



COMMITTEE REPORT: INVESTMENTS

By **Timothy P. Dunn** & **Amy E. Dine**

Environmental Productivity

An essential piece of data to consider when deciding whether to include a company in an investment portfolio

Successful investors are always looking for incremental information advantages in their quest to generate superior returns for their clients. In our world, where natural resources are increasingly constrained, we believe that a company’s environmental productivity (EP) is an essential piece of data that all investors should consider when researching any company for inclusion in portfolios.

EP analysis is a way of measuring a company’s efficiency of operations—similar to labor productivity or to other ratios measuring operational efficiency. Specifically, it involves the analysis of a company’s relative efficiency in its use of and impact on natural resources (for example, carbon, water and raw materials). Using environmental data as part of the research process to find the most well-managed companies is simply a better way to create an investment portfolio; one that will yield better risk-adjusted returns against comparable broad market indices. Regulatory changes also support this proposition. (See “Integration Into Policy,” p. 32.)

Our World’s Finite Natural Resources

On a macro level, the world today faces a complex array of challenges linked to corporate inputs and outputs across the globe. It’s well understood that the most pressing of those challenges relates to our earth’s natural systems. Our planet holds a finite amount of natural resources that are essential to our modern society and

to humanity. These resources include: clean water and clean air needed for business operations and human health, topsoil that’s crucial for agriculture and raw materials (for example, minerals and forests) that are used in manufacturing.

Our planet currently sustains over 7.4 billion people whose demands already overly tax its natural resources and systems. In fact, it’s estimated that on Aug. 8, 2016, we’d consumed all of the resources our planet can regenerate over the course of an entire year.¹ Beyond that date, our economic demands are effectively borrowing the resources from future generations, creating a natural resource debt with no means to repay it. Recent trends show that our demands for and negative impacts on these resources are only growing.

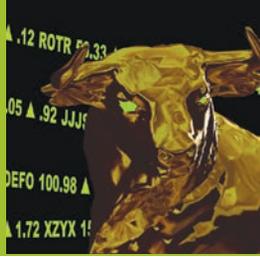
Demographic projections indicate that there’ll be almost 10 billion people on the planet within the next 30 years. Economic forecasts point to at least a tripling of the demands on our natural resources by 2050, absent any change in our economy’s natural resource impact intensity. Simple supply/demand models would therefore suggest that this will lead to higher and more volatile pricing for the use of and impact on our planet’s natural systems. Additionally, these costs—which have historically been viewed as “externalities” for companies—are increasingly being pushed onto all companies’ income statements and balance sheets by regulatory and investor pressure. Hence, companies need to evolve their operations to assure success in this world of increasing constraints on natural resources. Those companies that are adapting to be more efficient with natural resource use are better prepared to weather the risks and the opportunities of future challenges.

While some sectors of our economy have higher levels of natural resource intensity than others (for example, the food industry with water and soil, electricity with air and water and manufacturing with raw materials), all

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sectors are impacted by resource challenges. Banks are exposed as they provide capital to high natural resource intensity and/or highly capital-intensive companies; insurers are directly impacted by changing weather patterns; and data centers are dependent on reliable/low-cost electricity, to name a few. Hence, we use EP analysis across all sectors of the global economy; how this EP research is best applied varies by sector.

Considering EP as a Factor

Evaluating investments using EP as a key consideration, along with other analyses such as financial, strategic, management, competitive and valuation considerations, can give investors a more detailed assessment of a potential investment. EP data analysis gives valuable insight into how a company is currently using natural resources. Further research into a company's plans and targets for improving its EP will provide useful information for forecasting future earnings and returns.

Does this approach—using the “environmental” factor of environmental, social and governance (ESG) factors as a key evaluation measure—make the resulting investment “only” an “impact investment”? On the contrary, the use of EP helps provide better risk-adjusted returns for investments, while also playing a role in positively impacting our natural capital resources. Importantly, the broader the adoption of using this data and EP analysis, the greater the pressure on our economic system to be more environmentally prudent and conscious of natural resource need and use. Wide adoption of EP in business and investing will change our economic system and its use of natural resources, so in this way, investing with EP is an “impact investment” approach at its core; it's simply a better way to evaluate investment opportunities.

Higher Returns

Increasingly, research demonstrates that companies with higher environmental awareness provide higher returns for their shareholders.

- An S&P Dow Jones Indices study (March 2016)²

determined that “despite limited data history, our preliminary findings show that more carbon- and resource-efficient companies may outperform the less efficient ones. Focusing on efficiency could help businesses mitigate risks such as regulation, resource depletion, and reputational risks.”

- Research on sustainability as a driver of financial outperformance used 200 sources of research on

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ESG and found 80 percent of the studies showed a positive investment return from companies with diligent sustainability practices.³ A Harvard Business School study⁴ showed that when companies invested in “material” sustainability projects—identified via industry-specific classifications of material sustainability areas—those firms with “good” ratings on material sustainability issues outperformed the same industry firms with “poor” performance investing in material sustainability issues.

At a corporate level, environmentally efficient projects demonstrate prudent preparation for long-term profitability. Companies that recognize that our world's current economic system is increasingly being threatened by natural resource scarcity will be the most prepared to succeed amid these constraints. The means to increase EP at a company is typically by deploying or investing in processes or technologies that reduce the



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demand for energy, water or raw materials. In most cases, it's not dependent on new or untested technologies but often on a change in capital allocation decision making and compensation schemes. There's ample evidence that the returns on invested capital for such projects are quite attractive for a business over multi-year time horizons. The ability to simultaneously generate substantial environmental benefits is also well understood. For example, a 2016 *Stanford Social Innovation Review* article⁵ noted that a typical South Asian textile and garment factory could save up to 20 percent of chemical inputs, 40 percent of energy and 50 percent of water in its wet-processing operations—improving the environmental footprint

Improving energy efficiency can bring broader awareness of company operations and go hand-in-hand with increasing efficiency in production operations and material use.

without raising unit cost while becoming more prepared for a resource-constrained future.

For active investors, finding informational advantages that generate improved returns is a constant endeavor. With the growth of passive investment products (for example, index funds and exchange-traded funds), it's never been more important. For fiduciaries, being able to better assess their investment managers' and funds' (active or passive) abilities to find opportunities and manage risks is an ongoing challenge. The tracking of environmental data (along with other ESG factors) can provide a more detailed picture of companies and assets not yet found in mainstream reporting nor in brokerage house research.

EP Evaluation Metric

We developed our EP evaluation metric based on decades of investment experience and extensive under-

Integration Into Policy

Regulatory and market changes reflect the importance of environmental factors

Recognition of the usefulness and importance of environmental factors is also reflected in the growing number of regulatory and market changes. A number of stock exchanges globally formally acknowledge the significance by requiring companies to disclose environmental, social and governance (ESG) factors to be listed on the exchange. Singapore requires a sustainability report to be listed; Brazil, China, India, Malaysia, Norway, Seychelles and South Africa are several that require some form of annual reporting of ESG information.¹ The New York Stock Exchange and NASDAQ have guidance that companies should disclose ESG factors because they consider the factors to be material data.

There's an increasing amount of regulation around environmental and sustainability reporting from national governments as well. As of 2015, there were 180 laws and regulatory standards in 45 countries, calling for some aspect of corporate sustainability reporting.² In 2013, amendments to the UK Companies Act required UK-quoted companies to report their greenhouse gas emissions, as well as climate change risks faced by their business and strategies for mitigation.³ The French government currently requires listed companies—as well as investors, banks, credit providers and insurance companies—to disclose the risks they face from climate change and how they're managing them.⁴

The U.S. Department of Labor in a recent update to its Employee Retirement Income Security Act guidance⁵ acknowledged a relationship between the economic and financial value of an investment and the environmental (social and governance) factors, and it encourages inclusion of environmental factors in investment considerations for fiduciaries.

Endnotes

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standing of both our environmental systems and the growing availability of environmental data. We began to see that many leading companies had already begun to work hard to shift their operations to be more aligned with the realities of our natural systems. These companies recognized that their own operations and their



supply chain operations were facing resource challenges. And, their employees and customers were increasingly mindful of the impacts the company had on natural resources. Concordantly, it's becoming evident that companies that are prepared for a resource-constrained future—among other factors—will be better long-term investments. EP is really a necessary and natural addition to an investor's toolkit for evaluating companies today and in the future. It's a way to gauge how effectively companies will be able to navigate future shifts in resource quality and availability.

Data-driven Analysis

EP analysis is a data-focused methodology for companies and investors. It accounts for and is defined as the efficiency with which companies use and impact natural resources.

EP is rooted in measuring and managing. A company tracks, records and then reports on energy use, carbon emissions, water use and impact and material usage and waste. Measuring the data typically leads to managing resource use more efficiently, resulting in cutting costs and creating value.

The environmental data reporting process is relatively new. The first such reporting was in the early 2000s. It's been led by several key organizations including CDP (formerly the Carbon Disclosure Project), Global Reporting Initiative, Ceres and others. These early proponents of greater environmental disclosure were supported by many large global banks and investment organizations that lent their names to the work. More recently, organizations like the Sustainability Accounting Standards Board and the Task Force for Climate-related Financial Disclosures have been created to add weight to the effort and find ways to standardize and improve the information flow. Combined, these efforts are moving environmental disclosure toward the mainstream.

We fully expect the vast majority of mid-cap and large-cap companies to be reporting their primary environmental data within the next five years. Over 2,000 publicly traded companies globally disclosed their environmental data in 2016. This includes well over 70 percent of the market capitalization of the S&P 500 Index.

Emissions Data

Energy efficiency and assessing greenhouse gas (GHG) emissions start with using a company's disclosed data

on GHG emissions—Scope 1 and 2 (and Scope 3, when possible).⁶ In addition to their contribution to a warming and increasingly unstable planetary weather system, GHG emissions can reflect inefficiencies in energy use and create risks and opportunities as regulations and markets increasingly move toward global efforts to combat the negative impacts caused by climate change.

Companies that employ renewable energy sources can improve efficiency and reduce emissions and thus will be better positioned to provide long-term investment returns in a future replete with fluctuating prices, uncertain regulatory environments and political and economic instability. Already, it's estimated that nearly

Companies that assess their material efficiency can avoid regulatory and reputational damage.

70 percent of all new electric capacity added in the next 25 years will be from renewables.⁷

- New York-based utility Con Edison estimates it will save roughly \$1 billion by deploying a mix of renewables (for example, solar and fuel cells) and efficiency measures instead of building out conventional energy infrastructure to accommodate growing demand in New York City.⁸
- Hilton Worldwide's environmental management efforts, which have reduced energy use by 14.5 percent and carbon output by 20.9 percent (compared to 2009 levels), have saved the hotel chain \$550 million since 2009.⁹
- UPS' On-Road Integrated Optimization and Navigation (ORION) program helps drivers optimize routes in regard to fuel distance and time. First rolled out to 10,000 routes in 2013, UPS saved more than 1.5 million gallons of fuel, 14,000 tons of GHG emissions and roughly \$50 million a year. ORION is expected to be fully deployed to nearly all 55,000 routes in North America by 2017, at which point, it's



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expected to generate savings of \$300 to \$400 million per year.¹⁰

Improving energy efficiency can bring broader awareness of company operations and go hand-in-hand with increasing efficiency in production operations and material use. In 2014, General Motors generated nearly \$1 billion in annual revenue through reuse and recycling of its byproducts, which also avoided releasing over 10 million tons of CO₂-equivalent emissions into the atmosphere.¹¹ Some projects that create greater efficiency are basic and uncomplicated but at scale are impactful: Simple efforts like replacing light fixtures and

Environmental data allows for quantitatively driven analysis that complements other financial and performance indicators.

bulbs and installing motion sensors on lights throughout buildings can have a noticeable financial impact, particularly across multiple facilities. Checking air handlers for leaks and using high R-factor insulation can decrease energy intensity. Installing renewable energy sources may require an upfront cost but pay long-term profit benefits into perpetuity.

Water Access and Use Data

Fresh water is only 2.5 percent of the earth's supply, 70 percent of which is inaccessible. Limited or no access to water—what was once a distant concept to businesses—has now become reality for many and a near-term challenge globally. Global water resources are becoming increasingly stressed, and the impacts of this stress reach across all sectors. California's recent drought illustrated this issue clearly.

Competition for water can disrupt operations, damage reputations and constrain growth. In 2015, 405 global companies reported detrimental water challenges that totaled more than \$2.5 billion (from CDP's 2015 annual water survey).¹² Droughts in the United

States in 2011 halved the production of cotton, causing cotton prices to spike. Gap Inc.'s share price fell 17 percent after cutting its full-year profit forecast by 22 percent due to the scarcity of cotton.¹³

Also in 2011, higher-than-average rainfall aligned with other factors to cause Thailand's worst floods in 50 years. Almost 40 percent of the world's hard disk drive (HDD) production and manufacturing facilities were located in Thailand's Chao Phraya River valley, a known floodplain. The severe floods caused massive evacuations, factory shutdowns and supply chain disruptions for all industrial processes located in the valley.¹⁴

- HDD shipments fell 30 percent below demand orders.¹⁵
- Emerson Electric saw net income fall 23 percent after costs rose and sales decreased due to supply chain disruptions from these Thai floods.¹⁶ The negative impact also affected the stock price: Emerson shares were down close to 3 percent relative to the S&P 500 Index on the report date.
- The world's biggest HDD maker, Western Digital Corp., was forced to close its Thai factories, where it made 60 percent of its HDDs. Its operations and ability to meet customer demand were seriously impacted. Shares dropped 7 percent in one day.¹⁷
- The global shortage of HDDs added \$5 to \$10 to the cost of each hard drive, as reported by Lenovo Group Ltd., the world's second biggest maker of PCs.¹⁸ Other industries were also affected.
- Toyota, Honda, Nissan and Ford all felt the effects of the Thai floods on their earnings; the floods caused these companies to close their Thai plants, and the shortages of parts slowed manufacturing around the world. Honda faced costly repairs to its flood-damaged factory; it was forced to delay model releases, and it reported negative earnings that quarter. In 2011, Honda's stock was down 28 percent. Toyota reported an 18.5 percent net income drop, a 4.8 percent decline in revenue and a 32.4 percent fall of operating profit. Toyota's stock was down 22 percent following the negative earnings report.¹⁹

These floods weren't hydrologically unprecedented;²⁰ companies should have been prepared for flood risk losses from operational and supply chain disruption.



Conversely, the information technology company Cognizant was prepared and able to implement continuity plans by shifting operations to another location when floods closed all 11 offices in the city of Chennai, India in December 2015. There was no impact on its operations as a result, nor on its stock price. For investors, this means that information about a company's water vulnerabilities and opportunities, and the strategy for addressing them, is a material investment consideration.

Materials and Waste Data

Collecting data on material use and waste production is a fairly simple means to assess the financial advantages of a company's material-use efficiency. Material extraction and waste generation have historically undergirded global economic growth and are both increasing as global consumption continues to grow. Non-renewable materials account for 70 percent (and rising) of global material extraction, and an estimated 20 percent of material extraction becomes waste.²¹ A United Nations Environment Programme report warned that current development trends "probably exceed all possible measures of available resources."²²

Risks and opportunities manifest in operational, reputational, regulatory and strategic marketing realms for companies regarding material use and waste production. The collection of a company's physical waste is typically an obvious and quantifiable company expense; hauling away less waste makes an immediate reduction on company cost. Content used can make a material difference, too.

- In 2013, only 7.2 percent of Pepsico's waste was sent to a landfill, allowing the company to avoid \$3 million in landfill disposal costs.
- Walmart reduced the number of corrugated cardboard boxes used for apparel in fiscal year (FY) 2016 by 8.1 million over FY 2015, equaling 6.3 million pounds of cardboard, saving \$15.3 million in operational costs (and 7,800 metric tonnes of GHGs).
- In March 2015, a "60 Minutes" report exposed unlawfully high levels of formaldehyde in laminated flooring from Lumber Liquidators. The company was subject to investigations and fines, and its stock fell over 80 percent from its 2015 peak.²³ Had the company properly assessed the intensity and content of its material inputs, perhaps the damage could have

been avoided.

Those companies that reduce material extraction, achieve little to no waste during processing and recycle, reuse or resell what's leftover, will realize considerable positive returns and limit their exposure to resource scarcity in the future. Companies that assess their material efficiency can avoid regulatory and reputational damage.

Inclusion of EP

It's our contention that investment decision making that includes EP measures will lead to superior risk-adjusted returns over reasonable time periods. It provides investors an avenue for their portfolios to reflect their shared interest in a better environment. It will also help to drive the global economy to be more aligned with the world's finite natural resources, which supports a common goal for long-term prosperity.

Reducing the intensity of use of natural resources and increasing environmentally productive business practices all enhance the prospects for better long-term returns for corporations and patient capital investors. Further, companies that fail to develop environmentally productive methodologies for managing their use and impact on carbon, water and material are at greater risk; those that recognize challenges can find opportunity. Many of the world's best companies already measure, manage and report their key environmental data. More companies are doing so every year.

In a world with a rapidly increasing population and a growing middle class, the pressure on our finite natural resources necessitates that the corporate sector adapt to a more efficient use of natural capital for long-term profitability. Environmental data allows for quantitatively driven analysis that complements other financial and performance indicators. The EP analysis is an essential investing tool for successful portfolio construction in the 21st century. 

Endnotes

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SPOT LIGHT

On Your Toes

"Isadora Duncan Triptych" by Abraham Walkowitz, sold for \$3,000 at Swann Auction Galleries' American Art Sale in New York City on June 9, 2016. Walkowitz, who actually met the subject of this painting (modern dancer Isadora Duncan) at the Paris studio of Auguste Rodin, went on to produce more than 5,000 drawings of her. He was also known for his watercolor cityscapes. Much like our cover artist, Paul Meltsner, Walkowitz is thought to have received less public attention than his works warranted.