming that exogenous factors have similar effects on peers and the target firm, indexing takes a large step toward isolating management skill and reducing the role of luck. Only individuals who can influence the stock price should be paid in equity, which limits the number of eligible executives.

Second, executives who run operating units, as well as front line employees, should be paid for exceeding long-term goals for the operating value drivers. These include sales growth, operating profit margins, and some measure of return on invested capital. Broader value drivers can be further broken down into leading indicators of value, performance measures that roll up to the value drivers.

For example, if a retailer has a goal of opening five new stores in a year, a leading indicator of value might include finding a store location and signing a lease. Here again, the incentives are awarded based on what the individual employees can control. Warren Buffett has said that a good plan “should

be (1) tailored to the economics of the specific operating business; (2) simple in character so that the degree to which they are being realized can be easily measured; and (3) directly related to the daily activities of the plan participants.”⁸³

Finally, recognize that the debate about the short term versus the long term is an empty one. Instead, acknowledge that the goal is to maximize long-term value per share. This applies to activities that management expects to pay off quickly or in the distant future.⁸⁴ Amazon.com is a company that appears comfortable taking a long-term view. The company’s CEO, Jeff Bezos, argues that there is less competition for long-term initiatives. He says, “If everything you do needs to work on a three-year time horizon, then you’re competing against a lot of people. But if you’re willing to invest on a seven-year time horizon, you’re now competing against a fraction of those people, because very few companies are willing to do that. Just by lengthening the time horizon, you can engage in endeavors that you could never otherwise pursue. At Amazon we like things to work in five to seven years.”⁸⁵

Incentives are an important determinant of behavior. Examine whether a management team is committed to building long-term value by examining their words, incentives, and actions. Agency costs are alive and well, and in many cases companies try to boost their stock price using artificial or superficial methods versus boosting underlying long-term value through the proper conception and execution of a strategic plan.

Stay Committed to the Five Principles of Capital Allocation

In their book, *The Value Imperative*, James McTaggart, Peter Kontes, and Michael Mankins describe four principles of resource allocation that apply readily to our discussion about capital allocation.⁸⁶ We have added one to expand the list to five and believe that these principles are a sound benchmark that both companies and investors can use to evaluate management’s mindset regarding their capital allocation practices.⁸⁷

1. *Zero-based capital allocation.* Companies generally think about capital allocation on an incremental basis. For example, a study of more than 1,600 U.S. companies by McKinsey found that there was a 0.92 correlation between how much capital a business unit received in one year and the next. For fully a third of the companies, that correlation was 0.99.⁸⁸ In other words, inertia appears to play a very large role in capital allocation.

The proper approach is “zero-based,” which simply asks,

82. This discussion borrows heavily from Alfred Rappaport, “Ten Ways to Create Shareholder Value,” *Harvard Business Review*, September 2006, 66-77.

83. Warren E. Buffett, “Letter to Shareholders,” *Berkshire Hathaway Annual Report*, 1996. See <http://www.berkshirehathaway.com/letters/1996.html>.

84. Alfred Rappaport, *Saving Capitalism from Short-Termism: How to Build Long-Term Value and Take Back Our Financial Future* (New York: McGraw Hill, 2011), 140-142.

85. Steven Levy, “Jeff Bezos Owns the Web in More Ways Than You Think,” *Wired Magazine*, November 13, 2011.

86. McTaggart, Kontes, and Mankins, 239-255.

87. Stephen Hall, Dan Lovallo, and Reiner Musters, “How to Put Your Money Where Your Strategy Is,” *McKinsey Quarterly*, March 2012.

88. McTaggart, Kontes, and Mankins, 243.

“What is the right amount of capital (and the right number of people) to have in this business in order to support the strategy that will create the most wealth?”⁸⁹ There is no reference to how much the company has already invested in the business, only how much should be invested.

Research by McKinsey suggests that those companies that showed a zero-based allocation mindset, and hence were the most proactive in reallocating resources, delivered higher TSRs than the companies that took more of an incremental approach.⁹⁰ Further, academic research shows that those companies that are good at internal capital allocation tend to be good at external allocation as well.⁹¹

2. *Fund strategies, not projects.* The idea here is that capital allocation is not about assessing and approving projects, but rather assessing and approving strategies and identifying projects that support the strategies. Practitioners and academics sometimes fail to make this vital distinction.⁹² There can be value-creating projects within a failed strategy, and value-destroying projects within a solid strategy.

Another reason to be cautious about a project approach is that it is easy to game the system. It is common for companies to have thresholds for project approval. For instance, a plant manager can approve small projects, business unit heads larger ones, the CEO bigger ones still, and the board of directors the largest investments. But at each level, analysts can manipulate the numbers to look good. One of the aspects of the institutional imperative, as Buffett describes it, is that “Any business craving of the leader, however foolish, will be quickly supported by detailed rate-of-return and strategic studies prepared by his troops.”⁹³

The key to applying this principle is to recognize that a business strategy is a bundle of projects and that the value of the bundle is what matters. The CEO and board must evaluate alternative strategies and consider the financial prospects of each.

3. *No capital rationing.* The attitude at many companies, which the results of surveys support, is that capital is “scarce but free.” The sense is that the business generates a limited amount of capital, which makes it “scarce,” but since it comes from within, it is “free.”

The primary source of capital for companies in the U.S. is the cash they generate. The patterns of spending on the various uses of capital reflect the attitude of managements. Capital expenditures, R&D, and dividends receive priority, and M&A and share buybacks are considered when economic results are good. Internal capital allocation tends

to be very stable from year to year, and inertia plays a large role. Business units may jockey for more capital but, as we have seen, the changes in year-to-year allocation tend to be modest. These observations are consistent with the “scarce but free” mindset.

A better mindset is that capital be viewed as “plentiful but expensive.” There are two sources of capital that companies can tap beyond the cash generated internally. The first is redeploying capital from businesses that do not earn sufficient returns. Management can execute this inside the company or sell the underperforming businesses and redeploy the proceeds. The second is the capital markets. When executives have value-creating strategies that need capital, the markets are there to fund them in all but the most challenging environments.

The widespread notion that internally generated capital is free is also problematic. Thoughtful capital allocators recognize that all capital has an opportunity cost, whether the source is internal or external. As a consequence, managers should explicitly account for the cost of capital in all capital allocation decisions. All too often, companies choose actions that add to earnings or earnings per share without properly reckoning for value.

The limiting resource for many companies is not access to capital but rather access to talent. Finding executives with the proper skills for success, including an aptitude for allocating capital, is not easy. This is a valid challenge but it relates to recruiting and development, not access to capital.

4. *Zero tolerance for bad growth.* Companies that wish to grow will inevitably make investments that do not pay off. The failure rate of new businesses and new products is high. Seeing an investment flop is not a sign of failure or bad management; indeed it is essential to the process of creating value. Bad management is remaining committed to a strategy that has no prospects to create value, hence draining human and financial resources.

Executives who follow this principle invest in innovation but are ruthless in cutting losses when they see that a strategy is unlikely to pay off. Many companies have the opportunity to create substantial value by exiting businesses where they have no advantage. This reduces cross-subsidization within the organization and allows for the best managers to work for the businesses that create the most value.

5. Know the value of assets, and be ready to take action to create value. Intelligent capital allocation is similar to managing a portfolio of stocks in that it is very useful to have a sense

89. Stephen Hall, Dan Lovallo, and Reiner Musters, “How to Put Your Money Where Your Strategy Is,” *McKinsey Quarterly*, March 2012.

90. For an academic discussion of the functioning of internal capital markets, see Jeremy C. Stein, “Internal Capital Markets and the Competition for Corporate Resources,” *Journal of Finance*, Vol. 52, No. 1, March 1997, 111-133.

91. Meng Ye, “Efficiency of Internal Capital Allocation and the Success of Acquisitions,” *University of New Orleans Theses and Dissertations, Paper 1106*, December 20, 2009.

92. Clayton M. Christensen, Stephen P. Kaufman, and Willy C. Shih, “Innovation Killers: How Financial Tools Destroy Your Capacity to Do New Things,” *Harvard Business Review*, January 2008, 98-105.

93. Buffett, 1989.

of the difference, if any, between the value and price of each asset. This includes the value of the company—and of each of its businesses—and its stock price.

With a ready sense of value and price, management should be prepared to take action to create value. Sometimes that means acquiring, other times it means divesting, and there are often no clear gaps between value and price. As we have seen, managers tend to prefer to buy rather than to sell, even though the empirical record shows quite clearly that sellers fare better than buyers, on average. But as we mentioned in the introduction, the answer to most capital allocation questions is, “It depends.” Managers who adhere to this final principle understand when it makes sense to act on behalf of long-term shareholders.

Conclusion

Capital allocation is one of management’s prime responsibilities. Yet few senior executives are versed or trained in methods to allocate capital most effectively. Further, incentive programs often encourage decisions that are not in the best interests of long-term shareholders. We believe that the goal of capital allocation is to build long-term value per share.

In this article, we examine the sources and uses of capital. We find that U.S. corporations fund most of their investments internally and that M&A and capital expenditures are the largest uses of capital for operations. We then examine seven capital allocation alternatives, noting what the actual spending has been, how to think about that alternative analytically, and what the academic research says about their past contributions to value.

Finally, we provide a framework that can be used to assess the capital allocation practices of a management team. This framework asks management to examine past behavior, provide realistic projections of return on invested capital, and evaluate the effects of their incentive compensation program—all the while keeping in mind the five principles of thoughtful capital allocation.

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