

Session 10

Investing in the Environment: an Emergency

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Environmental Financial Products

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).

These spillover costs, called "negative externalities," can be dealt with by mandating limits on pollutants, i.e. 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 companies flexibility to choose the 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 in the United States, 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.

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. 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.

Markets in emissions and "rights-to-use" have solved environmental problems and created enormous investment opportunities. They achieved this by commoditizing and pricing "externalities", with the same concept being applied to weather-driven events and catastrophes. The convergence of the environment and finance is here to stay, and the market-based applications in sulfur dioxide and carbon emissions are only the beginning. This new asset class holds enormous promise in fields such as water quality and quantity and for countries like China and India.