Capital Allocation Outside the U.S.

Evidence, Analytical Methods, and Assessment Guidance

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Authors

Michael J. Mauboussin
michael.mauboussin@credit-suisse.com

Dan Callahan, CFA
daniel.callahan@credit-suisse.com

Darius Majd
darius.majd@credit-suisse.com

- Capital allocation is a senior management team's most fundamental responsibility. The problem is that many CEOs don't know how to allocate capital effectively. The objective of capital allocation is to build long-term value per share.
- In this report we examine the sources and uses of capital for Japan, Europe, Asia/Pacific excluding Japan, and Global Emerging Markets. This extends our analysis beyond the United States, which we discussed in a prior report.
- Countries or regions with a high return on invested capital (ROIC) can fund a substantial percentage of investment internally whereas those with low ROICs must rely more on external financing.
- Capital allocation is also determined by the largest sectors in a country's or a region's economy, the stage of economic development, cultural norms, and regulations.
- We provide a framework for assessing a company's capital allocation skills, which includes examining past behaviors, understanding incentives, and considering the five principles of capital allocation.

Table of Contents

Executive Summary

- We extend our analysis of capital allocation beyond the United States to other major world regions, including Japan, Europe, Asia/Pacific excluding Japan (APEJ), and Global Emerging Markets (GEM). For the most recent report, see Michael J. Mauboussin, Dan Callahan, and Darius Majd, "Capital Allocation: Evidence, Analytical Methods, and Assessment Guidance," *Credit Suisse Global Financial Strategies*, October 19, 2016.

- Capital allocation is the most fundamental responsibility of a senior management team of a public corporation. The problem is that many CEOs, while almost universally well intentioned, generally don't know how to allocate capital effectively. The proper goal of capital allocation is to build long-term value per share. The emphasis is on building value and letting the stock market reflect that value. Companies that dwell on boosting their short-term stock price frequently make decisions that are at odds with building value.

- Regions and countries vary in the source of funding for capital. In general, high return on investment is associated with an ability to internally fund a substantial percentage of investments. Countries that largely finance investments internally include the U.S., the U.K., and Germany. Countries that require a higher proportion of external financing include France, Japan, and China.

- Academic research shows that rapid asset growth is associated with poor total shareholder returns in most regions of the world. Further, companies that contract their assets often create substantial value per share. But these findings are more robust in developed markets than in developing markets. Making investments that earn a return in excess of the opportunity cost is the key to creating value.

- Ultimately, the answer to all capital allocation questions is, "It depends." Most actions are either foolish or wise based on the price and value. Similar to investors, companies tend to buy when times are good and retreat when times are challenging, failing to take advantage of gaps between price and value.

- Past spending patterns are often a good starting point for assessing future spending plans. Once you know how a company spends money, you can dig deeper into management's decision-making process. Further, it is useful to calculate return on invested capital and return on incremental invested capital. These metrics can provide a sense of the absolute and relative effectiveness of management's spending.

- Understanding incentives for management is crucial. Assess the degree to which management is focused on building value and addressing agency costs.

- The five principles of capital allocation include: zero-based capital allocation; fund strategies, not projects; no capital rationing; zero tolerance for bad growth; and know the value of assets and be prepared to take action.

Summary of Global Capital Allocation

- Mergers and acquisitions (M&A), capital expenditures, research and development (R&D), and net working capital are the uses of capital for internal investment. How companies invest internally varies substantially by region. (See Exhibit 1.) Here are some of the main observations based on spending in recent decades:
  - M&A is the largest use of capital in the U.S., Europe, APEJ, and GEM, and the third largest use in Japan. The rarity of M&A in Japan is of particular note.
  - Capital expenditures are the largest use of capital in Japan and the second largest use in the U.S., Europe, AJEJ, and GEM. The range in spending, measured as a percentage of sales, was five times as large for M&A as it was for capital expenditures.
  - R&D is the second largest use of capital in Japan, the third largest in the U.S. and Europe, and the fourth largest in APEJ and GEM. Developed markets spend substantially more on R&D than developing markets do.
  - Net working capital is the third largest use of capital in APEJ and GEM, and the smallest use in the U.S., Japan, and Europe. This disparity likely reflects the differences in the businesses in the respective economies.

- Divestitures play a significant role in all of the regions except for Japan, constituting roughly one-third the level of total M&A outside of Japan. They are also larger than dividends and share buybacks in all regions but Japan.

- Dividends substantially exceed share buybacks in all regions except the U.S., where they have been roughly equivalent on average. Buybacks are fairly limited in Europe, APEJ, and GEM and insignificant in Japan.

- Share buybacks have been meaningful in countries that embrace the Anglo-Saxon model and inconsequential in nearly all other regions. This pattern reflects cultural and regulatory constraints.

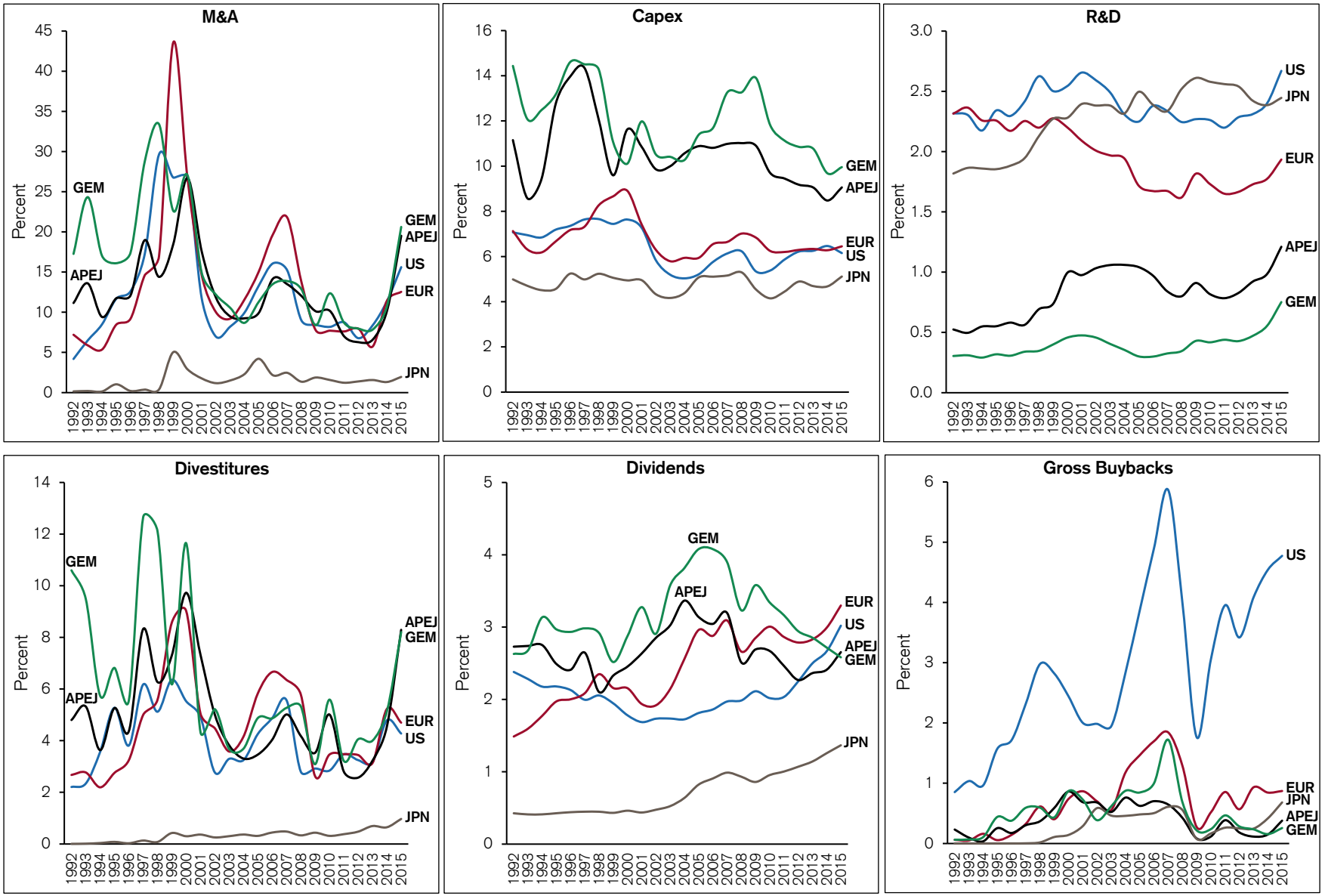
Exhibit 1: Capital Deployment – Historical Averages for U.S., Japan, Europe, APEJ, and GEM

	Uses of Capital (As a Percentage of Sales)							Economic Returns and Growth	
	Internal					Return of Cash			
	M&A	Capex	R&D Expense	Net Working Capital	Divestitures	Dividends	Gross Buybacks	CFROI*	Real Asset Growth Rate
U.S.	10.6%	7.1%	2.2%	0.8%	3.4%	2.2%	2.3%	9.1%	5.7%
Japan	1.3%	4.6%	2.2%	1.1%	0.3%	0.7%	0.2%	3.0%	3.8%
Europe	11.4%	7.0%	2.0%	1.3%	4.2%	2.2%	0.6%	6.9%	4.2%
APEJ	12.7%	10.6%	0.8%	2.6%	5.0%	2.7%	0.4%	6.4%	9.6%
GEM	15.8%	12.0%	0.4%	3.3%	6.3%	3.2%	0.5%	6.0%	7.5%

Source: Credit Suisse HOLT® and Thomson Reuters.
Note: For uses of capital, historical averages are based on the following years: U.S. (1980-2015), Japan (1985-2015), Europe (1985-2015), APEJ (1992-2015), GEM (1992-2015), For CFROI®* *and Real Asset Growth Rates, historical averages are based on the years 1996-2015 for all regions.*

* Cash Flow Return on Investment, or CFROI,® is a registered trademark in the United States and other countries (excluding the United Kingdom) of Credit Suisse Group AG or its affiliates.

Exhibit 2: Uses of Capital for U.S., Japan, Europe, APEJ, and GEM, 1992-2015 (As a Percentage of Sales)



Source: Credit Suisse HOLT and Thomson Reuters.

Introduction

Capital allocation is the most fundamental responsibility of a senior management team of a public corporation. Successful capital allocation means converting inputs, including money, things, ideas, and people, into something more valuable than they would be otherwise. The net present value (NPV) test is a simple, appropriate, and classic 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 reasons. The first is that companies must compete. A company that is allocating its resources wisely will ultimately prevail over a competitor that is allocating its resources foolishly. The second is that inputs have an opportunity cost, or 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.[1]

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 proper and comprehensive discussion of capital allocation requires a 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. He discusses the point of why it is beneficial for Berkshire Hathaway's corporate office to allocate the capital of the companies it controls. Buffett is worth quoting at length:[2]

> 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.")

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 ongoing shareholders. In some cases, for 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."[3]

Buffett also discusses what he calls the "institutional imperative," a force that is also pertinent.[4] 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?

William Thorndike's excellent book, *The Outsiders: Eight Unconventional CEOs and Their Radically Rational Blueprint for Success*, inspired our reports on capital allocation.[5] Thorndike shares the stories of eight CEOs who created tremendous value per share during their tenures. One theme that comes out clearly in the book, and is explicit in the subtitle, is that these CEOs appeared out of step with conventional wisdom as they were building value. The North Star of value guided their decisions and they had the independence of mind to make the best choices.

This report has three parts:

1. **Groundwork.** This part starts by showing the sources of capital by region. We then specify a framework for considering the economic virtue of each form of capital allocation based on academic research.

2. **Capital allocation by region.** This section documents capital allocation by region, providing historical context, CFROIs and rates in asset growth, and the trends in capital allocation.

3. **Assessing a company's capital allocation skills.** This part discusses methods to assess past capital allocation choices, how to evaluate incentives, and the five principles of capital allocation.

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

If the job of management is to deploy capital so as to add value, it makes sense to start with a discussion of where capital comes from and how management teams have spent it in the past. The sources of capital include the cash the business generates and access to the capital of claimholders, including debtors and shareholders. A company can also sell an asset, which is a one-time realization of the cash flow the asset is expected to generate over its life.

Businesses that grow rapidly generally require a sizeable amount of investment. For example, imagine a restaurant concept that is highly successful. To satiate demand that firm must build lots of restaurants and hence invest a substantial sum in expansion. The rate of return on incremental capital is the maximum growth rate in operating profit a business can reach without external financing. By extension, a company with a return on invested capital (ROIC) greater than its growth rate will generate surplus capital.[6]

Companies that cannot fund their growth internally must access cash externally, either by borrowing or selling equity. The pecking order theory is an idea in corporate finance that says that managers of companies will typically choose to fund investments first with cash that the company generates internally, next with debt, and finally with equity.[7] One essential tenet of thoughtful capital allocation is that all capital has an opportunity cost, whether the source is internal or external.

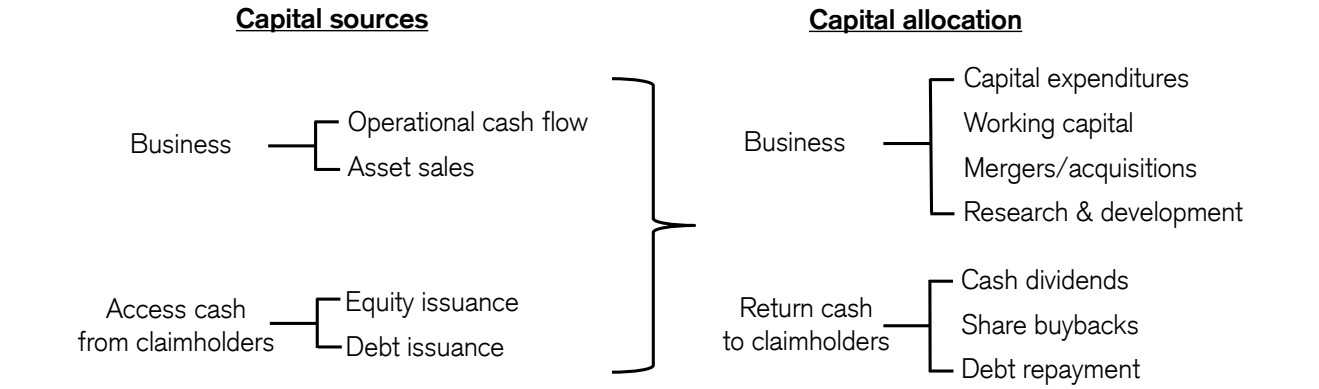
The uses of capital are where the money goes. Executives can invest in the business through capital expenditures, increases in working capital, research and development, or mergers and acquisitions. These investments allow a company to grow. But growth, in and of itself, is never the goal of a thoughtful 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 no matter what the stock price.

In a buyback, 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 price is at fair value.[8]

Exhibit 3 summarizes the sources and uses of financial capital. These follow closely the alternatives and choices that Thorndike specifies in *The Outsiders*.

Exhibit 3: Sources and Uses of Financial Capital



Source: Credit Suisse.

Sources of Capital

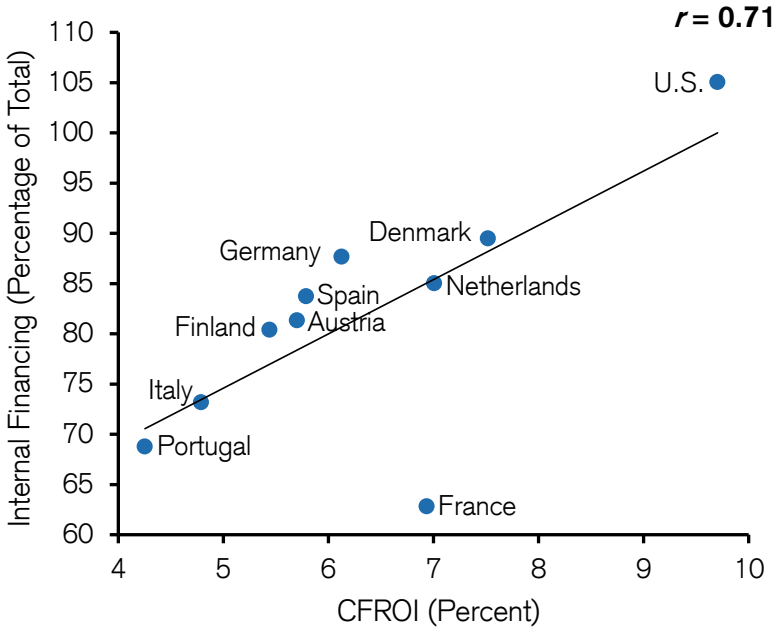
Internal financing, or the cash generated by the businesses, is the largest source of capital for most countries and regions and typically falls in the range of 60 to 90 percent. Issuance of new debt is the next most significant source of capital. The issuance of equity varies a great deal by region, and companies in developed economies commonly retire as much equity as they issue.

The ratio of internal financing to the total source of capital tends to correlate with the underlying return on invested capital for the country. A country with a high ROIC can fund a higher percentage of its investments with internally-generated cash than can a country with a low ROIC. Exhibit 4 shows this correlation, using cash flow return on investment (CFROI) as a measure of return on investment. The data reflect the average of the ten years ended 2015.[9]

There are pros and cons to having internal financing represent a high percentage of investment funding. The pro is that companies are earning high returns on capital in general and need not rely on capital markets to fund their growth. The con is that companies can deploy internally-generated funds into value-destroying investments. The need to raise money from the capital markets creates a check on management's spending plans.

Indeed, Peter Bernstein, the renowned financial historian and economist, once suggested that all companies should be required to pay out 100 percent of their earnings and then appeal to the markets when they want funds for investment. He argued that markets are more effective than companies at allocating capital, and as a result the overall effectiveness of capital allocation would improve if left to the devices of the market.[10]

Exhibit 4: Relationship between CFROI and Internal Financing Capability (2006-2015 Average)



Source: Europe: Eurostat European Sector accounts; U.S.: Board of Governors of the Federal Reserve System, Division of Research and Statistics, Flow of Funds Accounts Table F.103; Credit Suisse.

Before delving into each of the specific uses of capital, it is worth considering what the academic research says about capital allocation. A key finding is that asset growth rates are strong predictors of future abnormal returns to shareholders in countries with developed financial markets. The effect is weaker, if present, in developing economies.[11]

More specifically, developed markets firms with low asset growth rates earn substantially higher shareholder returns, after adjusting for risk, than firms with high asset growth rates. Further, companies that contract their assets tend to generate higher shareholder returns than companies that expand their assets.

High returns to shareholders tend 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.

A global study of 40 countries reveals that from 1982-2010 the relationship between asset growth and shareholder results was strong in Europe, with 14 of the 17 countries in the study showing the relationship (Greece, Italy, and Portugal were the exceptions). The economies in APEJ also overwhelmingly exhibit the asset growth effect, including 10 of the 13 countries in the study (the result didn't hold for China, Taiwan, or the Philippines).

Unlike most developed countries, developing economies do not demonstrate a significant asset growth effect. Of the 14 developing economies in the study, only 2 exhibited a strong asset growth effect.

The academic research also supports the point that growth is not inherently good. We must recognize that context is very important. 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.

Uses of Capital

We now turn to the details of the major uses of capital. We discuss how to assess each alternative from an economic standpoint and summarize the findings of the empirical research. The subsequent part reviews the details of the historical trends for the uses of capital in each region.

Mergers and Acquisitions. M&A is a major source of redistribution of corporate resources. For many companies, M&A is the most significant means to pursue strategic goals and the most costly way to do so. Nearly all companies and investment portfolios will feel the effect of M&A at some point. Consider that over the past twenty years, M&A volume as a fraction of the total equity market capitalization has averaged 14 percent in Europe, 11 percent in GEM, 10 percent in APEJ, 9 percent in the U.S., and 3 percent in Japan.

M&A tends to follow the stock market closely, with more M&A activity when the stock market is up. It comes as 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.[12]

One of the most effective ways to assess the merit of a deal is to compare the present value of incremental cash flow, the result of synergy, to the premium the acquirer agrees to pay.[13] If the synergy exceeds the premium, the deal will add value for the buyer. If the synergy is less than the premium, the buyer will see its shares decline. The relationship between synergy and premium is more explanatory than the measures that companies and investors commonly use, including earnings accretion or dilution.[14]

Here's an example. Assume that the market capitalization is $2,000 for the buyer and $800 for the seller. The buyer bids $1,000 for the seller, representing a $200 premium. If the synergy is only $100, the market capitalization of the buyer will slump to $1,900 and the seller will receive $1,000. If, on the other hand, the synergy is $300, the market capitalization of the buyer will rise to $2,100 as the seller receives $1,000.

Although the key factors in judging M&A are the synergy and the premium, only the premium is explicit. While companies today generally provide some guidance for expected synergy, the investor must still assess the likelihood that the company will achieve the objective. M&A creates value in the aggregate as the combined value of the buyer and target is almost always higher after a deal is announced than before. But buyers commonly overpay, which means the seller's shareholders often capture the value of the synergy.

Capital Expenditures. Capital expenditures have been the largest source of investment in Japan and APEJ, and are a large percentage of spending in GEM. As a broad rule of thumb, spending on capital expenditures, measured as a percentage of sales, is larger in developing countries than in developed countries. Further, the growth in capital expenditures tends to come with low variance, which means that executives want to keep the spending steady.

Executives and investors frequently distinguish between "maintenance" capital expenditures and total 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.

Depreciation expense serves as a rough proxy for maintenance capital spending.[15] Measured as a percentage of sales, growth capital expenditures range from one-fifth to one-half of overall capital expenditures across the different regions. That maintenance capital expenditures are essential explains a good deal of the stability of spending. Further, it suggests that in assessing the value creation prospects of capital expenditures, you are best served to focus on the component that supports growth.

The stock market tends to favorably greet increases in capital expenditures for companies that have attractive returns on invested capital and a good record of past spending. The market expresses skepticism at increases for low return on capital businesses or businesses that are at or near a cyclical peak.[16]

Research and Development. Unlike M&A and capital expenditures, R&D is an expense on the income statement rather than invested capital on 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. We can define R&D as 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 percent of total R&D spending, with the government and academia splitting the other 25-30 percent. The industries that spend the most include 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 1.6 times that of healthcare.

R&D spending averages about two percent of revenues in developed economies including the U.S., Japan, and Europe. That ratio is less than one percent in APEJ and GEM. The U.S., China, and Japan together represent more than half of global R&D spending, and ten countries account for about 80 percent of the total. At current rates of funding and growth, China will surpass the U.S. as the largest spender on R&D by the year 2026.[17]

The academic research on the effectiveness of R&D spending is somewhat equivocal, in part because of the measurement challenges and the decline in R&D productivity in the pharmaceutical industry. One of the best ways to study the market's reaction to any form of investment is to examine unexpected changes. In one such study, finance professors studied more than 8,000 unexpected increases in R&D spending over a 50-year period ended in 2001 and found that the stocks of those companies rose.[18] Other researchers conclude that the returns to R&D are positive and higher than other capital investments.[19]

A reasonable question is whether the stock market effectively reflects R&D spending. One large study found that the market does it well. This means that companies that spend a large percentage of sales on R&D realize similar stock market returns as companies that spend a small percentage of sales on R&D. The researchers came to similar conclusions for advertising expenses, which are about one-half as large as R&D expenses in the aggregate.[20]

Academics have also found that larger companies that acquire their R&D by buying businesses that are R&D intensive tend to fare poorly in the stock market.[21] This is consistent with the view that the value of R&D in an acquisition ultimately accrues to the seller, not the buyer. That said, companies with strong execution capabilities can create value by enhancing R&D effectiveness.[22]

One study focused specifically on Japan found that the stock market properly reflected R&D spending. Specifically, it showed that companies that spent a large percentage of sales on R&D realized similar total shareholder returns as companies that spent a small percentage.[23]

Some recent research suggests that the technology companies in the U.S. that are in the bottom one-third of R&D spending as a percentage of sales deliver higher returns to shareholders than those in the top third.[24] This finding underscores how tricky it is to assess R&D spending because a number of technology companies have benefitted 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*.[25] Her thesis is that the government funds a great deal of high-risk R&D that companies go on to exploit commercially.

She uses the vivid example of the iPhone from Apple Inc., a company that has created a huge amount of shareholder value in the past decade. 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 notes, Apple did a brilliant job of integrating these technologies, designing an attractive and intuitive product, and marketing effectively. But it did not develop some of the key technologies inside the phone, which means 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 minus non-interest-bearing current liabilities. The primary components of net working capital include 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 are therefore not part of net working capital.

For the purpose of capital allocation, we analyze the change in net working capital. Net working capital is a substantially larger use of capital in developing markets than in developed markets. For instance, changes in net working capital have averaged 3.3 percent of sales in GEM and 2.6 percent in APEJ compared to less than 1.5 percent of sales in Europe, Japan, and the U.S.

Divestitures. Companies use divestitures to adjust their business portfolio. Actions include the sale of divisions, spin-offs, and equity carve-outs. 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.

There are a few considerations in assessing divestitures. First, research has established that most of the value creation for a typical company comes from a relatively small percentage of its assets.[26] This means that most companies have businesses or assets that do not earn the cost of capital and that may be more valuable to another owner.

Divestitures 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. So there's an addition to value even as there's a subtraction from the size of the firm.

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 suggests that it is better to be a seller than a buyer on average. This point is particularly relevant when there are multiple bidders for an asset. Contested deals frequently lead to what economists call the "winner's curse."[27] When this occurs, the "winner" of the bidding pays too much for the asset, hence the "curse." The winner's curse means that there is a wealth transfer, above and beyond the value of the asset, from the buyer to the seller.

Finally, most 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.[28]

Notwithstanding their significance in capital allocation, divestitures have received substantially less attention than M&A in the academic literature. Research for the most part concludes that divestitures create value. A meta-analysis of nearly 100 studies on divestitures concludes: "In the broadest possible terms, our results suggest that on average, divestiture actions are associated with positive performance outcomes for the divesting parent firm."[29]

Analysis also shows that spin-offs create value for the spin-offs themselves as well as the corporate parents.[30] Researchers who did a meta-analysis 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."[31] They suggest the factors that explain these wealth effects include sharpened focus, better information, and in some cases tax treatment.

Dividends. A dividend is a cash payment to a shareholder that is generally paid from profits. Dividends and share buybacks are the main ways companies return cash to shareholders. Companies can also return cash to shareholders by selling the company for cash.

The most profound difference between buybacks and dividends may be the attitude of executives. Most executives believe that once a dividend is established, paying it is on par with investment decisions such as capital spending. In contrast, they tend to view buybacks as something to do with residual cash flow after the company has made all investments that are appropriate.[32]

There are a couple of consequences of this difference in attitude. The first is that dividend payments are vastly less volatile than buybacks. Indeed, of all the capital allocation options, dividends have among the lowest standard deviation in growth.

How should investors assess dividends? First, dividends are useful to consider in the context of cash flow. To sustain a cash dividend, a company has to generate cash flow beyond the basic needs to maintain the business and support its growth. So an investor should gauge a company's cash flow prospects in order to anticipate a company's ability to pay dividends.[33]

Second, dividends can play an important role in the capital accumulation rate, also known as total shareholder return (TSR). From time to time you hear that dividends provide the bulk of shareholder returns for equities in the long run. That assertion is wrong if you assume the goal of an investor is to accumulate capital. In fact, price appreciation is the only source of investment return that increases accumulated capital over time.[34]

The equity rate of return is a one-period measure and is simply the sum of stock price appreciation and the dividend. The capital accumulation rate, or TSR, is a multi-period measure that assumes all dividends are reinvested in the stock. Knowing price appreciation and dividend yield, the following equation allows you to calculate TSR:

Total shareholder return (TSR) = Price appreciation + [(1 + price appreciation) * dividend yield]

The value of the compounding reinvested dividends means that the equity rate of return is always lower than the TSR as long as price appreciation is positive. For example, assume price appreciation of 7 percent and a dividend yield of 2 percent. The equity rate of return is 9 percent (.07 + .02) and the TSR is 9.14 percent (.07 + [(1 + .07)*.02]).

The key is that for an investor to actually earn the TSR, all of the dividends they receive must be reinvested back into the stock. That's why price appreciation only determines the TSR.

It's crucial to acknowledge that almost no one earns the full TSR because most individuals do not reinvest the dividends they receive, and dividends are generally taxable. While there are no clear-cut data on the topic, it appears that only one-tenth of all dividend proceeds are reinvested. Naturally, investors can use dividends to consume. But if they do, they can't earn the TSR.

Further, most investors must pay taxes on the dividends they receive. The TSR declines when you assume that only a fraction is reinvested in the stock. Academic research supports the view that the tax rate on payouts affects shareholder returns.[35]

Academic research on dividends supports a few points. To begin, older companies are more likely to pay dividends than younger companies. So any analysis of dividend yields must take into account the maturity of the population of companies under consideration.[36]

Second, dividends provide a strong signal about management's commitment to distribute cash to shareholders and its confidence in the future earnings of the business. This is consistent with the managerial attitude that dividends are sacrosanct once declared. For this reason, companies are very deliberate about the decision to initiate a dividend.[37]

Dividend payouts are generally more generous in developing markets than in developed markets. Dividends as a percentage of sales averaged 3.2 percent in GEM and 2.7 percent in APEJ in the past couple of decades, higher than the 2.2 percent in the U.S. and Europe. Japan's payout rate has been consistently below the average of other regions of the world, with dividends as a percentage of sales of 0.7 percent in the past 30 years.

Share Buybacks. A share buyback is the second way that a company can return cash to its shareholders. Whereas all shareholders are treated equally with a dividend, only shareholders who sell to the company receive cash. This means that shareholders 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.

When assessing a repurchase program, investors and executives should consider the golden rule of share buybacks, which states: A company should repurchase its shares only when its stock is trading below its expected value and when no better investment opportunities are available.[38]

The golden rule addresses both absolute and relative value. Companies should only invest where they anticipate a payoff that has a positive net present value. This is a fancy way of saying "you will get more than what you pay for." This absolute benchmark applies to all of a company's capital allocation decisions, including M&A, capital expenditures, and R&D.

The rule also addresses relative value when it emphasizes that companies should prioritize higher return internal investment opportunities over buybacks. Ideally, executives should rank their investment opportunities by expected return and fund them from highest to lowest. A company should expect that all of the investments it funds will earn above the cost of capital. There can be cases when buybacks are more attractive than investing in the business.[39]

The second aspect of assessing a buyback is its impact on various 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.

From the company's standpoint, corporate value is conserved 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 are undervalued.

To be more concrete, if a company buys back shares that are overvalued the selling shareholders gain at the expense of ongoing shareholders. The premium to intrinsic value accrues to the sellers and the value per share for the ongoing holders goes down accordingly.

If a company buys back shares that are undervalued the selling shareholders lose at the expense of ongoing shareholders. The discount to intrinsic value accrues to the ongoing shareholders and the selling shareholders fail to realize value.

This analysis suggests a couple of points that investors commonly overlook. First, if you are the shareholder of a company that is buying back stock, doing nothing is doing something. By choosing to hold the shares instead of selling a pro-rated amount, you are effectively increasing your percentage ownership in the company. One alternative is to sell shares in proportion to your stake, creating a homemade dividend and maintaining a steady percentage ownership in the business.

Second, it is logical that you would prefer that the companies you hold in your portfolio buy back stock rather than pay a dividend. If you own shares of companies that you think are undervalued, buybacks will increase value per share by definition. The only instance where this may not be true is if you believe that a dividend would provide a more powerful signal to the market, hence creating more 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 intrinsic value school is where you want to be if possible.

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 as it allows them to hold shares and 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 will 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.[40] Research suggests that most companies would have been better off buying back stock consistently versus their actual behavior of buying heavily in some periods and lightly, or not at all, in others.[41]

The intrinsic value school believes a company should only buy back shares when it deems them to be undervalued. A company must have asymmetric information or beliefs, as well as analytical prowess, to profitably pursue this approach. Asymmetric information means that company management has information that the stock price fails to reflect. Differing beliefs occur when 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 differential 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.

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.[42] This school fits the signaling hypothesis, which suggests that companies buy back shares when they deem them to trade below intrinsic value. Further, it is important to focus on actual share buybacks versus buyback announcements. The evidence supporting the signaling hypothesis is mixed, but 85 percent of CFOs believe that their buyback decision conveys information.[43]

Boosting short-term accounting results, especially earnings per share (EPS), is what motivates the final school.[44] When surveyed, 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 aligned with the principle of value creation.[45] 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 impure because management's proper goal is to allocate capital in an economically sound fashion for shareholders.

Investors assessing companies buying back stock should make an effort to determine which school the management is in. It can be the case that management buys back stock for the right reason and realizes accounting benefits as a result. That's fine. But investors should be on the lookout for companies that make decisions based on the accounting results without sufficient regard for the economic merits.

A couple of findings from the academic research are worth highlighting. The first is that it appears companies are increasingly using buybacks as a substitute for dividends.[46] As a result, total shareholder yield (sum of dividends and buybacks divided by equity market capitalization) may be a better indicator of a company's proclivity to pay out than a simple dividend yield.

Second, a global study found that share buybacks generate positive excess returns on balance, but that the results differed across regions. Buybacks led to positive excess returns in Japan, APEJ, and several prominent GEM countries, but did not do so in Europe. The researchers suggest the source of the positive returns is the ability of management teams to take advantage of undervalued stock prices.[47]

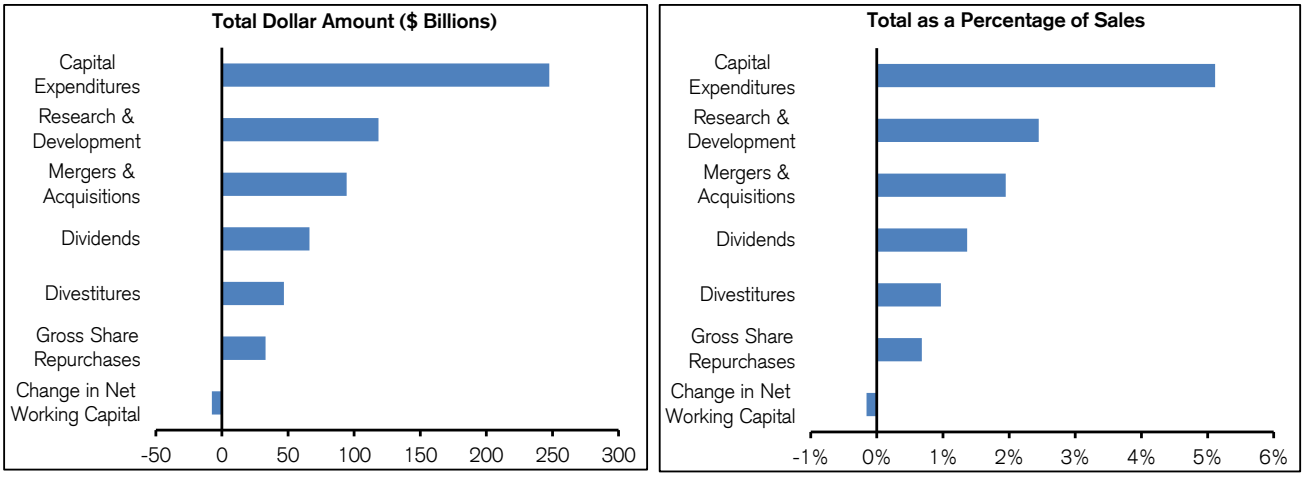
We now turn to capital allocation by region. Before we do, here's a quick comment on currency. Credit Suisse HOLT® converts the numbers based on local currencies into U.S. dollars using year-end exchange rates. This applies to R&D, capital expenditures, buybacks, dividends, and net working capital data. For M&A and divestitures, Thomson Reuters Datastream converts values in local currencies into U.S. dollars as of the effective date of the deal.

Part II: Capital Allocation by Region

Japan

Uses of Capital. Exhibit 5 shows how the top 1,000 companies in Japan, excluding companies in the financial services and regulated utility industries, deployed capital in 2015. While just a snapshot for a particular year, the ranking reasonably reflects how companies in Japan have allocated capital over time.

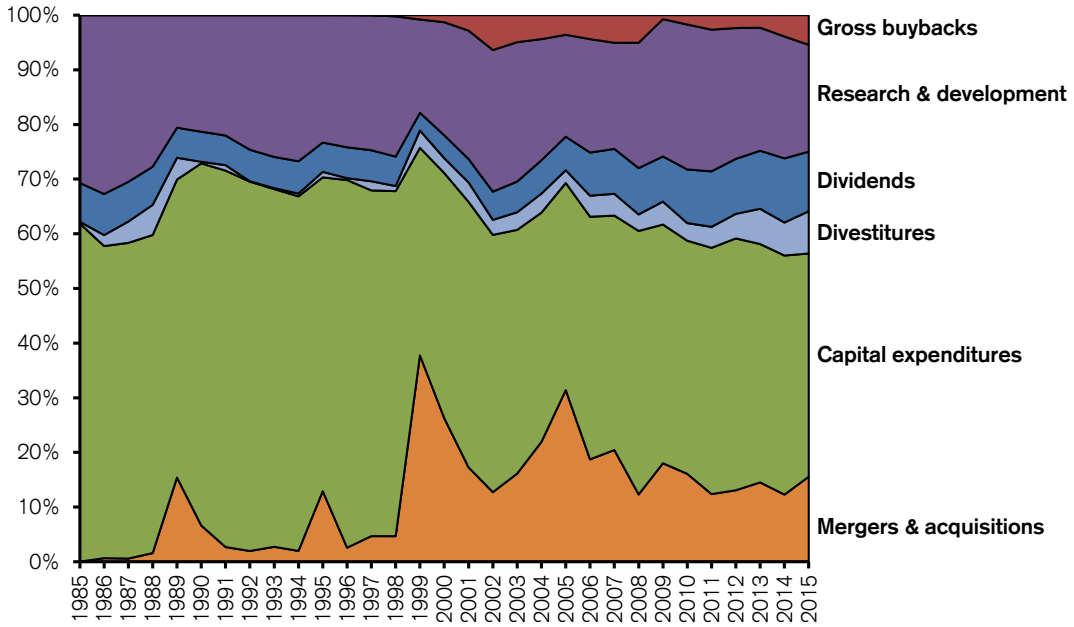
Exhibit 5: Japan Capital Deployment, 2015



Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Exhibit 6 shows the breakdown of spending by source from 1985-2015. This graph excludes changes in net working capital because those values are negative in many years.

Exhibit 6: Japan Capital Deployment, 1985-2015



Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Similar to 2015, capital expenditures and R&D are the largest uses of capital over time. An examination of the changes from 1985 through 2015 reveals some noteworthy patterns:

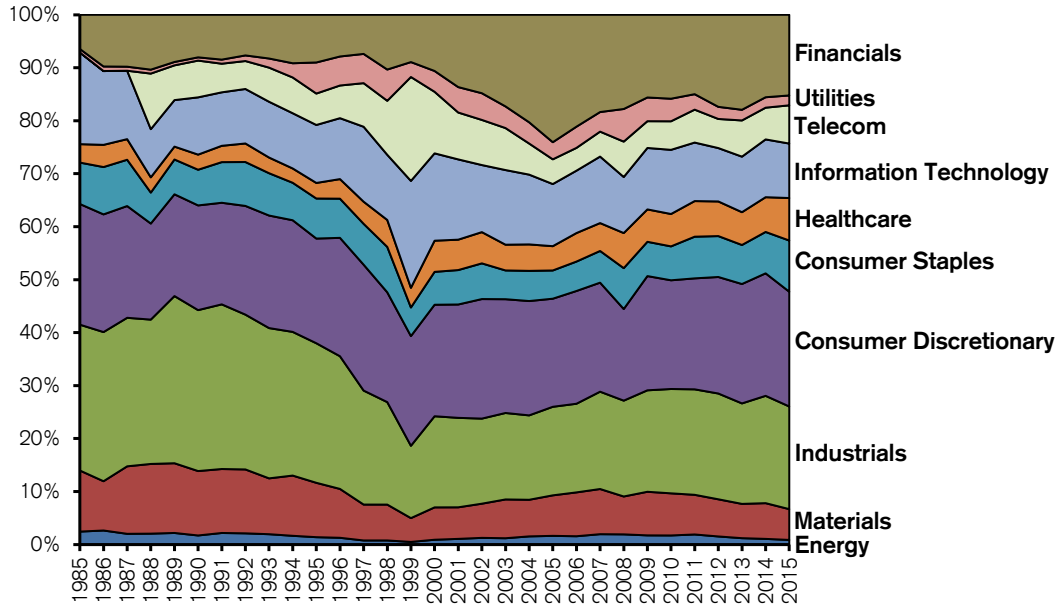
- Capital expenditures are by far the largest use of capital. Historically, capital expenditures have been more than double the level of R&D spending and nearly four times that of M&A. Capital expenditures have been fairly steady over time. In 2015, they were 5.1 percent of total sales, slightly above the long-term average. But the fraction of capital expenditures to the total sum that companies allocate has declined over the decades. This reflects a change in the composition of the economy, with businesses that require less capital investment replacing those that require more. (See Exhibit 7.) For example, the energy, materials, and industrial sectors represented 42 percent of the market capitalization of the top 1,000 companies in the Japanese market in 1985 but just 26 percent in 2015.

- R&D spending has shown a gradual rise from 1.6 percent of sales in 1985 to 2.4 percent in 2015. These levels make Japan one of the world's leaders in R&D spending, and the ratio has been steady over the years. Japan's large presence in R&D-intensive sectors explains its level of spending.

- M&A plays a much smaller role in Japan than it does in other major countries and regions. M&A volume was only 1.9 percent of sales in 2015, slightly above its long-term average. Legal and cultural factors explain why M&A was negligible until the late 1990s. For much of Japan's history, society frowned on M&A and gaining approval for deals was difficult because of the interlocking and diffuse ownership structure of corporations. M&A activity picked up when Japan instituted new laws to increase investor protection and as the legacy corporate ownership structure began to change.

- The return of cash to shareholders through dividends and buybacks was paltry before Japan adopted a series of regulatory reforms in the 1990s. The government first made buybacks legal in 1994 and then made their tax treatment less punitive a few years later. Further, corporate governance reforms that were friendly to investors spurred more M&A activity and boosted corporate payouts overall. The buyback yield (buybacks as a percentage of total market capitalization) went from zero in 1985-1999 to 0.7 percent in 2000-2015, while the dividend yield rose from 0.8 percent to 1.5 percent.

Exhibit 7: Japan Sector Composition, 1985-2015



Source: Credit Suisse HOLT.
Note: Data for telecom sector not available for 1985-1987.

Exhibit 8 shows a detailed history of capital deployment from 1985-2015. It is worth noting that the standard deviations of the growth rates, which appear in the bottom row, are small for R&D, capital spending, and dividends, relative to those of M&A, buybacks, and divestitures. Standard deviation is a measure of how much something varies from an average. 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. Exhibit 9 represents the same deployment numbers as a percentage of sales.

Exhibit 8: Japan Capital Deployment, 1985-2015

	Total Amount (in Millions of U.S. Dollars, Nominal)						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1985	16	38,496	19,099		0	195	4,422
1986	490	42,730	24,484	87,980	0	1,506	5,621
1987	641	63,820	33,685	175,007	0	4,317	8,032
1988	2,318	84,896	40,447	90,158	0	8,050	10,185
1989	29,187	103,277	39,010	58,522	0	7,563	10,410
1990	14,157	141,554	45,561	95,500	0	616	11,765
1991	6,563	167,919	53,691	80,070	0	2,453	13,206
1992	4,366	150,053	54,694	-10,372	0	152	12,804
1993	6,461	154,769	61,339	60,199	0	407	13,487
1994	5,211	170,529	70,282	105,383	0	1,345	15,523
1995	40,145	178,394	72,428	30,481	0	3,150	16,653
1996	7,243	189,254	67,992	-93,943	28	965	15,907
1997	12,137	163,797	63,918	-72,460	86	4,338	14,697
1998	14,007	189,027	76,821	104,206	659	2,795	16,133
1999	200,822	201,998	90,754	50,727	4,281	16,909	17,224
2000	109,833	187,602	86,566	-163,369	5,384	11,358	17,515
2001	57,431	161,668	78,165	-135,745	9,411	11,836	14,245
2002	43,404	160,447	88,300	44,506	21,763	9,377	17,600
2003	64,785	179,140	102,430	84,360	19,864	12,944	22,559
2004	110,422	211,123	111,561	71,232	22,066	17,567	30,721
2005	173,550	209,458	102,992	-60,476	19,879	12,896	33,924
2006	97,072	230,097	107,615	47,059	22,702	19,943	40,854
2007	126,149	264,734	119,845	73,001	31,212	24,624	50,662
2008	78,958	309,317	147,117	223,318	32,396	19,406	54,391
2009	93,196	225,912	129,959	-600	3,747	21,706	42,747
2010	93,167	247,074	153,610	204,503	9,920	18,664	56,833
2011	77,663	282,760	162,664	124,007	16,651	24,077	63,729
2012	79,817	281,213	146,056	-70,500	14,364	27,395	61,475
2013	81,895	245,962	127,000	-150,673	12,963	36,381	59,861
2014	63,450	225,933	115,171	-58,859	20,151	31,190	60,648
2015	94,353	247,565	118,385	-7,618	32,989	46,890	66,113
CAGR	**33.6%**	**6.4%**	**6.3%**	**NA**	**45.2%**	**20.1%**	**9.4%**
St. Dev.	**628.2%**	**16.1%**	**13.3%**	**NA**	**192.7%**	**175.1%**	**15.3%**

Source: Credit Suisse HOLT and Thomson Reuters.
Note: Dollar amounts not inflated. R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries. The CAGR and standard deviation for buybacks covers 1996-2015.

Exhibit 9: Japan Capital Deployment, 1985-2015

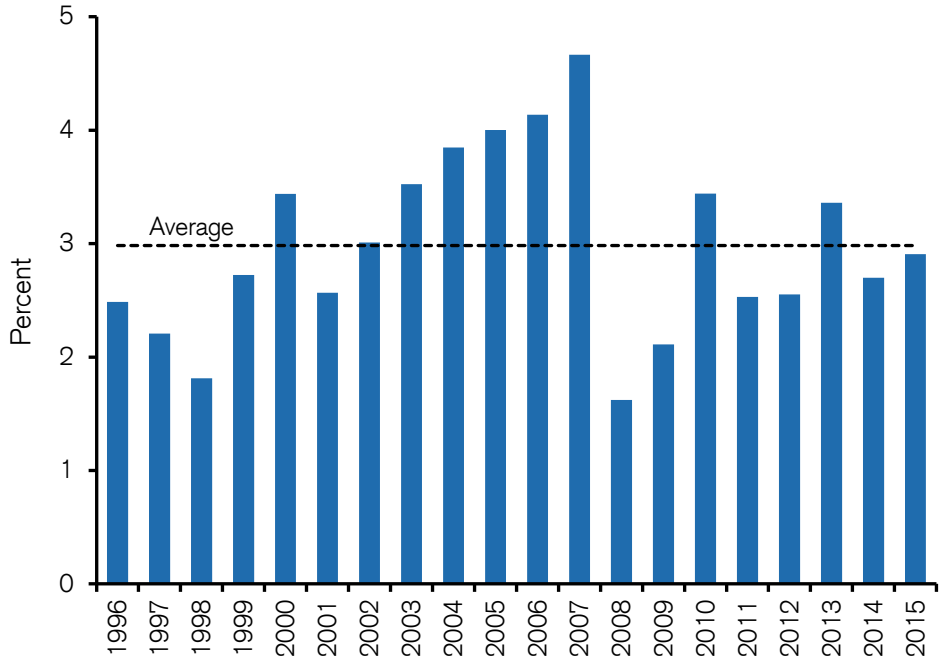
	As a Percentage of Sales						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1985	0.0%	3.2%	1.6%		0.0%	0.0%	0.4%
1986	0.0%	3.1%	1.8%	6.4%	0.0%	0.1%	0.4%
1987	0.0%	3.3%	1.7%	9.1%	0.0%	0.2%	0.4%
1988	0.1%	3.8%	1.8%	4.1%	0.0%	0.4%	0.5%
1989	1.3%	4.5%	1.7%	2.5%	0.0%	0.3%	0.4%
1990	0.5%	5.2%	1.7%	3.5%	0.0%	0.0%	0.4%
1991	0.2%	5.5%	1.8%	2.6%	0.0%	0.1%	0.4%
1992	0.1%	5.0%	1.8%	-0.3%	0.0%	0.0%	0.4%
1993	0.2%	4.7%	1.9%	1.8%	0.0%	0.0%	0.4%
1994	0.1%	4.5%	1.9%	2.8%	0.0%	0.0%	0.4%
1995	1.0%	4.6%	1.9%	0.8%	0.0%	0.1%	0.4%
1996	0.2%	5.2%	1.9%	-2.6%	0.0%	0.0%	0.4%
1997	0.4%	5.0%	1.9%	-2.2%	0.0%	0.1%	0.4%
1998	0.4%	5.2%	2.1%	2.9%	0.0%	0.1%	0.4%
1999	5.0%	5.1%	2.3%	1.3%	0.1%	0.4%	0.4%
2000	2.9%	4.9%	2.3%	-4.3%	0.1%	0.3%	0.5%
2001	1.8%	5.0%	2.4%	-4.2%	0.3%	0.4%	0.4%
2002	1.2%	4.3%	2.4%	1.2%	0.6%	0.3%	0.5%
2003	1.5%	4.2%	2.4%	2.0%	0.5%	0.3%	0.5%
2004	2.3%	4.4%	2.3%	1.5%	0.5%	0.4%	0.6%
2005	4.2%	5.1%	2.5%	-1.5%	0.5%	0.3%	0.8%
2006	2.2%	5.1%	2.4%	1.0%	0.5%	0.4%	0.9%
2007	2.5%	5.2%	2.3%	1.4%	0.6%	0.5%	1.0%
2008	1.4%	5.3%	2.5%	3.8%	0.6%	0.3%	0.9%
2009	1.9%	4.5%	2.6%	0.0%	0.1%	0.4%	0.9%
2010	1.6%	4.1%	2.6%	3.4%	0.2%	0.3%	1.0%
2011	1.2%	4.5%	2.6%	2.0%	0.3%	0.4%	1.0%
2012	1.4%	4.9%	2.5%	-1.2%	0.2%	0.5%	1.1%
2013	1.6%	4.7%	2.4%	-2.9%	0.2%	0.7%	1.1%
2014	1.3%	4.7%	2.4%	-1.2%	0.4%	0.6%	1.3%
2015	1.9%	5.1%	2.4%	-0.2%	0.7%	1.0%	1.4%
Average	**1.3%**	**4.6%**	**2.2%**	**1.1%**	**0.2%**	**0.3%**	**0.7%**

Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Recent Trends in Cash Flow Return on Investment and Asset Growth. 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 need to access debt or equity capital to do so.

Part of the explanation for Japan's low payout ratio is the country's low CFROI. CFROI measures the cash return 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. Exhibit 10 shows that today's CFROI of 2.9 percent is close to the twenty-year average of 3.0 percent. But Japan's CFROI is well below the 20-year average of 9 percent in the U.S. and 7 percent in Europe. Further, Japan's current CFROI remains below the peak years of the mid-2000s.

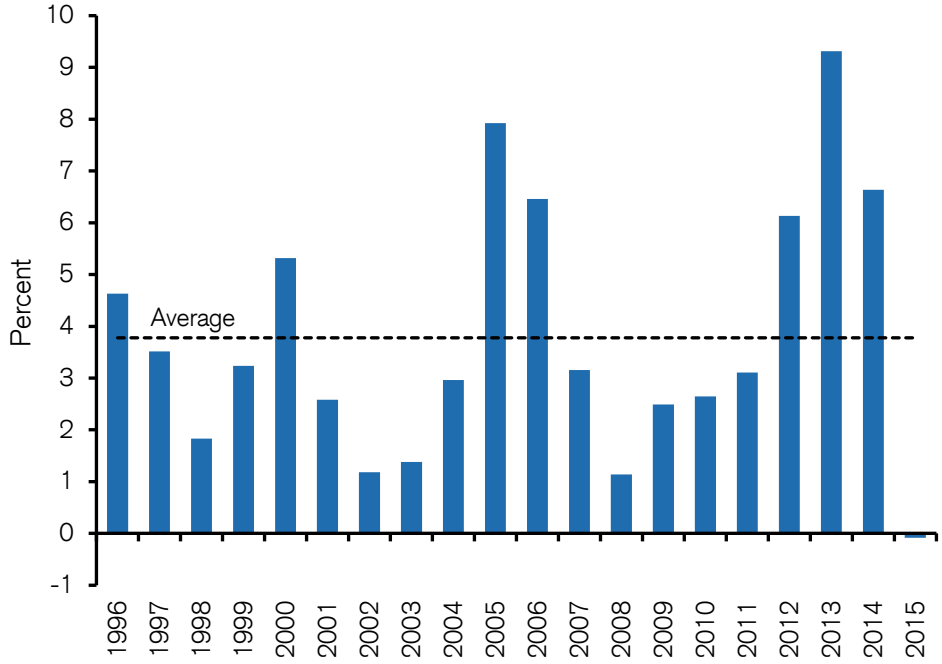
Exhibit 10: Japan CFROI, 1996-2015



Source: Credit Suisse HOLT.
Note: Japanese industrial firms, weighted by net assets.

Exhibit 11 shows the annual rate of asset growth, adjusted for inflation, over the past twenty years. In recent years, some easing of regulatory burdens for companies along with stimulative fiscal and monetary policy has encouraged companies to grow. Asset growth in 2015 was particularly weak as the result of slow economic growth in China, a large trading partner, and a persistently strong yen.

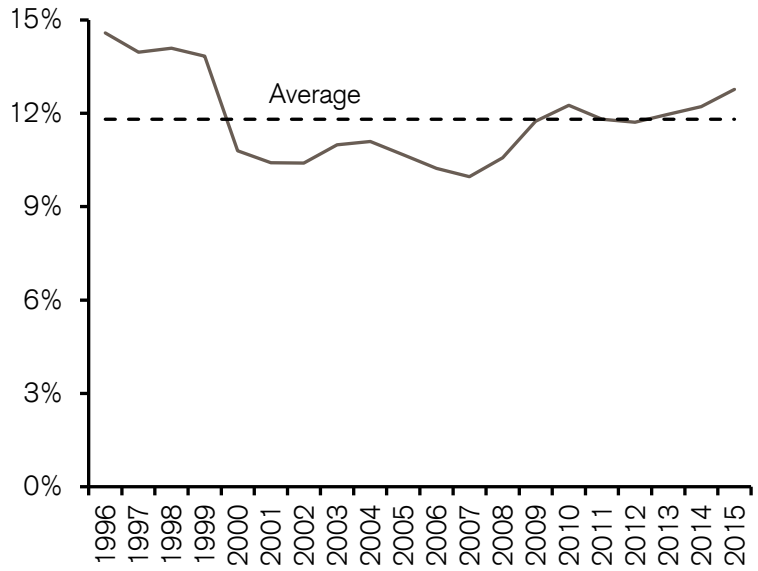
Exhibit 11: Japan Real Asset Growth Rate, 1996-2015



Source: Credit Suisse HOLT.
Note: Japanese industrial firms, weighted by gross investments.

Exhibit 12 shows that at 13 percent, today's cash as a percentage of assets is slightly above the long-term average of 12 percent.

Exhibit 12: Japan Cash as a Percentage of Total Assets, 1996-2015

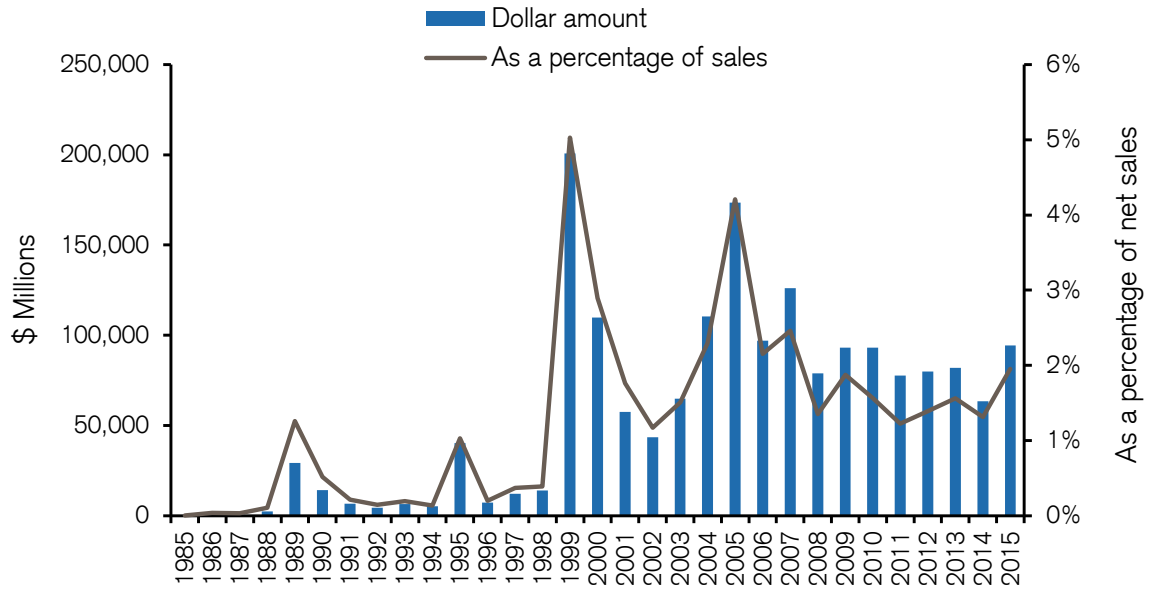


Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms.

Mergers and Acquisitions. Exhibit 13 shows the dollar amount of M&A as well as M&A as a percentage of sales from 1985 to 2015. M&A volume was only 1.9 percent of total sales in 2015, slightly above its long-term average of 1.3 percent. M&A plays a much smaller role in Japan than it does in other regions. For example, M&A averaged 11 percent of sales in the U.S. and Europe over the same period. A look at the relative dollar amounts is also revealing. In 2015, M&A volume in Japan was just one-twentieth the level of the U.S. and one-tenth that of Europe.

In Japan, M&A displays cyclicality at times—note the peaks in 1999 and 2005, two strong years for the Nikkei. But legal and cultural factors have played a larger role in explaining the country's M&A activity.[48] M&A was negligible until the late 1990s because it was not societally accepted. The interlocking and diffuse ownership structure of corporations, known as *keiretsu*, made it difficult to get approval for deals. Spurred in part by a sputtering economy and a declining stock market, Japan instituted new laws to increase investor protection and to finance deals. At the same time, the *keiretsu* system eroded and banks began to restructure, paving the way for more M&A activity.

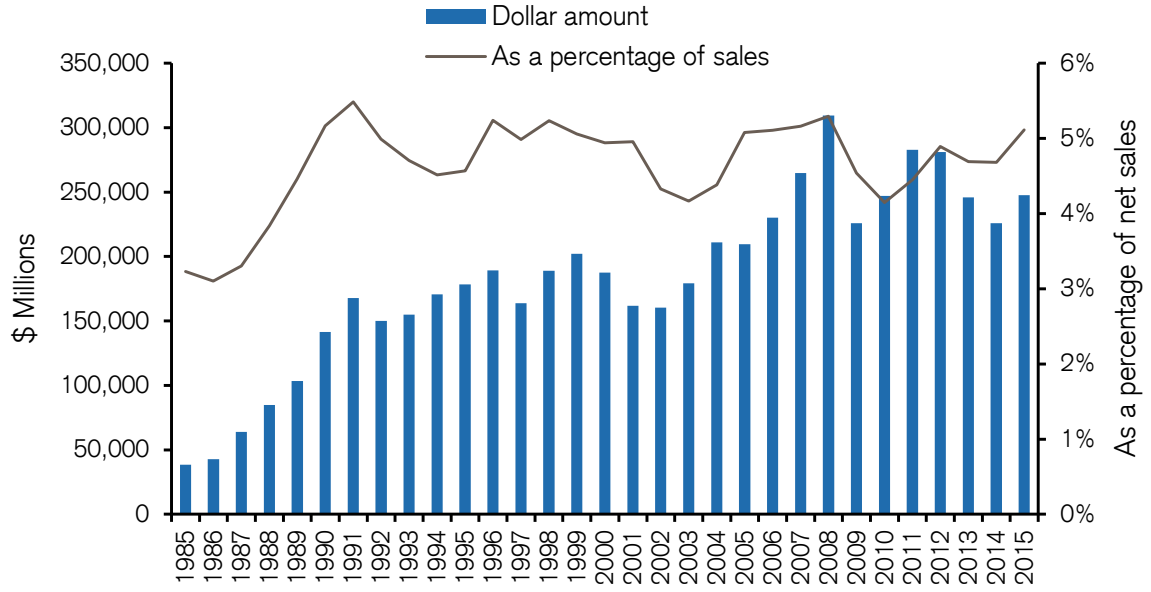
Exhibit 13: Japan Mergers and Acquisitions, 1985-2015



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

Capital Expenditures. Exhibit 14 shows capital expenditures, as well as capital expenditures as a percentage of sales, in Japan from 1985 to 2015. Capital expenditures have been fairly steady over time. In 2015, they were 5.1 percent of sales, slightly above the long-term average of 4.6 percent. Notwithstanding the recent rise in M&A, spending on capital expenditures in 2015 was nearly three times that of M&A. Even though capital expenditures are Japan's largest use of capital, that form of investment still lags other regions when measured as a percentage of sales.

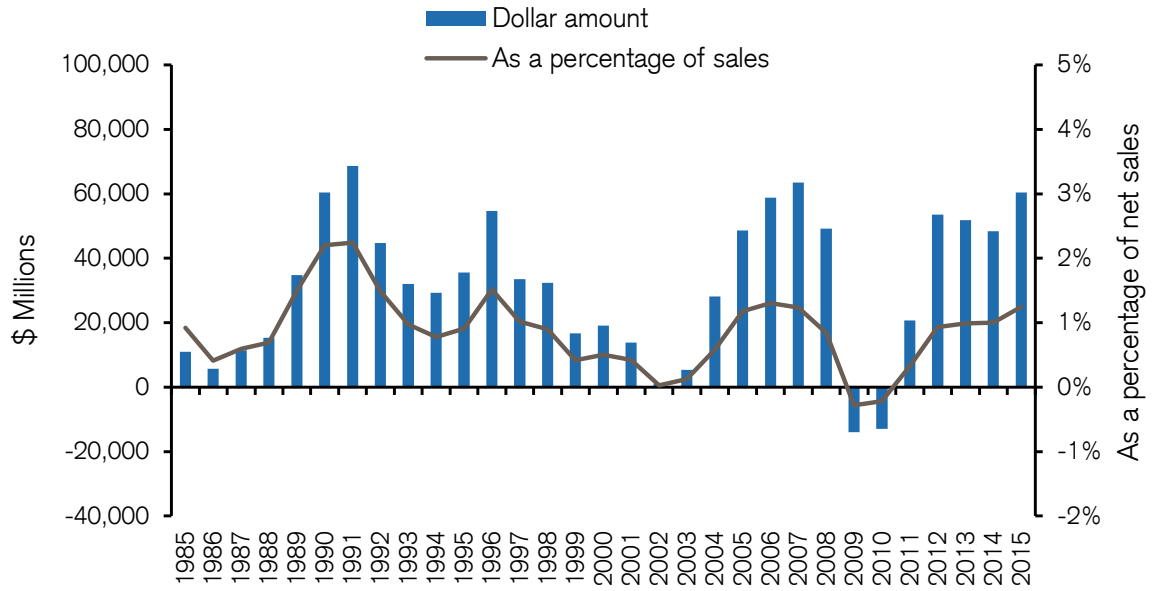
Exhibit 14: Japan Capital Expenditures, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Exhibit 15 shows capital expenditures net of depreciation. Measured as a percentage of sales, growth capital expenditures have averaged roughly one-sixth of overall capital expenditures.

Exhibit 15: Japan Capital Expenditures Net of Depreciation, 1985-2015



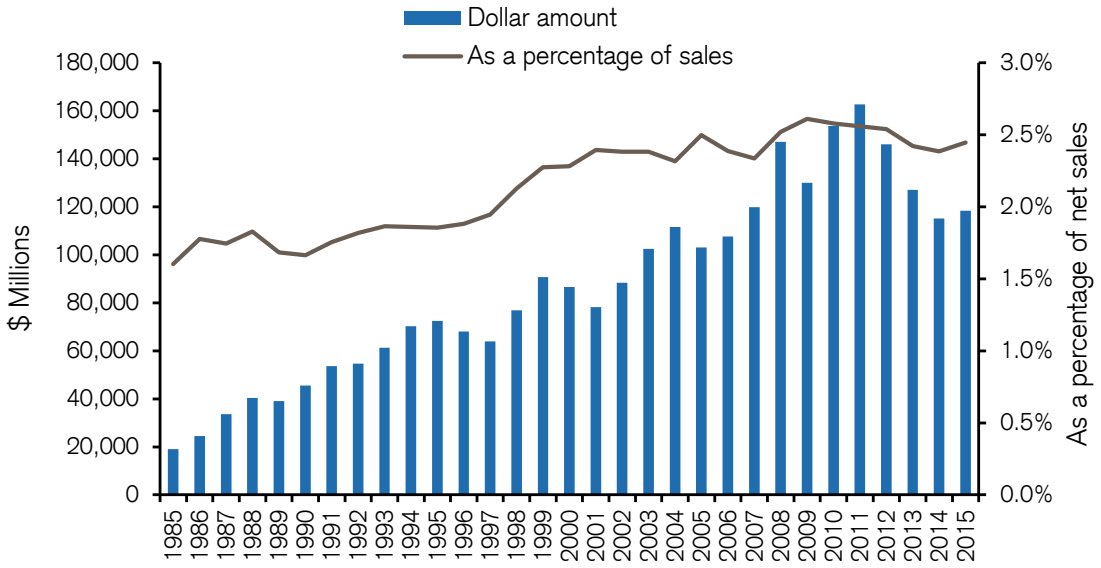
Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Research and Development. Exhibit 16 shows the dollar amount of R&D since 1985 as well as R&D as a percentage of sales. R&D doesn't typically shift much from year to year in Japan, but shows a gradual rise from 1.6 percent of sales in 1985 to a peak of 2.6 percent of sales from 2009-2011, only to settle slightly lower at 2.4 percent in 2015.

Japan is one of the world leaders in R&D spending. In Japan, businesses account for 78 percent of total R&D spending, with the government, academia, and private nonprofit companies accounting for the other 22 percent. Its R&D spending as a percentage of sales is equal to that of the U.S. at 2.2 percent, slightly above Europe at 2.0 percent, and well above APEJ at 0.8 percent and GEM at 0.4 percent.

Japan's large presence in sectors that are R&D intensive, such as automobiles and electronics, explains these levels of spending. Japan's R&D spending has been stable in recent years despite the fact that information technology, the country's most R&D-intensive sector, went from roughly 20 percent of the country's market capitalization in 1999 to half that amount today.

Exhibit 16: Japan Research and Development, 1985-2015

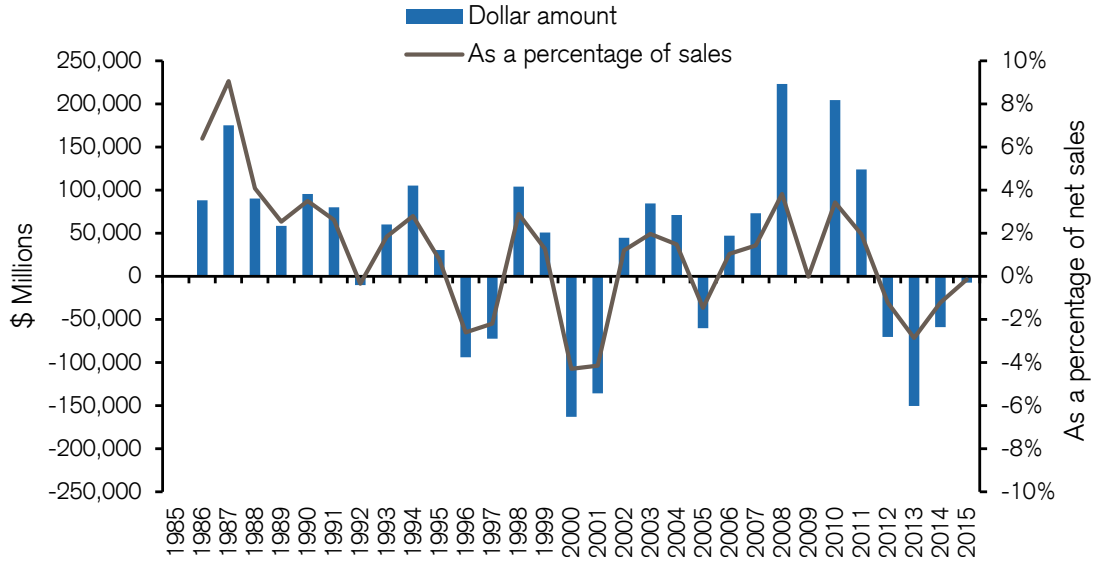


Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Net Working Capital. Net working capital, current assets minus non-interest-bearing current liabilities, is the capital a company requires to run its day-to-day operations. Net working capital equals about one-quarter of assets, on average, for companies in Japan.

Exhibit 17 shows the annual change in net working capital from 1985 through 2015. At year-end 2015, net working capital stood at $1.2 trillion for the top 1,000 public firms in Japan. We consider changes in net working capital as opposed to the absolute amount, because changes are what you should consider to be an incremental investment. Net working capital investments are highly volatile in Japan, albeit smaller in absolute size than capital expenditures and R&D.

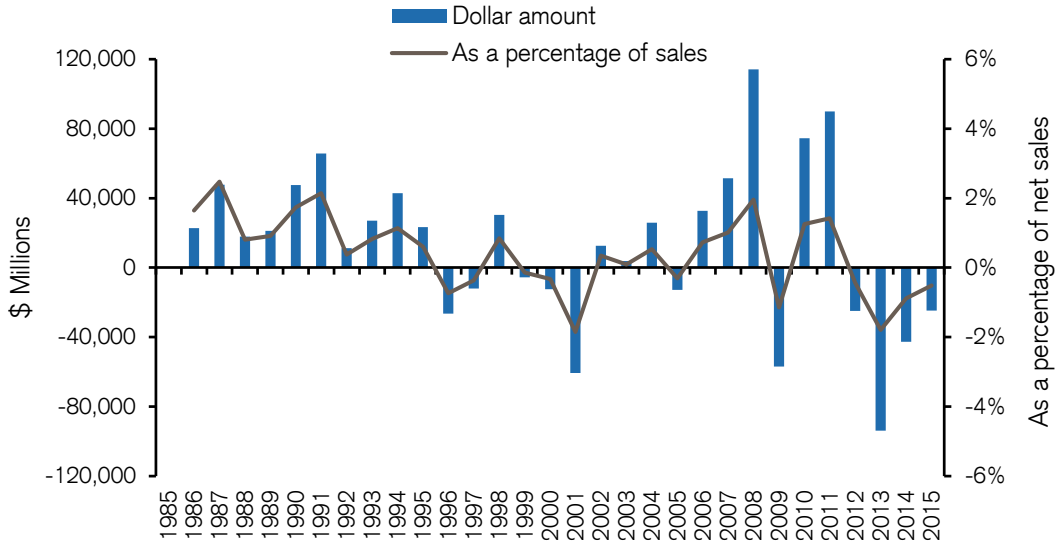
Exhibit 17: Japan Change in Net Working Capital, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Our definition of net working capital includes cash. The picture changes dramatically if we exclude cash. At the end of 2015, net working capital excluding cash was about $485 billion for the top 1,000 Japanese industrial companies, roughly two-fifths of the total net working capital sum. Exhibit 18 shows the change in net working capital excluding cash.

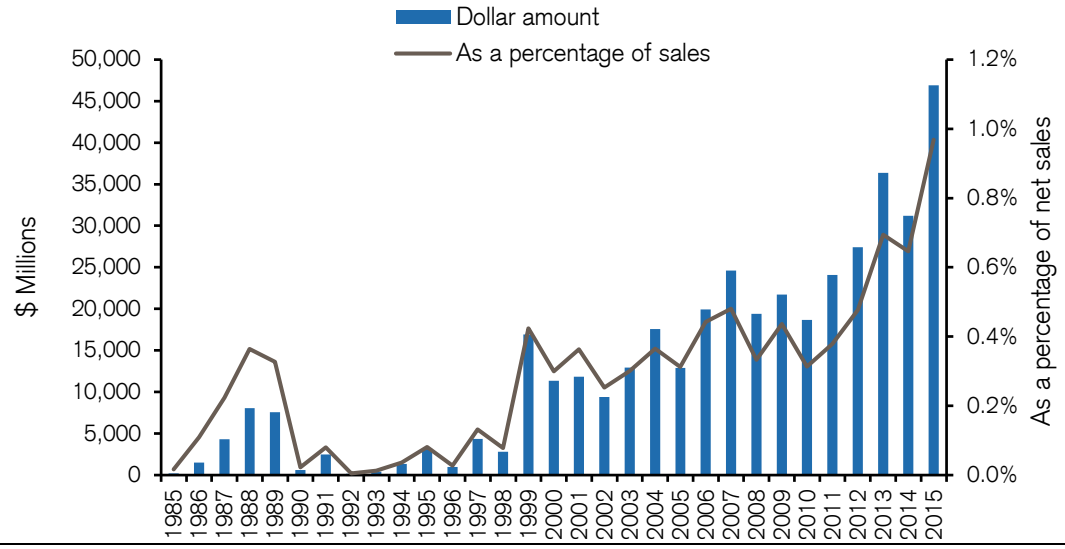
Exhibit 18: Japan Change in Net Working Capital Excluding Cash, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Divestitures. Exhibit 19 shows the magnitude of divestitures from 1985-2015. Similar to M&A, divestiture activity varies a lot from year to year, ranging from none in 1985 to a high of 1.0 percent of sales in 2015. Overall, divestitures have averaged 0.3 percent of sales, which is below all other alternatives except buybacks. These low levels are not surprising considering Japan's modest M&A activity. Since divestitures are correlated with M&A, many of the same legal and cultural factors that constrained M&A also limited divestitures.

Exhibit 19: Japan Divestitures, 1985-2015



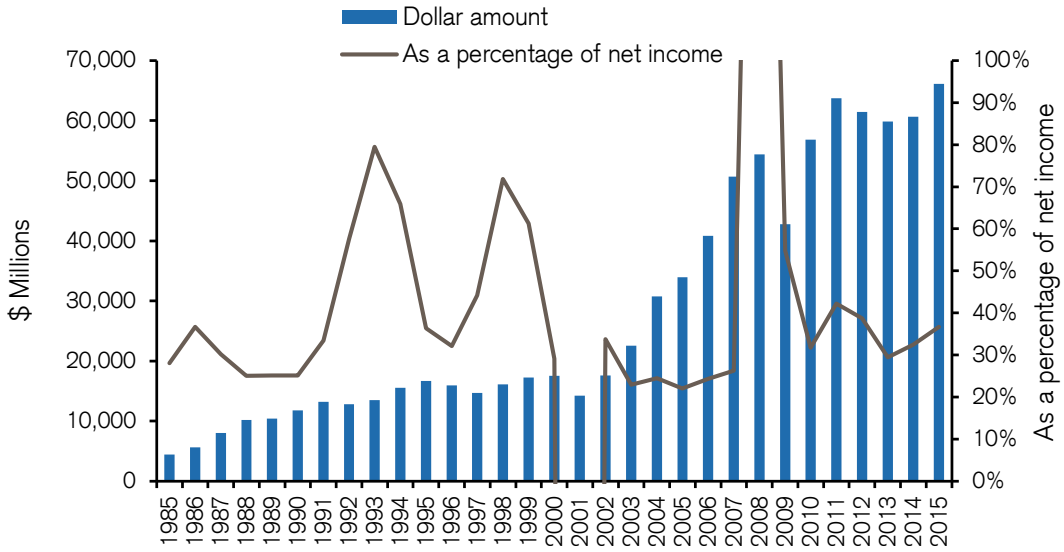
Source: Thomson Reuters and Credit Suisse.
Note: Announced divestitures; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases; Dollar amounts not inflated.

Dividends. Exhibit 20 shows the annual amount of dividends on common and preferred stock for the top 1,000 companies in Japan, excluding the financial services and regulated utility industries, from 1985 to 2015. The average dividend payout ratio, or dividends as a percentage of net income, was roughly 35 percent. The average dividend yield, or dividend payment as a percentage of total market capitalization, was 1.2 percent.

In general, dividends do not move around too much from year to year in Japan, but they do show a notable uptick beginning in the early 2000s. From 1985-1999, the average dividend yield was only 0.8 percent. From 2000-2015, that figure almost doubled to 1.5 percent.

The corporate governance reform that led to greater M&A activity also unleashed a surge in corporate payout.[49] These legislative reforms, which gained momentum in 1999, created a better environment for companies and shareholders, including new laws that increase investor protection. The result has been more generous dividends and buybacks across the board. However, *keiretsu* firms still continue to favor dividends over buybacks, and their payouts remain more sensitive to fluctuations than those of non-*keiretsu* companies.

Exhibit 20: Japan Common and Preferred Dividends, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

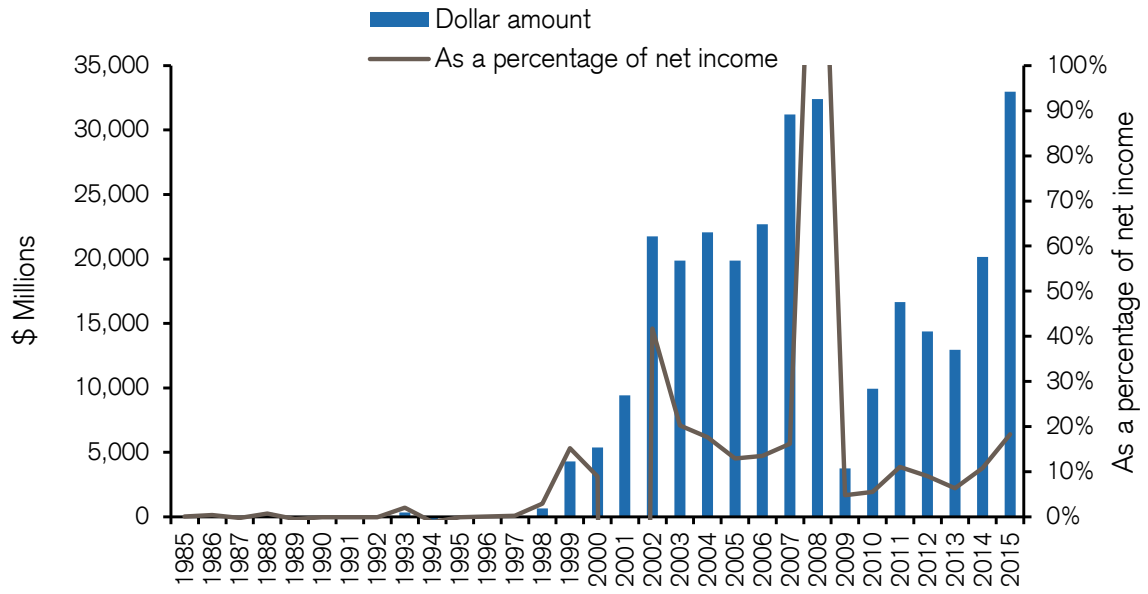
Share Buybacks. Exhibit 21 shows the annual amount of gross buybacks for the top 1,000 companies in Japan from 1985 to 2015. Buybacks totaled roughly 10 percent of net income over the full period. The average buyback yield, or buybacks as a percentage of total market capitalization, was 0.4 percent, well below the 1.2 percent dividend yield.

But the average belies the fact that buybacks were virtually nonexistent until the late 1990s because they were illegal until 1994. Even after the government legalized buybacks, significant tax disadvantages and regulatory hurdles remained for several years. Only the removal of these limitations and a wave of shareholder-friendly corporate governance reforms led to the recent surge in buybacks.

The numbers tell the story. From 1985-1999, the average buyback yield was zero. From 2000-2015, it was 0.7 percent. This yield is less than one half the 1.5 percent dividend yield during the same period, but the disparity is far less. The balance remains in favor of dividends because the *keiretsu* firms are reluctant to embrace buybacks.

The rise in buybacks also appears tentative. As the exhibit demonstrates, buybacks rose considerably through the early 2000s but plummeted after Japan fell into a recession in 2008. Buybacks are also much more cyclical than dividends, consistent with the attitude many executives adopt that a company should fund a buyback only with cash that's left over after the company has exhausted all other uses, including dividends.

Exhibit 21: Japan Gross Share Buybacks, 1985-2015

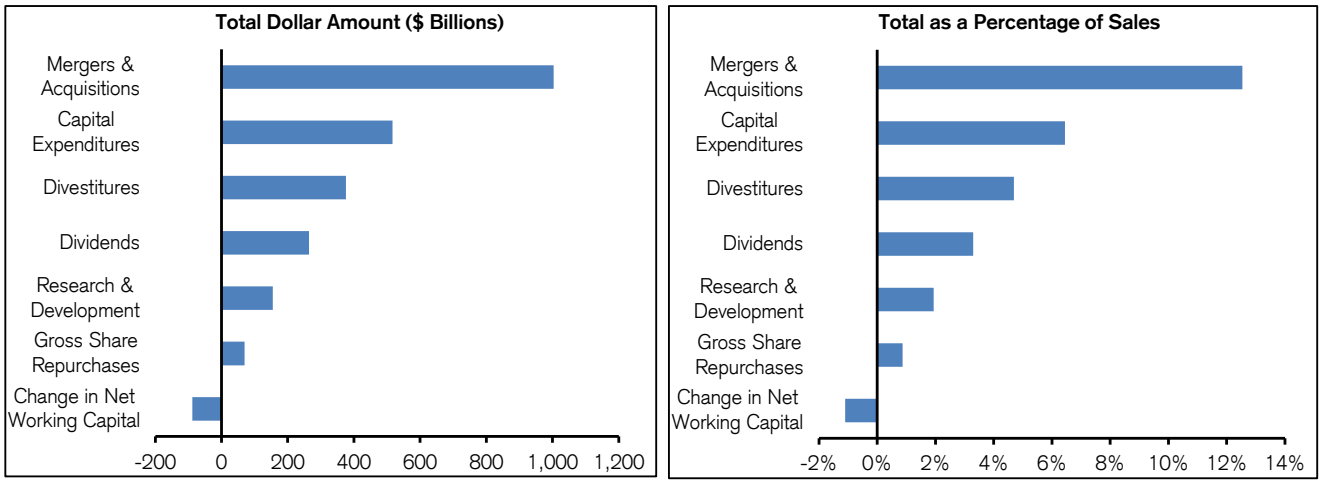


Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Europe

Uses of Capital. Exhibit 22 shows how the top 1,000 companies in Europe, excluding companies in the financial services and regulated utility industries, deployed capital in 2015. While just a snapshot for a particular year, the ranking reasonably reflects how companies in Europe have allocated capital over time. The appendix provides a full list of the countries included.

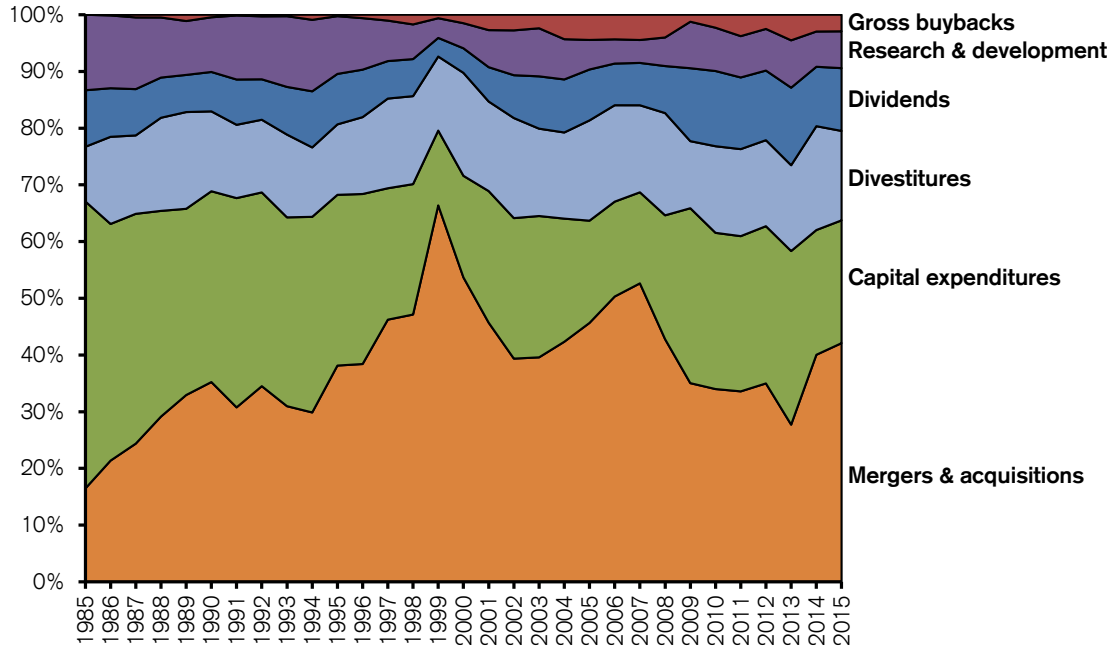
Exhibit 22: Europe Capital Deployment, 2015



Source: Thomson Reuters and Credit Suisse.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Exhibit 23 shows the breakdown of spending by source from 1985-2015. Again, we exclude changes in net working capital.

Exhibit 23: Europe Capital Deployment, 1985-2015



Source: Thomson Reuters and Credit Suisse.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

M&A has been the biggest use of capital over time but capital expenditures are not far behind. An examination of the results from 1985 through 2015 reveals some noteworthy patterns:

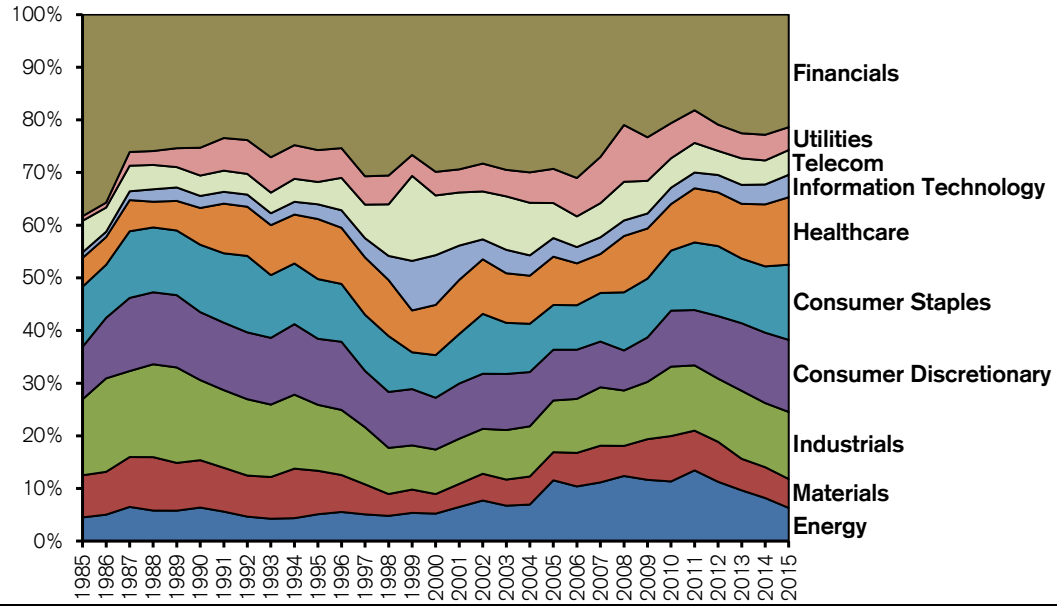
- M&A has been the largest use of capital, but it is very cyclical. M&A has been in a range of 2 percent of sales in 1985 to 44 percent at the peak in the late 1990s. M&A activity in Europe substantially lagged that of the U.S. in the late 1980s, but has since closed the gap as the result of political and economic factors. The introduction of the euro, globalization, and privatization stimulated M&A activity, especially for cross-border deals within the region. Greater participation from countries in Continental Europe also pushed volumes higher.

- Capital expenditures have been in a tight range of roughly 6 percent to 9 percent over the period. In 2015, they were 6.5 percent of total sales, modestly below the long-term average of 7 percent. One explanation for this stability is that the composition of the economy has been steady over time. (See Exhibit 24.) For example, the energy, materials, and industrial sectors, which tend to require more capital investment, represented roughly one quarter of the market capitalization in 1985 and 2015.

- Share buybacks were extremely rare until the mid-1990s as the result of legal bans and strict regulations on implementation and disclosure. European governments have largely overturned these bans and loosened the constraints, although many restrictions remain in place regarding the timing, price, and allowed amounts of buybacks. Companies have shifted their method of payouts following these changes, but they still heavily favor dividends. The volume of buybacks reached 60 percent of dividends in 2007, but has since retreated to one-quarter in 2015.

- R&D expenditures have been between 1.6 percent and 2.4 percent of sales, and have averaged 2.0 percent of sales over the full period. This level is below both the U.S. and Japan. Europe's small information technology sector contributes to the gap. Historically, IT has constituted just 4 percent of Europe's economy, compared to 15 percent in the U.S. and 12 percent in Japan. European corporations only account for about 60 percent of the overall R&D spending for their economy, well below the roughly 70 percent in the U.S. and 80 percent in Japan.

Exhibit 24: Europe Sector Composition, 1985-2015



Source: Credit Suisse HOLT.

Exhibit 25 shows a detailed history of capital deployment from 1985-2015. Again we see that 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. Exhibit 26 represents the same deployment numbers as a percentage of sales.

Exhibit 25: Europe Capital Deployment, 1985-2015

	Total Amount (in Millions of U.S. Dollars, Nominal)						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1985	16,662	51,238	13,471		2	9,754	10,093
1986	33,808	65,985	20,295	56,626	188	24,306	13,550
1987	65,232	108,459	33,842	150,040	1,261	37,010	21,852
1988	104,214	129,725	37,890	65,969	1,734	58,737	25,338
1989	159,389	158,871	45,982	102,405	5,351	82,534	31,695
1990	218,826	208,944	59,903	136,096	2,770	87,466	43,159
1991	174,250	208,988	63,954	33,221	725	73,203	45,227
1992	183,669	181,877	59,083	-66,150	1,525	68,216	37,957
1993	149,698	160,905	60,250	19,003	1,254	70,518	40,639
1994	162,171	187,299	68,456	76,236	4,859	66,455	53,727
1995	291,123	229,789	77,732	86,579	1,894	94,819	67,927
1996	330,036	257,615	78,036	-40,532	5,149	116,461	71,929
1997	508,297	254,741	78,461	-73,694	11,376	173,901	72,644
1998	651,058	317,619	84,471	55,578	23,565	214,310	90,245
1999	1,603,022	318,600	83,726	-65,844	14,824	315,300	79,356
2000	1,084,162	361,923	89,379	37,690	30,068	366,695	87,558
2001	616,255	312,910	88,137	-42,687	36,527	212,952	81,642
2002	486,506	306,200	97,725	75,032	34,019	218,067	93,381
2003	525,864	331,063	112,529	180,472	31,728	204,620	122,585
2004	726,985	372,818	121,892	59,894	74,003	260,856	160,632
2005	1,003,253	396,084	114,455	-31,319	97,624	388,490	197,317
2006	1,581,377	525,870	134,255	91,782	136,240	534,357	231,068
2007	1,998,658	609,750	153,463	149,527	169,045	582,720	283,614
2008	1,275,512	651,345	150,330	-150,346	119,446	537,522	247,106
2009	648,258	570,716	151,716	56,958	22,733	218,811	237,979
2010	681,855	552,499	153,156	33,108	45,815	306,375	266,072
2011	726,898	592,406	157,707	21,766	81,639	332,065	273,497
2012	806,880	639,341	169,266	109,497	57,706	349,769	283,112
2013	585,370	646,343	176,334	51,861	95,222	319,509	288,725
2014	1,047,796	575,711	162,666	-120,131	77,431	479,130	274,210
2015	1,003,722	516,309	154,823	-88,106	69,713	375,948	264,032
CAGR	**14.6%**	**8.0%**	**8.5%**	**NA**	**42.0%**	**12.9%**	**11.5%**
St. Dev.	**47.1%**	**17.3%**	**16.1%**	**NA**	**1815.0%**	**38.2%**	**17.7%**

Source: Thomson Reuters and Credit Suisse.
Note: Dollar amounts not inflated. R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

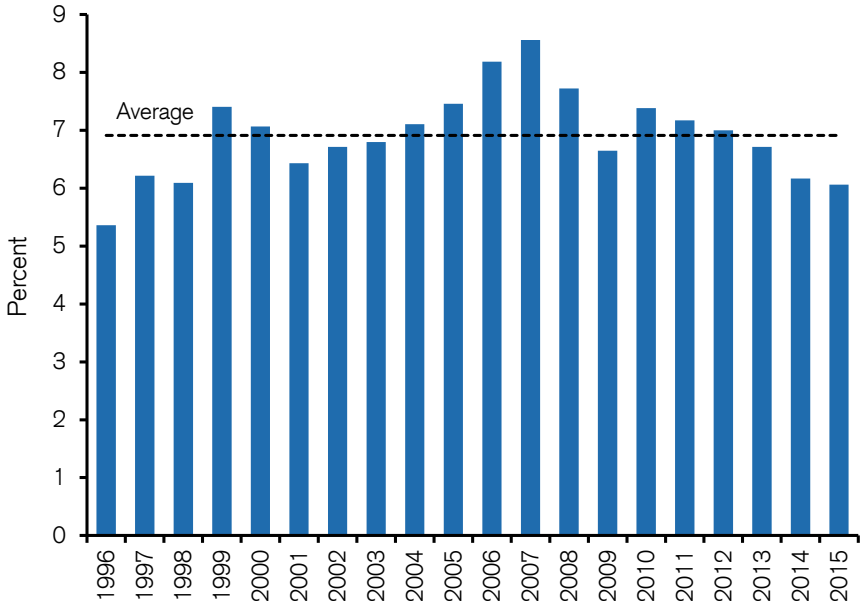
Exhibit 26: Europe Capital Deployment, 1985-2015

	As a Percentage of Sales						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1985	2.2%	6.8%	1.8%		0.0%	1.3%	1.3%
1986	3.8%	7.4%	2.3%	6.3%	0.0%	2.7%	1.5%
1987	4.7%	7.8%	2.4%	10.7%	0.1%	2.7%	1.6%
1988	6.5%	8.1%	2.4%	4.1%	0.1%	3.7%	1.6%
1989	8.0%	8.0%	2.3%	5.2%	0.3%	4.2%	1.6%
1990	8.6%	8.2%	2.3%	5.3%	0.1%	3.4%	1.7%
1991	6.3%	7.6%	2.3%	1.2%	0.0%	2.7%	1.6%
1992	7.2%	7.1%	2.3%	-2.6%	0.1%	2.7%	1.5%
1993	5.9%	6.3%	2.4%	0.7%	0.0%	2.8%	1.6%
1994	5.4%	6.2%	2.3%	2.5%	0.2%	2.2%	1.8%
1995	8.5%	6.7%	2.3%	2.5%	0.1%	2.8%	2.0%
1996	9.2%	7.2%	2.2%	-1.1%	0.1%	3.2%	2.0%
1997	14.6%	7.3%	2.3%	-2.1%	0.3%	5.0%	2.1%
1998	16.9%	8.3%	2.2%	1.4%	0.6%	5.6%	2.3%
1999	43.6%	8.7%	2.3%	-1.8%	0.4%	8.6%	2.2%
2000	26.7%	8.9%	2.2%	0.9%	0.7%	9.0%	2.2%
2001	14.6%	7.4%	2.1%	-1.0%	0.9%	5.1%	1.9%
2002	10.0%	6.3%	2.0%	1.5%	0.7%	4.5%	1.9%
2003	9.2%	5.8%	2.0%	3.2%	0.6%	3.6%	2.1%
2004	11.6%	5.9%	1.9%	1.0%	1.2%	4.2%	2.6%
2005	15.1%	5.9%	1.7%	-0.5%	1.5%	5.8%	3.0%
2006	19.7%	6.6%	1.7%	1.1%	1.7%	6.7%	2.9%
2007	21.8%	6.6%	1.7%	1.6%	1.8%	6.4%	3.1%
2008	13.7%	7.0%	1.6%	-1.6%	1.3%	5.8%	2.7%
2009	7.8%	6.8%	1.8%	0.7%	0.3%	2.6%	2.8%
2010	7.7%	6.2%	1.7%	0.4%	0.5%	3.5%	3.0%
2011	7.6%	6.2%	1.7%	0.2%	0.9%	3.5%	2.9%
2012	7.9%	6.3%	1.7%	1.1%	0.6%	3.4%	2.8%
2013	5.7%	6.3%	1.7%	0.5%	0.9%	3.1%	2.8%
2014	11.4%	6.3%	1.8%	-1.3%	0.8%	5.2%	3.0%
2015	12.5%	6.5%	1.9%	-1.1%	0.9%	4.7%	3.3%
Average	**11.4%**	**7.0%**	**2.0%**	**1.3%**	**0.6%**	**4.2%**	**2.2%**

Source: Thomson Reuters and Credit Suisse.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Recent Trends in Cash Flow Return on Investment and Asset Growth. Today's CFROI is below the long-term average of 6.9 percent, and well below the peak years of the mid-2000s. (See Exhibit 27.)

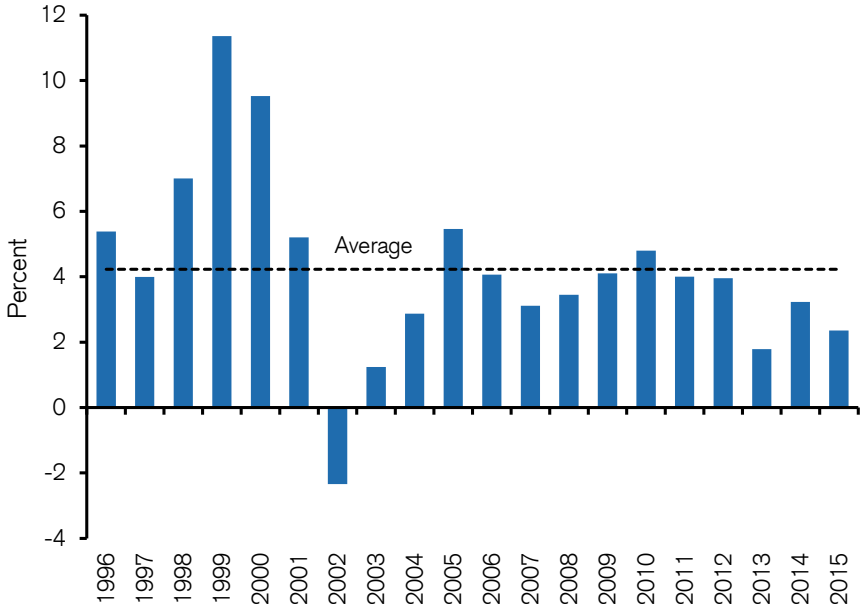
Exhibit 27: Europe CFROI, 1996-2015



Source: Credit Suisse HOLT.
Note: European industrial firms, weighted by net assets.

Exhibit 28 shows the annual rate of asset growth, adjusted for inflation, over the past twenty years. Asset growth was very low in 2015, reflecting the reluctance of companies to invest. Asset growth in 2015, at 2.4 percent, was well below the long-term average of 4.2 percent, and asset growth in the past decade is also below average.

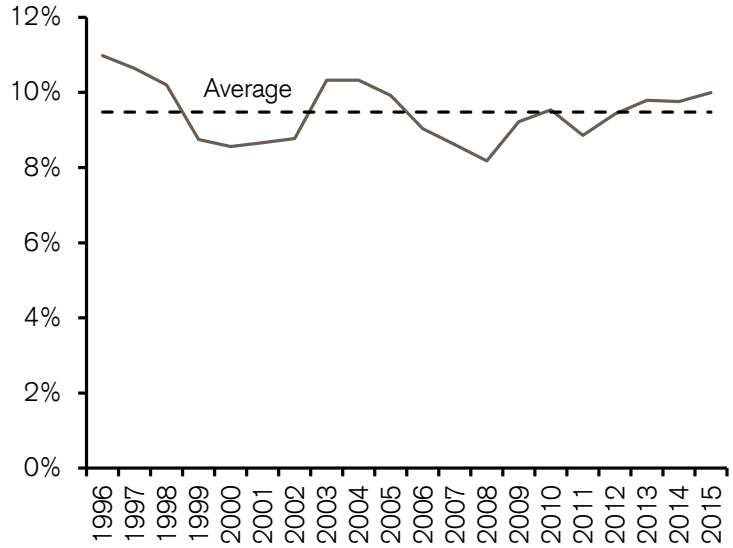
Exhibit 28: Europe Real Asset Growth Rate, 1996-2015



Source: Credit Suisse HOLT.
Note: European industrial firms, weighted by gross investments.

Exhibit 29 shows that at 10 percent, today's cash as a percentage of assets is exactly at the long-term average, but just below the peak of 11 percent in 1996.

Exhibit 29: Europe Cash as a Percentage of Total Assets, 1996-2015



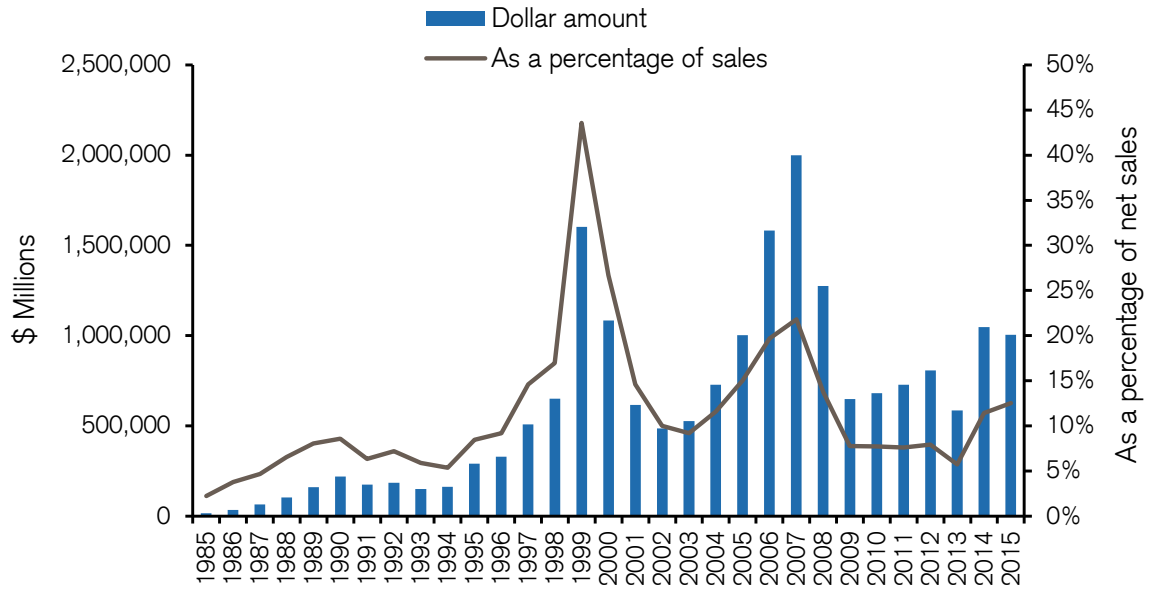
Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms.

Mergers and Acquisitions. Exhibit 30 shows the dollar amount of M&A as well as M&A as a percentage of sales from 1985 to 2015. M&A volume was 12.5 percent of total sales in 2015, above its long-term average of roughly 11 percent. Over the full period, M&A in Europe and the U.S. has been equivalent as a percentage of sales.
While comparable as a fraction of sales, the absolute level of M&A in Europe still lags that of the U.S. From 1985 to1989, M&A volume in Europe was less than one-third the level of the U.S., but has since risen to nearly three-fourths the level of the U.S. in recent years.

M&A in Europe has followed the stock market but research shows that several factors, including the introduction of the euro, globalization, deregulation, and privatization, have stoked the general rise since the late 1980s. In particular, these factors helped drive cross-border deals within Europe.[50]

Greater participation from countries in Continental Europe also drove the increased deal activity. The U.K. once dominated total European M&A volume, accounting for roughly two-thirds of the total volume in the late 1980s. But in recent years (2010-2015), the U.K. accounted for just one-quarter of the total volume in Europe. Countries on the continent with the largest M&A activity in 2015 included France at 10 percent of the total, Germany at 9 percent, and Italy, Ireland, and Switzerland at 6 percent.

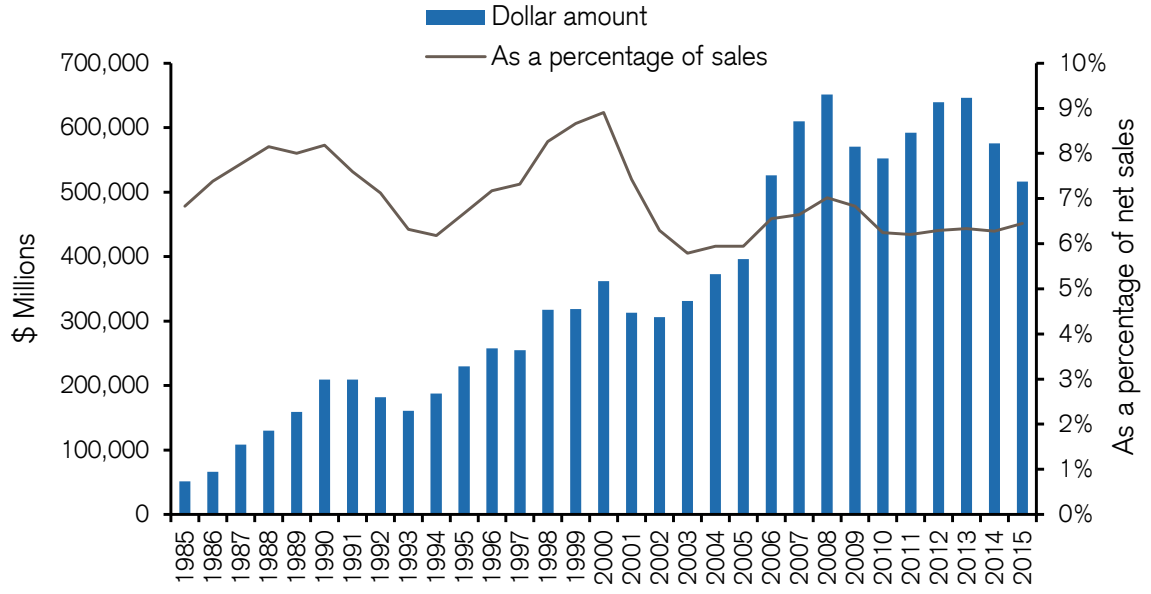
Exhibit 30: Europe Mergers and Acquisitions, 1985-2015



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

Capital Expenditures. Exhibit 31 shows the dollar amount of capital expenditures, as well as capital expenditures as a percentage of sales, from 1985 to 2015. Capital expenditures were 6.5 percent of total sales in 2015, below the long-term average of 7.0 percent. In 2015, capital expenditures were the second largest use of capital in Europe behind M&A. Measured as a ratio of sales, Europe's capital expenditure spending exceeds that of Japan, is roughly in line with the U.S., and is well below that of APEJ and GEM. The exhibit reveals that capital expenditures are fairly steady from year to year.

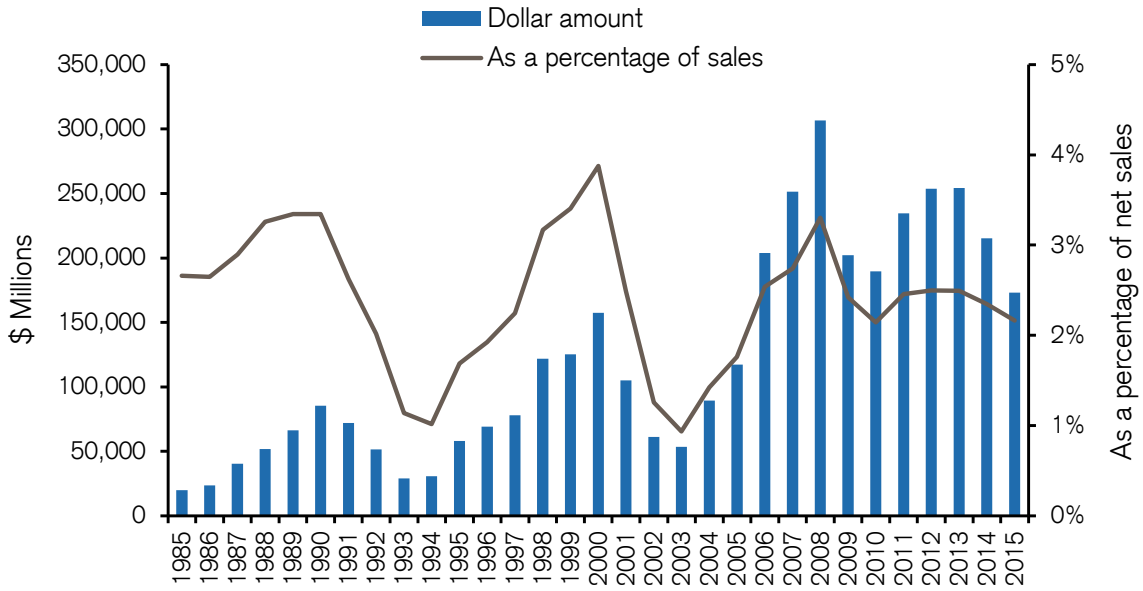
Exhibit 31: Europe Capital Expenditures, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Exhibit 32 shows capital expenditures net of depreciation. Measured as a percentage of sales, growth capital expenditures have averaged roughly one-third of overall capital expenditures.

Exhibit 32: Europe Capital Expenditures Net of Depreciation, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

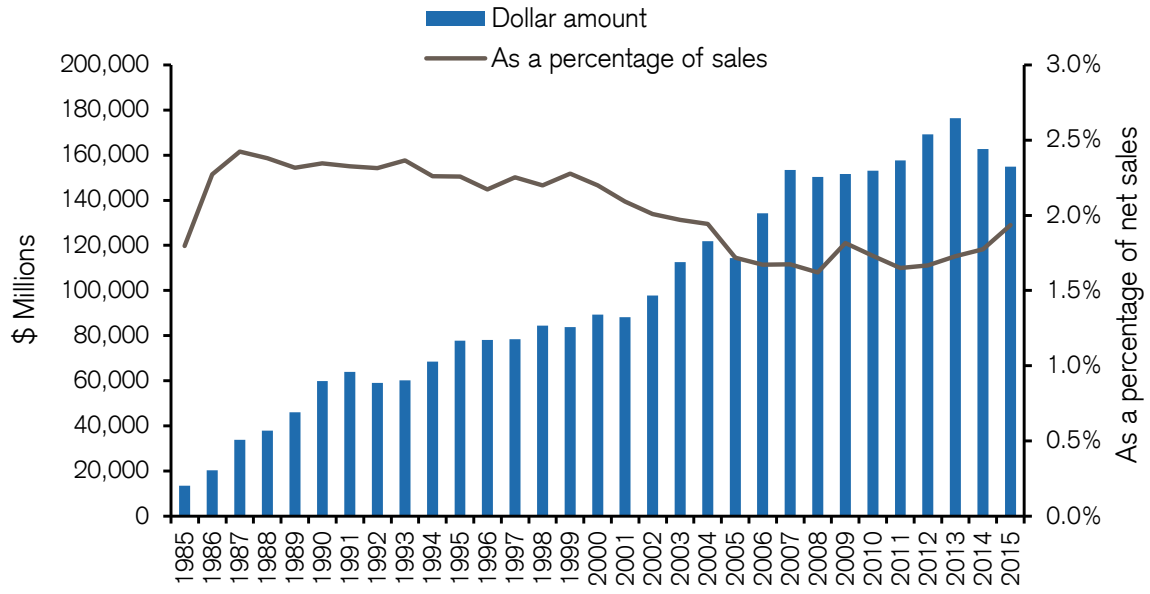
Research and Development. Exhibit 33 shows the dollar amount of R&D since 1985 as well as R&D as a percentage of sales. The ratio jumped to a peak of 2.4 percent of sales in 1987, then steadily declined to 1.6 percent in 2008, and rebounded slightly to 1.9 percent in 2015. This level is below both that of the U.S. and Japan at 2.2 percent. Sector composition largely explains the difference. Europe has a very low concentration in IT, the most R&D-intensive sector, and a higher concentration in industries that rely more heavily on capital investments. Academic research supports this conclusion.[51]

Yet, sector composition isn't the whole story. R&D as a percentage of sales has fallen since the late 1980s despite a modest rise in R&D-intensive sectors. For example, healthcare, one of the most R&D-intensive sectors, grew considerably during the period, while IT expanded to a lesser extent.

Based on 2015 figures, European countries with companies that spent the most on R&D as a percentage of sales included Switzerland at 5.4 percent (heavily influenced by the pharmaceutical industry), Israel (grouped within Europe) at 3.9 percent, Sweden at 2.8 percent, and Germany at 2.7 percent. Notable laggards included Spain at 0.6 percent of sales, Italy at 0.8 percent, and the U.K. at 1.1 percent.

In European countries, businesses account for just over 60 percent of total R&D spending on average, with the government, academia, and private nonprofit companies sharing the balance.[52] Corporations in Europe account for a smaller share of the total R&D spending than they do in the U.S. and Japan, where businesses spend around 70-80 percent. The business share of total R&D spending ranges from a low of 34 percent in Greece to a high of 73 percent in Ireland. Among larger European economies, the business share of R&D spending is 64 percent in the U.K., 65 percent in France, and 68 percent in Germany.

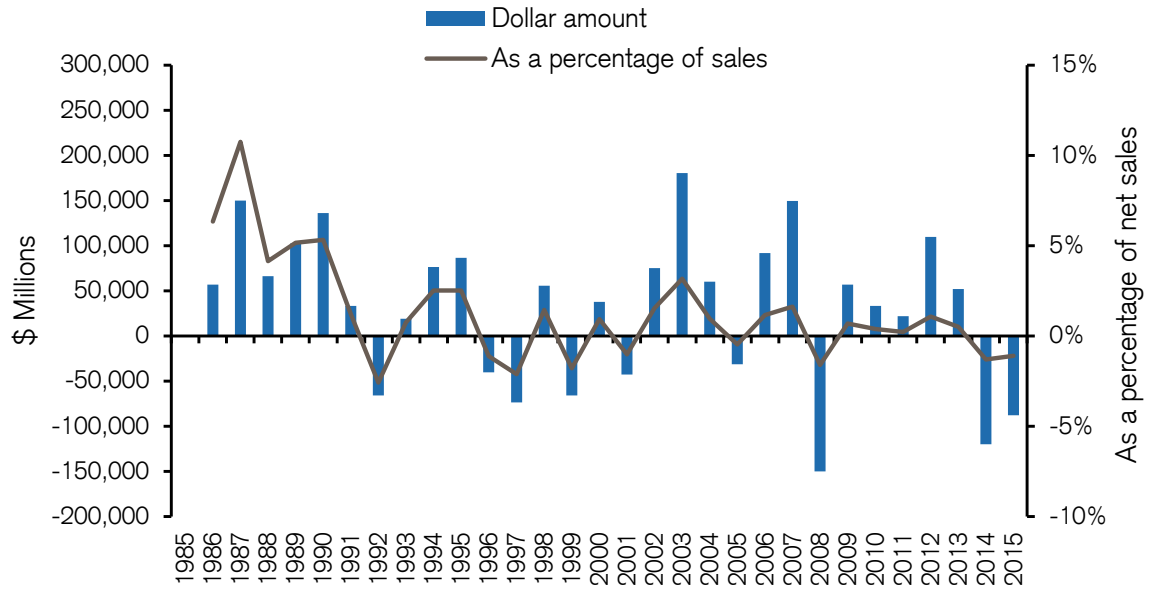
Exhibit 33: Europe Research and Development, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Net Working Capital. Net working capital is about 15 percent of assets, on average, for companies in Europe. Exhibit 34 shows the annual change in net working capital from 1985 through 2015. At year-end 2015, net working capital stood at $1.1 trillion for the top 1,000 public firms in Europe. We consider changes in net working capital as opposed to the absolute amount, because changes are what you should consider to be an incremental investment. Net working capital investments are highly volatile in Europe and are a smaller sum than M&A, capital expenditures, or R&D.

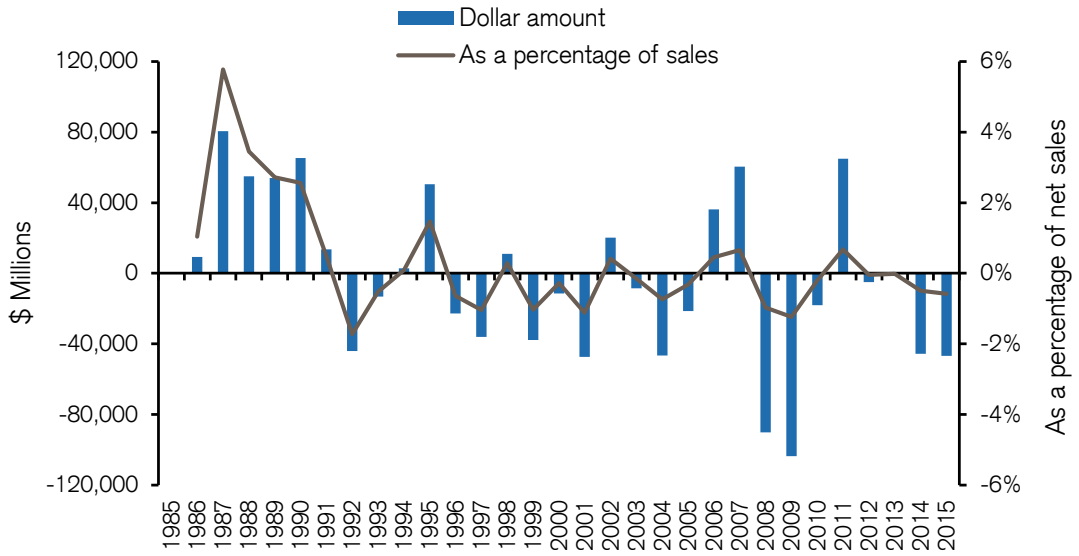
Exhibit 34: Europe Change in Net Working Capital, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

The situation changes significantly if we exclude cash. At the end of 2015, net working capital excluding cash was actually negative, at -$33 billion for the top 1,000 European industrial companies, -3 percent of total net working capital. Exhibit 35 shows the change in net working capital excluding cash.

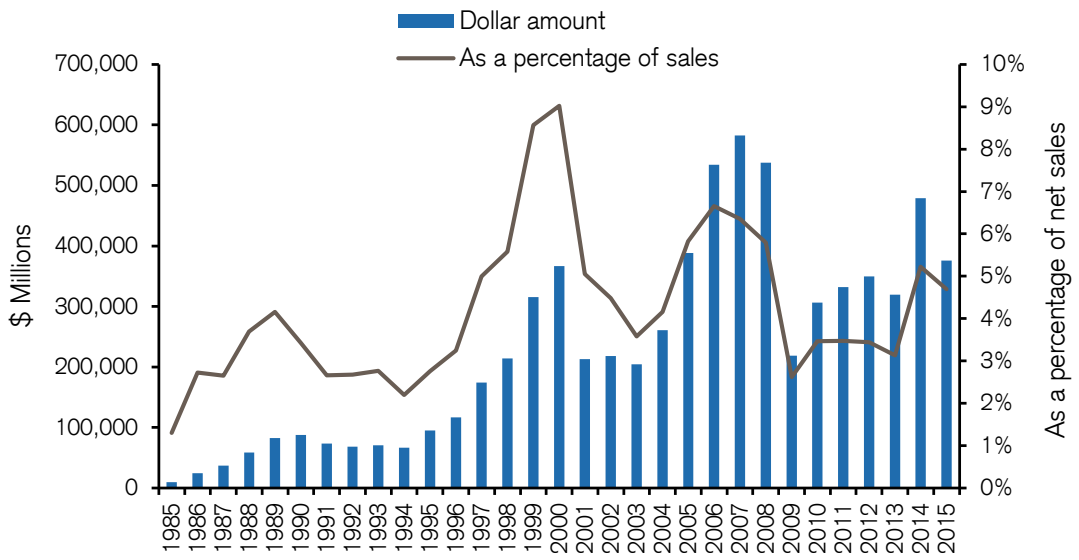
Exhibit 35: Europe Change in Net Working Capital Excluding Cash, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Divestitures. Exhibit 36 shows divestitures from 1985-2015. Similar to M&A, divestiture activity varies a great deal from year to year, ranging from a low of 1 percent of sales in 1985 to a high of 9 percent in 2000. While divestitures generally draw less attention than M&A, they represent a substantial component of capital allocation. Overall, divestitures have averaged 4.2 percent of sales over time, which is slightly more than one-third the level of M&A and much higher than gross buybacks, dividends, and R&D spending.

Exhibit 36: Europe Divestitures, 1985-2015



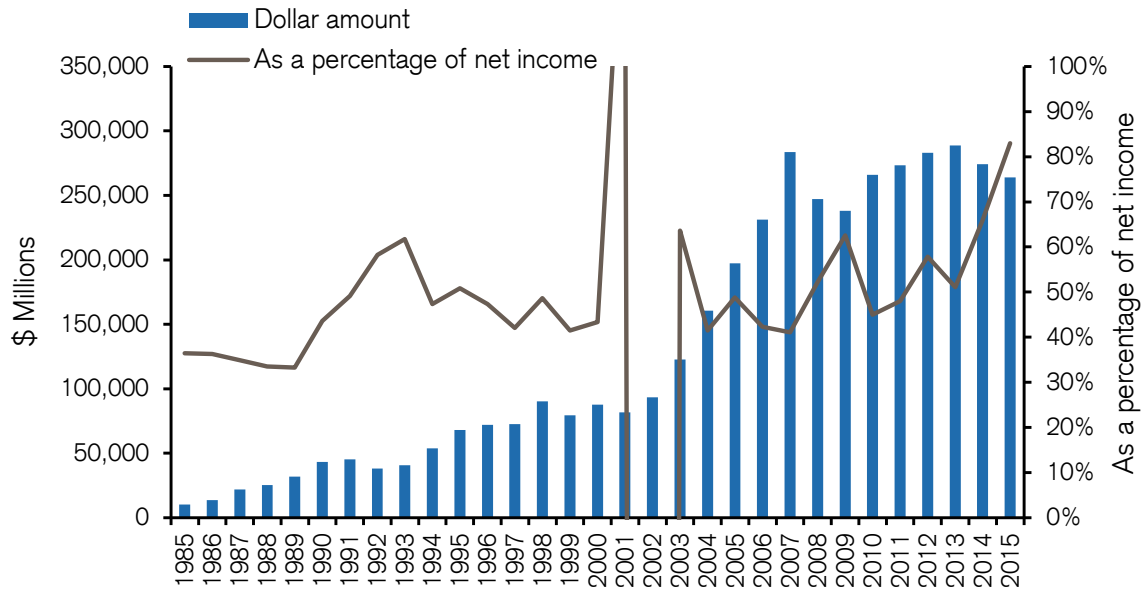
Source: Thomson Reuters and Credit Suisse HOLT.
Note: Announced divestitures; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases; Dollar amounts not inflated.

Dividends. Exhibit 37 shows the annual amount of dividends on common and preferred stock for the top 1,000 companies in Europe, excluding the financial services and regulated utility industries, from 1985 to 2015. Dividends are very stable in Europe and were particularly resilient during the recent financial crisis.

The average dividend payout ratio, or dividends as a percentage of net income, was roughly 50 percent from 1985-2015. The average dividend yield, or dividend payment as a percentage of total market capitalization, was 2.7 percent over the same period. In 2015, the dividend yield was 2.9 percent. Countries with yields that were above average in 2015 included Norway at 4.3 percent, Finland at 4.1 percent, the Netherlands at 3.6 percent, and the UK at 3.5 percent. Countries with below-average yields included Denmark at 1.6 percent, Spain at 2.1 percent, and Germany at 2.3 percent.

Academic research shows that the trend in dividend policy in Europe and the U.S. is similar.[53] In both regions, there has been a decline in the fraction of firms paying dividends. In Europe, that fraction has fallen from 88 percent in 1989 to 51 percent in 2005. In the U.S., that fraction fell from more than 80 percent in the 1950s to roughly 20 percent in 1999. At the same time, dividends are becoming more concentrated among fewer firms in both regions.

Exhibit 37: Europe Common and Preferred Dividends, 1985-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Share Buybacks. Exhibit 38 shows the annual gross buybacks for the top 1,000 companies in Europe from 1985 to 2015. Buybacks were negligible until the late 1990s, rose considerably through 2007, and fell sharply during the ensuing recession. Similar to the results in other regions, buybacks are much more cyclical than dividends. The ratio of buybacks to dividends peaked in 2008 at approximately 60 percent and declined to 28 percent in 2015.

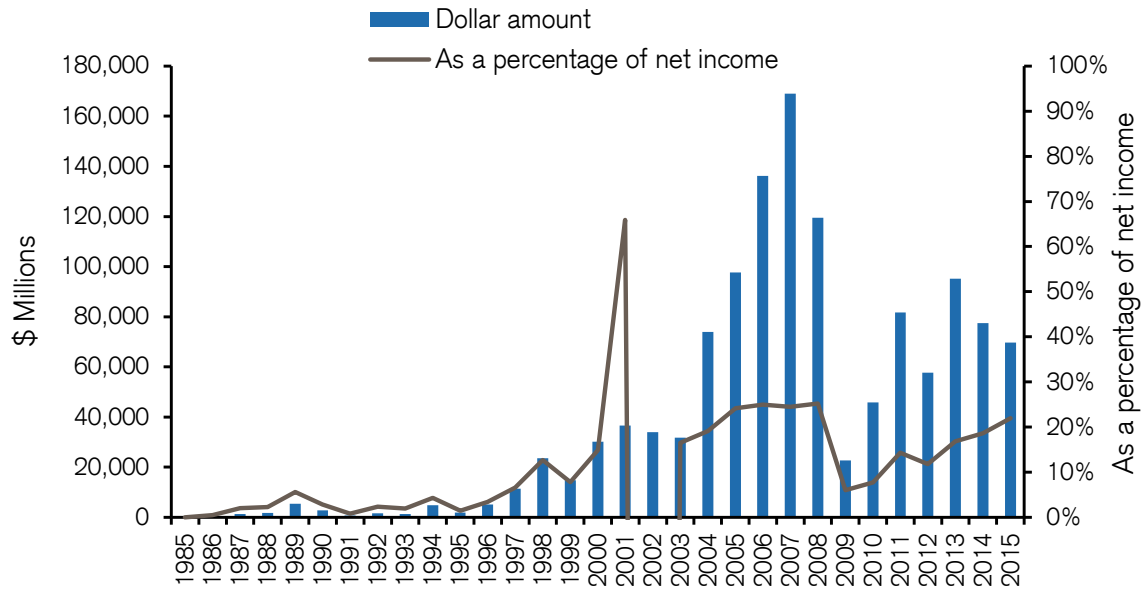
Buybacks have totaled roughly 10 percent of net income, on average, from 1985-2015. The average buyback yield, or buybacks as a percentage of total market capitalization, was 0.6 percent over the same period, well below the 2.7 percent dividend yield. In 2015, the buyback yield was 0.8 percent. Countries with above-average buyback yields in 2015 included Spain at 1.7 percent, Denmark at 1.6 percent, and Switzerland at 1.6 percent. Countries with below-average yields included Italy at 0.2 percent, Germany at 0.3 percent, and the UK and Sweden at 0.5 percent.

Whereas the propensity for European firms to pay dividends has fallen, the fraction of firms repurchasing shares has risen. Similar to dividends, share repurchases are becoming concentrated among fewer firms in Europe.

Buybacks have been smaller in Europe than in the U.S. due to legal bans as well as stricter regulations on how companies have to implement and disclose them.[54] For example, open market share repurchases were not legal until 1981 in the U.K., until 1992 in Switzerland, and until 1998 in Germany. In France, buybacks were very difficult to implement until a change in the law in 1998.

In addition, whereas board approval is sufficient to initiate a buyback program in the U.S., companies must obtain shareholder approval for open market repurchases in the U.K., France, Germany, Italy, the Netherlands, and Switzerland. Even then, significant restrictions remain regarding the terms of timing, price, and amount of buybacks. Finally, companies in many of these countries also have additional reporting requirements on top of basic disclosure in financial statements.

Exhibit 38: Europe Gross Share Buybacks, 1985-2015

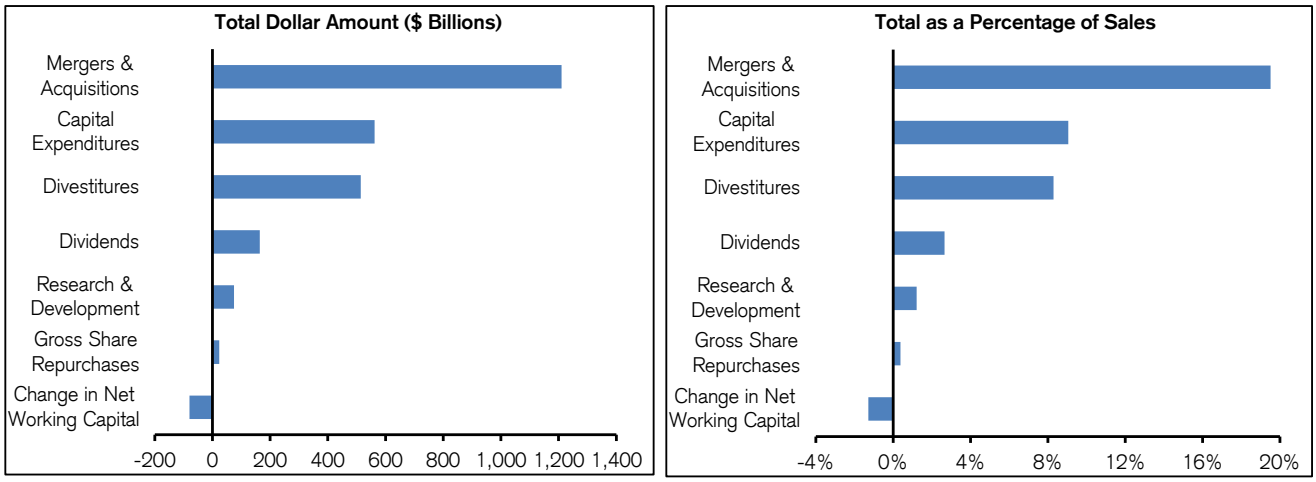


Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Asia/Pacific excluding Japan (APEJ)

Uses of Capital. Exhibit 39 shows how the top 1,000 companies in APEJ, excluding companies in the financial services and regulated utility industries, deployed capital in 2015. While just a snapshot for a particular year, the ranking reasonably reflects how companies in APEJ have allocated capital over time. The appendix provides a full list of the countries included.

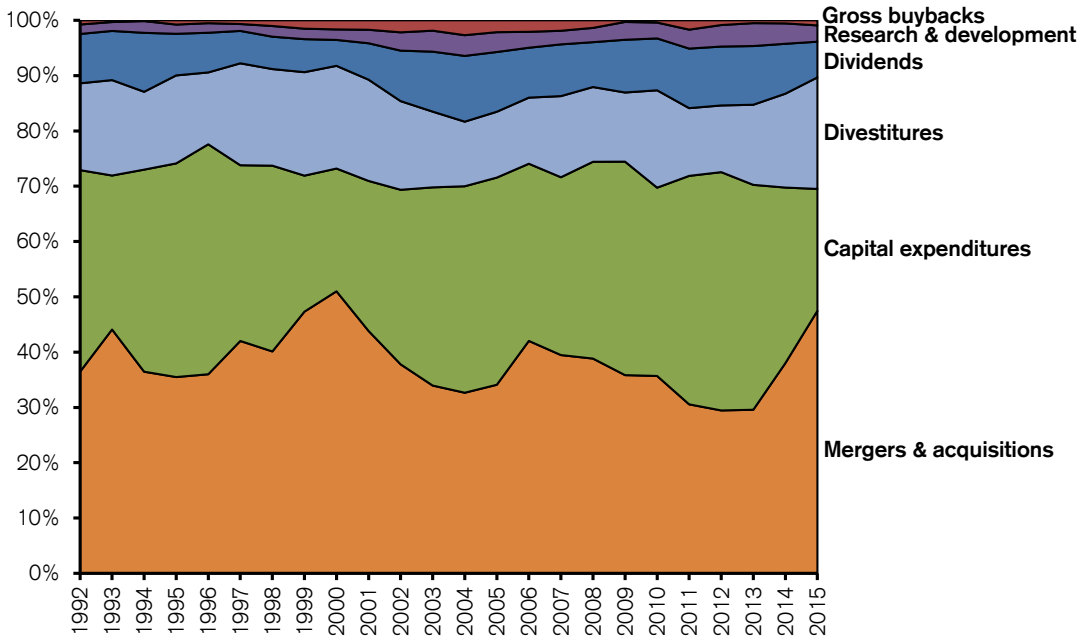
Exhibit 39: APEJ Capital Deployment, 2015



Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Exhibit 40 shows the breakdown of spending by source from 1992-2015. Again, we exclude changes in net working capital.

Exhibit 40: APEJ Capital Deployment, 1992-2015



Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Similar to 2015, capital expenditures and M&A are by far the largest uses of capital over time. An examination of the changes from 1992 through 2015 reveals some noteworthy patterns:

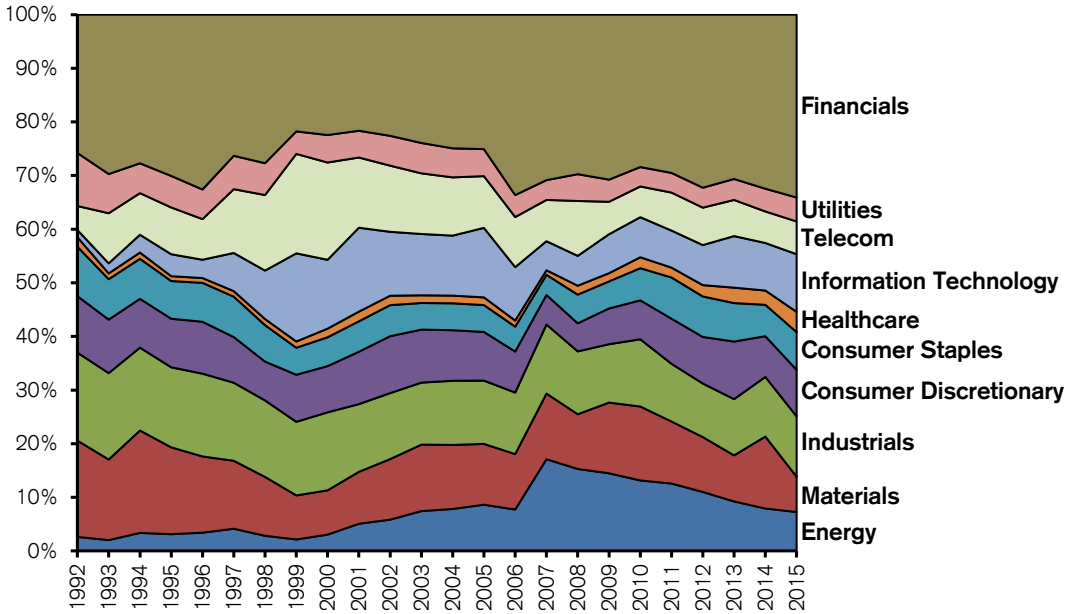
- M&A is the largest use of capital but it is very cyclical, ranging from a low of 6.3 percent of sales in 2012 to a high of 26.7 percent in 2000. The long-term average is roughly 13 percent, modestly higher than the levels of the U.S. and Europe. China really stands out, as its share of the region's total M&A went from less than 5 percent in the early 1990s to more than one-half in recent years.

- Capital expenditures are the second largest use of capital. Capital expenditures were 9 percent of total sales in 2015, below the long-term average of 10.6 percent. Measured as a percentage of sales, APEJ's capital expenditures greatly exceed those of the U.S., Japan, and Europe.

- R&D spending has slowly trended higher over time but remains well below that of the U.S., Japan, and Europe both on an absolute basis and relative to sales. R&D rose steadily from 0.5 percent of sales in 1992 to 1.1 percent of sales in the mid-2000s, then dipped slightly before rebounding to an all-time high of 1.2 percent in 2015. This rise reflects the change in the composition of the market, with the information technology sector growing from just 1 percent of the market in 1992 to roughly 10 percent in recent years. (See Exhibit 41.)

- Share buybacks have historically been very modest and remain a small component of corporate payouts. Buybacks have averaged just 0.3 percent of total market capitalization over time, well below dividends at 2.1 percent. Regulatory constraints have contributed to the lower level of buybacks, particularly in the earlier years. For example, the governments didn't legalize buybacks in Australia until 1989 and in Hong Kong until 1991. These are among the largest economies in the region. In 2015, buybacks in China, India, and Taiwan were negligible.

Exhibit 41: APEJ Sector Composition, 1992-2015



Source: Credit Suisse HOLT.

Exhibit 42 shows a detailed history of capital deployment from 1992-2015. Again we see that 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. Exhibit 43 represents the same deployment numbers as a percentage of sales.

Exhibit 42: APEJ Capital Deployment, 1992-2015

	Total Amount (in Millions of U.S. Dollars, Nominal)						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1992	29,972	29,978	1,410		622	12,904	7,338
1993	48,463	30,603	1,769	28,212	346	18,969	9,766
1994	45,067	45,164	2,628	31,043	171	17,402	13,175
1995	80,930	88,094	3,800	56,435	1,756	36,282	17,168
1996	95,100	109,830	4,574	25,838	1,367	34,334	18,958
1997	119,857	90,646	3,553	-21,558	1,918	52,570	16,713
1998	105,544	88,362	5,075	-3,886	2,712	45,954	15,401
1999	158,467	82,366	6,329	18,230	5,075	62,646	20,005
2000	252,438	109,887	9,407	27,022	8,154	91,934	23,194
2001	171,880	106,357	9,555	3,495	6,708	71,804	25,824
2002	144,868	120,959	12,670	11,942	8,340	61,453	34,992
2003	146,320	154,390	16,352	63,785	8,073	59,018	46,719
2004	190,113	217,346	21,799	80,023	15,655	68,002	69,229
2005	241,276	265,044	25,367	70,280	15,194	84,246	76,437
2006	423,042	322,494	28,964	70,765	20,942	120,308	90,829
2007	511,954	417,027	31,918	186,276	24,522	190,329	121,314
2008	499,634	457,946	33,236	-9,925	17,628	173,867	104,394
2009	443,115	477,212	39,850	150,571	3,656	154,602	117,840
2010	583,008	556,155	46,891	245,088	6,643	287,629	153,207
2011	464,887	628,469	52,133	194,090	25,665	186,335	163,810
2012	462,895	677,202	61,093	124,121	13,428	189,556	167,397
2013	497,434	683,831	69,629	62,086	8,603	243,500	178,513
2014	764,660	638,655	74,166	148,397	11,238	341,440	181,543
2015	1,210,271	561,767	75,066	-79,593	23,495	514,217	164,578
CAGR	**17.4%**	**13.6%**	**18.9%**	**NA**	**17.1%**	**17.4%**	**14.5%**
St. Dev.	**32.6%**	**24.3%**	**17.1%**	**NA**	**202.3%**	**36.6%**	**17.6%**

Source: Credit Suisse HOLT and Thomson Reuters.
Note: Dollar amounts not inflated. R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

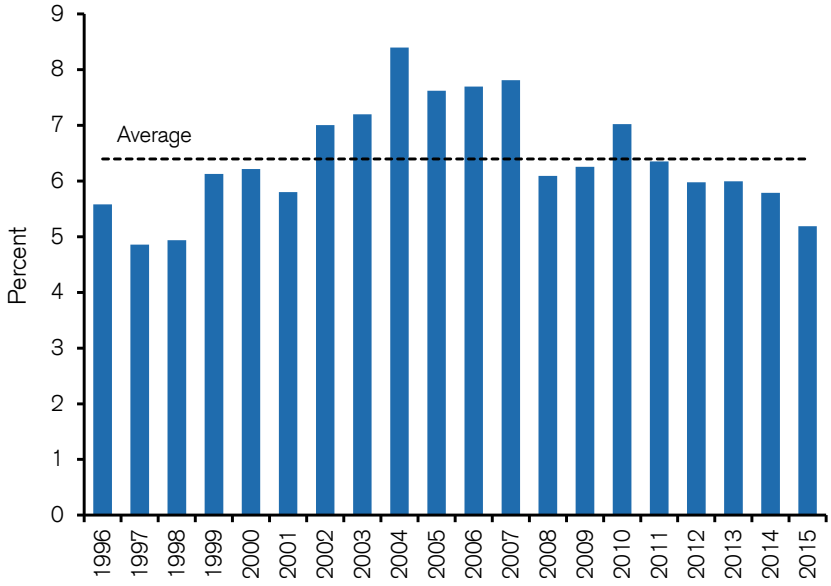
Exhibit 43: APEJ Capital Deployment, 1992-2015

	As a Percentage of Sales						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1992	11.1%	11.2%	0.5%		0.2%	4.8%	2.7%
1993	13.6%	8.6%	0.5%	7.9%	0.1%	5.3%	2.7%
1994	9.4%	9.4%	0.5%	6.5%	0.0%	3.6%	2.8%
1995	11.7%	12.8%	0.6%	8.2%	0.3%	5.3%	2.5%
1996	12.1%	14.0%	0.6%	3.3%	0.2%	4.4%	2.4%
1997	19.0%	14.4%	0.6%	-3.4%	0.3%	8.3%	2.6%
1998	14.4%	12.1%	0.7%	-0.5%	0.4%	6.3%	2.1%
1999	18.5%	9.6%	0.7%	2.1%	0.6%	7.3%	2.3%
2000	26.7%	11.6%	1.0%	2.9%	0.9%	9.7%	2.5%
2001	17.5%	10.9%	1.0%	0.4%	0.7%	7.3%	2.6%
2002	11.8%	9.9%	1.0%	1.0%	0.7%	5.0%	2.9%
2003	9.5%	10.0%	1.1%	4.1%	0.5%	3.8%	3.0%
2004	9.2%	10.6%	1.1%	3.9%	0.8%	3.3%	3.4%
2005	9.9%	10.9%	1.0%	2.9%	0.6%	3.5%	3.1%
2006	14.2%	10.8%	1.0%	2.4%	0.7%	4.0%	3.0%
2007	13.5%	11.0%	0.8%	4.9%	0.6%	5.0%	3.2%
2008	12.0%	11.0%	0.8%	-0.2%	0.4%	4.2%	2.5%
2009	10.1%	10.9%	0.9%	3.4%	0.1%	3.5%	2.7%
2010	10.2%	9.7%	0.8%	4.3%	0.1%	5.0%	2.7%
2011	7.0%	9.4%	0.8%	2.9%	0.4%	2.8%	2.5%
2012	6.3%	9.2%	0.8%	1.7%	0.2%	2.6%	2.3%
2013	6.6%	9.1%	0.9%	0.8%	0.1%	3.2%	2.4%
2014	10.2%	8.5%	1.0%	2.0%	0.1%	4.5%	2.4%
2015	19.5%	9.1%	1.2%	-1.3%	0.4%	8.3%	2.7%
Average	**12.7%**	**10.6%**	**0.8%**	**2.6%**	**0.4%**	**5.0%**	**2.7%**

Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Recent Trends in Cash Flow Return on Investment and Asset Growth. CFROI today in the APEJ region is below the long-term average, and well below the peak years of the mid-2000s. (See Exhibit 44.) The current level of 5.2 percent is below the historical average of 6.4 percent over the past twenty years.

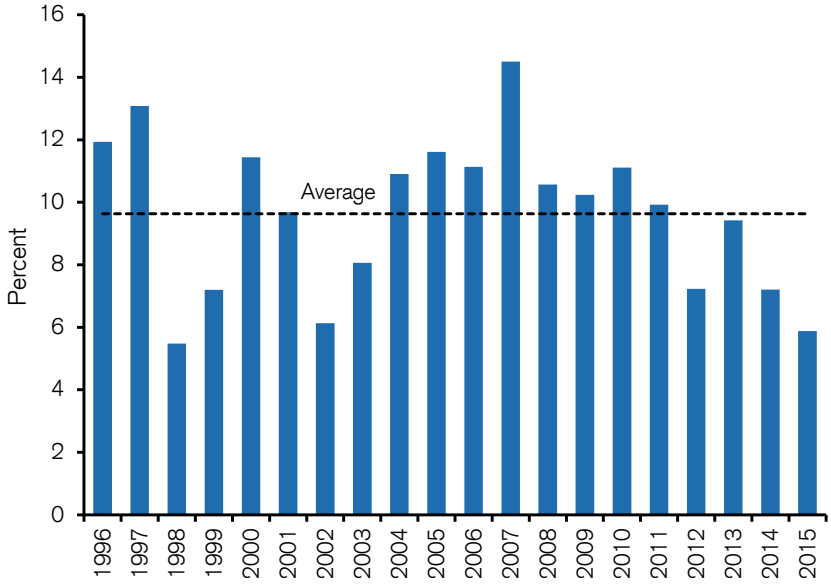
Exhibit 44: APEJ CFROI, 1996-2015



Source: Credit Suisse HOLT.
Note: APEJ industrial firms, weighted by net assets.

Exhibit 45 shows the annual rate of asset growth, adjusted for inflation, over the past twenty years. In 2014 and 2015, growth was very low relative to the long-term average. Asset growth of 7.2 percent in 2014 and 5.9 percent in 2015 was below the average of 9.6 over the past twenty years. Asset growth in this region is the highest in the world.

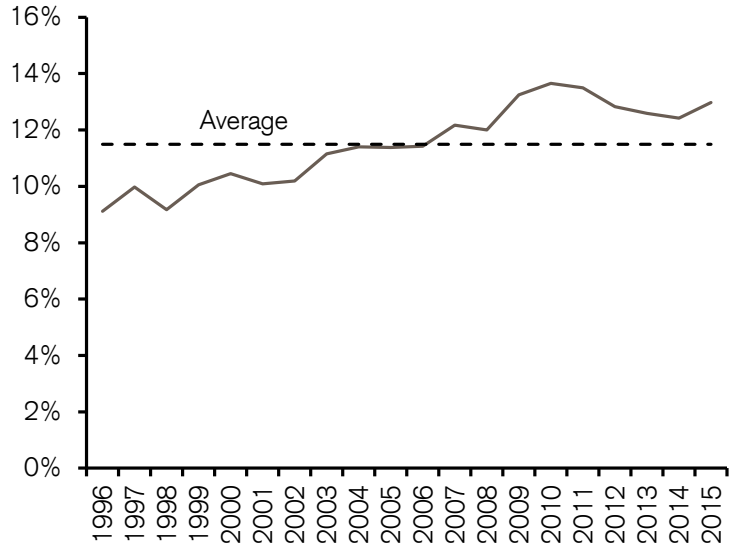
Exhibit 45: APEJ Real Asset Growth Rate, 1996-2015



Source: Credit Suisse HOLT.
Note: APEJ industrial firms, weighted by gross investments.

Exhibit 46 shows that today's cash as a percentage of assets of 13 percent is above the long-term average of 11 percent. The level of cash relative to assets shows a clear upward trend.

Exhibit 46: APEJ Cash as a Percentage of Total Assets, 1996-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms.

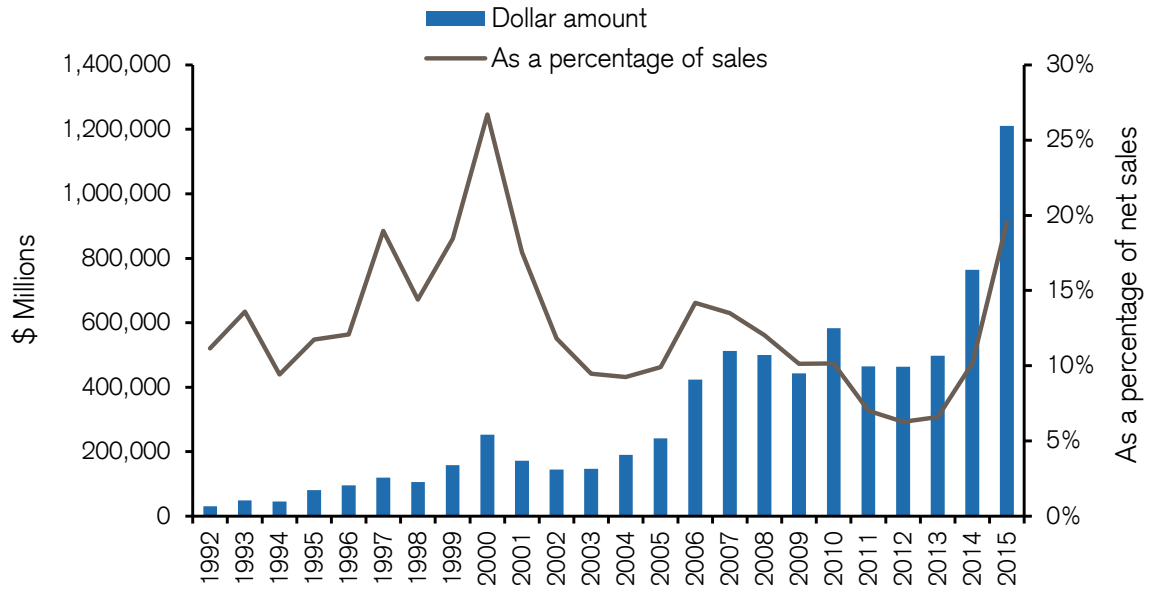
Mergers and Acquisitions. Exhibit 47 shows the dollar amount of M&A, as well as M&A as a percentage of sales, from 1992 to 2015. M&A is very cyclical, ranging from a low of 6.3 percent of sales in 2012 to a high of 26.7 percent in 2000. On an absolute basis M&A volume shattered the all-time record in 2015. Measured as a percentage of sales, M&A volume was 20 percent, well above the long-term average of 13 percent. This historical average is modestly higher than the levels of the U.S. and Europe. The absolute level of M&A in APEJ is still only roughly one-half that of the U.S., but it surpassed that of Europe for the first time in 2015.

One notable difference across the regions is that absolute M&A volumes recovered more rapidly following the financial crisis in APEJ than it did in the U.S. and Europe. Only in 2015 did worldwide deal volume return to the level of 2007.

On a country basis, China leads the deal making in APEJ. Its share of the region's total M&A went from less than 5 percent in the early 1990s to more than one-half in recent years. Hong Kong, Australia, and South Korea were the next biggest contributors in 2015, representing 12 percent, 9 percent, and 6 percent of the region's total M&A, respectively. India's M&A activity has not kept pace with China, with volume equal to just 2 percent of the region's total in 2015.

The trend in M&A activity in the region has been largely positive owing to economic growth and business reforms. In particular, China's rapid growth and its shift toward a more free market economy have driven deal activity.[55] But while M&A has been strong between Chinese companies, government restrictions aimed at ensuring Chinese companies maintain control of certain industries have limited cross-border deals.

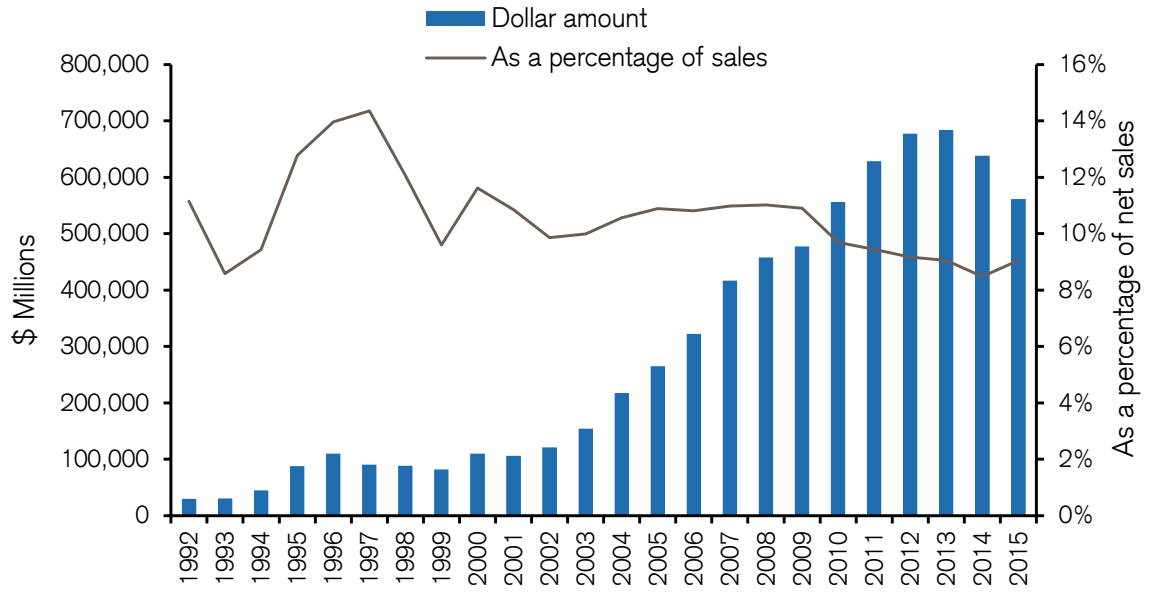
Exhibit 47: APEJ Mergers and Acquisitions, 1992-2015



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

Capital Expenditures. Exhibit 48 shows the dollar amount of capital expenditures as well as capital expenditures as a percentage of sales from 1992 to 2015. Capital expenditures were 9.1 percent of total sales in 2015, below the long-term average of 10.6 percent. Measured as a fraction of sales, APEJ's capital expenditure ratio is much higher than that of the U.S., Japan, and Europe, and is slightly below that of GEM.

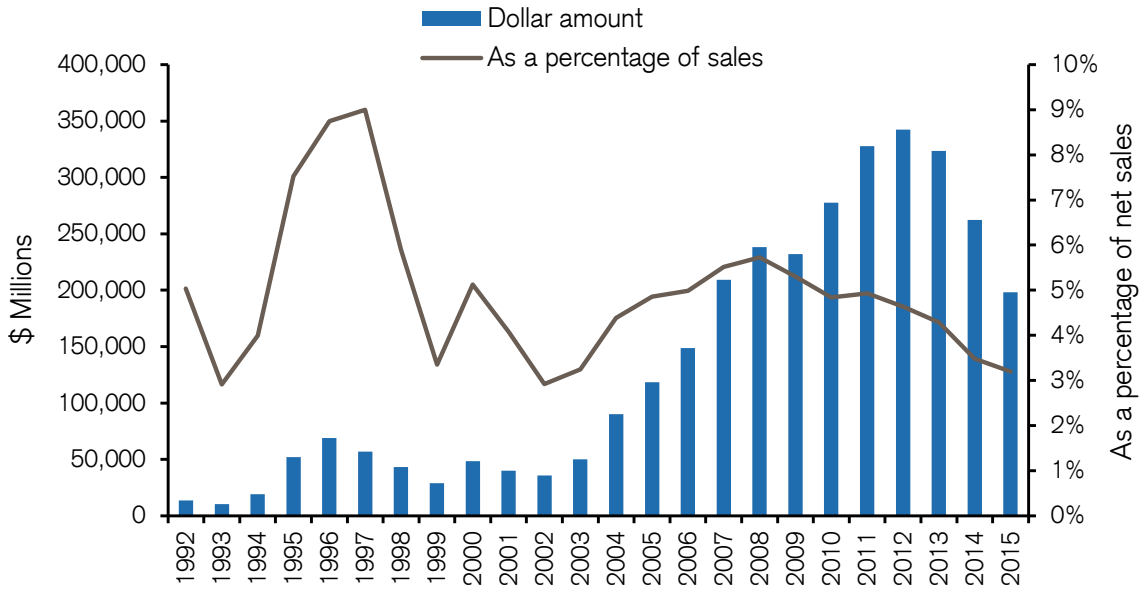
Exhibit 48: APEJ Capital Expenditures, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Exhibit 49 shows capital expenditures net of depreciation. Measured as a percentage of sales, growth capital expenditures have averaged roughly one-half of overall capital expenditures.

Exhibit 49: APEJ Capital Expenditures Net of Depreciation, 1992-2015



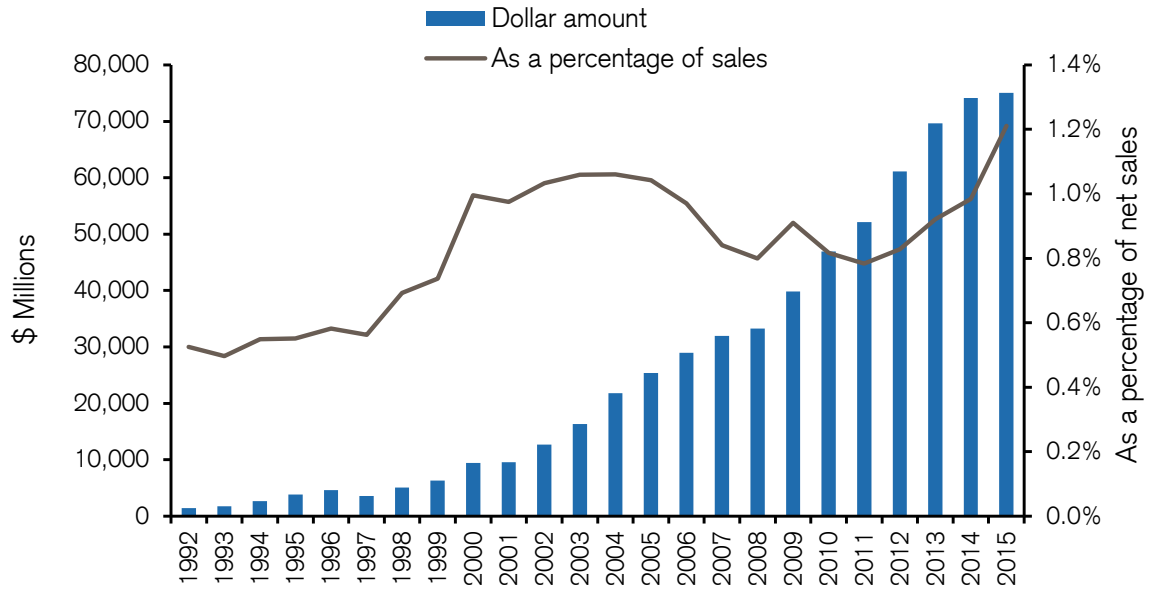
Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Research and Development. Exhibit 50 shows the dollar amount of R&D, as well as R&D as a percentage of sales, since 1992. R&D rose steadily from 0.5 percent of sales at the beginning of the period to 1.1 percent of sales in the mid-2000s, then dipped slightly before rebounding to an all-time high of 1.2 percent in 2015. R&D spending has risen substantially off of a low base, but remains well below the levels of the U.S., Japan, and Europe relative to sales. The rise in R&D during the full period reflects the change in the composition of the market. During this time, information technology, the most R&D-intensive sector, grew from 1 percent to 10 percent of the market.

Based on 2015 figures, the APEJ countries that spent the most on R&D as a percentage of sales were Korea at 2.6 percent and Taiwan at 2.1 percent. Notable laggards included Singapore and Thailand at 0.0 percent and Australia at 0.3 percent. China and India were in the middle at 1.1 percent and 0.7 percent, respectively.

Businesses in APEJ countries account for roughly one-half of total R&D spending, with the government, academia, and private nonprofit companies contributing the rest.[56] Corporations in APEJ account for a smaller share of the total R&D spending than they do in the U.S. and Japan, which are around 70-80 percent, and in Europe, which is just above 60 percent. The business share of total R&D spending ranges from a high of 78 percent in Korea to a low of 26 percent in Indonesia. Among larger APEJ economies, the business share of R&D spending is 77 percent in China, 45 percent in Hong Kong, 56 percent in Australia, and 35 percent in India.

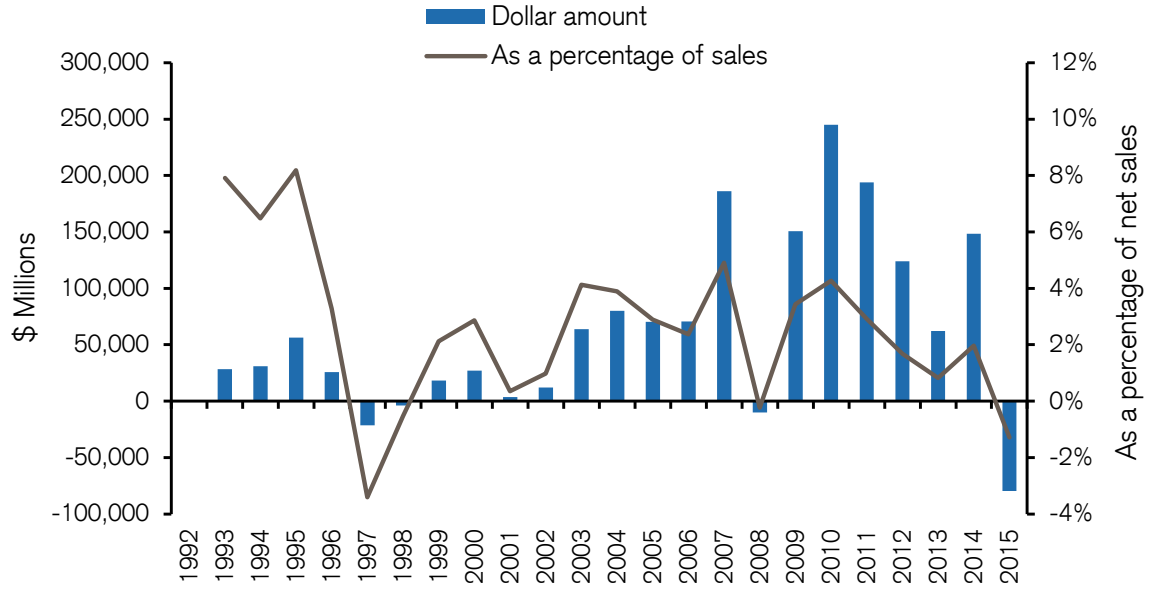
Exhibit 50: APEJ Research and Development, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Net Working Capital. Net working capital is roughly 15 percent of assets on average for companies in APEJ. Exhibit 51 shows the annual change in net working capital from 1992 through 2015. At year-end 201, net working capital was $1.5 trillion for the top 1,000 public firms in APEJ. We consider changes in net working capital as opposed to the absolute amount, because changes are what you should consider to be an incremental investment. Net working capital investments are an important use of cash in APEJ and are larger than R&D on average but smaller than M&A and capital expenditures.

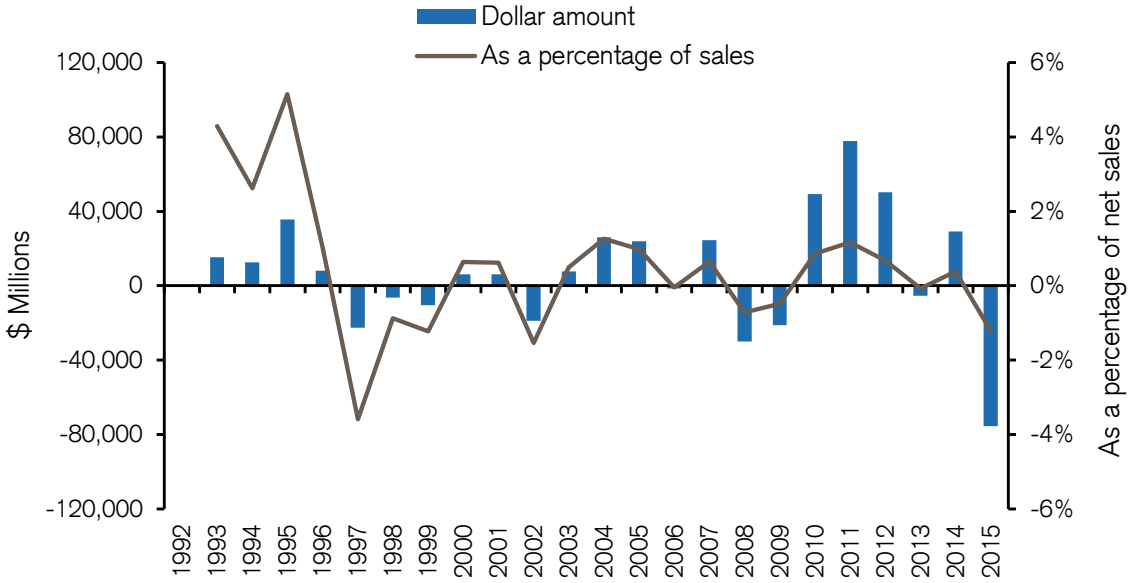
Exhibit 51: APEJ Change in Net Working Capital, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

The picture changes dramatically when we exclude cash. At the end of 2015, net working capital excluding cash was about $200 billion for the top 1,000 APEJ industrial companies, roughly 13 percent of the total net working capital sum. Exhibit 52 shows the change in net working capital excluding cash.

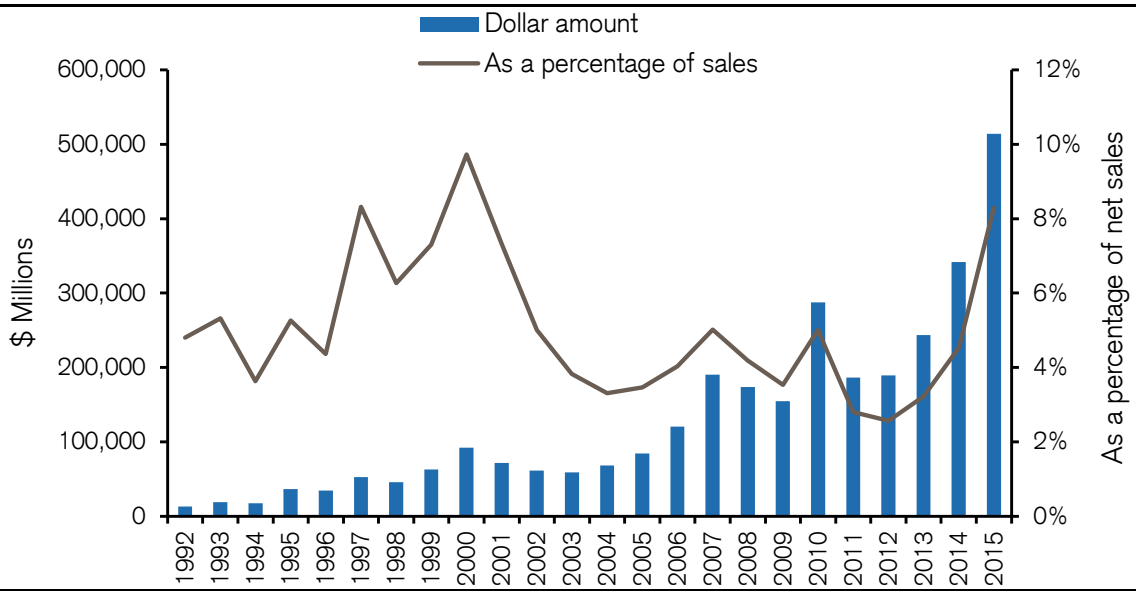
Exhibit 52: APEJ Change in Net Working Capital Excluding Cash, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Divestitures. Exhibit 53 shows the magnitude of divestitures from 1992-2015. Similar to M&A, divestitures vary a great deal from one year to the next, and were in a range of 2.6 percent of sales in 2012 to 9.7 percent in 2000. Divestitures have averaged 5.0 percent of sales over time, two-fifths the level of M&A and much higher than buybacks, dividends, or R&D spending.

Exhibit 53: APEJ Divestitures, 1992-2015

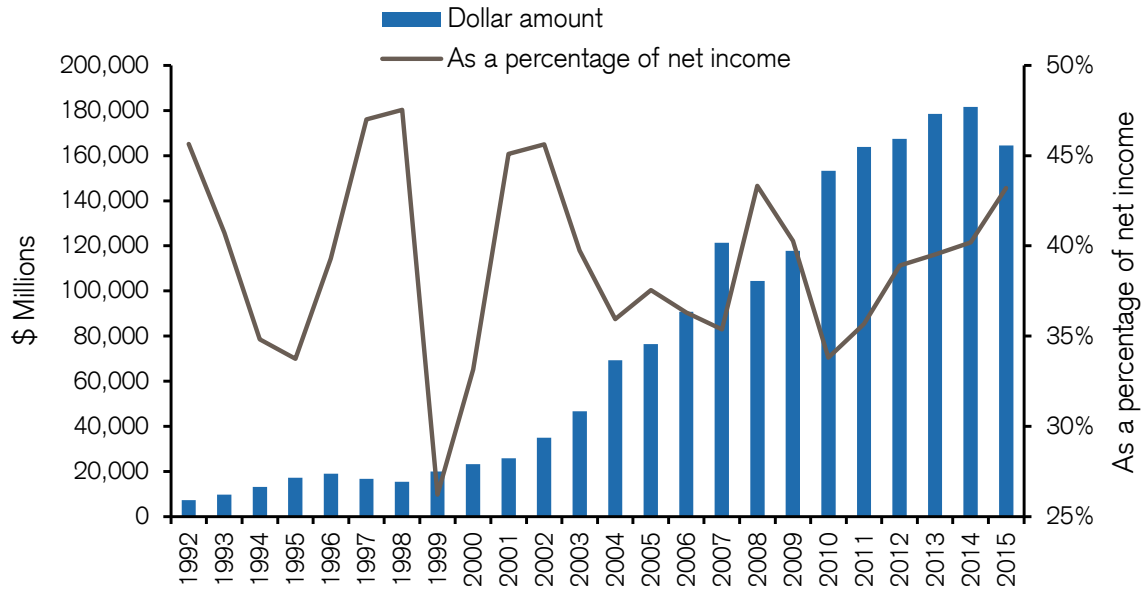


Source: Credit Suisse HOLT and Thomson Reuters.
Note: Announced divestitures; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases; Dollar amounts not inflated.

Dividends. Exhibit 54 shows the annual dividends on common and preferred stock for the top 1,000 companies in APEJ, excluding the financial services and regulated utility industries, from 1992 to 2015. Dividends are very stable in APEJ.

The average dividend payout ratio, or dividends as a percentage of net income, was roughly 40 percent from 1992-2015. The average dividend yield was 2.1 percent over the same period. In 2015, the dividend yield was 2.0 percent. Countries with above-average yields included Taiwan at 4.5 percent, Australia at 4.3 percent, and Singapore at 3.9 percent. Countries with below-average payouts included China at 1.2 percent, India at 1.3 percent, and Korea at 1.7 percent.

Exhibit 54: APEJ Common and Preferred Dividends, 1992-2015



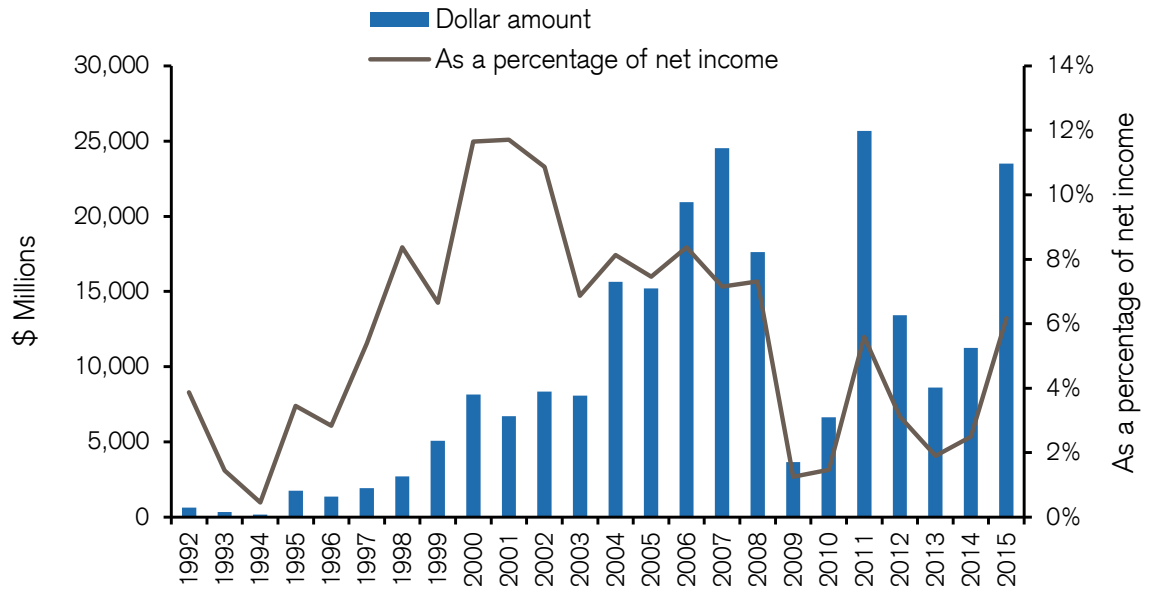
Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Share Buybacks. Exhibit 55 shows the annual gross buybacks for the top 1,000 companies in APEJ from 1992 to 2015. Similar to other regions, we see cyclicality. Buybacks rose throughout most of the 2000s but fell sharply in 2008-2010. Overall, buybacks remain a very small component of the corporate payout in APEJ.

Buybacks have been roughly six percent of net income, on average, from 1992-2015. The average buyback yield, or buybacks as a percentage of total market capitalization, was 0.3 percent over the same period, significantly below the 2.1 percent dividend yield. In 2015, the buyback yield was 0.3 percent. The Philippines, Australia, and Korea were the only countries in the region with relevant buyback yields, at 2.1 percent, 1.7 percent, and 1.1 percent, respectively. China and India had a zero yield, Taiwan had a 0.1 percent yield, and Hong Kong had a 0.2 percent yield.

Regulatory constraints contributed to the lower level of buybacks in the earlier years. For example, the government of Australia did not legalize buybacks until 1989 and Hong Kong did not legalize them until 1991. These are two of the largest economies in the region.[57]

Exhibit 55: APEJ Gross Share Buybacks, 1992-2015



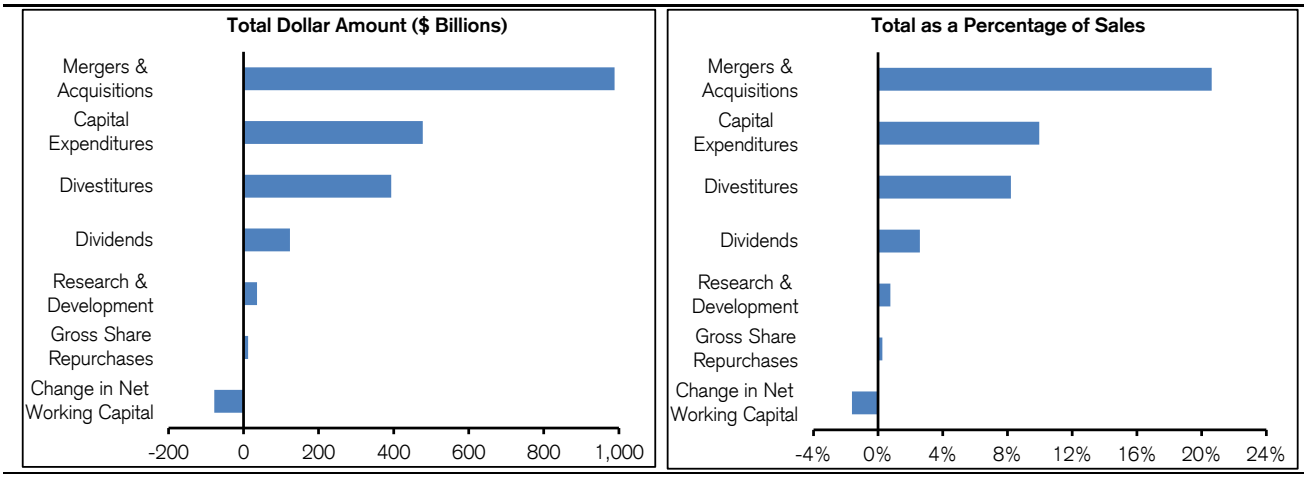
Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Global Emerging Markets (GEM)

The countries in the GEM region overlap substantially with those in the APEJ region. This overlap helps explain why some of the trends in capital deployment are similar. In 2015, the shared countries constituted roughly two-thirds the market capitalization of each region. China and India alone, which are mutual constituents, made up more than one-half the market capitalization of each region in 2015. The appendix provides a full list of the countries included.

Uses of Capital. Exhibit 56 shows how the top 1,000 companies in GEM, excluding companies in the financial services and regulated utility industries, deployed capital in 2015. While just a snapshot for a particular year, the ranking reasonably reflects how companies in GEM have allocated capital over time.

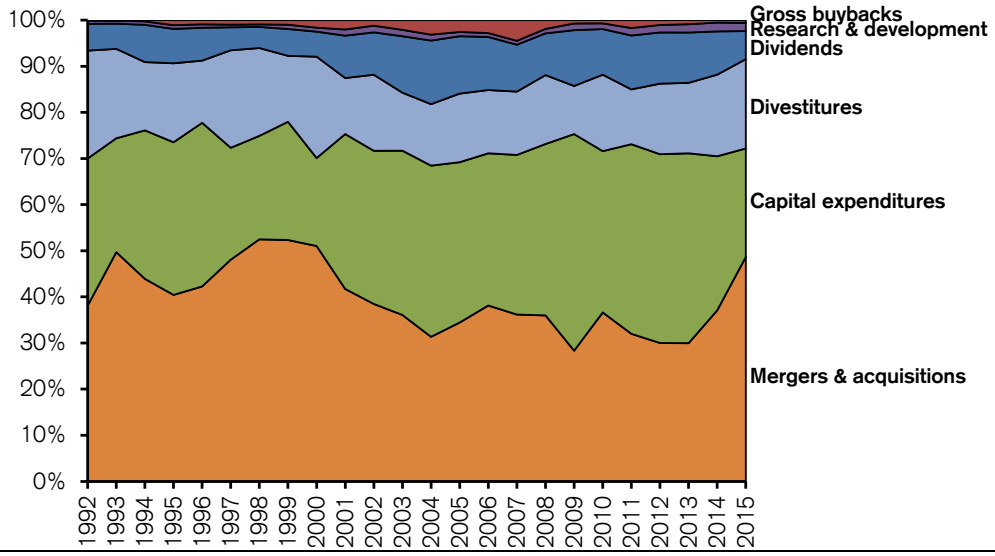
Exhibit 56: GEM Capital Deployment, 2015



Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Exhibit 57 shows the spending by source from 1992-2015. Again, we exclude changes in net working capital.

Exhibit 57: GEM Capital Deployment, 1992-2015



Source: Credit Suisse HOLT and Thomson Reuters.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

M&A and capital expenditures are by far the largest uses of capital over time. An examination of the changes from 1992 through 2015 reveals some noteworthy patterns:

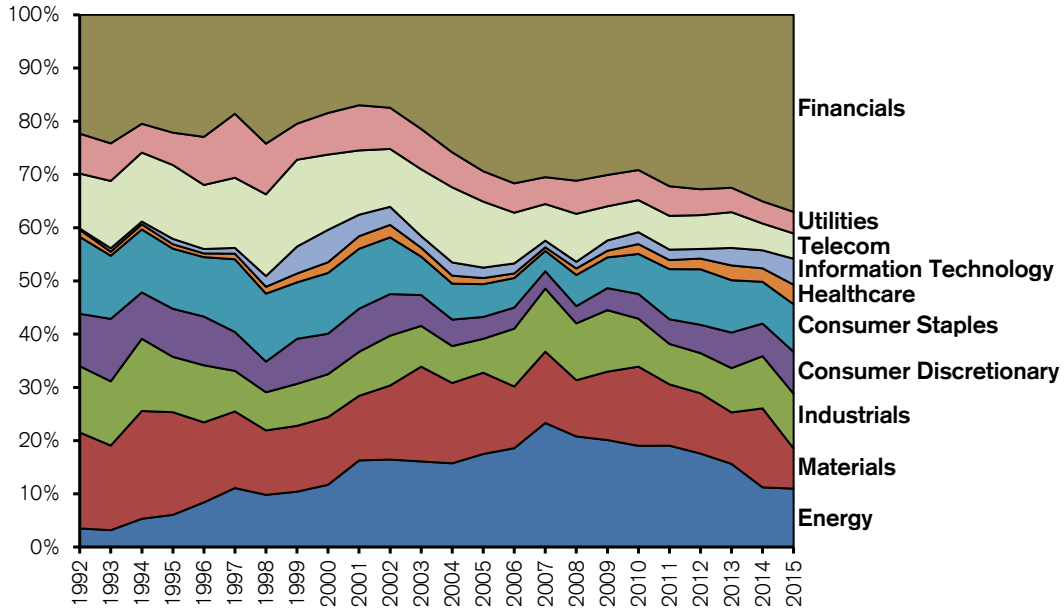
- M&A is very cyclical, ranging from a low of 8 percent of sales in 2013 to a high of 33 percent of sales in 1998. The long-term average of 16 percent of sales exceeds the 11 percent level shared by the U.S. and Europe and the 13 percent level of APEJ. The absolute level of M&A in GEM has grown considerably since the early 1990s as the result of strong economic growth and business reforms. The BRIC countries (Brazil, Russia, India, and China) now dominate M&A activity in the region. Together they accounted for 88 percent of the total in 2015, up from a share of 10 percent in 1992. China alone accounted for 78 percent of the total in 2015.

- Capital expenditures are the next largest use of capital. Capital expenditures were 10 percent of total sales in 2015, moderately below the long-term average of 12 percent. This long-term average exceeds levels in the U.S., Europe, Japan, and APEJ. A logical explanation for this gap is the composition of GEM economies. (See Exhibit 58.) Capital-intensive industries such as energy, materials, and industrials represent a greater share of the economy in GEM than in any other region.

- R&D spending is very modest and remained in a narrow band of 0.3 to 0.5 percent of sales until recently. That figure rose to 0.6 percent in 2014 and 0.8 percent in 2015. Despite the rise, this level is still well below that of the U.S., Japan, and Europe. Again, sector composition plays a key role, as GEM has a very low concentration in information technology and healthcare, the most R&D-intensive sectors, and a high concentration in industries that rely on capital investments for growth. Relative to the other regions, GEM companies also spend less on R&D.

- Share buybacks have been a very minor use of capital. Buybacks have averaged just 0.4 percent of total market capitalization over time, which compares to dividends at 2.3 percent. BRIC countries in particular spend very little on buybacks. Buyback activity was extremely low until the mid-2000s, rose sharply in 2007, then plummeted in the ensuing years. Dividends have been far more stable.

Exhibit 58: GEM Sector Composition, 1992-2015



Source: Credit Suisse HOLT.

Exhibit 59 shows a detailed history of capital deployment from 1992-2015. Again we see that the standard deviations of the growth rates are small for R&D, capital spending, and dividends relative to those of buybacks, divestitures, and M&A. Exhibit 60 represents the same deployment numbers as a percentage of sales.

Exhibit 59: GEM Capital Deployment, 1992-2015

	Total Amount (in Millions of U.S. Dollars, Nominal)						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1992	20,803	17,397	367		74	12,772	3,168
1993	36,328	18,054	463	7,381	99	14,164	3,999
1994	35,700	26,170	610	19,573	221	12,032	6,573
1995	52,985	43,370	1,048	33,526	1,453	22,437	9,768
1996	70,802	59,404	1,247	23,770	1,539	22,577	11,934
1997	117,802	59,420	1,392	768	2,431	51,792	12,216
1998	147,640	63,113	1,532	-2,797	2,623	53,558	12,895
1999	122,881	60,190	2,172	37,348	2,360	33,562	13,668
2000	195,092	72,897	3,297	42,626	6,279	83,991	20,745
2001	115,398	92,886	3,685	-5,614	5,640	33,601	25,405
2002	104,515	90,218	3,923	10,071	3,313	44,802	24,950
2003	121,878	120,317	4,671	50,256	7,142	42,488	41,347
2004	134,907	159,722	5,513	84,922	13,599	57,347	59,333
2005	217,319	219,294	5,788	59,856	16,279	93,804	78,474
2006	338,195	292,607	7,486	124,987	24,974	121,651	101,992
2007	463,815	443,490	10,875	163,257	57,534	176,111	130,305
2008	475,132	490,627	12,734	21,854	25,250	197,150	119,504
2009	320,386	530,841	16,397	116,412	8,282	117,969	136,749
2010	616,540	588,639	20,840	207,154	11,886	278,840	166,576
2011	509,002	653,749	25,793	166,153	27,387	188,950	185,871
2012	511,422	697,530	27,493	80,785	18,165	260,641	189,201
2013	498,514	684,751	29,977	11,306	14,860	254,223	181,397
2014	651,543	587,004	33,639	11,858	9,428	310,731	164,793
2015	988,786	477,495	36,050	-77,730	12,287	393,328	123,823
CAGR	**18.3%**	**15.5%**	**22.1%**	**NA**	**24.9%**	**16.1%**	**17.3%**
St. Dev.	**36.2%**	**21.8%**	**16.7%**	**NA**	**127.9%**	**55.7%**	**24.0%**

Source: Credit Suisse HOLT and Thomson Reuters.
Note: Dollar amounts not inflated. R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

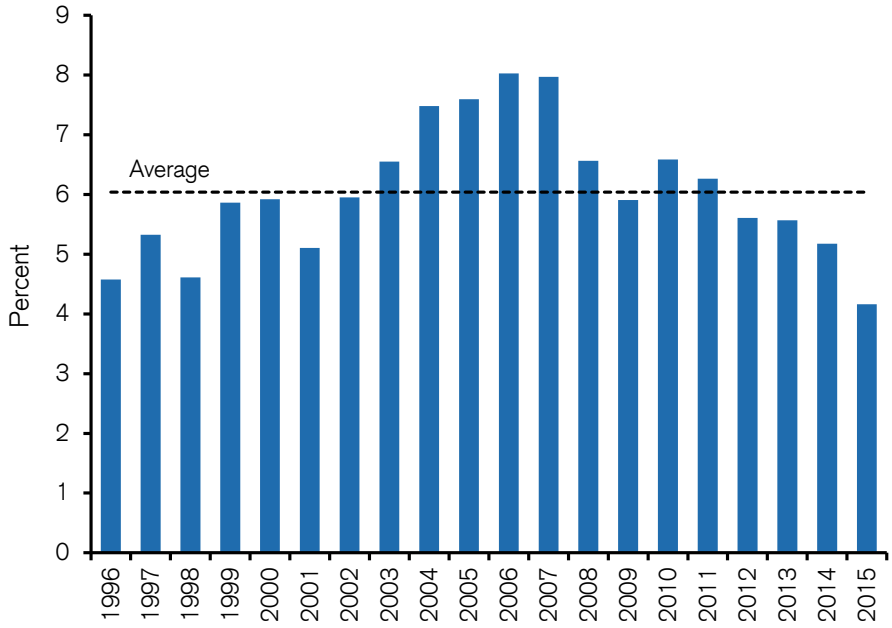
Exhibit 60: GEM Capital Deployment, 1992-2015

	As a Percentage of Sales						
	M&A	Capex	R&D Expense	Net Working Capital	Gross Buybacks	Divestitures	Dividends
1992	17.3%	14.4%	0.3%		0.1%	10.6%	2.6%
1993	24.3%	12.1%	0.3%	4.9%	0.1%	9.5%	2.7%
1994	17.0%	12.5%	0.3%	9.3%	0.1%	5.7%	3.1%
1995	16.1%	13.2%	0.3%	10.2%	0.4%	6.8%	3.0%
1996	17.4%	14.6%	0.3%	5.8%	0.4%	5.5%	2.9%
1997	28.8%	14.5%	0.3%	0.2%	0.6%	12.6%	3.0%
1998	33.4%	14.3%	0.3%	-0.6%	0.6%	12.1%	2.9%
1999	22.6%	11.1%	0.4%	6.9%	0.4%	6.2%	2.5%
2000	27.1%	10.1%	0.5%	5.9%	0.9%	11.6%	2.9%
2001	14.9%	12.0%	0.5%	-0.7%	0.7%	4.3%	3.3%
2002	12.2%	10.5%	0.5%	1.2%	0.4%	5.2%	2.9%
2003	10.5%	10.4%	0.4%	4.3%	0.6%	3.7%	3.6%
2004	8.7%	10.3%	0.4%	5.5%	0.9%	3.7%	3.8%
2005	11.3%	11.4%	0.3%	3.1%	0.8%	4.9%	4.1%
2006	13.5%	11.7%	0.3%	5.0%	1.0%	4.9%	4.1%
2007	13.9%	13.3%	0.3%	4.9%	1.7%	5.3%	3.9%
2008	12.8%	13.3%	0.3%	0.6%	0.7%	5.3%	3.2%
2009	8.4%	13.9%	0.4%	3.0%	0.2%	3.1%	3.6%
2010	12.4%	11.8%	0.4%	4.2%	0.2%	5.6%	3.3%
2011	8.7%	11.1%	0.4%	2.8%	0.5%	3.2%	3.2%
2012	8.0%	10.9%	0.4%	1.3%	0.3%	4.1%	2.9%
2013	7.8%	10.8%	0.5%	0.2%	0.2%	4.0%	2.9%
2014	10.7%	9.7%	0.6%	0.2%	0.2%	5.1%	2.7%
2015	20.6%	10.0%	0.8%	-1.6%	0.3%	8.2%	2.6%
Average	**15.8%**	**12.0%**	**0.4%**	**3.3%**	**0.5%**	**6.3%**	**3.2%**

Source: Credit Suisse HOLT, Thomson Reuters Datastream, and Credit Suisse.
Note: R&D, capital expenditures, buybacks, dividends: exclude financial companies and regulated utilities; M&A, divestitures: include all industries.

Recent Trends in Cash Flow Return on Investment and Asset Growth. The current level of CFROI, at 4.2 percent, is the lowest in twenty years and is well below the average of 6.0 percent. (See Exhibit 61.)

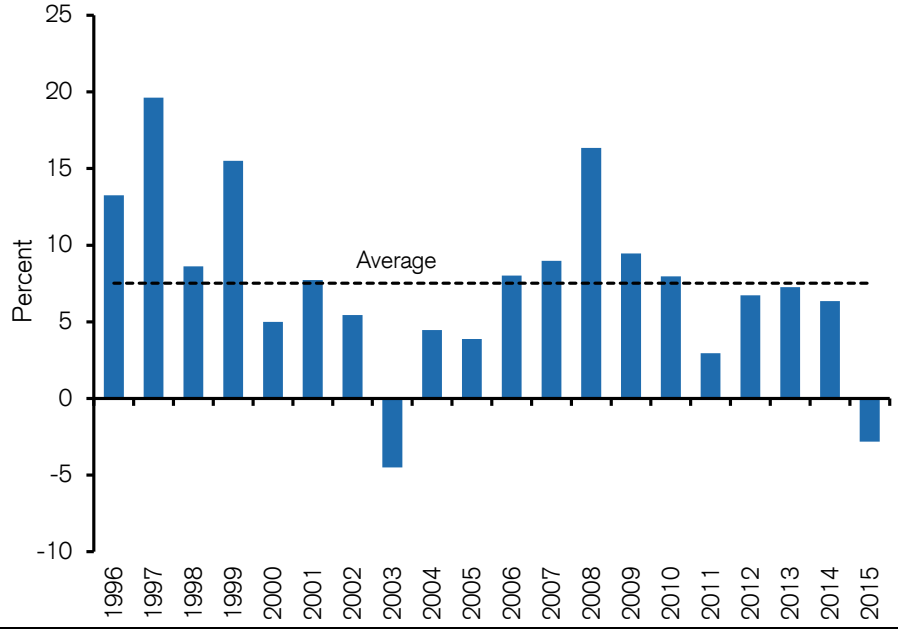
Exhibit 61: GEM CFROI, 1996-2015



Source: Credit Suisse HOLT.
Note: GEM industrial firms, weighted by net assets.

Exhibit 62 shows the annual rate of asset growth, adjusted for inflation, over the past twenty years. In the past five years growth has been weak relative to the long-term average, and it was negative in 2015 for only the second time in the past twenty years. That said, the average is much higher than it is in developed economies.

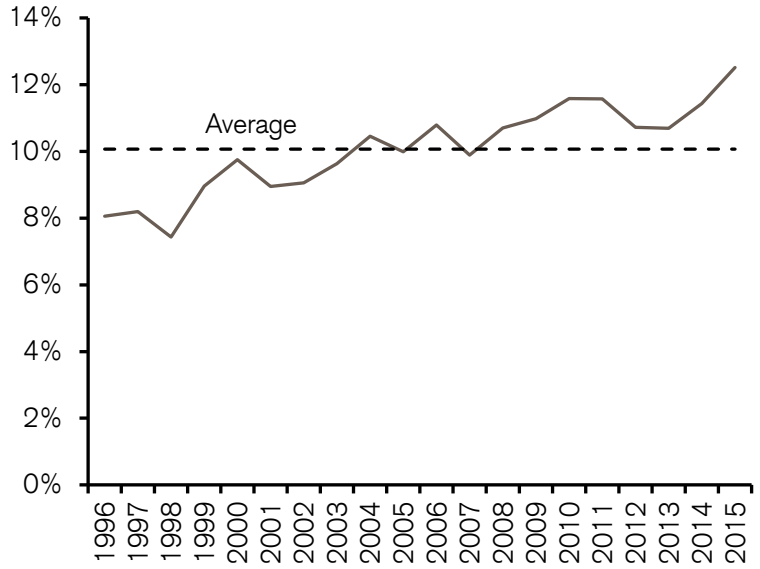
Exhibit 62: GEM Real Asset Growth Rate, 1996-2015



Source: Credit Suisse HOLT.
Note: GEM industrial firms, weighted by gross investments.

Exhibit 63 shows that at 13 percent, today's cash as a percentage of assets is well above the long-term average of 10 percent. The level of cash relative to assets exhibits a clear upward trend.

Exhibit 63: GEM Cash as a Percentage of Total Assets, 1996-2015



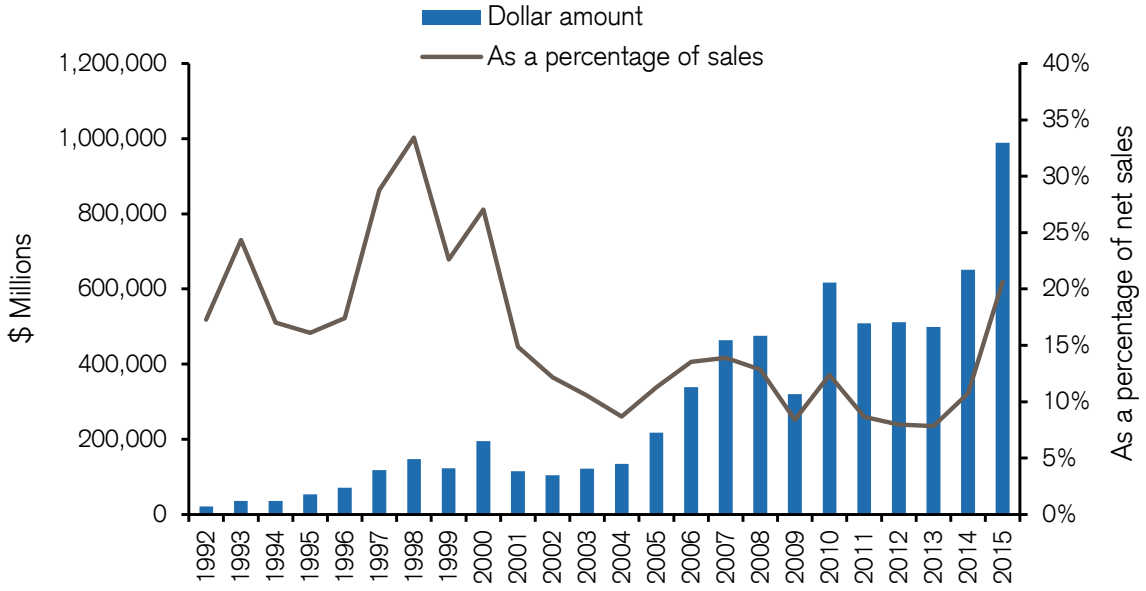
Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms.

Mergers and Acquisitions. Exhibit 64 shows the dollar amount of M&A, as well as M&A as a percentage of sales, from 1992 to 2015. M&A volume was 21 percent of sales in 2015, well above the long-term average of about 16 percent. This long-term average exceeds the 11 percent level shared by the U.S. and Europe and the 13 percent level of APEJ. In absolute dollars, M&A in GEM in 2015 was still only one-half that of the U.S., reflecting the difference in the sizes of the economies. The total market capitalization of GEM is slightly more than one-third that of the U.S.

The BRIC countries dominate M&A activity in the region. Together they accounted for 88 percent of the total in 2015, up considerably from 10 percent in 1992. In 2015, China was 78 percent of the deal volume, followed by Brazil at 5 percent, South Africa at 4 percent, and India at 3 percent. The biggest declines came from Mexico, Indonesia, and Malaysia. The combined share for those countries dropped from 60 percent in 1992 to only 4 percent in 2015.

M&A in GEM has risen sharply since the early 1990s as the result of strong economic growth and business-friendly reforms. In recent years, a number of governments in the emerging markets have sold off state-owned businesses. These companies often go on to merge with other companies, prompting M&A activity. And notably, some large emerging market companies have pursued major deals outside their borders.[58]

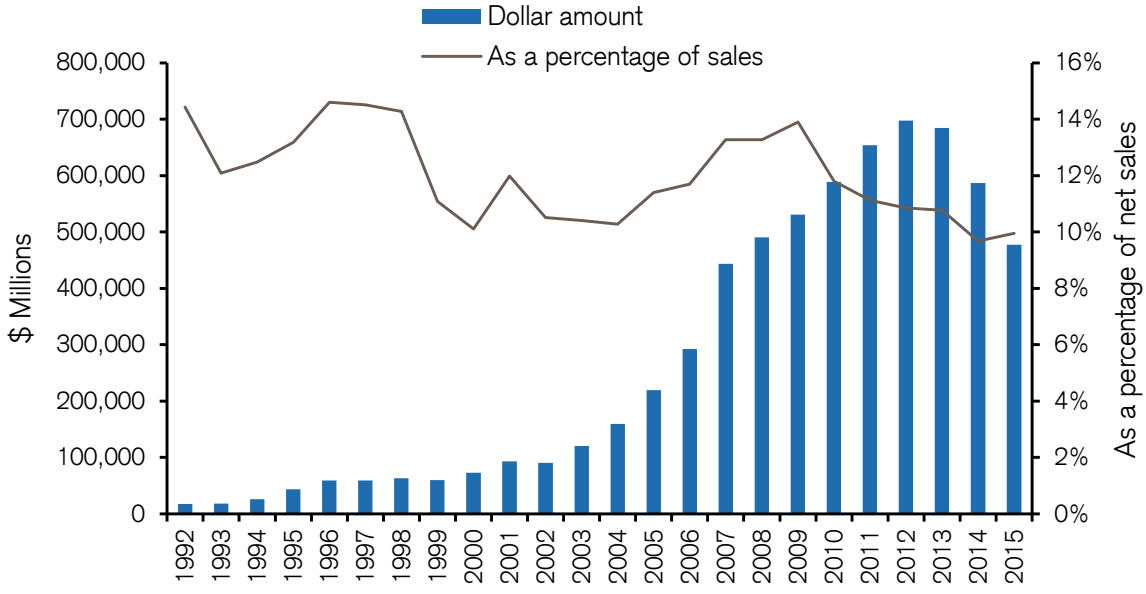
Exhibit 64: GEM Mergers and Acquisitions, 1992-2015



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

Capital Expenditures. Exhibit 65 shows the dollar amount of capital expenditures, as well as capital expenditures as a percentage of sales, from 1992 to 2015. In 2015, capital expenditures were GEM's second largest use of capital behind M&A, which was extremely strong. Capital expenditures were 10 percent of total sales in 2015, below the long-term average of 12 percent. This long-term average exceeds the levels in the U.S., Europe, Japan, and APEJ. A logical explanation for this gap is the composition of GEM economies. The energy, materials, and industrial sectors represent roughly 30 percent of the region's market capitalization, which is above that of the other regions.

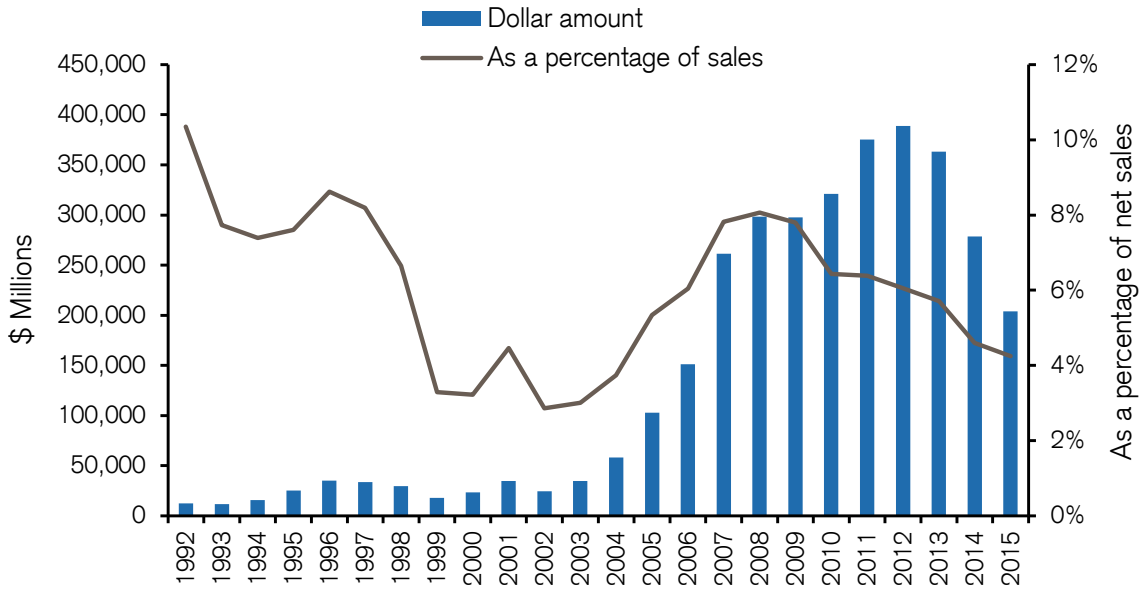
Exhibit 65: GEM Capital Expenditures, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Exhibit 66 shows capital expenditures net of depreciation. Measured as a percentage of sales, growth capital expenditures have averaged roughly one-half of overall capital expenditures.

Exhibit 66: GEM Capital Expenditures Net of Depreciation, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

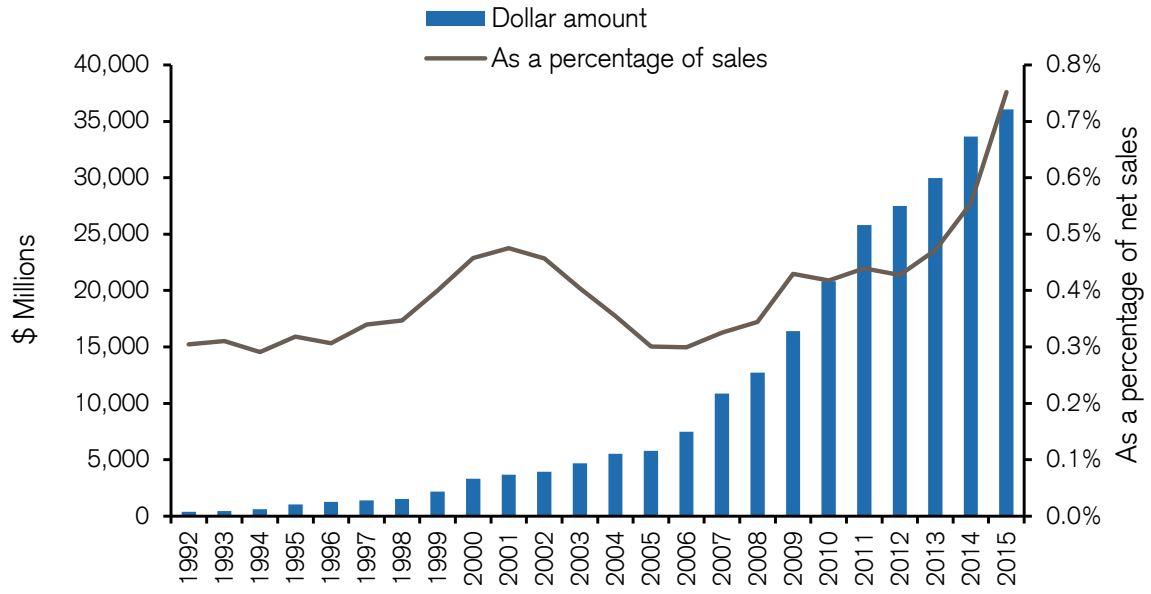
Research and Development. Exhibit 67 shows the dollar amount of R&D since 1992, as well as R&D as a percentage of sales. R&D has been in a narrow band of 0.3 to 0.5 percent of sales until recently. That figure rose to 0.6 percent in 2014 and 0.8 percent in 2015. A logical explanation for this increase is the changing composition of GEM economies. IT and healthcare, the most R&D-intensive sectors, were roughly 10 percent of total market capitalization in 2015, up from just 1 percent in the early 1990s.

Despite the rise, R&D spending as a fraction of sales is nevertheless well below that of the U.S., Japan, and Europe, which are all slightly above 2 percent. Sector composition also plays a key role. GEM still has a lower concentration in information technology and healthcare compared to the other regions, and a higher concentration in industries that rely more heavily on capital investments.

In GEM countries, businesses account for 44 percent of total R&D spending on average, with the government, academia, and private nonprofit companies spending the other 56 percent.[59] Corporations in GEM account for a smaller share of the total R&D spending than they do in the U.S. and Japan (70-80 percent), Europe (about 60 percent), and APEJ (roughly 50 percent).

Among larger GEM economies, the business share of R&D spending is 77 percent in China, 60 percent in Russia, 39 percent in Mexico, and 35 percent in India. The business share of R&D spending is particularly low in Latin American countries at 30 percent on average. One notable change is in China, where the corporate share of R&D spending has risen from just 43 percent in 1996 to 77 percent today as the country continues to move toward a more market-based economy.

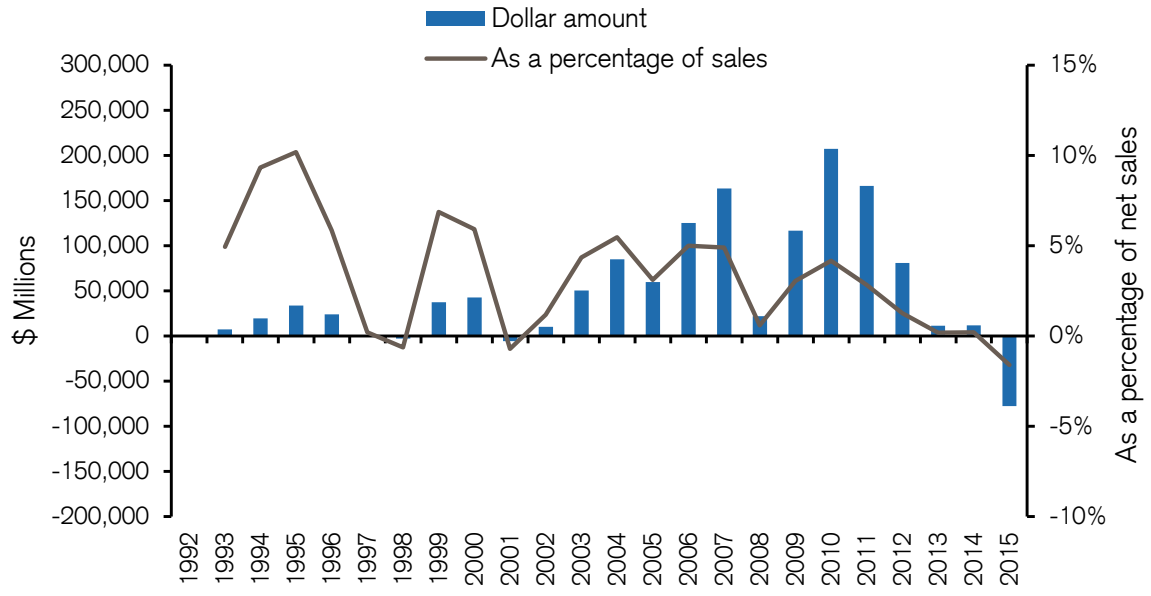
Exhibit 67: GEM Research and Development, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Net Working Capital. Net working capital equals roughly 15 percent of assets on average for companies in GEM. Exhibit 68 shows the annual change in net working capital from 1992 through 2015. At year-end 2015, net working capital stood at $1.2 trillion for the top 1,000 public firms in GEM. We consider changes in net working capital as opposed to the absolute amount, because changes are what you should consider to be an incremental investment. Net working capital investments are a large use of cash in GEM, greater on average than R&D but smaller than M&A or capital expenditures.

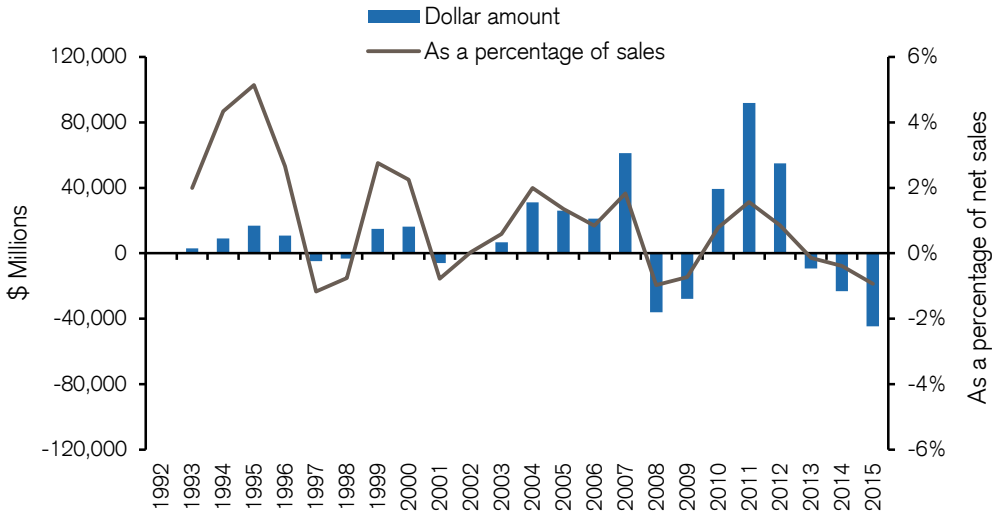
Exhibit 68: GEM Change in Net Working Capital, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

We have defined net working capital to include cash. The picture changes dramatically if we exclude cash. At the end of 2015, net working capital excluding cash was about $260 billion for the top 1,000 GEM industrial companies, roughly one-fifth the total net working capital sum. Exhibit 69 shows the change in net working capital excluding cash.

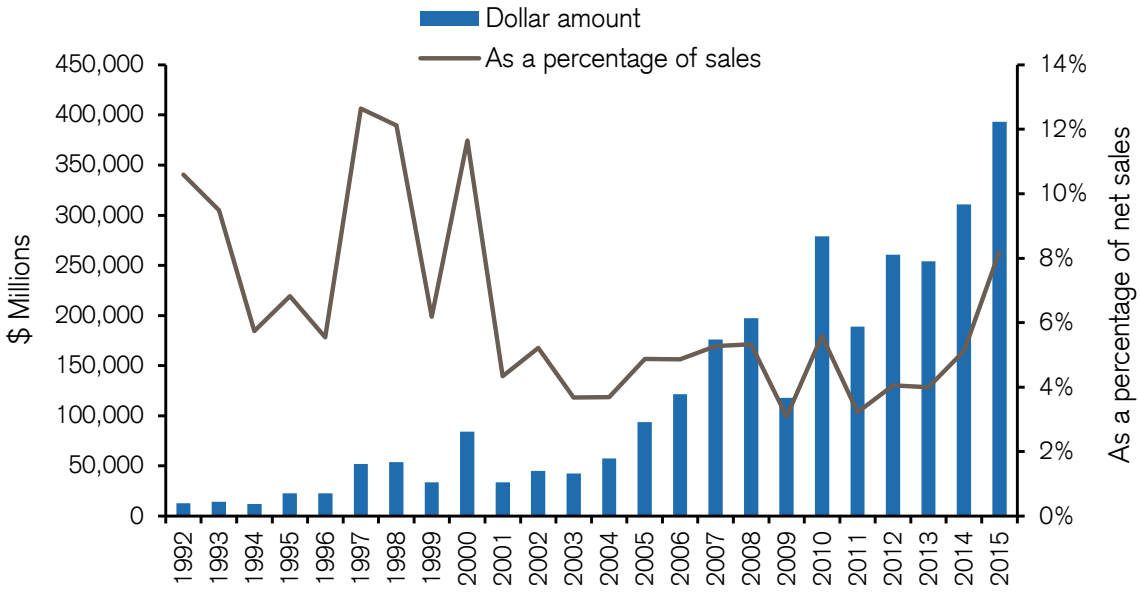
Exhibit 69: GEM Change in Net Working Capital Excluding Cash, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Divestitures. Exhibit 70 shows divestitures from 1992-2015. Similar to M&A, divestiture activity varies a lot from year to year, ranging from a low 3 percent of sales in 2009 to a high of 13 percent in 1997. Overall, divestitures have averaged 6.3 percent of sales over time, which is roughly two-fifths the level of M&A and much higher than dividends, buybacks, and R&D spending.

Exhibit 70: GEM Divestitures, 1992-2015

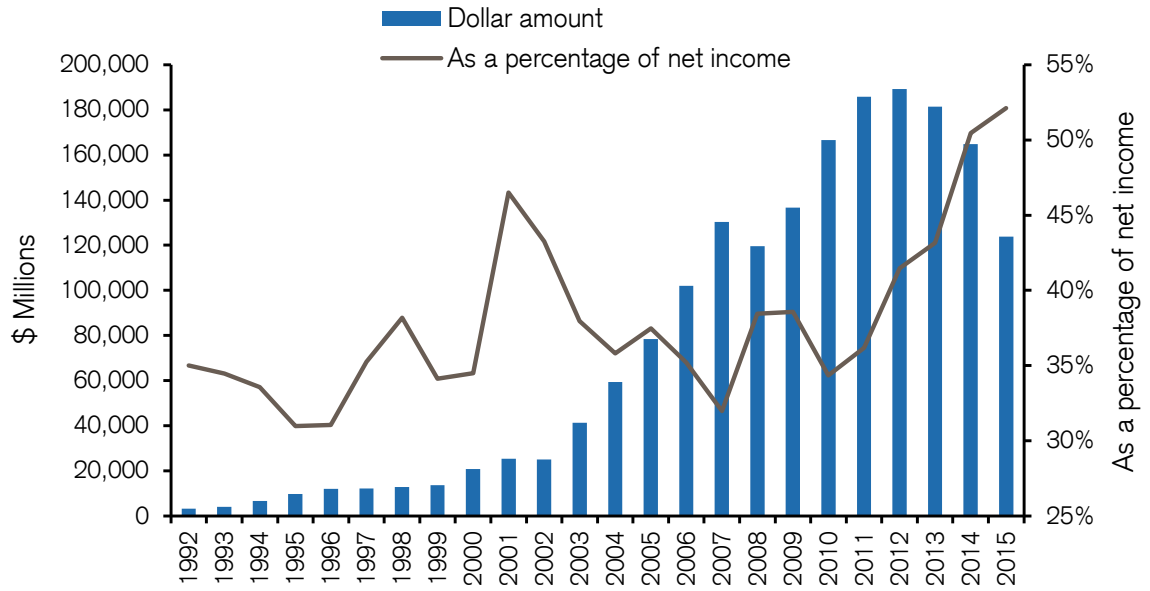


Source: Credit Suisse HOLT and Thomson Reuters.
Note: Announced divestitures; excludes debt tender offers, equity carve-outs, exchange offers, loan modifications, and open market repurchases; Dollar amounts not inflated.

Dividends. Exhibit 71 shows the annual amount of dividends on common and preferred stock for the top 1,000 companies in GEM, excluding the financial services and regulated utility industries, from 1992 to 2015. Dividends are very stable in GEM.

The average dividend payout ratio was roughly 35 percent from 1992-2015. The average dividend yield was 2.3 percent over the same period. In 2015, the dividend yield was 1.8 percent. Countries with above-average yields in 2015 included Colombia at 7.4 percent, Saudi Arabia at 5.1 percent, Russia at 4.0 percent, and Thailand at 3.4 percent. Countries with below-average yields included China at 1.1 percent and India at 1.3 percent. While their economies are a relatively small share of GEM overall, the oil producing countries of the Middle East in particular have very high dividend yields.

Exhibit 71: GEM Common and Preferred Dividends, 1992-2015

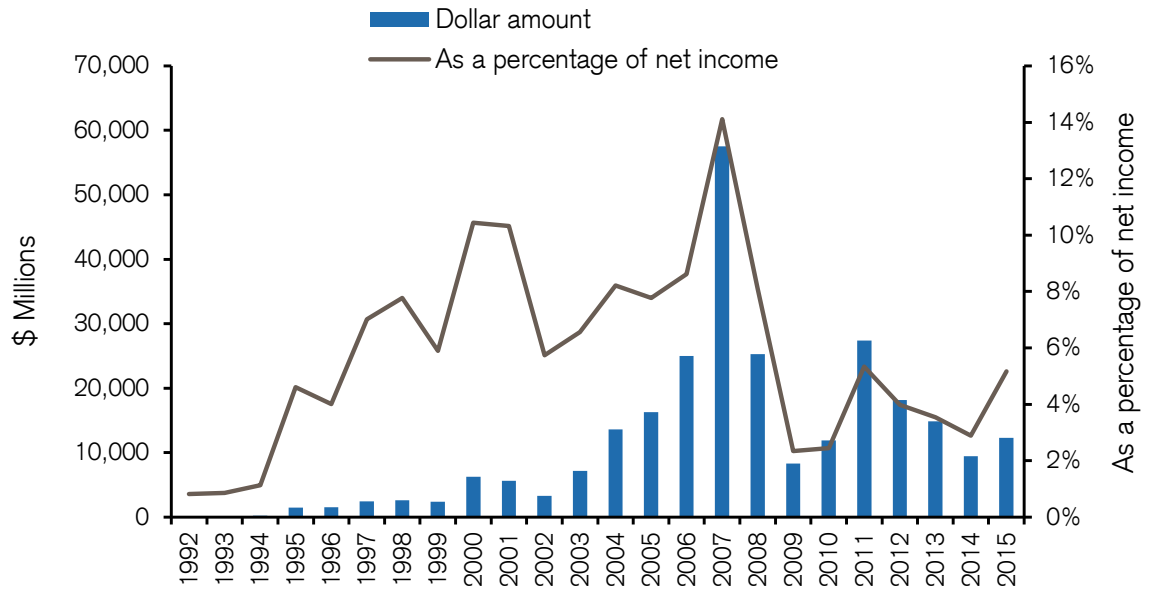


Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Share Buybacks. Exhibit 72 shows the annual amount of gross buybacks for the top 1,000 companies in GEM from 1992 to 2015. Buyback activity was extremely low until the mid-2000s, rose sharply in 2007, and then plummeted in the ensuing years. But even at their peak in 2007, buybacks were still less than 15 percent of net income.

Overall, buybacks have totaled roughly six percent of net income from 1992-2015. The average buyback yield was 0.4 percent, far below the 2.3 percent dividend yield. In 2015, the buyback yield was 0.2 percent. Countries with above-average buyback yields in 2015 included Russia at 1.4 percent and Mexico at 1.3 percent. Excluding Russia, the three other BRIC countries spend very little on buybacks. In 2015, the buyback yield was 0.7 percent in Brazil and zero in both India and China.

Exhibit 72: GEM Gross Share Buybacks, 1992-2015



Source: Credit Suisse HOLT.
Note: Top 1,000 industrial firms. Dollar amounts not inflated.

Part III: Assessing Management's Capital Allocation Skills

"All roads in managerial evaluation lead to capital allocation."[60]

The final part of this report provides a framework for assessing a management team's capital allocation skills. This framework has four components. First, you want to study how a company has allocated capital in the past. Next, you need to examine the company's return on invested capital and, more importantly, return on incremental invested capital. Third is a careful consideration of incentives and corporate governance. And finally, you can compare management's actions to the five principles of capital allocation. You can find a more detailed version of this discussion in Michael J. Mauboussin, Dan Callahan, and Darius Majd, "Capital Allocation: Evidence, Analytical Methods, and Assessment Guidance," *Credit Suisse Global Financial Strategies*, October 19, 2016.

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. You should break the analysis into two parts, one dealing with investments in the operations (M&A, capital expenditures, R&D, and working capital) and the other with returning cash to claimholders (dividends, buybacks, and debt repayment).

The value of a business is the present value of future free cash flow (FCF).[61] Free cash flow is defined as net operating profit after tax (NOPAT), a measure of the cash earnings of the business that assumes no financial leverage, minus investment (I) in future growth:

FCF = NOPAT – I

NOPAT is determined by sales and sales growth, operating profit margins, and the cash tax rate. Investment (I) is determined by changes in working capital, capital expenditures net of depreciation, and acquisitions net of divestitures. The product of this analysis is a clear understanding of profitability (sales, sales growth, and operating profit margins) and the investment choices the company has made (changes in working capital, capital expenditures, and M&A).

Such an examination is also useful to assess the change in practices from one CEO to the next. One CEO may seek to grow primarily organically, which will raise one set of analytical issues. Another may focus on profitability and emphasize cost cutting. Yet another may be more acquisitive, raising a separate set of issues. Assuming past behaviors provide some basis for anticipating future behavior, this analysis is very useful.

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.

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. Our report, "Calculating Return on Invested Capital: How to Determine ROIC and Address Common Issues," provides details on how to calculate ROIC and ROIIC and includes case studies.[62] Here's a quick summary.

NOPAT is the numerator of ROIC. 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.

You can evaluate ROIC a number of ways. First and most fundamentally, companies that create value generate an ROIC above the cost of capital over time. This simply says that the company is earning in excess of the opportunity cost of capital. Second is the magnitude of the spread between ROIC and the cost of capital as well as how much a company can invest at a given spread. Companies with wide spreads that have limited investment opportunity may be less valuable than companies with narrower spreads but ample growth prospects.

Having defined and discussed ROIC, we must 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.[63]

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 Year_0 invested capital is $2,000 and it invests $200 during the year (making Year_1 invested capital $2,200). Further, NOPAT from Year_1 to Year_2 climbs from $300 to $350. Given these assumptions, ROIIC is 25 percent [($350-300)/($2,200-2,000)].

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.

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 lead to unintended consequences.[64] The goal of this section is to consider whether the incentives a company has in place encourage judicious capital allocation. Most of these incentives address compensation.

Agency theory is the classic way to explain why the managers of a company may not act in the interests of the shareholders.[65] The 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.[66]

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.

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 forego value-creating investments to deliver near-term earnings.[67]

So what elements should you look for in an effective 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 follow 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.[68] 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. Presuming that exogenous factors affect peers in a similar fashion as 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.
Finally, recognize that the debate about the short term versus the long term is an empty one.[69] 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.[70]

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.[71] We added one to expand the list to five and believe that these principles are a sound benchmark that you can use to measure management's mindset regarding their capital allocation practices.[72]

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 & Company, a global consulting firm, found that there was a 0.92 correlation between how much capital a business unit received in one year and the next. For one-third of the companies, that correlation was 0.99.[73] In other words, inertia appears to play a large role in capital allocation.

   The proper approach is zero-based, which simply asks, "What is the right amount of capital (and the right number of people) to have in this business to support the strategy that will create the most wealth?"[74] 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.[75] Further, academic research shows that those companies that are good at internal capital allocation tend to be good at external allocation as well.[76]

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 determining the projects that support the strategies. Practitioners and academics sometimes fail to make this vital distinction.[77] 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, "Any business craving of the leader, however foolish, will be quickly supported by detailed rate-of-return and strategic studies prepared by his troops."[78]

   The key to this principle is recognizing 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 indicate 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 is plentiful but expensive. There are two sources of capital 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 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. Too frequently, companies select 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 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 no sin; indeed it is essential to the process of creating value. What is a sin, in our view, 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 of the difference, if any, between the value and price of each asset. This includes the value of the company and its stock price. Naturally, such analysis must include considerations such as taxes.

   With a ready sense of value and price, management should be prepared to take action to create value. Sometimes that means acquiring, other times that means divesting, and frequently there are no clear gaps between value and price. As we have seen, managers tend to prefer to buy than to sell, even though the empirical record shows quite clearly that sellers fare better than buyers, on average.

   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 frequently encourage behaviors 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.

This report had three parts. First we discussed the sources and uses of capital at a high level. In general, countries or regions with high returns on invested capital are in a position to fund a substantial percentage of investment. We also noted the differences for the major regions of the world. The differences reflect the nature of the underlying economy, stage of development, cultural norms, and regulations.

The second part examined the sources and uses of capital for Japan, Europe, Asia/Pacific excluding Japan, and Global Emerging Markets. The patterns in the U.S. and Europe are similar, with relatively strong spending on R&D, solid capital expenditure levels, active M&A, and a relatively generous shareholder yield.[79] The CFROI in the U.S. is substantially higher. Japan has a low CFROI and relatively modest growth. M&A is also muted, and shareholder yield is low—although there has been improvement in recent years. Developing markets spend an above-average amount on capital expenditures and working capital. But they have low shareholder yields and allocate little to R&D.

Finally, we set out a framework to assess the capital allocation practices of a management team. This framework includes examining past behavior, calculating return on invested capital, weighing incentives, and considering the five principles of thoughtful capital allocation.

Acknowledgment

We thank the Credit Suisse HOLT team for their essential contributions to this research. In particular, we appreciate the assistance of Ron Graziano, Tom Hillman, David Matsumura, Bryant Matthews, and Chris Morck. We could not have done this analysis without their aid.

Appendix: The List of Countries Included in the Data for Each Region

Europe

For capital expenditures, R&D, net working capital, share buybacks, and dividends: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom.

For M&A and divestitures: Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Czechoslovakia, Denmark, East Germany, Estonia, Faroe Islands, Finland, France, Georgia, Germany, Gibraltar, Greece, Greenland, Guernsey, Hungary, Iceland, Isle of Man, Italy, Jersey, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Ireland, Romania, Russian Federation, San Marino, Serbia, Serbia and Montenegro, Slovak Republic, Slovenia, Soviet Union, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, and Yugoslavia.

Asia/Pacific excluding Japan

For capital expenditures, R&D, net working capital, share buybacks, and dividends: Australia, Bangladesh, China, Hong Kong, India, Indonesia, Korea, Malaysia, New Zealand, Pakistan, Philippines, Singapore, Taiwan, Thailand, and Vietnam.

For M&A and divestitures: Afghanistan, American Somoa (United States), Armenia, Australia, Azerbaijan, Bangladesh, Bhutan, Brunei, Cambodia, China, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam (United States), Hong Kong, India, Indonesia, Kazakhstan, Kiribati, Kyrgyzstan, Laos, Macau, Malaysia, Maldives, Marshall Islands, Mongolia, Myanmar(Burma), N. Mariana Islands(United States), Nepal, New Caledonia(France), New Zealand, Niue(New Zealand), Norfolk Islands(Australia), North Korea, Pakistan, Palau, Papua New Guinea, Philippines, Singapore, Solomon Islands, South Korea, Sri Lanka, Taiwan, Tajikistan, Thailand, Timor-Leste, Tonga, Turkmenistan, Uzbekistan, Vanuatu(New Hebrides), Vietnam, and Western Somoa.

Global Emerging Markets

For capital expenditures, R&D, net working capital, share buybacks, and dividends: Argentina, Bangladesh, Brazil, Chile, China, Colombia, Croatia, Czech Republic, Hungary, India, Indonesia, Jordan, Kuwait, Malaysia, Mexico, Morocco, Oman, Pakistan, Peru, Philippines, Poland, Qatar, Russia, Saudi Arabia, Slovenia, South Africa, Thailand, Turkey, United Arab Emirates, and Vietnam.

For M&A and divestitures: Brazil, Chile, China, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russian Federation, South Africa, Thailand, and Turkey.

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See http://money.cnn.com/2004/10/11/markets/benstein_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.
For academic research supporting this point, see Jeffrey Wurgler, "Financial Markets and the Allocation of Capital," *Journal of Financial Economics*, Vol. 58, Nos. 1-2, 2000, 187-214.
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