

*Journal of***APPLIED CORPORATE FINANCE****In This Issue: Sustainability and Shareholder Value**

How We Invest	10	<i>Michael Bloomberg and Carl Pope</i>
SASB 2016 Symposium Sustainability and Rewriting the Book on Valuation: An Interview with Tim Koller	16	<i>Tim Koller, McKinsey & Company, with Jonathan Bailey, FCLT Global</i>
SASB 2016 Symposium Roundtable The SEC and Improving Sustainability Reporting	22	<i>Keith Higgins, Securities and Exchange Commission; Alan Beller, Cleary Gottlieb; and John White, Cravath, Swaine, & Moore. Moderated by Mary Schapiro, Promontory Financial Group</i>
SASB 2016 Symposium Roundtable The Next Wave of ESG Integration: Lessons from Institutional Investors	32	<i>Ted Eliopoulos, CalPERS; Kristi Mitchem, Wells Fargo Asset Management; Chris Ailman, CalSTERS; and Michelle Edkins, BlackRock. Moderated by Janine Guillot, Sustainability Accounting Standards Board</i>
SASB 2016 Symposium Roundtable Analysts' Roundtable on Integrating ESG into Investment Decision-Making	44	<i>Dan Hanson, Jarislowsky Fraser Global Investment Management; Jennifer Bender, State Street Global Advisors; Robert Lamy, CFA Institute; and Tom Lyons, Montgomery Fixed Income. Moderated by Bruno Bertocci, UBS Asset Management</i>
Far Beyond the Quarterly Call: CECF's First CEO-Investor Forum	56	<i>Tim Youmans and Brian Tomlinson, CECF Strategic Investor Initiative</i>
Evaluating Sustainable Competitive Advantage	70	<i>Baruch Lev, New York University</i>
The Purpose of the Firm, Valuation, and the Management of Intangibles	76	<i>Bartley J. Madden</i>
Investing in the UN Sustainable Development Goals: Opportunities for Companies and Investors	87	<i>Willem Schramade, NN Investment Partners</i>
Evaluating the Effectiveness of Sustainability Disclosure: Findings from a Recent SASB Study	100	<i>Arturo Rodriguez, Henrik Cotran, and Levi S. Stewart, Sustainability Accounting Standards Board</i>
Lies, Damn Lies, and Statistics: Why a Widely Used Sustainability Metric Fails and How to Improve It	109	<i>Jon Bartley, Ai Chen, Stephen Harvey, Scott Showalter, Gilroy Zuckerman, North Carolina State University, and Levi Stewart, Sustainability Accounting Standard Board</i>

The Purpose of the Firm, Valuation, and the Management of Intangibles

by Bartley J. Madden, Independent*

The worldwide debate about capitalism, and about the social role and responsibilities of corporations in particular, has generated a wide range of responses and proposed solutions. Among the best known are the corporate social responsibility (or CSR) movement, Michael Porter's "shared value" concept, the "conscious capitalism" promoted by John Mackey of Whole Foods, ESG (environmental, social, and governance) scorecards, "FCLT Global" (which is short for focusing capital on the long term), and integrated reporting.¹ Should managements and boards of directors conclude that all of these initiatives are equally worthwhile? Or is there an important unrecognized and therefore missing piece of the puzzle?

What has gone unnoticed is what should have been step one—achieving clarity about the purpose of the firm. An effective statement of corporate purpose should answer the two-part question: Why does the company deserve the commitment and support of its stakeholders, and what unchanging principles will guide management's actions?

In the pages that follow, I identify four interrelated components of the firm's purpose that can motivate employees and other stakeholders to achieve long-run efficiency and competitiveness to the mutual benefit of all groups. Notably absent from this statement of purpose is the traditional call to "maximize shareholder value." When the firm's purpose is reconfigured in this way, the traditional goal of maximizing shareholder value becomes not the primary aim or motive, but the *outcome* or *result* of achieving the firm's purpose. And when thus restated, the corporate purpose is likely to communicate more effectively to a broad audience (including non-finance specialists) and to enlist broad support from most all stakeholders.

One important reason for this restatement of corporate purpose is that corporate professions of value maximization as the primary goal are often confused with a preoccupation with producing steady growth in earnings, and mistakenly

associated with management teams that are focused on doing whatever it takes to meet or beat Wall Street's expectations for quarterly earnings. This common tendency to identify shareholder value with short-termism puts the spotlight on a genuine need for managements and boards to adopt an insightful valuation model that makes clear that value creation is necessarily a long-term process. Toward the end of the paper, I present the outline of a life-cycle valuation model—one that has been widely adopted by money management organizations—that is ideally suited to facilitating a long-term, value-creation mindset. In addition, the life-cycle model brings a needed economic discipline to the corporate sustainability movement and to the integrated reports that have recently become companies' preferred vehicle for communicating the value of their sustainability initiatives and resource allocations.

A Holistic Purpose for the Firm

When viewed together, the following interrelated goals provide a holistic purpose for the firm. As stated below, such goals can be expected to provide clarity of purpose and help gain the support of all of the company's major stakeholders, including its most sophisticated and long-term shareholders.

1. Communicate a *vision* of the company that has at least the potential to inspire and motivate employees to commit their working lives to making the world a better place. The social benefits of some companies are easy to see. As one example, the highly-focused medical technology firm Illumina has described its vision as helping bring about significant improvements in human health "by unlocking the power of the genome." Or consider the following statement by the highly-diversified firm 3M, which envisions the potential of the company's technology, products, and general innovative capacity as "advancing every company," "enhancing every home," and "improving every life." But for many other companies, the corporate purpose may come across

* This article draws heavily on Bartley J. Madden. 2016. *Value Creation Thinking*. Naperville, IL: LearningWhatWorks. I thank Don Chew for his insightful suggestions, which substantially improved the article.

1. See Harwell Wells. 2002. "The Cycles of Corporate Social Responsibility: An Historical Retrospective for the Twenty-First Century," *University of Kansas Law Review* Vol. 51: 77-140. Available at SSRN: <https://ssrn.com/abstract=1121899>. See Michael E. Porter and Mark R. Kramer. 2011. "Creating Shared Value." *Harvard Business Review*. January-February: 62-77. See John Mackey and Raj Sisodia. 2013. *Conscious Capital-*

ism. Boston: Harvard Business Review Press. See Sakis Kotsantonis, Chris Pinney, and George Serafeim. 2016. "ESG Integration in Investment Management: Myths and Realities." *Journal of Applied Corporate Finance* 28 no. 2 (Spring): 10-16. FCLT Global is dedicated to encouraging long-term behaviors in business and investment decision-making, <http://www.FCLTglobal.org>. See Robert G. Eccles and Michael P. Krzus. 2015. *The Integrated Reporting Movement: Meaning, Momentum, Motives, and Materiality*. Hoboken, NJ: John Wiley & Sons.

as mundane and uninspiring. Take the simple declaration by a steel producer that “We aim to be the most efficient producer of steel for the construction industry.” In such cases, it is far better to focus on the value that the firm’s customers can create by receiving products and services with a level of quality and reliability that are perceived by customers to be high in relation to the price they pay for it. And that brings us to the second part of the corporate purpose.

2. *Survive and prosper* through innovation and efficiency gains. Developing and sustaining a knowledge-building culture is essential to promote feedback and learning—the heart of a firm’s innovation process. Such cultures are often described using examples of high innovation and growth. But feedback and learning are also critically important to another, much less glamorous managerial responsibility that is nevertheless an integral part of survival and prosperity. Managements and boards need a reality check to avoid a “grow the business” mindset that refuses to recognize fundamental changes in the competitive landscape. That is, change may have significantly reduced the value of some of a firm’s capabilities that worked well in the past. In such cases, management’s task is then to promptly identify, and recycle resources away from, business units that are fast becoming uneconomic at their current size and with their existing business model. In life-cycle terms, managements must avoid the failing business model stage by taking early action and helping affected employees with a transition to more viable, long-term opportunities. Nothing works long-term if a company consistently fails to earn its cost of capital.

3. *Work continuously to develop win-win relationships with all important corporate stakeholders* as an integral part of achieving the firm’s purpose. Consider two examples from Johnson & Johnson’s exceptional history of innovation. The J&J development in the late 1800s of sterile sutures ushered in modern antiseptic surgery, with huge benefits for hospitals in general and patients in particular. And in 1982, J&J invented safety-sealed, tamper-resistant packaging. J&J’s statement of purpose, which is called “Our Credo,” emphasizes win-win relationships in its opening sentence: “We believe our first responsibility is to the doctors, nurses and patients, to mothers and fathers and all others who use our products and services.”²

4. Take care of *future generations*. This involves a real management commitment to—and in many cases a substantial investment of capital in—ensuring the sustainability of the environment. That commitment begins with the design of products, services, and manufacturing processes that aim to minimize waste and pollution. Employees of lean manufacturing firms are zealous about reducing waste throughout

the entire value stream of a product, including raw material procurement and end-of-life recycling. This way of thinking and acting takes care of future generations while, in many if not most cases, increasing corporate productivity.

The four-part corporate purpose offers a bridge between stakeholder theory and Michael Jensen’s concept of “enlightened value maximization.”³ Proponents of stakeholder theory typically argue that corporate managements can easily turn maximizing shareholder value into a *mindset* that is excessively focused on easily quantified, short-term financial variables while curtailing comprehensive engagement with the company’s non-shareholder stakeholders.⁴

Jensen’s message is that, to maximize long-run firm value, corporate managements must succeed in gaining “the tacit support, if not the emotional allegiance,” of all corporate stakeholders who can affect the efficiency and value of the firm—groups that include not only the company’s customers and employees, but also advocates for the environment and local communities as well as legislators, regulators, and other representatives of “the public interest.” Thus, Jensen joins stakeholder theorists in urging corporate managers to invest in all major corporate constituencies, but with one important proviso: to ensure competitive returns for the firm’s investors, every dollar invested in stakeholders should have an expected long-run payoff of at least a dollar (when discounted for time and risk).

For example, like corporate decisions to increase spending on R&D or new manufacturing facilities, decisions to fund new employee health benefits and expand local community programs that boost employee morale can and should be designed and undertaken as positive-NPV investments that, if effectively communicated to the market, have the potential to increase the company’s current value. This cost of capital/NPV rule provides the basis for “yes/no” and “how much” resource allocation decisions to be made in a logically sound (even though difficult at times to execute) way so that the firm and, by extension, society can get the most out of its limited resources. To repeat, nothing works long-term if a company consistently fails to earn its cost of capital.

In summary, Jensen makes valid points that can easily get ignored in the stakeholder-shareholder value debates that are increasingly gaining attention. Keep in mind that language matters. All too often these debates implicitly or explicitly *begin with the big question*: Do you believe that maximizing shareholder value should be the purpose of the firm? The thinking of those answering yes is invariably steeped in logic and economic theory while those answering no are heavily influenced by observed management behaviors that are incon-

2. J&J’s Our Credo is shown at <http://www.jnj.com>. Also see Mark L. Frigo and Darren Snellgrove. “Why Innovation Should Be Every CFO’s Top Priority,” *Strategic Finance* October 2016: 25-33.

3. Michael C. Jensen. 2001. “Value Maximization, Stakeholder Theory, and the Corporate Objective Function.” *Journal of Applied Corporate Finance* 14(3): 8-21.

4. R. Edward Freeman. 1984. *Strategic Management: A Stakeholder Approach*. London: Pitman Publishing. R. Edward Freeman, Jeffrey S. Harrison, Andrew C. Wicks, Bidhan L. Parmar, and Simone de Colle. 2010. *Stakeholder Theory: The State of the Art*. Cambridge: Cambridge University Press.

The Case of Medtronic

A stellar example of how achieving the firm's purpose results in maximizing shareholder value is Bill George's tenure as CEO of Medtronic from 1991 to 2001. During that time, Medtronic's profitability improved dramatically and its shareholder return was five times greater than that of the S&P 500. George explains his management approach as follows:

In my experience motivating employees with a sense of purpose is the only way to deliver innovative products, superior service and unsurpassed quality over the long haul. ... An organization of highly motivated people is hard to duplicate. The motivation will last if it is deeply rooted in employees' commitment to the intrinsic purpose of their work.⁵

sistent with building a sustainable business for the long haul, especially doing whatever it takes to meet quarterly earnings targets. Would it not be much more useful to first begin by gaining agreement on the four-part purpose and recognizing that value maximization is the result of achieving the firm's purpose? The four-part purpose addresses the foundational needs of all stakeholders, including *why* employees should show up for work. This is a good beginning point. Then more productive debates can follow about, for example, *how* managements and boards are engaging with all their stakeholders, handling investments that are clearly important for value creation but exceedingly hard to quantify, designing compensation packages tied to value creation, and communicating to investors, especially those investors who invest for the long term.

The Role of Performance Evaluation in Maintaining a Knowledge-building Culture

To achieve this four-part purpose, management's most important and challenging responsibility is to instill and nurture a knowledge-building culture, which requires, among other things, investments of management's time and, in many cases, investor capital. Knowledge building is the source of sustained improvements in R&D, manufacturing productivity, employee motivation, and the design of many business tasks concerned with efficiently providing value to customers.

The critical role of corporate culture in knowledge-building and achieving the firm's purpose is made clear by Brad Smith, CEO of Intuit, when he says:

The culture you create lays the foundation that enables every other part of the company to grow and succeed. ... Job one in creating a culture is building a purpose-driven culture.

... What is the bigger idea that we are all part of? ... At Intuit, our mission is to improve our customers' financial lives so profoundly they can't imagine going back to the old way.

... One way leaders can create an action-oriented environment is to match inspiration with rigor, adopting a rapid

experimentation culture... [that] cuts through hierarchy (especially if leaders hold their own ideas to the same scrutiny of testing), creating an environment where everyone can innovate, and debate turns into doing.⁶

While there is much to be said about knowledge building in running a firm's operations, what is often overlooked is the important role of the finance function and performance evaluation in reinforcing and maintaining such a knowledge-based, "purpose-driven" culture. One of managements and boards' most important responsibilities is to find the most effective ways of measuring business unit performance, allocating resources among the business units (and to other investment opportunities), and making changes in the corporate strategy in response to a changing environment. All of these high-level activities can benefit from the use of an explicit valuation model that shows as clearly as possible the connection between the company's market value and changes in the most important drivers of value that are at least partly subject to control or influence by management and employees.

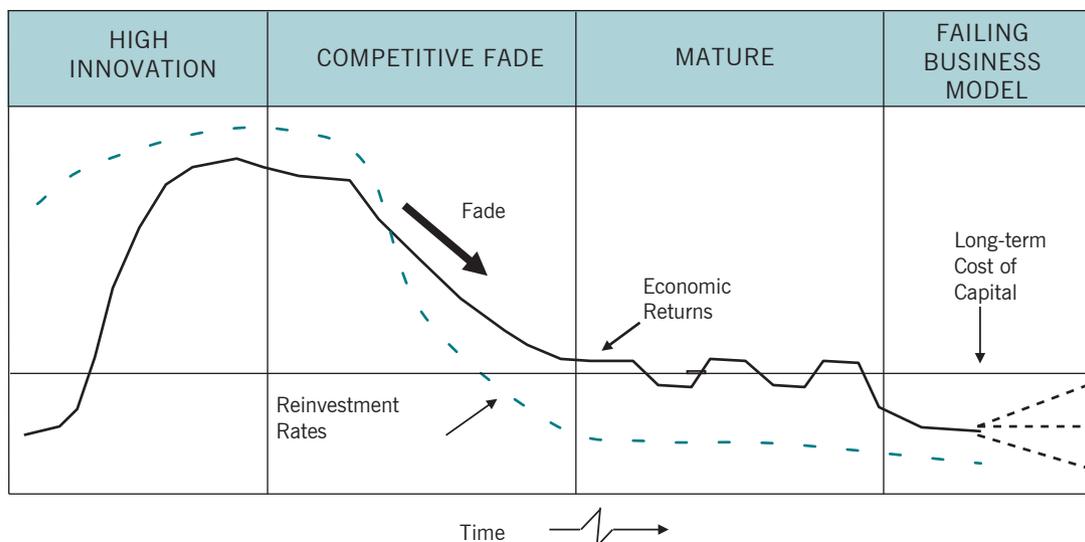
An effective corporate valuation model thus provides the basis for an effective performance evaluation system, one that can be used to accomplish five value-creation monitoring tasks: (1) provide insights about the past; (2) help assess the plausibility of forecasts about the future; (3) lead to better resource allocation decisions; (4) facilitate an understanding of expectations built into current stock prices; and (5) improve the reporting and discussion of financial performance.

To see the potential importance of a valuation model, consider the thinking habits that managers and board members develop when relying completely on EPS-based rules of thumb that are disconnected from a theoretically correct and operationally useful valuation model. Note how easy it is for them to conclude from the often very large market reaction to quarterly earnings surprises that near-term earnings is the main (if not the only important) determinant of stock prices and company values. Excessive reliance on this observed relationship as a

5. Bill George. 2003. *Authentic Leadership*. San Francisco: Jossey-Bass, p. 66.

6. Brad Smith, "The Most Important Job of a CEO," *Observer*, January 28, 2016.

Figure 1 **The Competitive Life-cycle View of the Firm**



Source: Bartley J. Madden. 2016. *Value Creation Thinking*. Figure 2.1.

working “valuation model” can easily lead to business practices rooted in “managing” to Wall Street’s quarterly earnings expectations and encouraging (and paying) employees to do whatever it takes to meet the quarterly accounting targets.

In the next section, I present the outline of the life-cycle model that can help managements and boards with the five value-creation monitoring tasks described earlier and, in a later section, I go on to show how such a model facilitates dealing with the especially difficult problem of intangibles. The analysis of intangibles is a critical part of corporate “integrated reports” that are designed to promote sustainable, long-term performance, which benefits all stakeholders. Sustainability in general, and effective corporate reporting in particular, require that serious efforts be devoted to the task of measuring and managing intangibles with an eye toward creating long-term value. Improved handling of intangibles leads to more accurate life-cycle track records for both the overall firm and its business units. This, in turn, improves the plausibility judgments of forecasted corporate performance and leads to better resource allocation decisions. The life-cycle model with related track record displays can improve one’s line of sight. Specifically, management and the board gain more realistic expectations about the firm’s future performance that is reflected both in its past track record and its current market value.

Life-cycle Valuation Framework

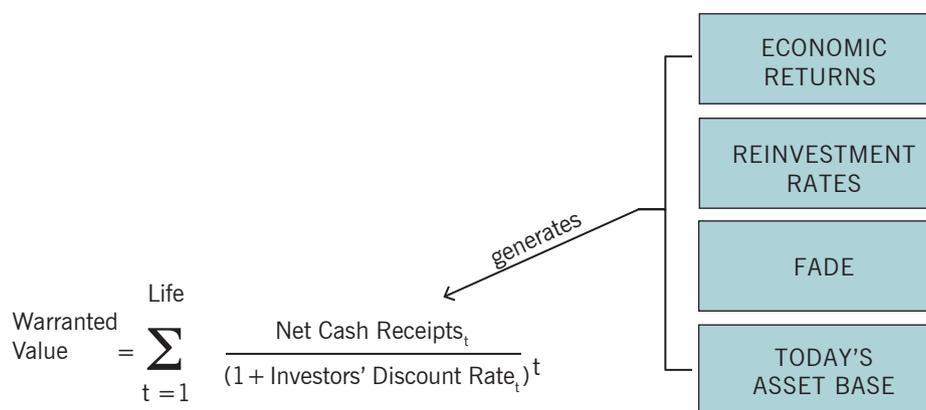
It is useful to view the life cycle of a firm as comprising the four stages illustrated above. For startup firms, management’s critical task is to quickly confirm or reject the validity of the key assumptions necessary for their innovation (new business model) to succeed. Successful commercialization is reflected

in the firm earning—or at least clearly be capable of earning—economic returns above the cost of capital. During this High Innovation stage, high reinvestment rates are likely to be necessary for further success in scaling up the innovation and creating significant shareholder value.

High economic returns—especially when coupled with high reinvestment rates—is a magnet that attracts competitors. And as a consequence of such competition, most companies sooner or later transition into a Competitive Fade stage in which economic returns—often estimated as a RONA, i.e., a return-on-net assets—fade toward the cost of capital and reinvestment rates fade toward lower rates of growth. At this stage, management needs to extend, build, or acquire capabilities that can provide competitive advantage, thereby sustaining high levels of economic returns that do not follow the typical downward fade pattern.

As companies mature, they also typically become larger enterprises and encounter managerial challenges in directing increasingly complex organizations. All the while, their competitors are working to better serve customers. The result of this process is that, over time, companies’ economic returns converge toward the cost of capital and, due to their larger size and the new competition, their reinvestment rates tend to be close to an economy-type growth rate. At the Mature stage, companies may have achieved significant share of a product or service market, and such success can contribute to complacency and an unwavering business-as-usual mindset. Moreover, a firm’s organizational structure that has evolved to improve existing business processes can all too easily become rigid and a significant deterrent to the development of innovative new business models.

Figure 2 Life-cycle Valuation Model



Source: Bartley J. Madden. 2016. *Value Creation Thinking*. Figure 6.4.

A transition from here to the Failing Business Model stage is typically observed in highly bureaucratic companies where top management is especially slow in adapting to a changing environment. Management's competitive short-fall might have been accelerated by outside innovators who have developed new ways to meet customer needs and by competitors with cultures that are better at continuous, overall efficiency improvements. The task in such cases is to purge business-as-usual practices, to restructure, and, when necessary, to hire new management who are not wedded to the firm's past ways or immobilized by its culture. Eventually, the company either improves, gets acquired and restructured, or enters bankruptcy.

Life-cycle track records provide both insights into management's skill level as well as a baseline to judge the plausibility of forecasts about the future. For a specified asset base, a forecast of a company's future life cycle of economic returns and reinvestment rates generates a stream of long-term net cash receipts.⁷ The figure above depicts a present value calculation that is warranted by the forecast variables and the assigned discount rate.

The life-cycle model has been adopted by many money management organizations because it helps them better analyze past corporate performance and improve their forecasts of future corporate performance. It is very useful in translating a company's stock price, at any point in time, into the market's expectations for a future life cycle of economic returns and reinvestment rates. The company's shareholder return over a specific time period net of the broad market and adjusted for risk is driven by the difference between expected life-cycle

performance and the performance that actually materializes.

In sum, when an analysis of a company's past includes a life-cycle track record, we gain insights that improve our understanding of value creation. Even at the public policy level, an absence of an insightful historical perspective tends to result in baseless arguments and pointless debates about the firm's role in society. It becomes all too easy to condemn profits as a reflection of corporate "greed" as opposed to increases in corporate productivity that end up benefiting customers as well as investors. What tends to be missing from such discussions is an appreciation of the lessons about success and failure that are often revealed in life-cycle histories.

One important message is that not all growth is good, and not all companies should be pursuing growth. Companies in the Mature or Failing stages should be cutting back on investment, returning capital, and be applauded (not attacked) for so doing. By distributing such excess capital instead of reinvesting it in low-return projects such as diversifying acquisitions or misguided attempts to maintain market share in overcrowded industries, companies give their investors the option to redirect the capital from mature or dying industries into the entire spectrum of growth opportunities.

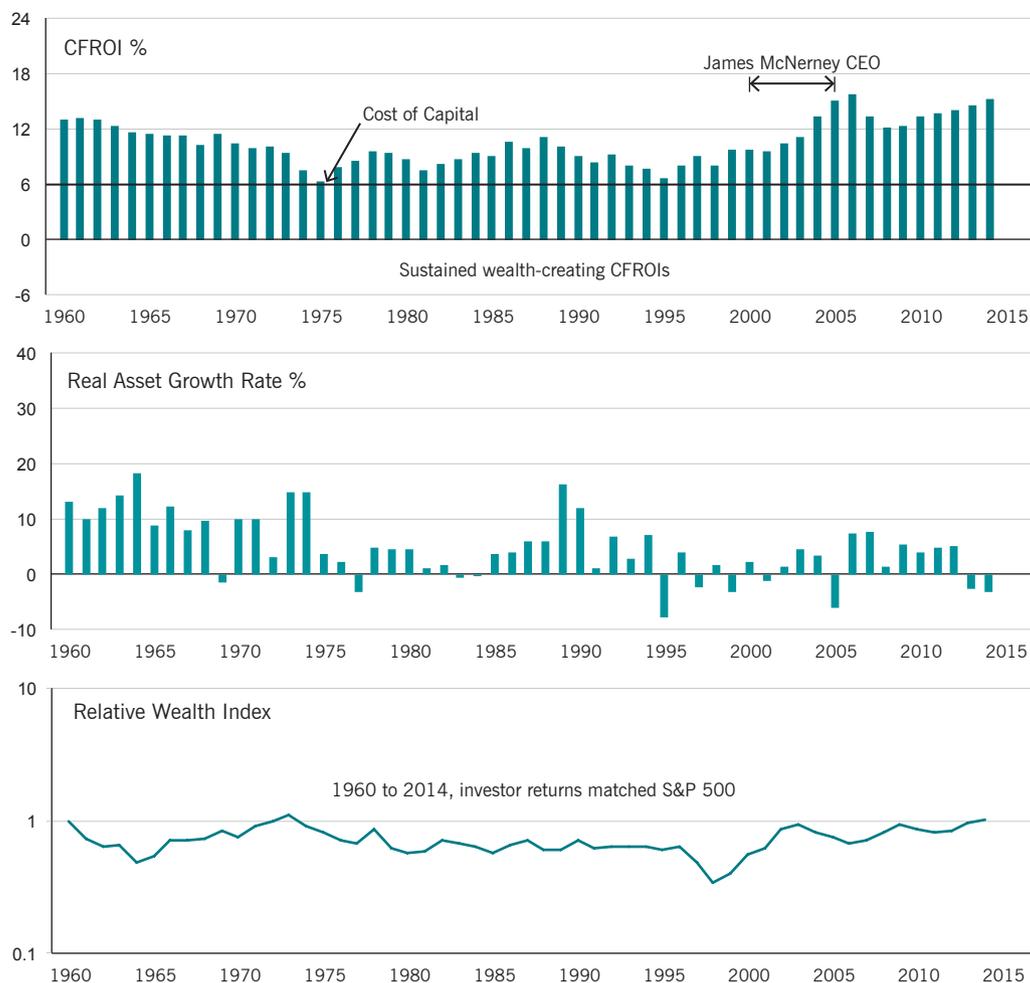
Another clear message from such histories is the remarkable extent of the social benefits in the form of improvements in the lives of customers that are attributable to corporate innovations. The ability to develop new solutions to old problems and, in some cases, to create entirely new experiences is ultimately what enables companies to *earn* returns that are consistently higher than their cost of capital.

Innovation is, of course, about change and about creat-

7. Bartley J. Madden. May 2016. "Value Creation Thinking: PowerPoint Presentation," <https://ssrn.com/abstract=2788692> illustrates the equivalence of the net cash receipt calculation from the firm's perspective and from the capital owners' perspective on slide 44. The life-cycle model uses "real" variables adjusted for changing price levels. Slide 55 used actual U.S. historical inflation (and deflation, e.g., late 19th century) data for a 100-year period and simulated the reported Earnings/Book for a typical U.S. indus-

trial firm that repeatedly invests in 6% real projects. The resulting gyrating Earnings/Book time series ranging from approximately 3% to 20% over this 100-year period of highly variable inflation rates strongly suggests that long-term time series for returns on capital need to be adjusted for the impact on historical cost accounting of changing price levels. Slide 54 displays calculation details for 3M's 2014 CFROI of 15.2% (see Figure 3), including the composition of inflation-adjusted gross operating assets and cash flow.

Figure 3 3M, 1960 to 2014



Source: Bartley J. Madden. 2016. *Value Creation Thinking*. Figure 2.3.

ing an environment that encourages experimentation with processes and products. Business-as-usual cultures in which the future is automatically assumed to repeat the past may offer stability in the short term, but in the long term they generally lead to stagnation. Those corporate executives and government policy makers who are most concerned about widespread prosperity and sustainability—taking care of future generations—should focus on the role of innovation and knowledge building, which is the only reliable path forward for companies to survive and prosper. The next section tells the story of the remarkable success of one

company that got its start in the early 1900s and has since repeatedly reinvented itself.

Building a Company to Last: The Case of 3M

Few companies have the product diversity of 3M, which produces the familiar Scotch tape plus a vast array of technically advanced business and consumer products. Before highlighting 3M's history, let's take a quick look at 3M's lifecycle track record, which is displayed in Figure 3.

Figure 3 consists of three panels that each display a critical aspect of the track record of 3M from 1960 to 2014.⁸ The top

8. The data is from the Credit Suisse HOLT global database. Chapter 7 of Bartley J. Madden. 2016. *Value Creation Thinking*. Naperville, IL: LearningWhatWorks discusses measurement challenges in calculating economic returns (e.g., CFROI) that are displayed as a time series. The development of the CFROI metric, including the procedures to adjust for changing price levels, involved a "model corporation" simulation. Software programs that connect known economic performance to simulated, as-reported accounting data seem to be a forgotten tool in accounting and finance, although they hold promise

for a deeper understanding of both the handling of intangibles and the forecasting of a firm's future net cash receipt stream. See Timo Salmi and Ilkka Virtanen. 1997. "Measuring the Long-Run Profitability of the Firm: A Simulation Evaluation of the Financial Statement Based IRR Estimation Methods." *Acta Wasaensia* No. 54. Also, see Paul M. Healey, Stewart C. Myers, and Christopher D. Howe. 2002. "R&D Accounting and the Tradeoff Between Relevance and Objectivity." *Journal of Accounting Research* 40(3): 677-710.

panel plots the company's economic returns on total investor capital as CFROIs (cash-flow-return-on-investment). CFROIs are inflation-adjusted (real) returns that remove a variety of accounting distortions, so the result is a more accurate readout of "true" economic returns than a conventional RONA. The top panel also shows the long-term corporate average CFROI as a dark horizontal line at 6 percent, which can be viewed as a plausible estimate of the real, long-term cost of capital.⁹

The middle panel of Figure 3 shows 3M's reinvestment rate, calculated as a real asset growth rate. Real numbers are essential to remove the effects of inflation/deflation in order to more accurately measure levels and trends in variables over a long time horizon. The bottom panel shows 3M's total shareholder return (dividends plus price appreciation) relative to the S&P 500 index. Outperformance is seen as a rising trend for the relative wealth line; market-matching performance is a flat trend; and underperformance is a declining trend. As can be seen in this panel, over the entire period 1960-2014, 3M's shareholder return just matched the return on the S&P 500 index. The stock, on average, did not outperform the market over this long period because investors typically priced 3M with expectations of very favorable long-term CFROI fade. Moreover, due to its diverse product portfolio and larger size, asset growth (after adjustments for occasional acquisitions) was not much higher than the economy-wide growth rate and hence was easy to forecast.

But now let's look at the story behind the numbers. In the early 1900s, William McKnight joined 3M, which was then a struggling abrasives manufacturing company. McKnight was fanatical about developing a deep understanding of customer problems, quality control, and innovation. He was President from 1929 to 1949, and then served as board chairman until he finally retired in 1996. During that time he was the prime mover in developing 3M's preeminent knowledge-building culture that gave employees the freedom to experiment, develop new products, and new technology platforms yielding win-win relationships for employees, customers, and shareholders.

CEOs at 3M clearly recognized the need to avoid failing businesses in order for the company to survive and prosper. The idea is to avoid the "grow the business" mindset regardless of how the world is changing. And make an early exit from those businesses in which 3M would likely not have any competitive advantage in the future. One former CEO L. D. DeSimone summarized this point as follows:

What's important is what we're doing now and how we're preparing for the future. Principles don't change. Values don't change, but our surroundings change. We have a saying, 'If you want to be comfortable with the future, you better be part of creating it.'

... 3M has an organic, living nature. Pruning is the natural, though difficult part of continuous revitalization. Meanwhile, new technology platforms become the seeds of future growth.¹⁰

It is important to note that as to sustainability (taking care of future generations), 3M early on chose to be part of the solution, rather than a contributor to the global pollution problem. In 1975 management introduced its Pollution Prevention Pays (3P) initiative based on the philosophy that it would cost less to reduce or eliminate pollution at the source than to try to clean it up afterward. By the year 2000, the 3P initiative had saved 3M more than \$850 million and prevented 1.7 billion pounds of pollution.

During the 1990s, a strong case could be made that 3M's free-spirited emphasis on innovation had resulted in significant management problems—notably, a lack of discipline for both cost controls and resource allocations. The board of directors responded and on January 1, 2001 hired James McNerney based on his long and successful career in top management at General Electric. When the news of his hiring was announced a month earlier, 3M's stock surged 20%. The stock market's enthusiasm for McNerney was warranted given that his leadership led to a sharp increase in 3M's CFROI during his five-year tenure as CEO.

Today, 3M is a widely diversified manufacturing company with \$30 billion in sales and 91,000 employees, and it is once again earning CFROIs that are double its cost of capital. And, in some ways most important, the company is achieving its stated vision of "advancing every company," "enhancing every home," and "improving every life." In sum, all of 3M's stakeholders, and society at large, have benefited greatly from the company's success.

Intangibles and Value Creation

Accountants record assets on a firm's balance sheet that can be objectively quantified. Their estimated useful lives provide the basis for their depreciation and amortization schedules. Machinery, buildings, working capital, and the like represent the bulk of such *tangible* assets. But the reality of today's competitive, market-based economy is that ownership of tangible assets that are easily duplicated by competitors is not, by itself, likely to yield sustained economic returns that exceed the cost of capital.

In today's competitive global environment for business, the potential to achieve sustained above-cost-of-capital economic returns—which is especially valuable when coupled with substantial reinvestment rates—depends on management's ability to identify and carry out investments that can meaningfully contribute to a firm's value-creation skills in

9. See E. F. Fama and K. R. French. 1999. "The Corporate Cost of Capital and the Return on Corporate Investment." *Journal of Finance* 54(6): 1939-1967. Fama and French estimate, for the period 1950-1996, that the real cost of capital was 5.95 percent and the real return on corporate assets was 7.38 percent. Support for the 6% real,

long-term average cost of capital is also provided in Bartley J. Madden. 1999. *CFROI Valuation: A Total System Approach to Valuing the Firm*. Oxford: Butterworth-Heinemann, p. 92.

10. 3M Company. 2002. *A Century of Innovation: The 3M Story* pp. 200 and 233.

ways that are particularly difficult for competitors to duplicate. An umbrella term for these investments is *intangible* assets (or intangibles). They are best viewed as an integral part of the process for creating value. One of the distinguishing features of intangibles is the difficulty associated with estimating their balance sheet values and economic lives.

Notable examples of intangible assets are brand names, ways of organizing work that promote learning and sharing of knowledge, and R&D that leads to patents, new products, and technical platforms of expertise. Also included are evolving core capabilities that lead to innovation plus myriad ways of training and mentoring so that continuous improvement and innovation is a natural outgrowth of the firm's culture. In this last category is the organization of processes (including supply chains) that eliminate waste and other inefficiencies leading to productivity gains as the normal state of affairs, and the creation and expansion of networks of customers, suppliers, and other business partners that increase in value as more users join. Overall, intangibles can produce future benefits in terms of innovations that lead to higher sales or efficiency gains for a company's existing businesses. At times, they can also be used to orchestrate the development of new businesses with the potential to earn above-average profitability.

Historical analyses of companies that include life-cycle track records provide opportunities to learn about the successes and failures of management's strategies, including the longer-run payoffs from their investments in intangibles. Such track records offer a visual way to transition from abstract debates about the value of intangibles to the concrete contexts of individual companies. Long-term time periods (of 40 years or more) are particularly useful for historical study.¹¹ Note that the longer the time horizon, the greater the need for economic returns in particular to be adjusted for changes in the price level (inflation and deflation), which is done with CFROIs.

Because of the qualitative nature of intangibles, accounting rule-makers have not been able to effectively incorporate them in conventional financial statements. But managements and boards have a pressing need to better measure and manage intangibles—and investors are faced with difficult challenges in analyzing intangible-intensive firms. From the perspective of managements, boards, and investors, perhaps the most important question to answer is this: When should outlays for intangibles, which are often expensed as SG&A items, be capitalized and amortized? The answer has two parts.

First, it makes sense to capitalize and amortize, at least on an experimental basis, significant intangibles for which plausible estimates can be made of their useful lives.¹² The

procedures used to capitalize and amortize intangible outlays need to be evaluated for the potential gain in usefulness of track record displays and comparisons to industry peers versus the loss of simplicity and potential increase in noise for performance metrics. For many years, the Credit Suisse HOLT global database has capitalized R&D outlays. The initial reason for so doing was mainly to correct misleading data displays of reinvestment rates (see the middle panel of Figure 3) for pharmaceutical companies whose capital expenditures are typically much lower than their R&D outlays.

Second, it's important to recognize that although explaining to investors the magnitude of outlays for key intangibles and how they contribute to value creation is always useful, the attempt to incorporate highly speculative calculations of extremely-hard-to-quantify intangibles into economic returns and reinvestment rates is likely to be counter-productive, to raise more questions than it answers.

And this begs the question: how should analysts and investors evaluate the expected effects on value of important intangibles that defy quantification in an accounting sense? In such cases, managements and investors should generally begin by calculating an asset base that is stripped of any attempt to capitalize and amortize these particular intangibles. Instead of such attempts, the forecasted life-cycle performance would be adjusted to reflect the expected contribution of these non-capitalized intangibles. For example, all else equal, especially strong brand names would warrant more favorable forecast fade rates for economic returns and reinvestment rates.

With this approach, top priority is given to the practical task of increasing the accuracy of forecasted net cash receipts instead of an attempt to perfectly match revenues and expenses over time and so calculate "true" period-by-period earnings. This provides a thinking template that complements strategic analysis and is likely to be more useful than the process used when investors essentially guess at a "premium" price/earnings multiple that is meant to reflect the perceived "quality" of management.

Sustaining Superior Performance: The Case of Danaher

Let's return to the concept of the life-cycle valuation model in combination with related track records as a package deal that can provide insight into how companies create and sustain value. Keep in mind that learning about competitive advantage that shows up as a favorable fade is vitally important for both managements and investors.

To be more precise, there is a fade of economic returns and

11. See Marcelo Bucheli and R. Daniel Wadhvani. 2014. *Organizations in Time: History, Theory, Methods*. Oxford: Oxford University Press.

12. See Wendy C. Y. Li and Bronwyn H. Hall. 2016. "Depreciation of Business R&D Capital." NBER Working Paper w22473. Available at SSRN: <https://ssrn.com/abstract=2816747>.

See Luminita Enache and Anup Srivastava. 2016. "Should Intangible Investments be Reported Separately or Commingled with Operating Expenses? New Evidence." Available at SSRN: <https://ssrn.com/abstract=2715722>.

a fade of reinvestment rates. On the one hand, there is a gain in simplicity from not explicitly dealing with both of these fade rates, as is typically done for dividends, earnings, and residual income valuation models. On the other hand, additional insights can be obtained from use of the more comprehensive life-cycle model as the following example illustrates.

Danaher Corporation, which recently split into two separate companies, began its existence in the mid-1980s and has delivered superb long-term performance. It has been a highly diversified manufacturing company with an especially valuable intangible asset—the Danaher Business System, which has been used to continuously improve its Toyota-style lean business processes. Widely recognized as the preeminent lean U.S. firm, Danaher has consistently achieved above-cost-of-capital economic returns. But to really understand the source of Danaher’s remarkable performance, one needs to appreciate management’s strategy for achieving the high rate at which resources have been reinvested to earn such high economic returns.

For manufacturing companies like Danaher, the typically modest growth rates of their product markets limit the opportunities to reinvest at high rates and still maintain superior economic returns. Danaher management has overcome this constraint through their ability to acquire companies with the potential for significant gains in operating performance. That potential has been realized by the especially rapid transfer of the culture and business practices of the Danaher Business System to the acquired firm’s operations, resulting in big performance gains. And the supply of acquisition targets for Danaher has remained remarkably steady, thereby enabling the firm to reinvest much larger amounts of capital than the market expected.

To sum up, the comprehensiveness of the life-cycle valuation model can facilitate a deeper understanding of unique intangibles, management’s related strategy to create value, and stock price changes. At any point in time, a company’s stock price implies an expectation of future, long-term fade of economic returns and reinvestment rates. *Beat the fade*, a phrase often used by portfolio managers, captures the managerial challenge of producing better-than-expected fade rates for economic returns and/or reinvestment rates, thereby generating future, risk-adjusted shareholder returns that *beat the market*.

Integrated Reports and Life-cycle Reviews

Large and growing numbers of companies around the world are publishing integrated reports that reflect the explicit recognition that shareholders’ interests are best served over the long

term by economically sound investments that directly benefit other stakeholders.¹³ “Integrated reporting,” as Robert Eccles and Michael Krzus have pointed out:

... is, at its core, a social movement. When put into practice by companies and used by the audience of report consumers, it can transform the way resource allocation decisions are made inside companies and markets across the globe. Its social goal is to use corporate reporting as a means to influence companies and investors such that they incorporate the consequences of the positive and negative externalities of corporate decisions (most typically referred to as “sustainability” regarding social and environmental issues) and the increasing importance of intangible assets.

... The litmus test for both advocates and skeptics is whether integrated reporting leads to better corporate performance through integrated thinking, all of which should be ultimately reflected in a company’s stock price.¹⁴

Nevertheless, as stated earlier, companies with high marks for social and environmental issues, as detailed in their integrated reports, will themselves prove to be *unsustainable* if they fail to earn the cost of capital in the future. That is the downside for companies that fail to create value with their investments. The upside is that companies with value-creating economic returns that warrant favorable stock market valuations are almost certain to produce long-term benefits for all of their stakeholders.

One of the most important objectives of integrated reporting is to help companies with viable, long-term business models to build a shareholder base of sophisticated, longer-term investors. Would not a connection between companies and their preferred shareholders be facilitated by the life-cycle valuation model’s *improved language* for linking long-term corporate performance to stock prices?

There are two questions that managements and boards should ask themselves when evaluating the effectiveness of their integrated reports in explaining their companies’ processes for long-term value creation and thereby attracting long-term investors. First, are the report’s data and narrative powerful enough to convince investors to support a management decision that is highly likely to create significant long-term value, but will almost certainly depress short-term quarterly earnings? Second, if this situation occurs, will the firm’s stock price hold steady after management announces such a decision and describes the long-term upside at the cost of a short-term accounting shortfall?

A Life-cycle Review of the company’s business units that is part of its integrated report would go a long way to provide

13. See Robert G. Eccles and George Serafeim. 2014. “Corporate and Integrated Reporting: A Functional Perspective.” Harvard Business School Working Paper no. 14-094. Available at SSRN: <https://ssrn.com/abstract=2388716>.

14. Robert G. Eccles and Michael P. Krzus. 2015. *The Integrated Reporting Movement: Meaning, Momentum, Motives, and Materiality*. Hoboken, NJ: John Wiley & Sons. pp. 59 and 99.

the needed data and narrative to pass the above tests.¹⁵ Here are the three components of such a Life-cycle Review.

#1 Value-relevant track records. Display value-relevant track records for the company and its major business units. As illustrated in the top two panels of Figure 3, producing such records would require estimating economic returns and calculating reinvestment rates for each of the firm's major business units. In deciding how much information to provide, management needs to work through the tradeoffs involved with accuracy versus simplicity. Details about the calculation of economic returns, such as the capitalization and amortization of R&D expenditures, need to be explained. The idea is to equip investors with all the information they need to reproduce or modify the firm's calculations. Reinvestment rates need to be broken down to show organic growth as well as the impact of acquisitions and divestitures.

#2 Strategy and reinvestment. Explain both the strategy for value creation for each business unit and the planned expenditures (or divestments) in light of the unit's past performance (its life-cycle track record). By displaying the life-cycle histories of the business units, managements, boards, and investors gain an intuitively appealing, common valuation language for communicating how strategy and reinvestment tie into value creation. The current position of each business unit in the life cycle (shown earlier in Figure 1) can be identified and, in so doing, key issues and challenges be plainly identified. For example, there is a higher priority for mature business units to maintain or raise returns on capital instead of chasing asset growth.¹⁶

#3 Intangibles. Provide an overview of how the company's major intangible assets are being used to improve business performance. A description of the firm's intangible assets necessarily reflects the reality that the treatment of intangibles is a work-in-progress for all firms due to the early stage of our knowledge about this complex issue. This is all the more reason for management to explain their strategy for intangibles along with relevant quantitative metrics.¹⁷

The main contribution of Life-cycle Reviews would be to place management's discussion of business unit strategy, reinvestment, and investments in intangibles *in the context of a business unit's track record of economic returns in relation to the cost of capital and its reinvestment rates*. This reality check can raise and provide answers to significant questions. For example, if a business unit that is clearly beyond the startup stage continues to fail to earn the cost of capital, and shows

little prospect of ever doing so, how justify further expansion of the business?

In sum, management and the board typically want a shareholder base of patient, long-term institutional investors. And since these investors are likely to be well versed in life-cycle analysis when evaluating the effectiveness of a company's integrated report, such investors will be looking for convincing signs of managerial ability to create value—namely, economic returns and reinvestment rates over time that *demonstrate* value creation. *Management needs to earn the right* to make decisions to invest capital that are expected to reduce quarterly earnings if and when warranted by the investment opportunities.

But before undertaking such a program, it makes sense for management and the board to first gain experience internally with constructing Life-cycle Reviews and using them for resource allocation decisions. By gaining a deeper understanding of how financial performance ties to stock prices, not only will resource allocations improve but boards can develop more economically sound and cost-effective financial incentives for top management. Such a learning process would involve an expanded role for Chief Financial Officers, particularly in the measurement of economic returns and intangibles. This CFO-measurement task is almost certain to play a much more direct role in corporate value creation than, say, the preparation of required SEC documents.

Conclusion

Achieving clarity about the purpose of the firm and communicating it effectively to outsiders is a critical part of securing public support for a free enterprise society in which public corporations are viewed as the primary engine of economic progress. To achieve the firm's purpose, management's top priority should be to build and maintain a knowledge-building culture. Ideally, every employee would have an experimental mindset such that work at all levels of the firm involves continuous feedback about the effectiveness of internal processes, organizational learning, and adaptation to change. With such a mindset, a company's workforce becomes fertile soil for nurturing efficiency gains and innovation.

Often unrecognized, but of critical importance to managements and boards of directors, are the knowledge-building advantages to be had from implementing the life-cycle valuation model. Life-cycle track records can gener-

15. The concept of a Life-cycle Review was first proposed in Bartley J. Madden. 2007. "For Better Corporate Governance, the Shareholder Value Review." *Journal of Applied Corporate Finance*. 19 no. 1 (Winter): 102-114. See also Bartley J. Madden. 2007. "Guidepost to Wealth Creation: Value-Relevant Track Records." *Journal of Applied Finance*. 17 (2): 119-130.

16. Business as usual is typically not strategically sound for firms priced with significant *negative values* for future investments. This means that current stock prices imply expected ROIs on future investments to be *less than the firms' cost of capital*. Regularly updated estimates of the values for future investments (shown as a percent of a firm's

total market value) for 1,000 U.S. industrial firms using the Credit Suisse HOLT global database are displayed at <http://www.ValueCreationThinking.com>.

17. For discussion of a proposed strategic resources and consequences report that provides a comprehensive description of a firm's business model and its execution, see Baruch Lev and Feng Gu, *The End of Accounting and the Path Forward for Investors and Managers*. Hoboken, NJ: John Wiley & Sons. 2016. Their proposal could be viewed as providing highly useful information that builds upon the core components of a Life-cycle Review.

ate insights about the company's historical record of value creation (or loss), and about the profitability of and value added by its business units and their competitors. In particular, the life-cycle model offers a thinking template that is well suited to managing investments in intangibles.

Finally, integrated reports could benefit significantly from including the key components of Life-cycle Reviews. The resulting sharpened valuation language would encourage debate about not just a redirection of corporate investments, but also about the likely long-term returns on those new investments. Such an evolution of integrated reports could

encourage all of the firm's stakeholders to focus on long-term value creation while providing management with the confidence and means to resist Wall Street's excessive emphasis on quarterly earnings.

BARTLEY J. MADDEN was a managing director at Credit Suisse HOLT and a founding partner at Callard Madden & Associates where his research was instrumental in the development of the CFROI valuation model. His current research is described at LearningWhatWorks.com.

ADVISORY BOARD

Yakov Amihud
New York University

Mary Barth
Stanford University

Amar Bhidé
Tufts University

Michael Bradley
Duke University

Richard Brealey
London Business School

Michael Brennan
University of California,
Los Angeles

Robert Bruner
University of Virginia

Charles Calomiris
Columbia University

Christopher Culp
Johns Hopkins Institute for
Applied Economics

Howard Davies
Institut d'Études Politiques
de Paris

Robert Eccles
Harvard Business School

Carl Ferenbach
High Meadows Foundation

Kenneth French
Dartmouth College

Martin Fridson
Lehmann, Livian, Fridson
Advisors LLC

Stuart L. Gillan
University of Georgia

Richard Greco
Filangieri Capital Partners

Trevor Harris
Columbia University

Glenn Hubbard
Columbia University

Michael Jensen
Harvard University

Steven Kaplan
University of Chicago

David Larcker
Stanford University

Martin Leibowitz
Morgan Stanley

Donald Lessard
Massachusetts Institute of
Technology

John McConnell
Purdue University

Robert Merton
Massachusetts Institute of
Technology

Stewart Myers
Massachusetts Institute of
Technology

Robert Parrino
University of Texas at Austin

Richard Ruback
Harvard Business School

G. William Schwert
University of Rochester

Alan Shapiro
University of Southern
California

Betty Simkins
Oklahoma State University

Clifford Smith, Jr.
University of Rochester

Charles Smithson
Rutter Associates

Laura Starks
University of Texas at Austin

Joel M. Stern
Stern Value Management

G. Bennett Stewart
EVA Dimensions

René Stulz
The Ohio State University

Sheridan Titman
University of Texas at Austin

Alex Triantis
University of Maryland

Laura D'Andrea Tyson
University of California,
Berkeley

Ross Watts
Massachusetts Institute
of Technology

Jerold Zimmerman
University of Rochester

EDITORIAL

Editor-in-Chief
Donald H. Chew, Jr.

Associate Editor
John L. McCormack

Design and Production
Mary McBride

Assistant Editor
Michael E. Chew

Journal of Applied Corporate Finance (ISSN 1078-1196 [print], ISSN 1745-6622 [online]) is published quarterly by Wiley Subscription Services, Inc., a Wiley Company, 111 River St., Hoboken, NJ 07030-5774 USA.

Postmaster: Send all address changes to JOURNAL OF APPLIED CORPORATE FINANCE, John Wiley & Sons Inc., C/O The Sheridan Press, PO Box 465, Hanover, PA 17331 USA.

Information for Subscribers

Journal of Applied Corporate Finance is published in four issues per year. Institutional subscription prices for 2017 are:
Print & Online: US\$684 (US), US\$819 (Rest of World), €532 (Europe), £419 (UK). Commercial subscription prices for 2017 are: Print & Online: US\$911 (US), US\$1088 (Rest of World), €707 (Europe), £557 (UK). Individual subscription prices for 2017 are: Print & Online: US\$125 (US), £70 (Rest of World), €103 (Europe), £70 (UK). Student subscription prices for 2017 are: Print & Online: US\$45 (US), £25 (Rest of World), €38 (Europe), £25 (UK). Prices are exclusive of tax. Asia-Pacific GST, Canadian GST/HST and European VAT will be applied at the appropriate rates. For more information on current tax rates, please go to www.wileyonlinelibrary.com/tax-vat. The price includes online access to the current and all online back files to January 1st 2013, where available. For other pricing options, including access information and terms and conditions, please visit www.wileyonlinelibrary.com/access.

Delivery Terms and Legal Title

Where the subscription price includes print issues and delivery is to the recipient's address, delivery terms are Delivered at Place (DAP); the recipient is responsible for paying any import duty or taxes. Title to all issues transfers FOB our shipping point, freight prepaid. We will endeavour to fulfil claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

Journal Customer Services: For ordering information, claims and any inquiry concerning your journal subscription please go to www.wileycustomerhelp.com/ask or contact your nearest office.

Americas: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or +1 800 835 6770 (toll free in the USA & Canada).

Europe, Middle East and Africa: Email: cs-journals@wiley.com; Tel: +44 (0) 1865 778315.

Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000.

Japan: For Japanese speaking support, Email: cs-japan@wiley.com

Visit our Online Customer Help available in 7 languages at www.wileycustomerhelp.com/ask

Production Editor: Amit Bansal (email: jacf@wiley.com).

Back Issues: Single issues from current and recent volumes are available at the current single issue price from cs-journals@wiley.com. Earlier issues may be obtained from Periodicals Service Company, 351 Fairview Avenue – Ste 300, Hudson, NY 12534, USA. Tel: +1 518 537 4700, Fax: +1 518 537 5899, Email: psc@periodicals.com

View this journal online at wileyonlinelibrary.com/journal/jacf.

Access to this journal is available free online within institutions in the developing world through the AGORA initiative with the FAO, the HINARI initiative with the WHO, the OARE initiative with UNEP, and the ARDI initiative with WIPO. For information, visit www.aginternetwork.org, www.who.int/hinari/en/, www.oaresciences.org, www.wipo.org/int/ardi/edn.

Journal of Applied Corporate Finance accepts articles for Open Access publication. Please visit <http://olabout.wiley.com/WileyCDA/Section/id-828081.html> for further information about OnlineOpen.

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic, and ethical challenges faced in our business and which are important to our diverse stakeholder groups. Since launching the initiative, we have focused on sharing our content with those in need, enhancing community philanthropy, reducing our carbon impact, creating global guidelines and best practices for paper use, establishing a vendor code of ethics, and engaging our colleagues and other stakeholders in our efforts.

Follow our progress at www.wiley.com/go/citizenship

Abstracting and Indexing Services

The Journal is indexed by Accounting and Tax Index, Emerald Management Reviews (Online Edition), Environmental Science and Pollution Management, Risk Abstracts (Online Edition), and Banking Information Index.

Disclaimer

The Publisher, Cantillon and Mann, its affiliates, and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, Cantillon and Mann, its affiliates, and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, Cantillon and Mann, its affiliates, and Editors of the products advertised.

Copyright and Copying

Copyright © 2017 Cantillon and Mann. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Authorization to photocopy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organization (RRO), e.g. Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for republication, for creating new collective works or for resale. Permissions for such reuse can be obtained using the RightsLink "Request Permissions" link on Wiley Online Library. Special requests should be addressed to: permissions@wiley.com.