Corn, Fuel Prices & the Distribution of Distillers’ Grains from Ethanol

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ECONOMIC LINKAGES

Crude Oil → Gasoline → Ethanol & DDGs → Corn

Public Policy → Ethanol & DDGs
Imported Crude Oil Prices: Nominal and Real

Dollars per barrel

Nominal Price

Real Price

SUV heaven

Saudi Arabia dumps oil

Iraq invades Kuwait

Forecast

Short Term Energy Outlook-May 2010
Note: The different axis scales imply a "normal" $1.00/gallon markup of retail gasoline over the average cost of crude oil.

Note: Crude oil price is refiner average acquisition cost. Retail gasoline price includes State and Federal taxes.

Source: Short-Term Energy Outlook, May 2010
• Energy Bill was passed by Congress and signed by President Bush
• By 2022 – in 15 years - mandated Renewable Fuels Standard (RFS) is 36 billion gallons.
• By 2015 corn is eligible for 15.0 billion gals.
• By 2012 corn is eligible for 13.2 billion gals.
• Ethanol production reached 10.2 billion gallons in 2009.
U.S. Corn Utilization, 1990 - 2015

- Feed
- Exports
- Food & Industrial
- End Stocks

16.4 billion bu
Soviet Union buys wheat, corn and soybeans.

Nebraska Corn Prices 1950 - 2000

Price range: $0.95 to $1.60

$1.22 avg

1973-74

Price range: $1.80 to $3.00

$2.41 avg
Nebraska Corn Prices 2000 - 2006

Price range: $1.60 to $2.50

$2.07 ave
Forecasting Corn Prices

• Consistent behavior for 17 years from 1989 through 2005

• Price as a function of Ending Stocks
Nebraska Corn Prices 2003 - 2013

Price range: $3.18 to $5.20

Price range: $1.60 to $2.50

Price range $3.18 to $5.20

Price range $1.60 to $2.50

Oct 2006

PAST

FUTURE
Discontinue MTBE as additive

“Gold Rush” period to build plants

Margins squeezed
Ethanol Production from Corn, 2002-09 & Projected

MANDATED by 2015

10.6 bil gal
Ethanol Production from Corn, 2002-09 & Projected

- Actual
- Actual + New

Mandated Level by 2015: 10.6 billion gallons

Billion gallons per year

Ethanol Plants

Ethanol Plant Status January 24, 2008
- Green: Operational (163)
- Blue: Planned (329)
- Yellow: Under-Construction (75)

*Alaska has one ethanol plant in the planning stage
*Hawaii has two ethanol plants in the planning stage
Net Surplus States for Distillers Grains, 2008-09
Net Deficit States for Distillers Grains, 2008-09
Major States with Unmet Needs for DDGs
Mark Pearson: when you're talking about biofuels obviously E-15 is the first step. What are your feelings on that happening this year?

Sec. Tom Vilsack, USDA: "Well, I -- I think that's going to happen. I think the question is, 'where's the cut-off, if there is a cut-off, in terms of vehicles that can and cannot be -- use E-15 effectively?"

U.S. Motor Gasoline Supplied (bil gals)

\[ y = 126.12 \ln(x) - 1195 \]

\[ R^2 = 0.9337 \]
CONCLUSIONS

• The prices of crude oil and gasoline are higher and more volatile since 2006 because of global demand.
• The price of corn is higher by about $2 since 2006 because of utilization for ethanol.
• The ethanol industry over the last 5 years has boomed then been squeezed by low margins.
• Profitability of ethanol production is now closely tied the cost of corn versus earlier the shortage of MTBE and the price of gasoline.
CONCLUSIONS

• Structural changes in the bio-fuels and feed grain-livestock sectors will significantly alter traditional sources of corn and compel the adoption of DDGs for feed use.

• Approval of 15% blend in gasoline will gradually increase the production of ethanol.

• As a result, U.S. supply of DDGs will likely be in surplus leading to the development of an export market.