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On Measuring Greenness: A New Enabling Metric, Please

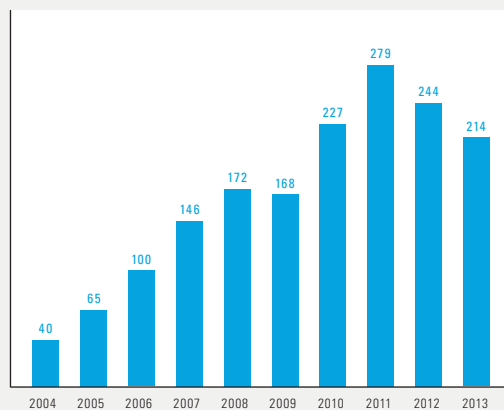
For some time, the flavor of the day has been “green”. Indeed, companies around the world are scrambling to go green. Some are so desperate that they engage in “green-washing”. This practice amounts to little more than the use of public relations campaigns to assert greenness. McDonalds, for example, literally became green by changing the colors on its signature logo. Now, McDonalds’ classic yellow “M” is displayed with a green, not a red, background. That said, many companies are, and have been, engaged in producing products and employing production processes that, by any definition, would qualify as green.

GREEN INVESTMENTS GROWING

Just how large is the green investment space? Well, it’s large, and it’s growing rapidly. For example, the FTSE-4Good, which is a sub-index of London’s FTSE, has the largest market capitalization of any of the green equity indices. At the end of April 2014, the global FTSE4Good’s

market capitalization stood at a whopping \$16.8 trillion. This is almost exactly the same size as the current GDP of the United States – \$17.1 trillion.

Global New Investment in Renewable Energy
(Billions of \$)



Source: Bloomberg New Energy Finance.



When we turn to the growth of green investments, annual investments in renewable energy serve as a useful proxy. Chart 1 shows the picture from 2004–2013. In a decade, these investments have exploded, increasing more than fivefold.

Even the Oracle of Omaha, Warren Buffett, has touted green and jumped on the bandwagon. Indeed, Berkshire Hathaway, through its subsidiary MidAmerican Energy, is heavily invested in renewable energy, and Buffett wrote in a recent letter to shareholders that MidAmerican's total investment in renewable energy will surge to \$15 billion, when current projects are completed (Buffett 2013).

MEASURING GREEN

With investors favoring green, and investment flows being earmarked as green, the obvious question arises: "How does an investment qualify for the coveted green designation?" The two generic methodologies used to determine what constitutes the so-called green investment grade are screening methodologies and green theme investing. Screening methodologies are ones that allow only the greenest companies through the screen. Screen processes result in all the green companies being lumped together, without any differentiation for the wide variety of screens that are used. This is an important flaw in the screening methodology, because the screening methodologies range from those that evaluate a company's balance sheet to determine the green, non-green composition of a company's assets to a simple classification of a company's business activities into different so-called green categories – such as wind, solar, and so forth. With screening, two companies with a green designation would be grouped together, regardless of the fact that one company's green assets are ten times larger than another company in the same class.

The green theme methodology is even cruder than screening. An investment is deemed green only if it fits into a pre-defined green designation.



THE ENABLING GREENNESS RATIO

In order to firm up the green investment house’s foundation, we propose a methodology that is simple, transparent, and one that can be objectively replicated. Our metric is determined by starting at the origin of the supply chain. It is from that starting point that we measure the amount of greenness ultimately enabled by the production of a so-called green enabler.

For example, the reduction in CO₂ is a green good. If a company produces graphite that enables the production of more efficient insulation, which results in lower demand for energy required for heating and cooling, then the graphite producer is a net supplier of a green good – the net reduction in CO₂. In short, the enabler of the production of the green good is the supplier of graphite. So, the source of greenness resides at the very beginning of the supply chain. When it comes to the measurement of greenness, this enabling notion leads to simplicity and transparency, as well as an objective measure of the amount of greenness associated with each supplier that is enabling the production of green goods.

Therefore, the green theme methodology results in little more than a loose, nominal – but important – designation. Yes, if a company can obtain a green designation, no matter how it is determined, that recognition of greenness enhances the firm’s attractiveness to investors.

The current methods of measuring green fail to meet rudimentary standards of measurement. The most basic principal of measurement is replication. However, the current methods are, for the most part, subjective and opaque (Kennedy 2012 and Inderst 2012). In consequence, they fail to meet the replication test. This leaves a multi-trillion dollar green investment house wobbling on stilts, rather than a sound foundation.

To operationalize the enabling concept in the context of CO₂ emissions, the following transparent and replicable formulation for measuring greenness with precision can be used:

Enabling Greenness Ratio = $\frac{\text{Net CO}_2 \text{ Reduction}}{\text{Total Assets}}$, where

The Net CO₂ Reduction = the Net CO₂ reduced by a company, and Total Assets = the Total Assets as listed on a company’s balance sheet. The enabling greenness ratio equates to the net CO₂ reduced by the level of invested capital in a company. Because this metric is divided by total assets, it provides net CO₂ reduction relative to a company’s size. This is analogous to the traditional accounting measure – return on assets.

Table 1: Enabling Greenness Metrics: Advanced Metallurgical Group

Product Enabled	Total Equivalent CO ₂ Emissions Reduced (millions of metric tons)							
	2010	2011	2012	2013	2014	2015	2016	2017
Ford F-150						0.68	1.37	2.05
Graphite	0.93	1.87	2.80	3.74	4.67	5.61	6.54	7.47
Transmission Heat Treatment		0.42	0.84	1.26	1.68	2.10	2.52	2.94
Fuel Injectors		0.88	1.75	2.63	3.50	4.38	5.25	6.13
Aerospace Ti Alloys	5.17	6.20	7.23	8.27	9.30	10.75	12.28	13.89
Aerospace Coatings	0.83	0.96	1.10	1.24	1.38	1.58	1.79	2.01
Gamma Ti Aluminide								4.13
TOTAL CO ₂ Emissions Reduced (millions of metric tons)	6.93	10.33	13.73	17.13	20.53	25.09	29.74	38.62
TOTAL CO ₂ Emissions Produced (millions of metric tons)	0.12	0.15	0.48	0.58	0.68	0.77	0.87	0.97
NET CO ₂ Emissions Reduced (millions of metric tons)	6.80	10.18	13.25	16.55	19.85	24.32	28.87	37.65
TOTAL ASSETS	855.075	900.797	947.921	832.216	929.436	1026.656	1123.876	1221.096
Metric Tons of CO ₂ Reduced per \$1,000 of Assets	7.96	11.30	13.98	19.89	21.36	23.68	25.69	30.84

Source: Advanced Metallurgical Group and calculations by Prof. Dr. Steve H. Hanke and Dr. Heinz Schimmelbusch.

Notes: These data assume that all products produced since 2008 are still in use by 2017. All data from 2014-2017 are estimates made by the authors.

Our suggested methodology can be applied with precision. We use the Advanced Metallurgical Group (AMG) to illustrate. Table 1 contains our results.

Over the past four years AMG has produced products that have enabled a net CO₂ reduction of 46.78 million metric tons. Very green, indeed. However, that's not the end of the story. Reliable projections indicate that AMG will enable the reduction of an additional 110.69 million metric tons, an increase of 137 percent, over the next four years. And yes, there's more, due to the cumulative nature of supplying raw materials that enable the production of green goods, AMG's greenness enabling ratio soars over time – indicating that AMG's green rate of return is growing rapidly. ❖

REFERENCES

- Bloomberg New Energy Finance (2014), Global Trends in Renewable Energy Investment 2014. Available at <http://fs-unesp-centre.org/system/files/global-trends-in-renewable-energy-investments-2014.pdf>
- Buffett, W. (2013), Annual Shareholder Letter, 18 April, 2014. Available at <http://www.berkshirehathaway.com/letters/2013ltr.pdf>
- Inderst, G., Kaminker, Ch., Stewart, F. (2012), Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations, OECD Working Papers on Finance, Insurance and Private Pensions, No.24, OECD Publishing. Available at <http://dx.doi.org/10.1787/5k9312twnn44-en>
- Kennedy, C. and J. Corfee-Morlot (2012), Mobilising Investment in Low Carbon, Climate Resilient Infrastructure, OECD Environment Working Papers, No. 46, OECD Publishing.

