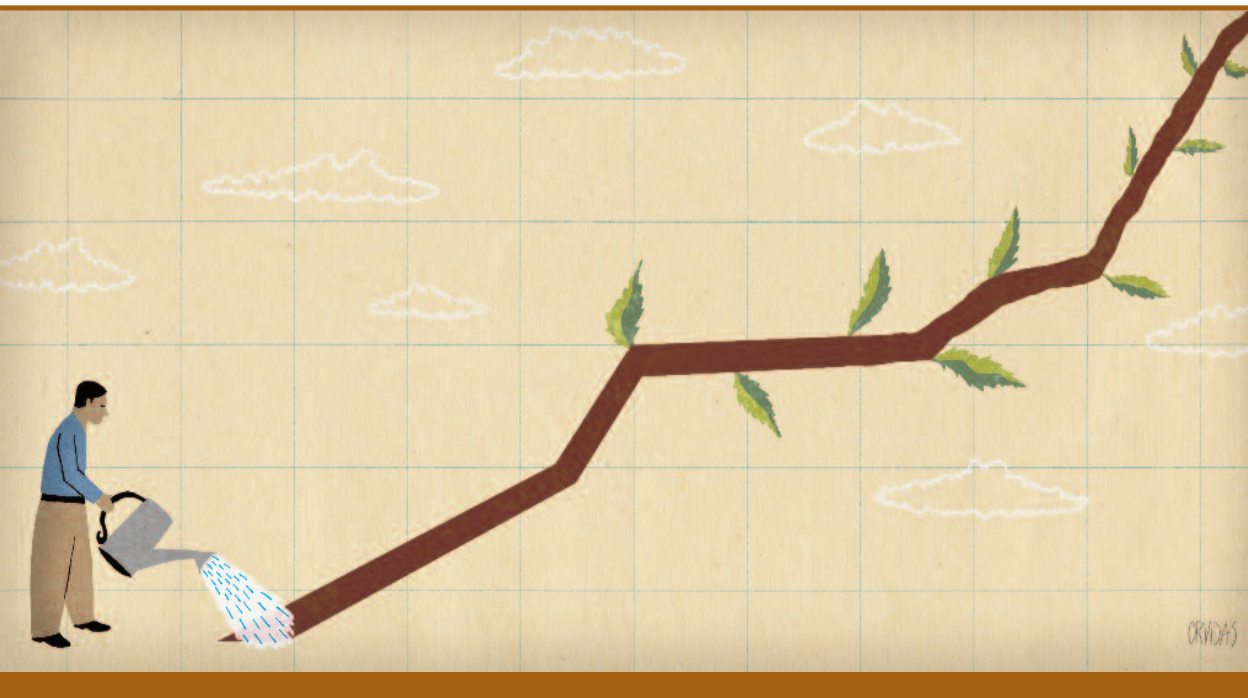


OCTOBER 2009



# Creating Value Through Best-In-Class Capital Allocation

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## 1. The lost decade

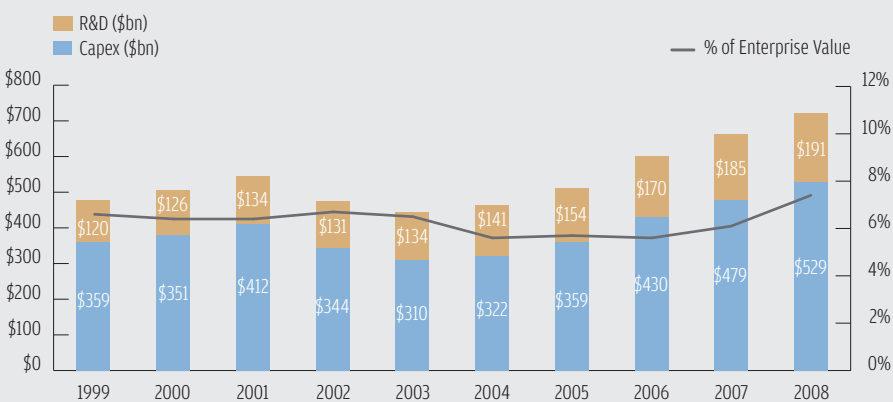
As rays of sunshine and the proverbial green shoots appear following an unprecedented financial crisis that started two years ago, decision makers are moving their focus from liquidity and balance sheet strength to capital allocation and value creation. When capital is scarce and expensive, an efficient capital allocation process is paramount. Inefficient capital allocation pressures the balance sheet and ultimately destroys shareholder value. In this report, we provide a comprehensive framework to examine shareholder value creation via capital allocation and discuss important capital allocation lessons that have reemerged over the last few years.

Why should we care about capital allocation?<sup>1</sup>

- Since 1999, S&P 500 firms spent more than \$3.9 trillion on capital expenditures (capex) and \$1.4 trillion on research and development (R&D).
- Even in 2008, S&P 500 firms spent more than \$700 billion on capex and R&D.
- While the average S&P 500 firm spent more than \$1.4 billion on capex and R&D in 2008, 10 firms spent more than \$12.0 billion.
- Over the last decade, energy and technology firms spent an average of 10.8% and 8.5% of their firm value annually on capex and R&D, respectively.
- U.S. firms were either the acquirer and/or the target in \$13.6 trillion of M&A deals over the last decade.
- The return on capital (ROIC) of S&P 500 firms hovered between 9% and 13%.<sup>2</sup>
- The bottom quartile realized an average ROIC of 6.7% over the last decade, while the top quartile earned an average ROIC of 16.7%.
- The weighted average cost of capital for a typical S&P 500 firm was 8.2% over the same period.

Figure 1

### Massive capital allocation over the last ten years



Source: FactSet, J.P. Morgan

Note: Based on S&P 500 companies, excluding financials

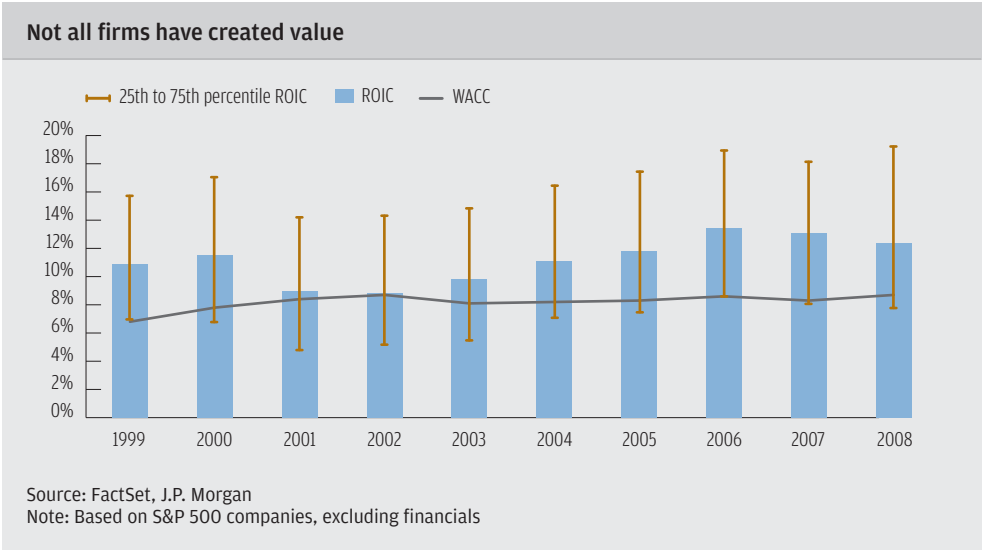
<sup>1</sup> Data reported in this list are for S&P 500 firms since 1999, excluding financial firms, and are not adjusted for survivorship bias. This means that some poorly performing S&P 500 firms are not included in the data.

<sup>2</sup> ROIC is defined as net operating profit after tax divided by invested capital.

Some of these results are comforting, as they demonstrate that even during a historic financial crisis and recession, S&P 500 firms had the financial flexibility to continue to invest massively in innovation, growth and expansion. The subpar track record on returns on invested capital suggests, however, that capital allocation deserves a closer look. These results are even starker considering that many of the poorest performing firms have been excluded from the S&P 500 over that period, and hence the data we report are upward biased.

ROIC is a *book* measure, yet investor *market* returns have also been disappointing this last decade. From 1999 to 2008, S&P 500 investors earned a negative total return of -13%, or an annual return of -1.4%. Interestingly, the firms with the top quartile ROICs also generated the highest stock returns, whereas firms with the bottom quartile ROICs generated the lowest stock returns during this 10-year period.

Figure 2



Most firms have developed sophisticated capital allocation processes that involve a combination of quantitative methods, forward estimates and qualitative judgment. We review

**EXECUTIVE TAKEAWAY**

S&P 500 firms have allocated about \$5.3 trillion to capital expenditures and R&D over the last 10 years. In an environment where capital is scarce and historical returns have not been stellar, firms are increasingly focused on fine-tuning or redefining their capital allocation processes. In this report, we debunk some of the capital allocation myths, describe various components of an efficient allocation process and emphasize important capital allocation lessons we have (re)learned over the last few years.

the issues that define best-in-class capital allocation and conclude by describing the process that should channel expensive capital to investments that enhance firm value. Although our examples are focused on internal capital allocation, they also apply to acquisitions. We hope that our discussion will inspire management teams to reevaluate their capital allocation processes to ensure that they are best in class.

## 2. Measuring financial performance

As investors have become more cognizant of the scarcity of liquidity and the importance of fortress balance sheets, more firms are revisiting their capital allocation framework. This trend is more pronounced with firms that comprise business segments with varying risk profiles. We begin the discussion by focusing on financial performance, which is the core building block of any capital allocation process. The recent crisis, however, has demonstrated the importance of other, often more qualitative, factors that we discuss later in the report.

What is the best way to measure financial performance? Some firms tend to rely on accounting measures (book values) such as return on assets (ROA), return on equity (ROE), EPS growth and profit margins. Other firms choose market-based measures, such as long-term stock performance. While each measure has its own pros and cons (Figure 3), we believe that hybrid measures that combine both market and book information are more closely tied to value creation.

Figure 3

Return metrics comparison								
	Not affected by leverage	Long-term focus	Can break down by division	Can be compared to a hurdle rate	Not dependent on measurement of capital	Does not require projections	Ease of use	Ranking tied to value creation
Accounting/book values	ROE		✓✓	✓		✓	✓	
	ROIC	✓	✓✓	✓		✓	✓	
	ROA		✓✓			✓	✓	
	EPS growth		✓✓		✓	✓	✓✓	
	EBITDA margins	✓	✓✓		✓	✓	✓✓	
	Top-line growth	✓	✓✓		✓	✓	✓✓	
	Market share	✓	✓✓		✓	✓	✓✓	
Market values	IRR	✓	✓	✓			✓	
	EVA®	✓	✓	✓		✓		✓
	MVA	✓	✓	✓				✓✓
	Total stock return		✓	✓	✓	✓	✓✓	

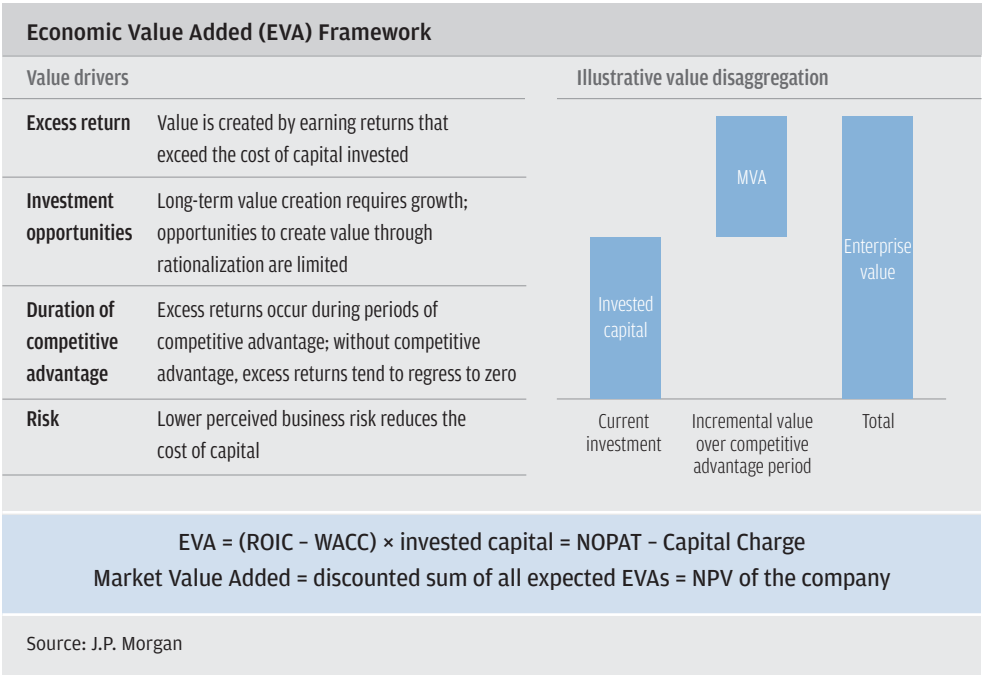
Source: J.P. Morgan  
 Note: WACC can be affected by leverage and hence so can ROIC, EVA® and MVA; EVA® is a registered trademark of Stern Stewart & Co.

Accounting measures provide firms with a straightforward method for calculating returns and can be easily applied to any division of a firm. Yet these measures fail to account for the risk associated with the investment. In other words, an investment might increase these metrics, but still destroy value when accounting for its risk. In addition, assessing financial performance based on these measures may encourage a myopic view and disincentivize managers from making long-term, value enhancing investments. The shortcomings of accounting measures drove many public firms to rely on long-term stock returns as a performance measure. Although stock returns are tied to shareholder value, they are almost impossible to track by segment,<sup>3</sup> depend on the company's capital structure, and are not adjusted for risk. Moreover, stock returns are affected by macro factors beyond management's control.

<sup>3</sup> One exception is tracking stocks, which follow the performance of a specific business line.

**Value-added framework:** One way to adjust the return on invested capital for the risk of the investment is by explicitly charging for the corresponding cost of capital. The difference, often called the excess return, is then multiplied by the capital invested to calculate the economic value added (EVA®) in a given year. Discounting the sum of all expected EVAs results in the market value added (MVA). The MVA is closely tied to value creation. In fact, the sum of invested capital and MVA should be equal to the enterprise value calculated via a traditional discounted cash flow (DCF) model.

Figure 4



The current crisis accentuated both the benefits and limitations of the value-added framework. On the one hand, the framework highlights the importance of maximizing value creation as opposed to growth or returns. On the other hand, implementing the framework presents challenges, such as the use of book values vs. market values, the focus on short term vs. long term, and the use of base-case vs. best-case projections (in MVA). In the next sections, we discuss the key capital allocation lessons from the last few years and explain how the value-added framework could be expanded to incorporate these lessons.

EXECUTIVE TAKEAWAY

There are benefits and considerations to every performance measure. While book value measures are simple and easy to apply, they can be skewed by timing and often do not account for an investment’s associated risk. Decision makers should focus on hybrid measures, like EVA, that combine book and market inputs and properly benchmark the expected return against the corresponding risk.

### 3. Lessons for best-in-class capital allocation

As we slowly but surely see signs of brighter days and begin to focus on recovery instead of damage control, it is prudent to take measure of what has occurred and what we have learned. In Figure 5 and this section, we describe 10 lessons learned or relearned over the course of this historic crisis. Embracing these lessons should help firms develop a best-in-class capital allocation process.

Figure 5

Lessons for best-in-class capital allocation	
1	Growth can destroy shareholder value
2	The limits of diversification
3	Base-case cash flows are not the expected cash flows
4	Incorporate all forms of capital
5	The source of funds is not the primary consideration
6	The battle between short-term and long-term cost of capital
7	Creating sustainable margins through reinvestment
8	A lower ROIC does not necessarily mean less shareholder value
9	Share repurchases as an investment strategy? Not apples to apples
10	How to deal with failed investments?

#### 3.1 Growth can destroy shareholder value

Earnings or revenue growth is commonly viewed as one of the main drivers of firm value creation. While focusing on organic growth and M&A is vital for sustaining high profit margins, the recent crisis has highlighted that not all types of earnings growth are created equal. In fact, during 2007, almost 20% of S&P 500 firms had positive revenue growth but generated a return on invested capital lower than their cost of capital. Allocating more capital towards a riskier business line without properly adjusting the returns for the incremental risk, or acquiring a firm with high revenues but little synergy value, may enhance EPS or revenue growth but destroy shareholder value.

*Firms should allocate capital based on the economic value of each investment opportunity, accounting for its risk-adjusted returns and synergy value. Growth alone does not guarantee value creation.*

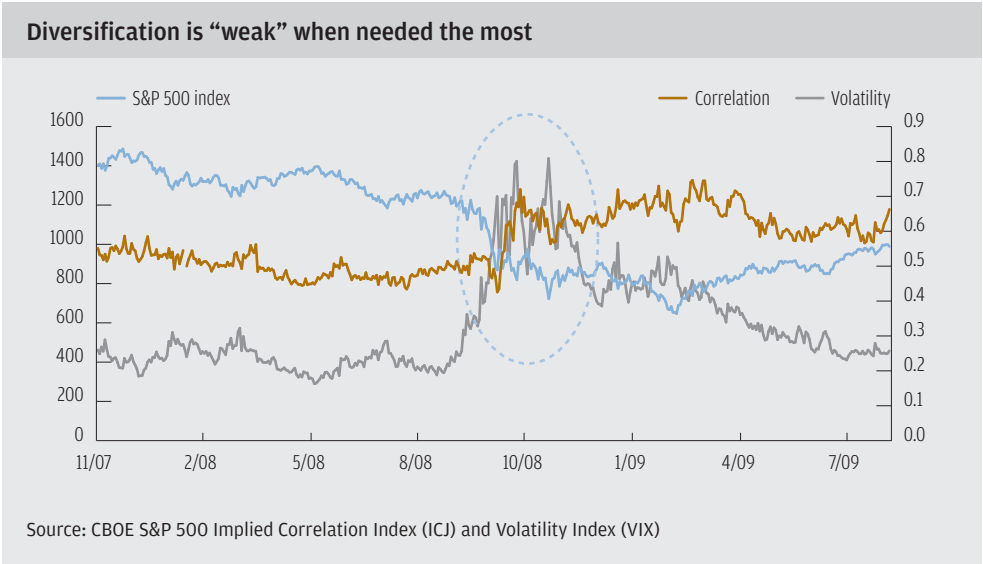
#### 3.2 The limits of diversification

Geographical and product diversification reduce cash flow volatility and may create value by mitigating risk, enhancing access to capital and allowing firms to keep less cash on their balance sheets. The recent crisis, however, illustrates the limits of diversification. While many firms tend to rely on diversification as a form of insurance against unexpected downturns in one of their business lines, in times of a global economic crisis the correlation between different sectors seems to converge toward one, and diversification provides less protection

than expected. Figure 6 shows that the average correlation between S&P 500 firms increased from 0.45 to 0.75 at the peak of the crisis, when the S&P 500 declined from approximately 1,200 points to 800 points and volatility spiked from 20% to 80%.<sup>4</sup>

*When allocating capital and managing liquidity, firms should take into account that diversification is limited during crises.*

Figure 6



3.3 Base-case cash flows are not the expected cash flows

If it was not clear prior to the worst financial crisis since the Great Depression, it certainly should be now: forecasting financial performance is extremely challenging. For example, the industry-accepted and frequently used long-term growth earnings forecasts rarely hit their marks. Since 1993, realized S&P 500 earnings per share have been, on average, just 83% of what was forecasted based on long-term growth estimates from 5 years prior. In 2008, realized S&P 500 earnings per share were a staggering 17% of what was forecasted in 2003. These numbers highlight that there is at times a non-trivial deviation between the base-case cash flows that firms *tend to use* when evaluating projects and expected cash flows, which firms *should use* when employing discounted cash flow analyses. Expected cash flows should include the possibility of severe downside scenarios, whereas base-case scenarios often do not. Hence base-case scenarios tend to be upward biased. The contrast between base case and expected case also explains why discounted cash flow analyses typically yield valuations that are meaningfully greater than market valuations.

*Firms should be conservative with base-case cash flow projections and incorporate the possibility of downside scenarios into their projections. Because it is challenging to adjust cash flows for downside scenarios, many firms choose instead to increase the hurdle rate when they evaluate new projects.*

<sup>4</sup> In fact, the increased correlation partially explains the higher volatility in the S&P 500 index.

### 3.4 Incorporate all forms of capital

For a variety of reasons, firms do not always incorporate all sources of capital into their capital allocation processes. The most common omissions are related to working capital, off-balance sheet capital, downside risk capital and mark-to-market capital following acquisitions.

**Working capital:** In many industries, seasonal patterns lead working capital to peak for a few months and revert to a low level for the rest of the year. Because working capital peaks are temporary, divisional managers sometimes argue that they should not be factored into capital allocation decisions. We believe that working capital should be appropriately reflected in capital allocation decisions because they are frequently quite sizable. Even if we do not include cash, working capital constitutes on average 12% or more of the capital for over a quarter of the S&P 500 firms. In addition, the unpredictability of working capital needs, together with the credit risk associated with accounts receivable and the shelf-life and liquidity of inventories, have an impact on the firm's risk profile. Working capital has a significant opportunity cost, in that debt capacity or cash that is set aside to fund working capital spikes cannot be used for alternative investment opportunities.

**Off-balance sheet capital:** Many capital measures are limited to on-balance sheet capital items. As a result, firms often tend to exclude off-balance sheet assets and liabilities from return calculations, such as operating leases and pensions. Does a firm have less capital (and is it therefore performing better) if it sells an asset and leases it back? We believe not, and recommend that allocation of capital and evaluation of business segments incorporate off-balance sheet capital as well.

**Downside risk capital:** When firms allocate capital to new projects and new business lines, they should consider all aspects of the new project. Often, however, decision makers do not incorporate the potential effect of a new line on liquidity and capital in downside scenarios. As we witnessed over the last two years, some projects or business lines offer attractive returns over many years, only to require massive amounts of capital in crises. This capital need can potentially bring down a firm or pressure it to raise capital at the least favorable time. These types of projects should earn returns not just on capital allocated to the business, but also on capital potentially needed in downside scenarios.

**Mark-to-market capital following acquisitions:** Decision makers often use ROIC to compare the performance of segments that have been part of the firm for decades to recently acquired divisions. The invested capital of the historic segments will reflect (low) historic book values and thus their ROICs will often be high. On the other hand, for recently acquired divisions, the invested capital will have been marked to market to reflect the purchase price. In most cases this approach leads to a low ROIC for recently acquired assets, incorrectly suggesting that recently acquired divisions are underperforming. In these instances, firms must seek ways to establish an apples-to-apples comparison by using other performance metrics or by adjusting their capital measures.

*It is important to not only incorporate the most obvious forms of capital, but also less obvious or less direct forms of capital that are seasonal, off-balance sheet, or only occur occasionally.*

### 3.5 The source of funds is not the primary consideration when assessing the value of new investments

As liquidity was of paramount importance over the course of the credit crisis, firms have built excess cash balances to historic highs by reducing capital expenditures, buybacks and dividends, and by raising capital. At the end of 2008, cash accounted for approximately 14% of enterprise value, compared to just 8% in 2006. Now, with concern over potential liquidity crunches slowly waning and an improved tone in the capital markets, firms will once again be in a position of needing to assess appropriate uses for available funds. The question is: should the presence of excess cash earning particularly low returns impact the capital allocation decision? The answer is, most emphatically, no. When strategic decision makers evaluate new investment opportunities, the return on invested capital should always be benchmarked against the risk associated with that investment, not the returns currently generated on excess cash balances. The decision to allocate capital to a specific investment should be independent of a firm's excess cash position.

*Firms should be conscious not to make the mistake of allocating capital based on anything but the expected returns relative to the investment's associated risk.*

### 3.6 The battle between short-term and long-term cost of capital

Whether to use a short- or long-term cost of capital when evaluating projects or running valuation models is an age-old, and not soon dying, question with which decision makers struggle. There are solid arguments on both sides of this debate.

One could argue that using a hurdle rate based on the cost of capital computed in a stressed market environment is imprudent. On the downside of an economic cycle, when expectations for cash flows are low, the use of a high hurdle rate will have the effect of reducing allocation of capital to potential new projects. In addition, most capital investments are made for long periods, which would argue for the use of a long-term or average cost of capital over time.

On the other hand, should a firm need to access capital markets to make an investment today, the capital used to fund that transaction will clearly be raised at *today's* cost, not the historic average. The average interest rate at which the firm funded itself historically is of little consequence to the excess value this investment can create.

From a practical perspective, it may be judicious for firms with less financial flexibility to use the current cost of capital as a benchmark for new investments, as it is likely that they will have to pay the current capital cost at the time of investment. Financially flexible firms with excess liquidity and strong cash flow generation have the ability to invest independent of market conditions, and thus have greater flexibility in choosing their cost of capital method.

*Firms should be consistent throughout the cycle in how they use the cost of capital for allocation. Financially strong firms will tend to have more flexibility in their capital allocation benchmarking method.*

### 3.7 Creating sustainable margins through reinvestment

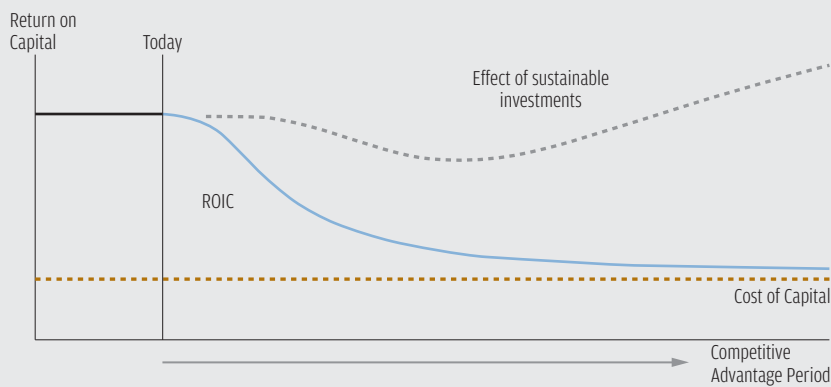
Sustainability is not a word frequently associated with the world of finance, but in many ways it is exactly what corporate decision makers are trying to achieve. Throughout recent history, the issue has not been in finding places to put capital to work – options are practically limitless – but rather in finding opportunities that continue to earn returns in excess of the capital cost. Combine this lack of opportunities with the fact that excess returns will naturally attract competitors in search of their own golden goose, and the tendency will be for the return on invested capital of an investment to decline over time. On top of this, many firms seem to allocate a greater proportion of their capital during peak economic periods, when returns are typically minimized.

While certainly not impossible, sustainability of excess returns is ultimately difficult for any firm to achieve. Of the S&P 500 firms with the highest return on invested capital in 1999 (top 125 firms), only 49% had the same elite status in 2004, and only one quarter of the original 125 were still in the top quartile 10 years later, in 2008.

*To create sustainable excess returns, firms should continually rethink the investments they pursue and allocate capital in an attempt to maintain a competitive advantage.*

Figure 7

#### Investing can sustain and extend the value creation period



Source: J.P. Morgan

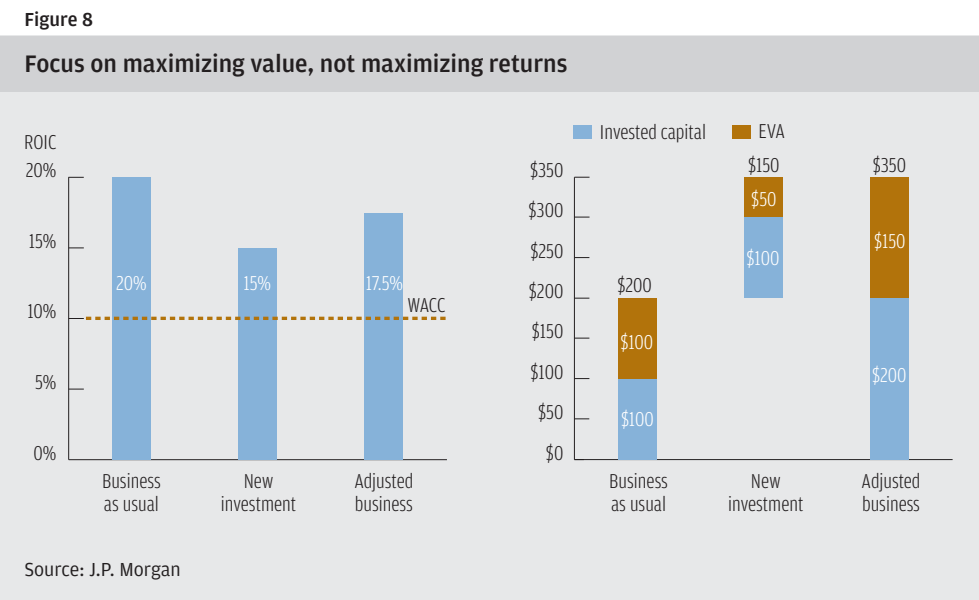
### 3.8 A lower ROIC does not necessarily mean less shareholder value

A common belief, which could be reinforced by our focus on ROIC in this report, is that new investments should be adopted only if they lead to a higher average ROIC. This approach can lead to two common capital allocation shortfalls.

**Over-allocation and migration towards riskier projects:** Firms should not focus on ROIC as a stand-alone metric, but rather on ROIC in excess of the project's risk-adjusted cost of capital. In many instances, firms evaluate existing mature cash-flow-generating businesses with the same ROIC hurdle as new and riskier ventures. As a result, they over-allocate capital to riskier ventures, leading to a riskier profile for the firm (with cost of capital and capital structure implications).

**Under-allocation, historic ROIC hurdle too high:** Some firms have very successful prior investments and hence a high average ROIC. For example, in Figure 8, the firm has an average ROIC of 20%. The firm is considering expanding its operations but will earn only 15% on new investments. As a result, the average ROIC of the firm would decline to 17.5%. However, with a cost of capital of 10%, this firm would still create value even if the average ROIC declines to 17.5%. Focus on average ROIC often leads firms to not invest in projects with positive risk-adjusted returns, which stalls future growth.

*Strategic decision makers should focus on returns relative to risk to create shareholder value, not on the project’s ROIC or the firm’s average ROIC.*



**3.9 Share repurchases as an investment strategy? Not apples to apples**

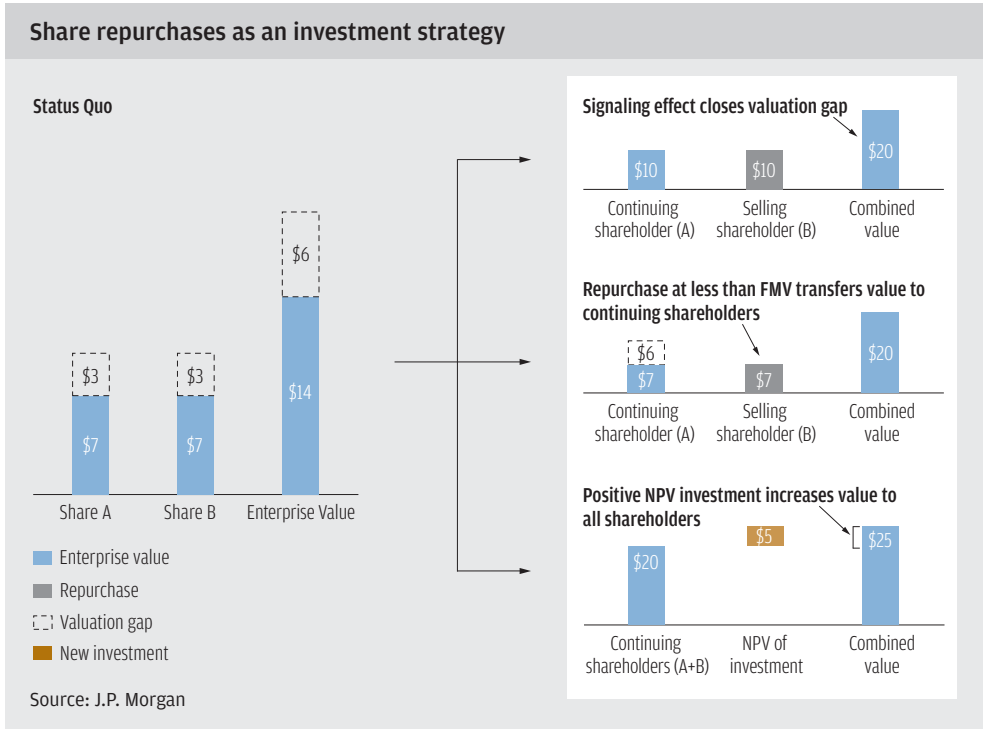
In our previous report, we showed that many firms repurchased their shares at the peak of the market (2005-2007), only to issue equity at significantly lower prices during the crisis.<sup>5</sup> In today’s environment, some executives are contemplating whether they should compare the return of new investment opportunities to that of buying back their own stock, if they believe that their stock is undervalued.

In Figure 9, we show that investments and buybacks are fundamentally different. For example, consider a firm with a fundamental economic value of \$20 that has two outstanding shares, each trading for \$7 (i.e., a total valuation gap of \$6). A share repurchase program may signal the real firm value to the market and close all or part of the valuation gap. In case there is still a valuation gap after the announcement, the share buyback transfers value from the shareholders who sell to the shareholders who stay. On the contrary, a positive NPV investment increases the overall value of the firm. The incremental value is equally shared among all shareholders.

*Share repurchases and new investments should not be compared solely on the basis of their internal rate of return. The comparison should take into account management’s long- and short-term objectives.*

<sup>5</sup> “Buy high, sell low: Evaluating pre-crisis buybacks with perfect hindsight,” J.P. Morgan, August 2009.

Figure 9



### 3.10 How to deal with failed investments?

Not all investments succeed. How should firms evaluate unsuccessful investments? Should more money be thrown after bad money? Should these assets be divested? And, if so, at what price should failed assets be divested?

It is critical to constantly reevaluate the portfolio of existing assets to decide which assets should be kept and why. Three considerations are paramount to create shareholder value through this reevaluation process:

**(1) Are the assets strategic?** That is, are these assets critical to the firm's core businesses as articulated most recently? Would the firm purchase assets in this line of business today if given the choice?

**(2) What is an appropriate value for the assets?** An investment may not earn its cost of capital because of poor execution, a technological change or a change in the cycle (for commodity firms). The value at which to divest the asset should be made independent of the initial capital invested (though this may be important for tax reasons). Estimate the value of the assets under current management (including the impact on the firm's overall capital structure and risk profile) and compare this value to what other management teams are willing to offer.

**(3) What do investors focus on?** In general, we recommend that management teams focus on long-term value creation and not be swayed by short-term investor demands. In some industries, however, investors are very focused on average return metrics. In these cases, a poorly performing (low ROIC) asset may drag down value, and the market value could be enhanced by disposing of the asset even if value received is less than fair value.

*To create long-term value, firms should concentrate on the strategic nature of particular assets and not be swayed by the value they might receive for them relative to their initial cost.*

## 4. A new capital allocation framework

Capital allocation is one of a firm’s key decisions. Yet, in retrospect, many firms have generated little shareholder value and quite a few have even destroyed value in the past decade. A best-in-class capital allocation framework should be augmented to capture the lessons from the recent crisis. Figure 10 proposes a capital allocation framework that not only reiterates the importance of long-term, risk-adjusted financial performance (see section 2), but also incorporates some of the lessons (re)learned from the current crisis. These include the sustainability of excess returns, synergies with the existing portfolio, risk profile under extreme scenarios and the political and regulatory environment.

Figure 10

A new capital allocation framework	
Financial performance	<p>Does the profit on invested capital exceed the project’s risk-adjusted cost of capital?</p> <ul style="list-style-type: none"><li>• Return on invested capital; short-term vs. long-term</li><li>• Other key indicators – revenue and earnings growth, margins, liquidity</li></ul>
Competitive advantage period	<p>Is the excess return sustainable?</p> <ul style="list-style-type: none"><li>• Barriers to entry</li><li>• Market share, key accounts, customer loyalty</li></ul>
Portfolio fit	<p>How does the investment benefit other businesses in the portfolio?</p> <ul style="list-style-type: none"><li>• Synergies (revenue, cost, knowledge and innovation, financial) vs. cannibalization</li><li>• Does it extend the competitive advantage period (CAP) of other businesses in the portfolio?</li></ul>
Risk profile	<p>What is the level of risk associated with the investment opportunity?</p> <ul style="list-style-type: none"><li>• Downside scenarios, stress tests</li><li>• How does the investment affect the risk of the other businesses in the portfolio?</li><li>• How do correlations change through the business cycle?</li></ul>
Environment	<p>How sensitive is the investment to changes in the political and regulatory environment?</p> <p>How can the investment affect the market perception of the business?</p> <ul style="list-style-type: none"><li>• Brand management, business strategy, reputation risks, ecological impact and investor preferences</li></ul>
Value	<p>What is the absolute amount of value created (NPV)?</p> <ul style="list-style-type: none"><li>• How does the size of the opportunity compare to opportunities throughout the portfolio?</li></ul>

Source: J.P. Morgan

### EXECUTIVE TAKEAWAY:

We recommend that boards of directors and senior decision makers use the lessons learned over the last two years to thoroughly reevaluate how they allocate capital. Our list of lessons learned and recommended capital allocation framework is a good place to start this discussion.

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We would like to thank Akhil Bansal, Ben Berinstein, Phil Bleser, Doug Braunstein, Cassio Calil, Kelly Coffey, Matt Gallino, Chris Harvey, Evan Juneke, Mike Matays, James Rothschild, and Mark Solomons for their invaluable comments and suggestions. We would like to thank Anthony Balbona, Allyn Bacher, Jennifer Chan, Iris Greenberger and the IB Marketing Group for their help with the editorial process and, in particular, we are very grateful to Sayre Craig for his invaluable contributions with the analytics in this report and his many insights.

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