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# What Goes Down Will Come Up

Fossil-fuel betas put energy risk in its place.

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Only last April, Michael Graff of Graff Trucking predicted catastrophe if diesel prices climbed higher. “I’m at the point where I’m questioning my ability to continue to operate,” he said. While the current respite may have dialed back such angst, volatility has not vanished. Nor has the contingent risk to cash flow posed by potential taxes and cap-and-trade quotas on greenhouse gases (GHGs). These lurking costs jostle market values every day.

To date, however, companies have lacked any precise, uniform means to evaluate and manage value-at-risk from energy volatility, future liability from GHG emissions, or other aspects of sustainability. It’s been a finger-to-the-wind exercise in which companies have set all manner of targets and deadlines, with no hint of uniformity. Tool manufacturer Black & Decker, for example, reported to the Carbon Disclosure Project (CDP) that it sets no corporate emissions reduction target; instead, its initiatives focus on energy-efficient lighting, improving the use of compressed air and steam, and using high-efficiency electric motors.

To improve its energy profile, airplane maker Boeing seeks a 25 percent improvement in greenhouse-gas emissions intensity (on a revenue-adjusted basis) at major manufacturing facilities by 2012. Wal-Mart has described lofty long-term goals — to rely completely on renewable energy, to create zero waste, and to sell products that sustain global resources and the environment — all aimed at lowering a \$2.5 billion bill for fuel and electricity.

This welter of goals, ambitions, and good intentions calls to mind Ronald Reagan’s famous dictum: Trust, but verify. Enter the “fossil-fuel beta,” a metric that can pinpoint the impact of fossil-fuel prices and contingent GHG emissions liabilities across the value chain. Such a metric could furnish market-based data to support fossil-fuel targets and truly substantive sustainability reports.

The fossil-fuel beta — or  $FF\beta^{TM}$  — developed for *CFO* by finance professor Anant Sundaram and the Allwin Initiative for Corporate Citizenship at Dartmouth’s Tuck School of Business, estimates exposure of a company’s market returns to changes in fossil-fuel prices. This new benchmark zeroes in on one pivotal question: To what degree do corporate policies and hedging strategies help decouple a firm’s market returns from fossil-fuel price changes?

The figures presented on the following pages do not address a potential carbon tax or the cap-and-trade cost implications of fossil-fuel consumption. That analysis must wait for improved quality of carbon-use audits; today fewer than half the companies in the S&P 500 provide a detailed public accounting of their GHG emissions, according to the CDP.

However,  $FF\beta$  introduces an objective, accessible handle on a major component of energy risk. It combines reliable and widely used stock-market data from the Center for Research in Security Prices with fossil-fuel prices from the Bureau of Labor Statistics. The results pose new questions about bottom-line virtues of “natural” hedges that reduce fossil-fuel use and strategies that offset costs.

Using three calendar years of stock-market returns and fossil-fuel price data (through December 2007), the 2008  $FF\beta$  roster highlights inequality across a range of S&P 500 companies. Routine regression analysis tracks *excess* stock returns for changes in fossil-fuel prices at 135 companies in 10 industries. The tables illustrate the impact of a 10 percent fossil-fuel price increase.

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