IMPROVING CORPORATE ENVIRONMENTAL PERFORMANCE THROUGH ECONOMIC VALUE ADDED

by

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Through Economic Value Added

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Corporate annual reports these days are full of references to shareholder wealth creation. In today's highly competitive capital markets, most chief executives understand that unless they are seen as value creators, investors will place their scarce capital somewhere else. Clear evidence of the growing importance, even dominance, of shareholder wealth creation is the growing use of a performance measure known as economic value added (EVA*).1 Within ten years, it is almost certain that most large, publicly traded companies in the United States will be using EVA or something like it as a primary performance evaluation tool. Recently, many non-American companies have also adopted it to better align the incentives of managers with shareholders and to signal their commitment to value creation. EVA is not widely known or understood among environmental specialists, and those who have heard about it often fear it. We find this attitude unfortunate. In this article, we discuss EVA and how its use can aid corporate environmental managers in promoting more proactive environmental investments, and in funding capital investments on environmental improvement, waste reduction, and pollution control in their companies. The use of EVA and other shareholder value measures can also improve general capital investment decisions by integrating environmental factors that affect the long-term interests of the corporation into the managerial decision-making process.

The Concern for Shareholder Value

Why has shareholder value taken center stage? Deregulated capital markets have dramatically increased the mobility of capital, forcing firms to compete more aggressively for capital resources. The practical effect of this capital mobility is that if a company is not seen as a value creator, offering investors higher returns than they could expect in companies of similar risk, it will suffer a competitive disadvantage in
global capital markets, which translates into a higher cost of capital. Just as higher operating costs are not sustainable in competitive markets, neither are higher capital costs. Either the company corrects this deficiency or suffers the consequences later—in reduced market share, painful restructuring with the loss of many jobs, or even bankruptcy.

Critics of the shareholder value culture argue that it neglects other important constituencies, including customers, employees, local communities, and the environment. Though some managers have applied notions of shareholder value too narrowly, a complete analysis of value creation in corporations recognizes and includes the impacts of its products, services, and activities on its various constituencies. Consider the case of Coca-Cola, one of the world’s top value creators. In its 1995 annual report, the company makes a startling claim: “Coca-Cola provides value to everyone who touches it.” What the company means is that every constituency that comes in contact with Coke and its products has somehow been enriched for the experience. Whether it is customers who take comfort from the brand, employees who work in a stimulating and rewarding environment, local communities that benefit from both the payment of taxes and the company’s conservation programs, bottlers who enjoy attractive profit margins and, yes, shareholders who are wealthier because of the company’s strong financial performance, Coke maintains that everyone is better off because Coke exists. While this attitude strikes some people as arrogant, it reflects the philosophy among Coke’s managers that job #1 is to create shareholder value, but this task is possible only by delivering value to everyone else.

The late Roberto Goizueta, Coke’s former chief executive officer, argued that business does have a role in creating a “civil society” in which social ills are successfully addressed. After all, he said, “we cannot for the long term exist as a
healthy company in a sick society." Thus, corporations can make a contribution to their employees, to customers, to society, and to corporate profits by more carefully examining the long-term impacts of their products, services, and activities and integrating those impacts into management decisions. But value creation remains imperative.

The problem with shareholder value and environmental management

In recent years corporations have become increasingly sensitive to environmental issues. This concern is sometimes driven by the need to comply with government regulation, but it may also arise from the desire of corporate managers to reduce costs through product or process improvements and the reduction of waste. Concern over environmental issues has led many companies to spend tens or even hundreds of millions of dollars annually on environmentally related operating costs and capital investments. For the largest companies, annual expenditures may even exceed a billion dollars. Despite these large sums, capital investment appraisal systems in most companies still do not properly identify and measure environmental costs. Further, well developed capital investment tools commonly used elsewhere in business organizations are often ignored in planning environmental capital investments.

To incorporate both the time value of money and the need to earn competitive returns on capital investments, companies now rely mainly on discounted cash flow (DCF) analysis to evaluate investment opportunities. Unfortunately, projects that are prompted by environmental concerns tend to avoid the same level of scrutiny that most other capital projects are subjected to. This neglect is caused mainly by the lack of financial expertise among many environmental health and safety (EH&S) managers and the attitude common among many senior financial and operations managers that if an
investment is driven mainly by regulatory requirements it should not be analyzed as thoroughly as other projects. This attitude produces inferior decision making and impairs efforts to design, implement, and manage a corporate environmental strategy. It fosters reactive approaches to environmental management and inhibits the development of proactive approaches that can lead to substantially improved environmental impacts and higher corporate profits.

Too often, companies calculate only the payback period for environmental investments without considering the time value of money, the broad array of affected constituencies, or the significant future benefits and costs associated with proposed capital projects. Choosing projects based only on the shortest payback period does not yield the best choices. Companies also often require payback periods for environmental projects that are substantially shorter than for other capital investments and are not subjecting these projects to the same rigorous analysis that the capital investment process normally entails. One study of environmental capital investments found that “payback periods were short; in nearly two-thirds of the activities, companies recouped their investments in 6 months or less.” Operating managers do not impose such stringent standards on other discretionary investments, which suggests that many potentially profitable environmentally-related investments go begging. By requiring extremely short payback periods, by avoiding the typical corporate technical, environmental, and financial screens, and by ignoring a full understanding of future costs and benefits, companies are often making improper capital investment decisions.

Not only do EH&S managers neglect to perform the same discounted cash flow (DCF) analysis that is commonly used elsewhere in the business, but they do not know how to properly communicate their analysis on environmental initiatives to other corporate managers. The unfortunate, but inevitable, consequence is that many
environmentally related capital investments are rejected despite having only one- or two-year payback periods. These projects would certainly appear more attractive if comprehensive DCF analyses, considering all important constituencies and impacts, were performed and communicated to line managers. Recall that DCF considers the time value of money and the cost of capital while payback does not.

When environmental program managers use naive appraisal measures such as payback periods without considering more sophisticated tools offered by modern finance, they place themselves and their activities “out of the loop,” reinforcing the idea that companies spend money on environmental concerns because they must, not because managers expect to create value for the firm’s shareholders and other constituents. Indeed, it is widely accepted by many line managers and finance professionals that resources are devoted to the environment only for the sake of compliance. Environmental specialists find this attitude frustrating, especially when they believe that discretionary investment opportunities not only offer important advantages in reducing waste and pollution, but may also increase long-term profitability. Unfortunately for these managers, and the companies they serve, they lack the means of communicating this belief convincingly to other managers.

For their part, top managers should also be concerned with this state of affairs. Environmental program managers may be the only professionals in the organization with sufficient knowledge in the technology of environmental protection and resource conservation to identify potentially value-creating ideas related to the environment. But without the proper incentives and analytical tools, the company will bypass potentially value-creating investments and the opportunities for competitive advantage that can sometimes be realized through more efficient resource utilization.
How should we analyze environmental investments?

One way for environmental specialists to encourage their companies to commit more capital to environmental concerns, beyond mere compliance, is to frame the analysis of such projects in a framework that other managers can understand. Very simply, they can frame their analysis in terms of value creation. Any expenditures apart from those required for compliance should be made only if managers believe, ex ante, that the return on the investment will exceed the cost of the capital required to undertake the investment. Otherwise, the investment will destroy value, resulting in fewer resources for environmental expenditures in the future and confirming the idea that we spend money on the environment only because we are forced to. But value creation must be considered broadly and we must remember that shareholder value can only be increased by creating value for customers, employees, and other constituencies. Any environmental program manager who wishes to see more corporate resources devoted to environmental issues must, therefore, become intimately familiar with the fundamental issues of value creation: What does it mean, how do we implement it, and how do we know if we have achieved it? Only in this way can environmental specialists speak the language of capital providers, allowing them to compete on equal terms with other corporate activities for the company's capital resources.

Managers interested in creating shareholder value use discounted cash flow to make investment decisions. If used properly, DCF captures all of the elements of a project that affect the value of the company. Also, the DCF approach is strongly supported by evidence on how stock markets actually value companies. Very simply, the greater the DCF, the greater the value creation. This relationship becomes apparent when we realize that companies commit cash to capital projects because they
expect to generate even more cash in the future. Therefore, the value of any project, and the amount of resources the company is willing to commit to it, is based on how much cash the project is expected to generate in the future, with the cash flows discounted at a rate of return that reflects the company’s cost of capital. This cost of capital is, in turn, a function of the project’s perceived riskiness, with highly risky projects requiring higher returns than less risky projects. In summary, the value of a capital investment is the expected cash flow discounted at a rate that reflects the riskiness of the cash flow. If this value is greater than the investment required, the project is said to have a positive net present value (NPV). Positive NPV projects create value, while negative NPV projects destroy it.

One important advantage of analyzing discounted cash flows is that it compels corporate managers to consider all of the ways that a proposed capital project might impact the company, not just in the short- or medium-term but throughout its entire life cycle. Life cycle assessment (LCA) and life cycle costing enable companies to better understand the financial and environmental effects of corporate products, services, and activities. Through these approaches, companies can identify all environmental costs and benefits, both internal and external, associated with a process, product, or activity throughout all stages of its life, for the company and its constituencies. Companies should then attach a monetary measure to every effect of a product and forecast expected future costs and benefits. This allows companies to expand DCF analysis to include environmental impacts.4

Until recently, manufacturers were generally not concerned with the ultimate disposal of their products or post-consumer waste. Corporate management delegated to the consumer the task of determining how to dispose of a product safely. But the take-back principle has now shifted this burden back to the manufacturer.5 Costs must
be determined or estimated, assigned to the products that generate them, and formally accounted for to ensure that products can be disposed of responsibly after their useful life. By thinking through these consequences, managers may also consider process and product redesign. This task is often accomplished through cross functional groups that examine all of the impacts and consider likely changes in regulation, technology, consumer demand, and the cash flow impacts of those changes on the proposed investment.6

Current environmental costs related to past production, those related to current production, and an estimate of future costs related to current production should all be estimated and included in product costing and capital investment decisions. Though not all can be measured with precision, managers must acknowledge that they do or will exist and that the expected cost is substantially greater than zero. Including a best estimate of these costs helps define the likely future costs of present production and may illuminate possible alternative courses of action available for minimizing present and future environmental effects.

Similar procedures can be followed for estimating benefits such as cost savings. Even if the benefits cannot be quantified with precision, they should at least be identified, and estimates should be made if at all possible. This is what many companies do when analyzing waste reduction. Although it is often difficult to estimate potential cost savings, mainly because of fast changing technologies in the waste management field, company analysts are still able to present conservative estimates to senior management and these estimates can then be used to assign capital budgets for waste reduction projects.

An analysis addressing all of the company’s major constituencies (including employees, suppliers, customers, society, and the local community, in addition to
shareholders) should also be conducted. This analysis uses a comprehensive impact identification system and various accounting, economic, and social science measurements for its costing. When measurement is considered undesirable or potentially unreliable, the effects are identified without quantification of the expected costs or benefits.

To improve estimates of future environmental costs and benefits, many companies rely on option assessments, option screenings, decision trees, and scenario forecasting. These techniques help generate all available options and select alternatives based on cost effectiveness, relevance for decision making, and environmental impact. Next, the options are prioritized by determining an economic and environmental profile of the effects. These effects are quantified in monetary terms and typically include the net changes in operating and capital costs. The options are then positioned on an "option map" based on the relative weight and importance of the costs and benefits of each option.

What is EVA?

EVA measures the difference between the return on a company's capital and the cost of that capital.\(^7\) EVA is similar to conventional accounting measures of profit but with an important difference: EVA considers the cost of all capital. The net income figures reported in company income statements consider only the most visible type of capital cost, interest, while ignoring the cost of equity finance. Although estimating the cost of equity is a highly subjective exercise, proponents of EVA argue that measures of performance that ignore such costs simply cannot reveal how successful a company has been in creating value for its owners. One way to think of
EVA is that it represents a company's net income net of the cost of both debt and equity capital.

EVA is calculated as follows:

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\begin{align*}
\text{EVA} &= \text{Net sales} - \text{Operating expenses} - \text{Taxes} - \text{Capital charges} \\
&= \text{Operating profit} - \text{Taxes} - \text{Capital charges} \\
&= \text{Net operating profit} - \text{Capital charges} \\
&= \text{EVA}
\end{align*}
\]

Capital charges are based on the company's invested capital times the cost of that capital (what finance professionals call the "weighted-average cost of capital," or WACC). "Invested capital" is the sum of all the firm's financing, apart from short-term non-interest-bearing liabilities, such as accounts payable, accrued wages, and accrued taxes.

Firms can use EVA to evaluate capital investment proposals because the present value of future EVAs for any capital project must equal NPV. Therefore, one important virtue of using EVA is that the same terminology that we use to communicate corporate performance with our shareholders can also be used internally for managerial decision making. For capital budgeting proposals, nothing is lost by using EVA instead of discounted cash flow approaches, such as NPV and the internal rate of return, because EVA produces equivalent results. Indeed, the results must be equivalent because the expected EVAs for a proposed capital investment are based on the same incremental cash flows and the same capital charges as NPV.

EVA does offer one important advantage over NPV, however. One of the principal aims of any value oriented company is to create evaluation and reward systems that encourage, indeed even require, that managers engage in value creating
behavior. Managers must be encouraged (and paid) to undertake positive NPV projects. The problem, however, is that NPV, to use the terminology of economists, is a “stock” or “wealth” measure. It reflects the sum of wealth as of a point in time. Managerial performance, on the other hand, is evaluated and compensated over periods of time. Very simply, we want a “flow” measure of wealth creation, not a stock measure. One of EVA’s strengths is that it fills this role. In other words, EVA converts the stock measure NPV into a flow, which makes it more amenable for evaluating and compensating managerial performance.

**EVA and environmental capital investments**

All EH&S managers are convinced that environmental expenditures can result in “win-win” situations, in which both the company and the environment benefit. If scarce capital resources are to be committed to such projects, managers need a way to evaluate and communicate the value of proposed environmental capital projects. An important virtue of EVA is that it provides such a framework; that is, it facilitates the evaluation of environmental expenditures from a value-creating perspective and it facilitates communication of the value-creating potential of such projects to line managers who are otherwise skeptical of environmental initiatives. EVA can be the link EH&S managers have been seeking with line managers, to demonstrate how a proposed investment can be good for the company’s shareholders and for the environment.

EVA can also help companies to incentivize their EH&S managers to seek out value creating investment opportunities. It can also facilitate the analysis of environmental projects and the communication of the analysis to general managers and finance specialists and the approval of more environmental projects by senior general
managers. This concept has the important advantage of not only directly addressing value creation for the firm as a whole, but can also be used to evaluate individual capital investment projects, monitor and reward managerial performance, and communicate corporate goals consistently through all levels of the organization.

EVA is most useful in the evaluation of discretionary environmental investments. It is with such investments that both the potential benefits and the difficulty in obtaining the needed capital are greatest. But the analysis of regulatory investments can benefit too. For example, when a company is faced with the choice of two alternative approaches to mandated pollution control, how should it decide which option to choose? Through the identification and measurement of life cycle impacts, companies can integrate those impacts into the NPV (and EVA) analysis.

Two key factors are essential if companies are to combine aggressive and innovative environmental strategies with high profits. First, environmental program management must be fully integrated with a company's financial management and control systems, which results in environmental projects being subjected to the same level of analytical rigor as other capital commitments. This includes a broad identification and measurement of the impacts of company products, services, and activities on the company's various constituencies and the long-term impact on the company. Secondly, an incentive structure for all managers, including EH&S professionals, must be tied directly to shareholder value creation. EVA is the variable that links these critical success factors.

Certainly, resource conservation and the reduction of emissions are desirable, but with the pressures on operating managers to achieve competitive returns on capital, advocates of environmental protection should not expect voluntary reductions to be made unless they are seen to be of value to the company and its shareholders.
Companies invest in the environment for many reasons, including government mandates, community relations, cost control and revenue imperatives. Determining the appropriate reduction in emissions or waste for a given business firm is a complicated issue, however. The choice of alternative pollution prevention and control equipment, for example, cannot be made without the complete evaluation of company costs and benefits of investment proposals, including discounted cash flows and, through EVA, strong evidence that shareholder wealth will increase if a particular commitment of funds is undertaken. Thus, through EVA, corporate environmental performance and corporate profitability can both be improved.

Georgia-Pacific’s CEO Pete Correll has said that “there’s a strong correlation between future shareholder value and environmental responsibility.” It has become increasingly clear that the way to maximize shareholder value is to deliver value to all constituencies. Life cycle assessment and life cycle costing are approaches that encourage a more thorough analysis of long-term costs and benefits to improve investment decisions, lower costs, and increase profitability. Reducing corporate environmental impacts can reduce long-term corporate costs. By combining a broader identification and measurement of impacts with better analysis and communication, capital investment decisions can be improved. By tying shareholder value to project and business unit evaluations, corporate EH&S managers can improve the likelihood that projects that satisfy both long-term corporate and societal interests are approved.

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1 EVA is a registered trademark of Stern Stewart & Company.
3 An extensive discussion of this can be found in “Integrating Environmental Impacts into Capital Investment Decisions”, Marc J. Epstein and Marie-Josée Roy, Greener Management International: The Journal of Corporate Environmental Strategy and Practice, Spring 1997, p.69-87.
Marc J. Epstein, “Accounting for Product Take Back”, Management Accounting, August 1996.

A broad discussion of the integration of environmental impacts into management decisions can be found in Marc J. Epstein, Measuring Corporate Environmental Performance: Best Practices for Costing and Managing an Effective Environmental Strategy, IMA and Irwin, 1996.

This section is based largely on “Economic Value Added,” INSEAD technical note 01/98-4667, and “Economic Value Added: A Primer for European Managers,” European Management Journal, August 1997, both by S. David Young.