Effect of the Panama Canal Expansion on US Grain Exports

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Overview

- Canal Basics
  - Expansion
  - Queuing and Reservation System
- Grain Trade Fundamentals
- Energy and Environmental Analysis
- Industry Expectations
Panama Canal Volumes

Grain is dominant
- Corn
- Soybeans
- Wheat

Vessel Tonnage Capacity (million PCUMS tons)
Panama Canal Expansion Project

- Proposed and approved via referendum in 2006
- Construction began in 2007
- Expected to open to traffic in 2015
- Current capacity: Max 965 feet and 39 ft draft and about 70,000 mt
- Expanded 1200 feet
  - 50’ draft

Source: solarnavigator.net
Project components include the expansion and creation of channels on the Atlantic (1-2) and Pacific (6,8) sides, increasing the depth of Lake Gatun (4-5), and installing new three-basin Post-Panamax locks (3,7).

Source: Panama Canal Authority, 2006
Pacific Ocean Side Location of Locks

Lane 1

Lane 2

Lane 3

Miraflores Lake
The expanded locks will be able to accommodate vessels carrying over 250% of present maximum capacities.

Source: Panama Canal Authority, 2006
Queuing

- Reservation System
- Ancillary Fees

Source: Jason Bittner, 2010
Fundamentals

- **Demand**
  - China
  - Ethanol

- **Technology and Space**
  - Genetically Modified Crops/Disease Resistance

- **Logistics Changes**
  - PNW Export Capacity
  - Shuttle Trains
  - Ocean Rate Differentials

- **Energy and Emissions Characterizations**
China Soybean Demand

- No Growth in Production
- 18% Increase in Demand
- Original Projected Import 42mmt / now expect 65 mmt

Source: W. Wilson, North Dakota State University
China Soybean Demand

Chinese soybean production and imports

Million MT

Imports
Production

10/11*
09/10*
08/09
07/08
06/07
05/06
04/05
03/04
02/03
01/02
00/01
99/00
98/99
97/98
96/97
95/96
94/95
China Corn Demand

- Drawing Down of Stocks

- Hanver Li (JCI Intelligence) anticipates that China will import as much as 15mmt in 2014-2015.

Source: W. Wilson, North Dakota State University
Planted Areas - Soybeans

Source: W. Wilson, North Dakota State University
Ethanol

- Continued pressure for growth and domestic consumption

- Fuel Prices

- Higher blends (E15, E17, E20, E85)
U.S. Grain Inspections, by Port Region, 2009
% of Total Bushels*

- Mississippi Gulf: 50.2%
- PNW: 25.5%
- Texas Gulf: 10.9%
- Interior: 8.9%
- Great Lakes: 1.9%
- East Gulf: 0.7%
- Atlantic: 2.0%

*4.179 billion bushels

USDA, September 2010
US Grain Exports

42% ASIA

10% MEXICO

17% AMERICAS

18% REST OF WORLD

5% EUROPE

5% S/W ASIA

Source: FHWA Freight Analysis Framework, 2002

5% Export Share
20% Export Share
- Ocean Rates
- Spreads
- Disruptions
Cost Comparison

|                     | Center Gulf (New Orleans) | East Coast (Charleston) | PNW  
|---------------------|---------------------------|-------------------------|------
|                     | 56,700 MT | 63,700 MT | 70,000 MT | 56,700 MT | 63,700 MT | 70,000 MT | 65,000 MT |  
| Inland Rate         | $15       | $15       | $15       | $32       | $32       | $32       | $54       |  
| Ocean Rate          | $62       | $56       | $49       | $63       | $57       | $50       | $29       |  
| Landed Cost         | $78       | $72       | $65       | $95       | $89       | $82       | $84       |  

Informa Economics, Inc. 2011
Logistics Issues in Transiting

- Rail Rates
- Barge Rates
Energy and Environmental Aspects

- 23% higher energy consumption in BTU
- Cost differential
- Barge Transport
- Distances
But...

"Unless the US does a better job of maintaining its navigation channels... our channel dimensions will not keep pace with larger ships," Kurt Nagle, chief executive of the American Association of Port Authorities

“Everything is connected – the rivers, the railroads, Panama. We’re concerned about the logistics up and down the [Mississippi] river and our ability to feed the canal.” Kendell Keith, president of the National Grain and Feed Association.
Expert and Industry Expectations

- Since 2005, average annual transit times ranged from 31.5 to 23 hours, and half or more may be spent waiting (ACP, 2005-2009)
- New locks are widely expected to reduce wait times

Photo source: Jason Bittner, 2010
Expert and Industry Expectations

- New locks allow post-Panamax vessels to navigate Canal
- Adoption is limited by capabilities of destination ports
Expert and Industry Expectations

- US Army Corps of Engineers (USACE) and PCA predict “a substantial increase in containerized traffic” in general; some industry reports see same trend for grain
- Agricultural exporters surveyed were uncertain about impacts on containerization
  - Many already deal in containerized grain
Expert and Industry Expectations

- Impacts on rates are uncertain
- USACE (2007) predicts lower overall costs and continued competitiveness with US intermodal system
  - But USDA (2008) sees trend of increasing ocean rates leading to competitive disadvantage compared to West Coast ports
- Newly approved tolls for 2011 raise rates by 14% or $10/TEU
  - New structure incentivizes container backhaul
- Industry survey inconclusive—shows conflicting/uncertain expectations
Questions?

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