Managing the Food/Feed/Finance Intersection

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Washington, DC

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What is my vantage point?

- Entire value chain from Monsanto to ADM to Kraft
  - Seeds to ethanol to macaroni and cheese
- The full panoply of investor interest and concern as it relates to:
  - Renewable fuels;
  - Higher commodity prices;
  - Global food price inflation; and
  - The potential for second generation biofuels

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What am I going to talk about?

- Where is investor capital now?
  - *Front end of the value chain*
- Where is investor capital going?
  - *Looking to unlock bottlenecks*
- What are the key investor concerns?
  - *Volatility and uncertainty around politics and economics*
Where is investor capital now?

- **The Good News**

  - Six ethanol companies IPOed from 2005 to 2007
  - The combined US market capitalization of Agriculture related companies is around $265 billion, compared to around $140 billion one year ago

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**Agriculture Market Capitalization**

![Graph showing agriculture market capitalization from February 2007 to February 2008.](image)

**Source:** Morgan Stanley Research, Factset

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2. Agriculture Market Capitalization includes: Pilgrim's Pride (PPC), Sanderson Farms (SAFM), Smithfield Foods (SFD), Tyson Foods (TSN), Deere & Co. (DE), Agrium Inc. (AGU), Andersons Inc. (ANDE), Mosaic Co. (MOS), Potash Corp. (POT), Terra Industries (TRA), Bunge Ltd. (BG), Corn Products International (CPO), Archer Daniels Midland (ADM), Monsanto Co. (MON), VeraSun Energy Corp. (VSE), US BioEnergy Corp. (USBE), Xethanol Corp. (XNL), Aventine Renewable Energy (AVR), Biofuel Energy Corp. (BIOF), Pacific Ethanol, Inc. (PEIX)
Where is investor capital now?

• *The Bad News*

  • Ethanol market capitalizations peaked at $3.5 billion and now stand closer to $2 billion

  • We have not seen a new renewable fuels IPO since June 2007

  Ethanol Market Capitalization

  ![Graph showing ethanol market capitalization from February 2007 to February 2008.](image)

  Source: Morgan Stanley Research, Factset

  (1) Ethanol Market Capitalization includes: VeraSun Energy Corp. (VSE), US BioEnergy Corp. (USBE), Xethanol Corp. (XNL), Aventine Renewable Energy (AVR), Biofuel Energy Corp. (BIOF), and Pacific Ethanol, Inc. (PEIX)
Where is investor capital now?

- *The Reality: Investors have been better off at the front end of the value chain*
- Due to higher commodity prices farmers have more money to spend. Companies selling inputs to farmers have performed extremely well (Bunge, Deere, Monsanto, Mosaic, Potash, etc.)

**Ethanol Producers vs. Agriculture Input Providers**

Note: Above chart compares market capitalization indexed to July 1, 2006
Source: Morgan Stanley Research, Factset

(1) Ethanol Market Capitalization includes: VeraSun Energy Corp. (VSE), US BioEnergy Corp. (USBE), Xethanol Corp. (XNL), Aventine Renewable Energy (AVR), Biofuel Energy Corp. (BIOF), and Pacific Ethanol, Inc. (PEIX)

(2) Agriculture Input Provider Market Capitalization includes: Deere & Co (DE), Agrium Inc (AGU), Mosaic Co (MOS), Potash Corp. (POT), Terra Industries (TRA), Bunge Ltd (BG), Corn Products (CPO), and Monsanto (MON)
Where is investor capital now?

- **The Reality: Investors have been better off at the front end of the value chain**
- Total revenue pie available from US corn and soybean production: ~$55 billion during the 2006 marketing year to $79 billion during the 2007 marketing year
- Holding today’s commodity prices and last year’s yields constant the revenue pie will grow again to ~$100 billion during the 2008 marketing year

**Corn and Soybean Revenue Pie**

Source: Morgan Stanley Research Estimates, USDA
Where is investor capital now?

- The Reality: Investors have been better off at the front end of the value chain
- Total revenue pie available from US ethanol production: $12.3 billion during 2006, $12.4 billion during 2007 (1% growth in revenue, but 20% growth in volume)

Source: Morgan Stanley Research Estimates, Bloomberg, Renewable Fuels Association
Where is investor capital going? To unlock *Bottlenecks*

- *The ideal:*
  - Barriers to entry;
  - Sustainable competitive advantages;
  - High margins; and
  - Predictable and growing cash flow

- *Companies with the above characteristics tend to have the capability to unlock bottlenecks*

- *Companies without them tend to be stuck in the bottleneck*
What are the key “bottlenecks” today?

1. Supply of arable land
2. Disparity in global crop yields
3. US Ethanol blending: Either 10% or 85%. What about in-between?
1. We simply do not have enough land

- To meet demand from both emerging markets for protein and developed markets for biofuels
  - *Some land in CRP, Brazil, Ukraine, etc. but it will not be enough over time*

- Can we produce enough corn to satisfy RFS II?
  - *At what price?*
  - *With what collateral consequences?*

- Can Brazil expand soybean acreage enough to allow the US to grow more corn?
  - *Does that require a secularly higher soybean price (i.e., logistics costs, USD/Brazilian Real, etc.)*?
2. Massive disparity in global yields; the opportunity to create “virtual” acres

- US Corn acres more productive; Rest of the World must improve
  - *US corn yield: ~153 bushels per acre; Ex-US weighted average corn yield: ~70 bushels per acre*
  - *If the rest of the world was at yield parity with the US, ~75 million virtual acres would be created*

- 4 pieces of biotechnology on the farm today; 30+ to come
  - *Average US corn yields could potentially get to ~200 bushels per acre*
  - *This would amount to an additional 29 million “virtual” acres at current US yield and planted corn acreage;*

- We believe that increased biotechnology use outside of the US is crucial.
  - *Brazil just approved biotech corn*
  - *The EU remains resistant*
  - *What about China?*

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(1) “Rest of world” virtual acres is calculated using total foreign acres deemed applicable for biotech (~65 million acres in the EU, Brazil, Argentina, and India).
3. There is a lot of room between E10 and E85

- Blends above 10% but less than 30% would provide a substantial buffer for production/capacity build out
  - Some work already being done on this (Department of Energy; State of Minnesota; language in both the farm and the energy bills)
  - Brazil already using higher blends
  - Flex fuel cars = 85% blend
  - Non flex-fuel cars warranted up to a 10% blend of ethanol
4. Tell me what second generation biofuels are and how soon we will have them?

- Ask ten different people, get ten different answers to:
  - *What feedstock will be used?*
  - *Where will it be grown?*
  - *Is it already being grown in size?*
  - *How will it get from the farm to the end market?*
  - *What will the logistics costs be?*
  - *Can we use existing ethanol plants?*
  - *If so, are they properly located?*
  - *Do we need new plants anyway?*
  - *Will displacement be an issue? How long will it take?*
  - *How much government support will be necessary?*
What are the key “investor concerns” today?

1. Political support
2. Are we doing the right thing?
3. Global competition (i.e., the import tariff)
4. Rational development of both current and future biofuels
1. Political support

- The need/sustainability of political support (legislation) and subsidies (finance).
  - *What happens to my investment if political support dissipates?*
  - The blenders’ tax credit
  - *Am I investing in an industry or an administration?*
  - The investor debate has shifted from *Will the RFS be increased?* to *When will the RFS be repealed?*

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**Renewable Fuels Standard**

![Graph showing the Renewable Fuels Standard from 2008 to 2022](Source: Morgan Stanley Research, Renewable Fuels Association)
Drilling down on the blenders’ tax credit

- $0.51 per gallon ethanol blenders tax credit has not been optimal as it has only aided the investor argument that the ethanol industry cannot stand on its own
- To date, the constituent who did not need the tax credit has largely enjoyed it anyway creating supply / demand imbalances + price / profitability volatilities
  - When supply was tight Ethanol manufacturers received the tax credit in the ethanol price they were paid
  - With supply/demand out of balance, the blender is realizing the entire tax credit in the price that he is paying
- In hindsight, subsidy needed to be directly relevant to plant construction, and blending infrastructure
  - Investors want either a free market system or subsidies that work

Morgan Stanley

Ethanol Prices vs. RBOB

Source: Morgan Stanley Research, Bloomberg
2. Are we doing the right thing?

- Getting past the ideology to analyze the merits of the underlying investment
  - Does ethanol have a positive energy balance?
  - Should we be turning corn into gasoline?
  - The potential consequences of higher soft commodity prices
    - US consumers (higher prices)
    - Developing economies (help or hurt poverty)
    - What is the true cost of the renewable fuels program?
3. Global competition

- What’s the sustainability of the $0.54 per gallon import tariff and the $0.51 blender’s tax credit?
- Can the industry survive without subsidies and tariffs?
- Does it make more sense for Brazil to make ethanol with sugar?
4. Rational development of both the current and future industry?

- There is currently 7.7 billion gallons of ethanol capacity. RFS II gives us a roadmap to 15 billion by 2015.
- Will gross corn costs and byproduct credits (DDGS) allow for profitability?
- Why will the build out of second generation biofuels be any different than first generation biofuels?
- Will second generation biofuels render first generation biofuels obsolete?
Conclusion / Questions

- **Where is investor capital now?**
  - Front end of the value chain: *inputs rather than outputs*

- **Where is investor capital going?**
  - Looking to unlock bottlenecks: Supply of land; increasing yields; intermediate ethanol blends; and second generation biofuels

- **What keeps investors on the sidelines?**
  - Volatility and uncertainty surrounding: Political support; are we doing the right thing arguments; potential threat of global competition; and rational development of both current and future biofuels
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