Of the 12 Fed Districts, the 10th District is the most concentrated in agriculture by some measures.

Average Farm Income as a Share of Total Personal Income
Average Across Counties by Fed District

Proportion of “Farm Dependent” Counties

- Kansas City
- Minneapolis
- Chicago
- St. Louis
- Dallas
- San Francisco
- Atlanta
- Cleveland
- Richmond
- New York
- Philadelphia
- Boston

Source: BEA, USDA, and staff calculations

Source: BEA.
Pop Quiz

1. Weakness in the farm economy is:
   a) persisting
   b) intensifying
   c) gradual
   d) all of the above
   e) none of the above

2. Outside economic factors could best be described as:
   a) tailwinds
   b) headwinds
   c) irrelevant
Pop Quiz

1. Weakness in the farm economy is:
   a) persisting
   b) intensifying
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   d) all of the above
   e) none of the above

2. Outside economic factors could best be described as:
   a) tailwinds
   b) headwinds
   c) irrelevant
Farm income has dropped sharply, and is expected to remain low.

U.S. Real Net Farm Income

Billion dollars (constant 2015 dollars)

Tenth District Farm Income

Diffusion Index

Sources: USDA and Federal Reserve Bank of Kansas City.
* Forecast for 2016.
Expected crop prices have shifted dramatically in recent years.
Increased production has driven crop prices lower, but demand strength will be a key long-term driver.

**U.S. Ethanol Production and Ag Exports to China**

Sources: USDA, Energy Information Administration and Renewable Fuels Association
Recent developments in China have accentuated concerns surrounding future demand.

China Stock and Manufacturing Indexes

Source: Yahoo! Finance
In general, U.S. exports have been weak, driven by further strengthening of the U.S. dollar.

Value of U.S. Dollar*

Value of U.S. Exports

* Nominal Trade-weighted broad index
Source: Federal Reserve Board and Haver Analytics
The stronger dollar reflects relatively weak global economic growth in 2014 and 2015.

Global Real GDP Growth

- 2013
- 2014
- 2015 *
- 2016 *
- 1996 - 2006 Average Annual Rate

* Forecast
Source: IMF January 2016 Update
The dollar has surged even more dramatically against key regions competing in global ag export markets.

Currency Exchange Rates

*Nominal broad trade-weighted exchange value of the U.S. dollar
Sources: FRB, IMF and Haver Analytics.
The downturn in ag is intensifying. Implications for lending?
The drop in farm income has reduced cash flow, and increased short-term lending needs.

U.S. Farm Income and Operating Loans

Sources: Agricultural Finance Databook Table A.3 and USDA.
Credit conditions have gradually deteriorated.

Tenth District Credit Conditions
2015, Fourth Quarter

Source: Federal Reserve Bank of Kansas City, Survey of Ag Credit Conditions
Farmland values have also declined, but only at a modest pace.

Changes in High Quality Farmland Values

Source: Federal Reserve Banks of Kansas City and Chicago.
Despite only modest reductions in average farmland values, the variation has increased dramatically.

### Value of Non-irrigated Cropland, Fourth Quarter 2015

Percent change from previous year

### Distribution of Tenth District Irrigated Farmland Values

Probability (percent)

- **2001**
- **2007**
- **2015**

Source: Federal Reserve Bank of Kansas City
Bankers have noted several key factors that have shaped the path of farmland values.

Factors Contributing to Farmland Values, 2015

Source: Federal Reserve Bank of Kansas City
How might a changing interest rate environment affect the ag economy?
The Fed raised the Fed Funds target rate by 25 bp in December.

Federal Funds Target Rate

Sources: Federal Reserve Board and Haver Analytics
Interest expenses, however, are small when compared to fluctuations in commodity prices.

U.S. Corn Producers: Interest Costs and Price Fluctuations

Sources: USDA, barchart.com and author’s calculations.
Expectations of future interest rates and cash rents suggest farmland values could decline further.

10-Year Treasury Yields

Iowa Cropland Values

Sources: USDA, Haver Analytics, Blue Chip Economic Forecasts and author’s calculations
Concluding Points

• Farm income has continued to weaken with low commodity prices.
  • Supply-side headwinds: strong U.S. and global production.
  • Demand-side headwinds: ethanol, export markets, and China.

• Effects of the downturn in the farm economy:
  • Tightening credit conditions.
  • Pressure on cash rents and farmland values.
  • Consolidation (opportunities for some).
  • Accelerating decline where rural = ag.
Questions?

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