MarketDesk

Ethanol Industry

THEMATIC PLAYBOOK | MarketDesk Investment Strategy

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Ethanol: An Industry Undergoing Transformation

THE QUICK NUMBERS

15B gallons — **EPA's proposed 2020 ethanol blending requirements, not factoring in waived small refiner blending volumes**

11 — **Number of U.S. Northeast & Mid-Atlantic states joining the Regional Greenhouse Gas Initiative (RGGI)**

40% — **Estimated % of U.S. corn supply used to produce ethanol**

WHAT'S HAPPENING?

The Bush administration passed the ethanol mandate in 2007 to counteract high oil prices and conserve the country's oil supply. Since then, the ethanol industry has been on the receiving end of federal subsidies, such as tax breaks, grants, loans, and an ethanol blending mandate. The ethanol industry experienced rapid growth as a result, with the biofuels group gaining significant lobbying strength. More recently, the industry is facing tough times. Ethanol production capacity outweighs ethanol demand. The industry's prized biofuel tax credit lapsed during December 2017. The Trump administration's EPA has granted 85 small refiner waivers since taking office, which essentially destroyed 4 billion gallons of ethanol demand (~10% of the annual demand). In the background, the ongoing U.S.-China trade war continues to disrupt U.S. agricultural sales to China. YTD, the ethanol industry has underperformed due to lower ethanol prices and operating margins below break-even levels.

THE MARKET OPPORTUNITY & INVESTMENT CASE

The renewable fuels industry is driven by the government's desire to address energy consumption's environmental impact and conserve oil supplies. Over the past few years, the ethanol industry has faced an uncertain regulatory environment and a supply/demand imbalance. Both hurt the industry and sent company stock prices down. Below are three items that could change in the coming months and years:

1. Government Support: Historically, the ethanol industry has traded inline with government support (positive or negative). **There are indications regulatory policy is changing from a headwind to a tailwind.** At the federal level, the Trump administration approved year round E15 sales (now allowing sales during busy summer driving months). Congress is reviewing an extension of the biofuel tax credit. EPA proposed actions to ensure 2020 ethanol blending volumes meet certain thresholds after accounting for waived blending volumes. At the state level, legislatures are considering low-carbon fuel standards (LCFS) modeled after California and Oregon. Each of these regulatory actions would materially improve the ethanol industry's financial outlook and growth.

2. Supply/Demand Imbalance: In the past, Federal government support led to increased ethanol production capacity that outweighed ethanol demand. The result has been bigger ethanol stockpiles, lower prices, and negative operating margins. Production capacity is now coming into balance as regulatory uncertainty and financial losses are leading underperforming ethanol producers to rationalize their operations and cut production capacity. **If production capacity continues to come back in balance with demand, ethanol prices and profit margins could start to stabilize.**

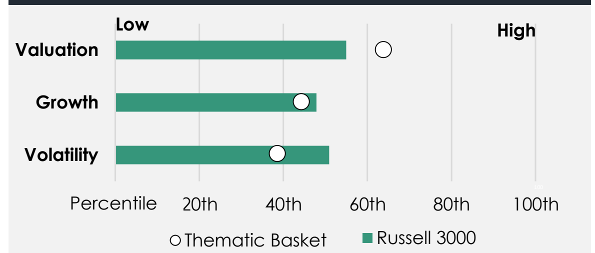
3. Increased Focus on Renewable Energy: Traditional fossil fuels are a finite resource with a negative environmental impact. **Consumers, intuitional investors, and legislators understand this and are pushing for more sustainable energy practices.** 66 countries already have put in place low carbon and renewable fuel mandates. As the renewables and ethanol industries develop, they are likely to gain market share as a percentage of total energy use.

WHAT'S NEXT?

The ethanol industry is currently at a crossroad. Its growth is in large part due to the federal government's support. Going forward, the industry will need to prove its ability to be self-sustaining. Ethanol producers, such as Green Plains and Renewable Energy Group, are already working to cut production costs and move down the cost curve. These moves, combined with producers cutting capacity, should help increase ethanol's cost competitiveness. Producers are also focused on creating additional ethanol demand at home and abroad. Globally, China has a significant ethanol mandate, and Brazil recently increased its quota for tariff-free ethanol imports. Within the U.S., the recent approval of year-round E15 sales is forecasted to add additional demand. Investor sentiment is likely to improve if production costs are lower, demand increases, and regulatory uncertainty decreases.

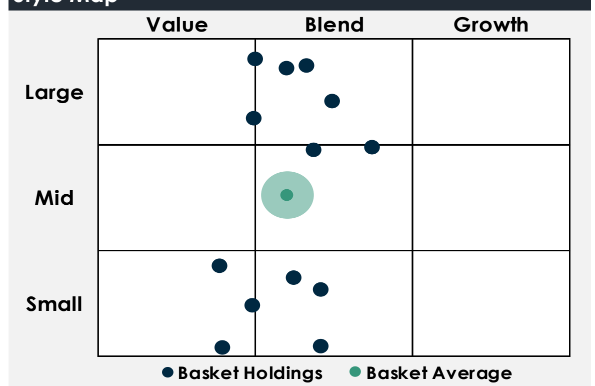
Key Statistics	
Sector	Energy
Sub-Industries	Ethanol Producers, Agriculture
Holdings	13
Average Market Cap ($M)	$8,161
NTM Price / Earnings	13.6x
Price / Book	1.3x
EV / EBITDA	12.2x
Price / Cash Flow	19.7x
Dividend Yield %	2.88%

Investment Profile



Price Returns	Basket	Russell 3000
3 Month	↑ 1.6%	↓ -1.0%
6 Month	↓ -11.4%	↑ 2.2%
1 Year	↓ -14.1%	↑ 7.9%

Style Map



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CATALYSTS ↗

- **Increased ethanol blending mandate for 2020; Reallocation of waived blending volumes**
- **Congress retroactively extends biofuel tax credit; State renewable programs expand**
- **Increased ethanol demand due to E15 year round sales**

An increase in the ethanol blending mandate and/or reallocation of waived ethanol blending volumes could lead to more ethanol demand. The EPA is required to set biofuel blending mandates each year for the upcoming year. In recent years, EPA waived ethanol blending requirements for certain small refiners but didn't reallocate the blending volumes. This reduced ethanol blending volumes, which in turn reduced ethanol demand. Looking ahead to 2020, the EPA set the 2020 blending mandate at 15 billion gallons. However, EPA didn't commit to reallocating waived blending volumes until recently. In October 2019, the EPA announced its intent to "seek comments on actions to ensure that more than 15 billion gallons of conventional (corn) ethanol be blended into the nation's fuel supply beginning in 2020". The EPA stated it would estimate the amount of "lost" volume due to small refiner exemptions and add it to the RFS in 2020 to ensure the final number of gallons would reach 15 billion. While the EPA isn't retroactively reallocating waived volumes, the proposal would support ethanol demand going forward and could stabilize ethanol's price. A final proposal is not guaranteed, but would be a significant boost for the biofuel industry.

Congress's extension of the lapsed biofuel tax credit and expansion of state LCFS programs could provide fresh capital to the industry. Biofuel producers registered with the IRS are eligible for a tax credit worth up to $1.01 per gallon of biofuel. The biofuels tax credit was and continues to be an integral part of ethanol's growth. This tax credit lapsed in December 2017 and hasn't been renewed since due to its controversial nature. The House Ways and Means committee marked up its version of the credit extension and sent the bill to the House floor. Iowa Senator Chuck Grassley is anxiously awaiting his turn to push the tax extension package, which could occur later in 2019. Separately, states such as California and Oregon, have recently passed low-LCFS programs. In addition, Washington state and New York legislators proposed LCFS programs that would operate similar to the federal government and California programs. While the federal government's support has been a key ingredient in ethanol's growth, state LCFS programs could be vital to ethanol's continued growth.

Year round E15 ethanol sales, which were previously banned due to smog concerns, are now approved. Year round E15 sales mean higher grade ethanol can now be sold during the busy summer driving months, which could increase ethanol demand. While the move could take time to play out, the Trump administration has moved to support E15 by allowing gas stations to sell E15 through E10 certified tanks. This lowers the capital investment required by gasoline stations to sell E15, which was originally estimated to be $250,000, and could quicken the pace of adoption.

KEY RISKS ↘

- **Industry supply/demand remains out of balance**
- **Congress, EPA reverse ethanol policies; Renewable Fuel Standard (RFS) dismantled**
- **Growth in electric vehicles decreases ethanol demand**

An ethanol production capacity and demand imbalance is hurting the industry. Federal subsidies made the ethanol industry attractive, supporting ethanol's growth. As with most industries experiencing attractive returns, the ethanol industry attracted competition in the form of increased ethanol production capacity. However, consumer demand for ethanol hasn't kept pace with ethanol increased production capacity. As a result, ethanol stockpiles continue to grow and the price per gallon of ethanol continues to push down. Ethanol producers are starting to cut back production and close underperforming ethanol plants, but those actions will likely take time to play out. If supply and demand don't come back into balance, the ethanol industry will continue to struggle and operate at below break-even levels.

The RFS and its ethanol blending mandate are highly controversial. Corn states see the RFS mandate as another outlet for corn crops. Outside of the Midwest, states view the government's support of the ethanol industry as a wealth transfer into the Midwest with minimal benefit. Oil states say the blending mandate and compliance activities hurt refiners' bottom lines. Environmental groups argue ethanol has negative environmental effects. Anti-poverty groups say the blending mandates consume valuable food supplies. Agriculture groups are experiencing increased feed costs for farm animals due to the RFS and competition for corn. Economists see an unsustainable industry that is dependent on government mandates. All of this creates a tense political environment. If the RFS program is dismantled or federal subsidies are ended/phased out, the ethanol industry could struggle to earn attractive rates of return and survive.

Electric vehicle growth reduces demand for gasoline. Ethanol is blended into gasoline, so any decrease in gasoline demand flows through and lowers ethanol demand. Even though the electric vehicle industry is young and still working to produce low-priced cars for the masses, the electric vehicle adoption rate is quickening with strong future growth forecasted. Electric vehicle growth will indirectly impact the price of corn, which is a key input in ethanol production. Approximately 40% of the nation's corn supply ends up in ethanol. If ethanol demand decreases, more corn will flood the open market at a time when commodities prices are already low.

Ethanol Basket

FIGURE 1: 1-Year Performance vs Russell 3000

% Change	
1W	↑ 2.3%
1M	↓ -1.7%
3M	↑ 1.6%
6M	↓ -11.4%
YTD	↑ 0.7%
1Y	↓ -14.1%
3Y	↑ 0.3%

Risk (1Y)	
Beta	0.90
Stdev.	17%
Drawd.	-25%

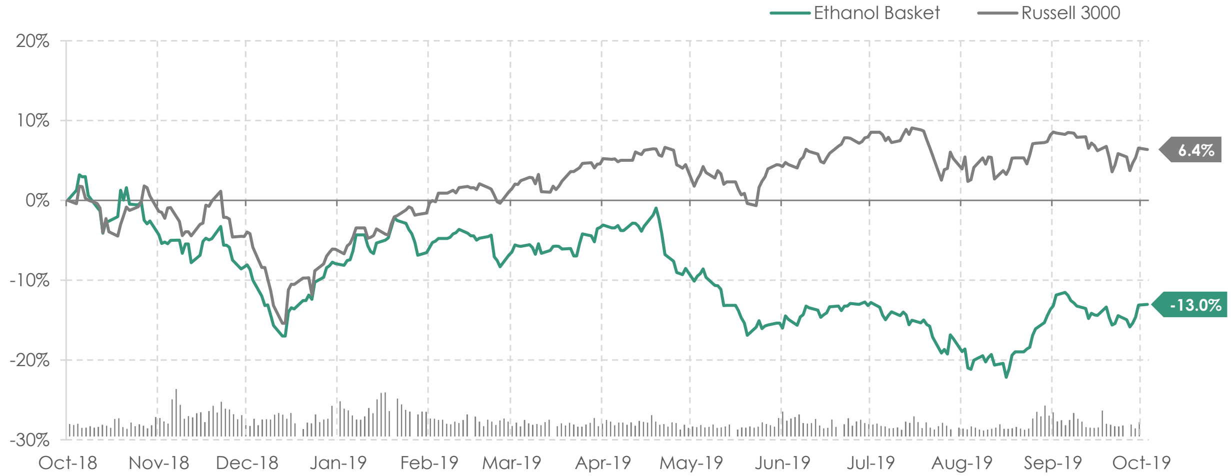

FIGURE 2: Market Breadth & Fundamentals

		Current	1Y Avg
200dma Spread	↑	-2.6%	-4.5%
14d RSI	↑	53	47
% Advancing	↓	46	50
% Declining	↑	54	50
NTM P/E Ratio	↓	13.6x	72.2x
NTM Net Margin	↓	6.7%	6.8%
NTM Div Yield	-	2.88%	2.88%
NTM EPS	↓	$38.02	$38.18

FIGURE 3: Attribution by Sub-Industry (1-Year)

Top	(% chg	bps)	Bottom	(% chg	bps)
Corn Comps.	31%	+711	Storage	-12%	-71
Inputs	-8%	-48	Producers	-22%	-1428

FIGURE 4: Relative Strength & Index % above 100dma

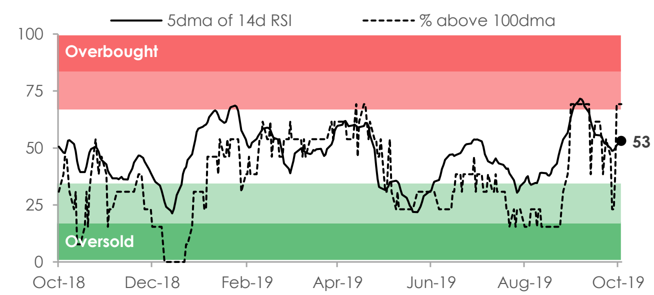

FIGURE 5: 10-day Net Advance / Decline Line

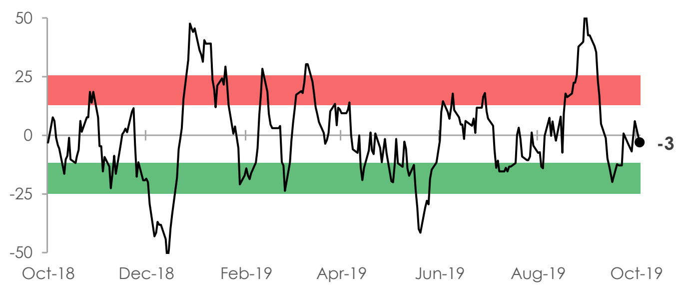

FIGURE 6: Attribution by Stock (1-Year)

Top	(% chg	bps)	Bottom	(% chg	bps)
SAFM	52%	+536	PEIX	-73%	-78
TSN	37%	+276	INGR	-20%	-101
REX	1%	+5	BG	-16%	-111
DAR	-2%	-26	ADM	-18%	-132
CORN	-8%	-48	GPRE	-41%	-155
GPP	-12%	-71	VLO	-14%	-156
PEIX	-73%	-78	REGI	-45%	-775

FIGURE 7: Direction of Next Year's EPS Revisions

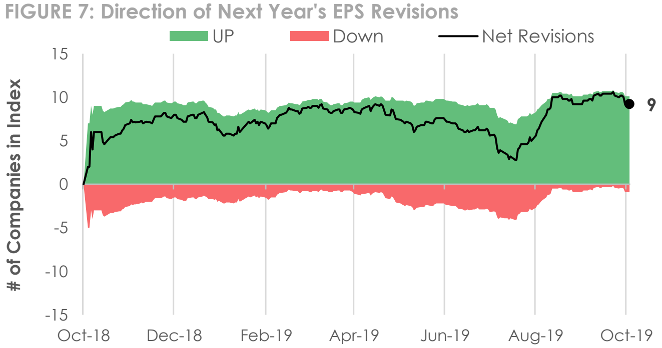

FIGURE 8: Growth Statistics (YoY)

Item	10Y History	3Y Avg	2019e	1M % Chg
Sales		3.4%	-4.9%	-
EBITDA		66.6%	-30.6%	↓ -1%
EBIT		81.5%	15.0%	↓ -3%
Net Income		-90.8%	-109.2%	↓ -3%
EPS		-8.3%	-299.0%	↓ -5%
Dividends		15.5%	5.1%	-
BVPS		1.7%	5.1%	-
FCF		-225.0%	429.4%	↓ -19%

FIGURE 9: Relative Valuations

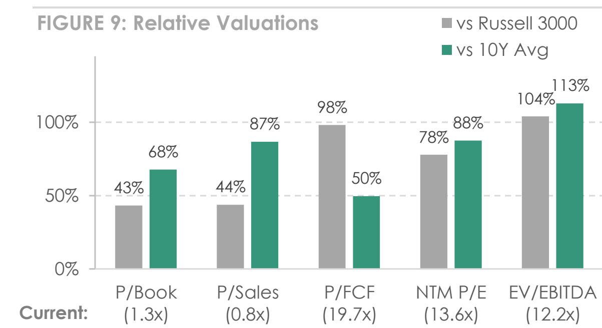

Figure 10

Basket Holdings by Sub-Industry

Ticker	Company	Sector	Market Cap ($M)	Avg Daily Vol (3mo)	Wall Street Rating	Wall Street Price Target	Profitability (EBITDA Margin)	Leverage (Debt / EBITDA)	Valuation (NTM P/E)	Cash Flow Yield	52W Range	Performance 1W	Performance 6M	Performance 1Y
Ethanol Producers														
Producing Ethanol; Receiving support from federal and state governments														
ADM	Archer-Daniels-Midland Com|	Con Stpls.	22,463	3,452,785	Overweight	$48.70	4.5%	2.9x	12.1x	-24.2%		5%	-7%	-18%
BG	Bunge Limited	Con Stpls.	8,087	976,646	Overweight	$67.20	2.8%	4.2x	16.2x	-23.9%		5%	9%	-16%
DAR	Darling Ingredients Inc.	Con Stpls.	3,134	810,530	Overweight	$24.10	12.9%	3.8x	22.0x	2.4%		3%	-14%	-2%
GPRE	Green Plains Inc.	Energy	420	913,180	Buy	$18.00	0.8%	29.1x	-	-1.0%		6%	-35%	-41%
PEIX	Pacific Ethanol, Inc.	Energy	29	485,561	Overweight	$3.20	-0.3%	-60.6x	-	-36.4%		-1%	-48%	-73%
REGI	Renewable Energy Group, In	Energy	609	831,327	Buy	$27.30	13.9%	0.6x	14.0x	28.4%		1%	-33%	-45%
REX	REX American Resources Cor|	Energy	477	42,703	-	-	6.5%	0.0x	-	7.9%		2%	-9%	1%
VLO	Valero Energy Corporation	Energy	37,068	3,123,823	Buy	$98.90	5.8%	1.4x	10.4x	6.5%		7%	2%	-14%
Ethanol Storage														
Movement and storage of ethanol to meet increased demand														
GPP	Green Plains Partners LP	Energy	309	37,517	Overweight	$15.70	64.7%	2.2x	8.3x	13.0%		1%	-16%	-12%
Corn Commodity														
Key input to the ethanol production process														
CORN	Teucrium Corn Fund	Materials	90	104,706	-	-	-	-	-	-		0%	-1%	-8%
Corn Competitors														
Competing with ethanol producers for corn														
SAFM	Sanderson Farms, Inc.	Con Stpls.	3,319	338,047	Hold	$155.30	4.8%	0.0x	15.1x	-8.0%		6%	7%	52%
INGR	Ingredion Incorporated	Con Stpls.	5,411	553,051	Hold	$87.70	17.4%	2.1x	11.7x	5.4%		4%	-14%	-20%
TSN	Tyson Foods, Inc. Class A	Con Stpls.	24,676	2,585,859	Overweight	$94.00	-	-	12.2x	-		4%	17%	37%

Definitions

Daily Moving Average (dma): A daily moving average is an simple moving average calculated by adding the closing price of the security for a number of time periods, and then dividing this total by the same number of periods. **Overbought / Oversold (OB/OS):** OB is short for Overbought. OS is short for Oversold. Overbought (Oversold) = +1 Standard Deviation Above (Below) 50dma. **Relative Strength (14d RSI):** The relative strength index (RSI) is a technical indicator used in the analysis of financial markets. The RSI is most typically used on a 14-day timeframe, measured on a scale from 0 to 100, with high and low levels marked at 70 and 30, respectively. **EPS:** Earnings per share is the portion of a company's profit that is allocated to each outstanding share of common stock, serving as an indicator of the company's financial health. **P/E Ratio:** The price-to-earnings ratio is the ratio for valuing a company that measures its current share price relative to its EPS. **52W High / Low:** A 52-week high/low is the highest and lowest price at which a stock has traded during the previous year. **Street Rating:** The average stock rating across Wall Street in which analysts rate a stock as a Buy or Overweight when they have a positive outlook for a company and a Sell or Underweight rating when they have a negative outlook for a company. **Basis Point (bp):** A unit of measure used in finance to describe the percentage change in the value or rate of a financial instrument. One basis point is equivalent to 0.01% (1/100th of a percent).

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