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# Environmental Markets: A New Asset Class (a summary)

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Published 2014 by the CFA Institute Research Foundation

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Population growth, industrialization, and urbanization in the past 200 years have resulted in local, national, and global pollution of our environment. Fossil-fuel combustion has resulted in rising levels of pollutants that cause smog, acid rain, and climate changes. Entire populations are faced with inadequate access to clean air and water, including China, India, Africa, and large areas elsewhere in the world.

The lack of ownership of air and water is the cause of the problem. The profit maximization model for a firm takes into account only the direct costs incurred by the firm, not the spillover costs, such as the negative repercussions associated with the pollution of air and water. Therefore, more goods and services are produced than would be if pollution were either controlled by fiat or internally priced (a condition in which the social, or external, cost of the pollution is figured into the decision about how much of the good or service to produce).<sup>1</sup>

These spillover costs, called “negative externalities,” can be dealt with by mandating limits on pollutants (i.e., a cap) or requiring specific modifications in the production of goods and services. Spillover costs or benefits can also be mitigated by taxes and/or subsidies designed to drive down the level of pollution. In addition, externalities can be mitigated when public or private entities create a limited number of pollution or use rights corresponding to the environmentally acceptable cap on the pollutant. These property rights, called “allowances,” can be purchased by companies for the purpose of compliance with environmental laws if they exceed their individual caps. Companies that reduce emissions in excess of their targeted caps can sell their allowances. The creation of a limited number (a cap) of property rights and their transferability (trade) has come to be known as “cap-and-trade.” The transferability of allowances results in the market putting a price on the right to pollute. The price discovery allows

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<sup>1</sup>The total, or social, cost of a good is internal, or ordinary, cost plus the external cost (e.g., pollution) of the good. If the external cost is a positive number, taking it into account makes the good more expensive. All other things being equal, if a good becomes more expensive, the quantity demanded will be lower, so the “right” amount to produce will also be lower.

companies flexibility to choose an efficient way to reduce pollution. When the price is higher than the technology required to reduce or eliminate the pollution, companies will install the technology. If the opposite is the case, they will buy allowances. The price signals and flexibility enabled by a cap-and-trade program result in a least-cost solution to environmental problems.

The role of markets in reducing pollution and environmental degradation is not widely understood. Markets, when designed properly, can be a powerful agent for social and environmental transformation. These markets also act as economic drivers, generating jobs and improving the overall quality of life while acting as catalysts for innovation.

Early program outcomes, such as the phasing out of leaded gasoline and the virtual elimination of acid rain, led to widespread adoption of cap-and-trade throughout the world. The result has been creation of a new asset class—the environment—to join the traditional asset classes of stocks, bonds, real estate, foreign exchange, and tangible commodities.

Environmental asset classes are not a hope for tomorrow but a reality today. This new asset category promises to grow dramatically. Examples of environmental assets are rights to emit local and regional pollutants, such as sulfur dioxide and nitrogen oxide; rights to emit global pollutants, such as carbon dioxide; renewable energy credits; water quality and quantity rights; catastrophe and weather risk; and indices of sustainable corporate equities. This new asset class is the manifestation in securities and commodities markets of an emerging field of endeavor called “environmental finance.” Environmental finance is the art and science of using economic incentives, financial tools, and market mechanisms to achieve desired environmental outcomes.<sup>2</sup>

This book is born out of economic theory and practical experience. Its purpose is to introduce this new asset class to financial analysts, investors, and corporations. It is of interest to these readers because it allows them to maximize revenues, reduce costs, and manage risks while promoting environmental and social benefits. Here is a new way to “do well and to do good.”

From a corporate standpoint, businesses today have to be cognizant of, and prepare for, new kinds of corporate risks, including those arising from environmental problems and resource scarcity. These environmental risks include those related to production inputs (e.g., clean water for a beverage company), by-products of production (e.g., wastewater from chemical processing), and corporate social responsibility.

In addition, for companies to be competitive, their executives must be aware of opportunities that environmental markets have to offer.

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<sup>2</sup>The term “environmental finance” was first adopted in an eponymous course offered by Richard L. Sandor at Columbia University in 1992. It helped ratify the academic underpinning of this growing new field. It has become widely used by other academic courses, industry publications, and conferences.

Environmental asset classes allow businesses to pursue major new opportunities while simultaneously achieving their energy and environmental goals.

Similarly, financial analysts need to understand emerging environmental asset classes to evaluate companies on the basis of their environmental performance, exposure to environmental risks, and response to environmental opportunities. Portfolio managers may also want to incorporate these new asset classes in their portfolios.

The eight chapters of this book cover three broad asset classes: air and water, catastrophe and weather risk, and sustainability. The discussions also demonstrate how the environmental asset classes are being incorporated into commodities, fixed income, and equity instruments. The book concludes with some insights into the current state of this emerging asset class, some food for thought, and predictions about the future of environmental assets. We hope that the reader will walk away with a solid preliminary understanding of the promising and transformational new investment category of environmental assets.

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The complete book can be found at  
<http://www.cfapubs.org/toc/rf/2014/2014/1>.



Use your smartphone to scan the QR code to go straight to the webpage.