

Assessing the Economic Value of Ethanol Assets -A Review of the Valero/VeraSun Transaction-

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On March 18, 2009, Valero Energy, the nation's largest independent refiner, announced that it would buy seven ethanol plants (with a combined annual nameplate capacity of 780MM gpy) as well as a developmental site from bankrupt VeraSun Energy for \$477MM. During an April quarterly call with analysts, Valero's CFO Mike Ciskowski expressed optimism regarding the purchase price stating that, "acquisition costs were 30 percent of replacement costs." Clearly the price was a "good deal" but did it provide an opportunity to create value for Valero shareholders? Although numerous analytical techniques and metrics can be applied to answer this question (e.g. Discounted Cash Flow analysis, EBITDA multiples, Calculation of Discounted Payback and IRR analysis), we prefer application of the Economic Value Added¹ (EVATM) framework.

The statement, "if you can't measure it, you can't manage it" clearly extends to investment decisions but should contain the disclaimer: assuming you're measuring the right things. Rational investors intuitively comprehend the need to quantify the right things when they invariably ask themselves two critical questions: 1) "what level of return should I expect for the risks I am assuming" and 2) "how do the expected returns of this investment match up against my risk-adjusted return needs." Modern financial theory has established two metrics that provide quantitative guidance to these two questions; the former is addressed by the Weighted Average Cost of Capital (WACC) and the latter by the Return on Invested Capital (ROIC).

The EVA framework formalizes the relationship between these two metrics and provides a basis for judging investments in terms of their ability to generate sustainable Economic Profits, or returns to capital above their risk adjusted hurdle rate. Application of EVA analysis requires estimation of three key metrics for an underlying business: 1) WACC 2) ROIC and 3) Invested Capital (IC). Annual economic profits are then calculated as the spread between ROIC and WACC times the IC base or:

$$\text{Annual Economic Profit} = (\text{ROIC} - \text{WACC}) * \text{IC}$$

Implicit within this formula is the notion that businesses that can consistently generate an ROIC above their WACC are creating value while those that perform below WACC are destroying value.

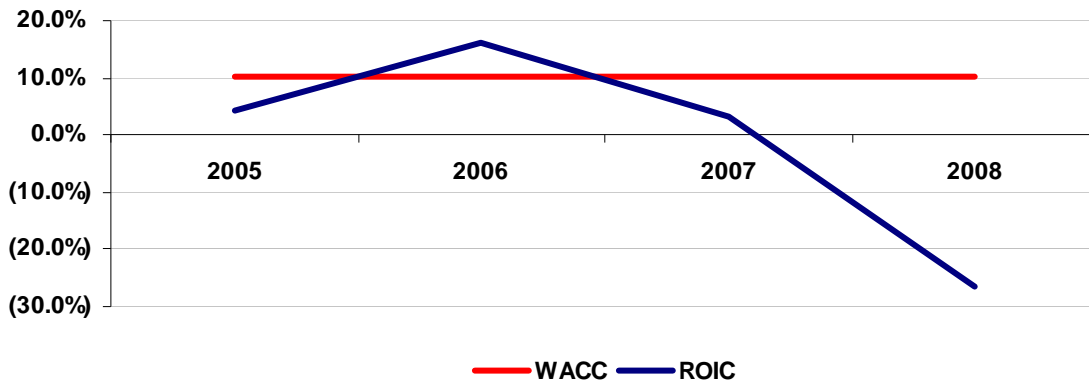
Utilizing publicly available SEC filings² for VeraSun Energy, Ascendant Partners evaluated the firm's historical economic profitability performance. In the case of VeraSun Energy's ethanol business, IC is generalized as the sum of all Operating Assets and Net Working Capital, or its capital at risk. Meanwhile, ROIC is estimated as its Operating Profits less Operating Taxes divided by IC, expressed as a percentage. Finally VeraSun's WACC is estimated via the CAPM and WACC formulas, financial market statistics and its underlying capital structure. The figure below presents the interrelationship of these metrics and demonstrates that VeraSun, historically, destroyed Economic Value in every year except 2006 when its ROIC exceeded its WACC. It should be noted, however, that firms undergoing explosive growth in revenue generally can't simultaneously generate Economic

¹ Economic Value Added (EVA) is a trademarked term coined by Stern Stewart

² 10k and 10Q filings available at <http://www.secinfo.com>

Profits. VeraSun's revenue grew at a CAGR of 106% from 2005-2008 largely in response to equity market incentives to trade off stable operating performance for growth.

VeraSun Energy ROIC vs. WACC 2005-2008



The question looking forward is can Valero generate sustainable Economic Profits based on its acquisition price of the VeraSun assets. Furthermore, based on independent USDA³ forecasts for corn price as well as EIA⁴ expectations for wholesale ethanol price, what is the maximum purchase price Valero could have paid and still maintained positive Economic Profits over the next decade? To answer these questions Ascendant Partners estimated the average expected values for 2009-18 of the three key metrics from the EVA framework (WACC, ROIC and IC) for Valero's ethanol business.

Valero's WACC for operating an ethanol business was estimated by applying the CAPM and WACC formulas, financial market statistics and its existing capital structure to approximate a value of 9.5%. The value of Valero's ethanol IC base was estimated by summing the purchase price of VeraSun's Assets⁵ (\$477MM) and anticipated net working capital needs for operating 780MM gallons of annual production capacity. Future average expected operating profits were estimated based on VeraSun's historical production cost structure and independent price forecasts for corn and wholesale ethanol from USDA and EIA, respectively.

The figure below summarizes the Value Creation potential of Valero's acquisition of VeraSun Energy's ethanol assets. At a purchase price of \$477MM, Valero's ethanol operations are expected to generate an average ROIC of 22.6%, 13.1% above the value of the firm's WACC. The positive sign and magnitude of this spread should generate significant Economic Value for Valero shareholders over the next decade. Similarly, applying the EVA framework and independent forecast assumptions indicates that Valero could have paid up to \$1,029.5MM or \$1.32/gallon and still created positive shareholder value.

³ United States Department of Agriculture Agricultural Projections to 2017, report OCE-2008-1, February 2009

⁴ Energy Information Administration Annual Energy Outlook 2009, report DOE/EIA-0383(2009), March 2009

⁵ An estimate of Maintenance Capex was also included in the IC figure based on comparable firm figures

	Purchase Price US\$/Gal.	Total Purchase Price 1000 US\$	Expected 2009-18 Avg. ROIC	WACC
	\$0.43	\$339,000.0	29.7%	9.5%
	\$0.49	\$385,000.0	27.0%	9.5%
	\$0.55	\$431,000.0	24.6%	9.5%
Valero Purchase Price →	\$0.61	\$477,000.0	22.6%	9.5%
	\$0.67	\$519,500.0	20.9%	9.5%
	\$0.72	\$562,000.0	19.4%	9.5%
	\$0.78	\$604,500.0	18.0%	9.5%
	\$0.83	\$647,000.0	16.8%	9.5%
	\$0.88	\$689,500.0	15.7%	9.5%
	\$0.94	\$732,000.0	14.7%	9.5%
	\$0.99	\$774,500.0	13.8%	9.5%
	\$1.05	\$817,000.0	12.9%	9.5%
	\$1.10	\$859,500.0	12.1%	9.5%
	\$1.16	\$902,000.0	11.4%	9.5%
Max. Value Creating Purchase Price →	\$1.21	\$944,500.0	10.7%	9.5%
	\$1.27	\$987,000.0	10.1%	9.5%
	\$1.32	\$1,029,500.0	9.5%	9.5%
	\$1.37	\$1,072,000.0	9.0%	9.5%

The simplicity of the output of this analysis can easily obscure the complexity and uncertainty inherent in estimating the three key EVA metrics. For example, the expected future operating returns (ROIC) generated by Valero's Ethanol business depend largely on one's opinion of future input and output prices, plant operating efficiencies, management of net working capital and overall market volatility and risk. It's easy to look back and critique the performance of VeraSun but a formidable challenge to forecast where average commodity margins will ultimately land. In addition, advanced reorganization of both the balance sheet and income statement is required to ensure that ROIC is calculated such that it can be directly compared with WACC. Furthermore, the estimates and conclusions contained in our analysis are specific to the Valero transaction. Other acquiring firms will likely face a unique WACC hurdle owing to their underlying capital structure, ability to access debt markets and cost of debt. The firm-to-firm variability of both WACC and ROIC underscores two important considerations when conducting an EVA analysis: 1) the absolute value of either metric is not what creates value, but rather the spread between the two and 2) both metrics need to be analyzed on a case-by-case basis.

The simplicity and conciseness of the EVA framework is also why we prefer its application over other valuation methodologies. First, it boils operating performance (ROIC) and capital structure (WACC) into two comparable metrics that can be easily compared over time and communicated with others. Second, when calculated appropriately, it provides a means to directly benchmark against comparable firms. Third, the EVA framework highlights where true economic value is created - in the spread between ROIC and WACC. Finally, and possibly most importantly, ROIC can readily be further disaggregated down to the line operating level to identify the real drivers of value in both the numerator (After Tax Operating Profits) and denominator (IC). The level of clarity provided by a deeper understanding of ROIC is the key to value management. It provides both

strategic guidance to senior management and tactical targets for line operators and can identify the incentives that ultimately align the actions of both groups with shareholders' interests.

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