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# Stress in Agricultural Lending

*USDA Agricultural Outlook Forum – The State of the Farm Economy – February 21, 2019*



2/25/2019

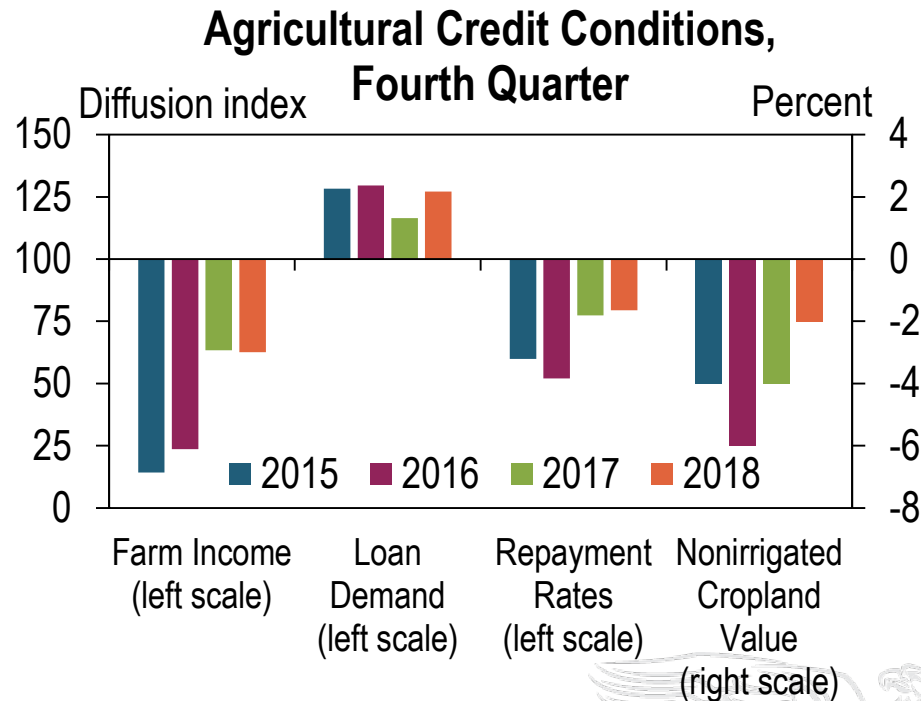
The views expressed are those of the author and do not necessarily reflect the opinions of the Federal Reserve Bank of Kansas City or the Federal Reserve System

*Cortney Cowley*



# Trends in Agricultural Lending Conditions

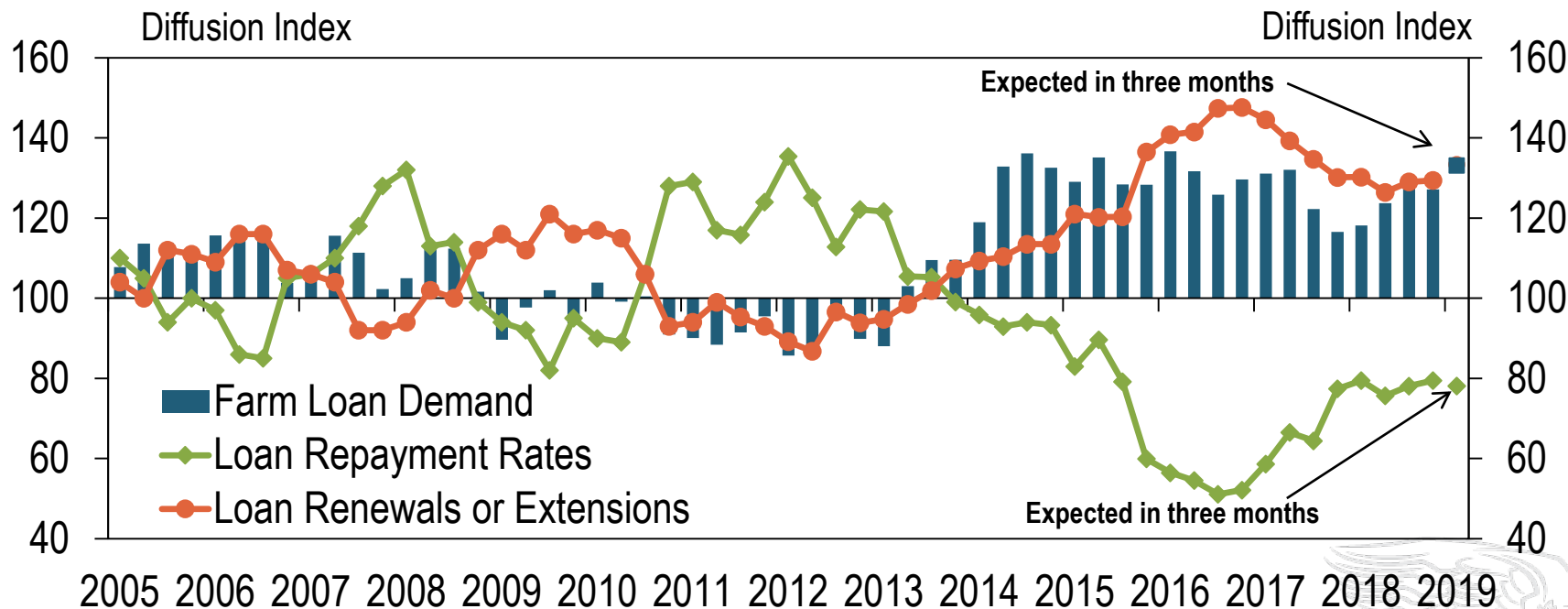
- Lower farm income and liquidity
- Higher demand for loans and lower repayment rates
- Modest increase in interest expenses
- Stable farmland values



Source: Tenth District Survey of Agricultural Credit Conditions, Federal Reserve Bank of Kansas City.

# Stress in agricultural lending has persisted for five years.

## Tenth District Credit Conditions



# Modeling stress in agricultural lending at a regional level

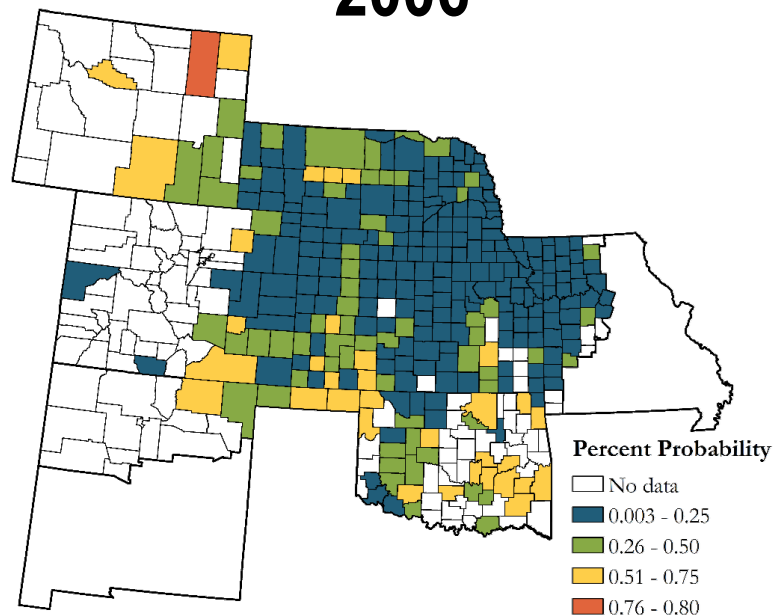
- The probability that more bankers will report lower repayment rates is significantly correlated with
  - Lower crop revenues
  - Lower income from off-farm sources
  - A lower concentration of farm earnings in the regional economy
  - Higher concentrations of earnings from mining
  - Declining farmland values
  - Higher interest rates



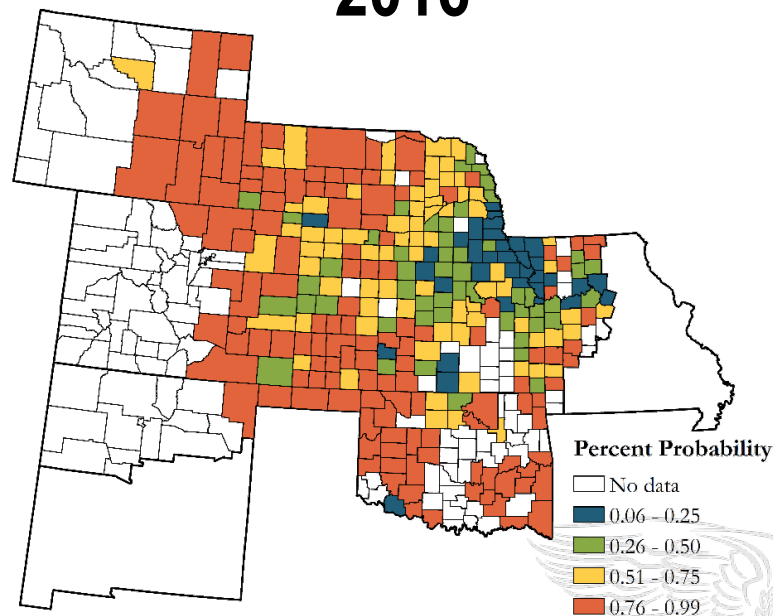
Based on the model, we can show where farm financial stress is more probable over time and space.

## Probability Bankers will Report Lower Repayment Rates

2006



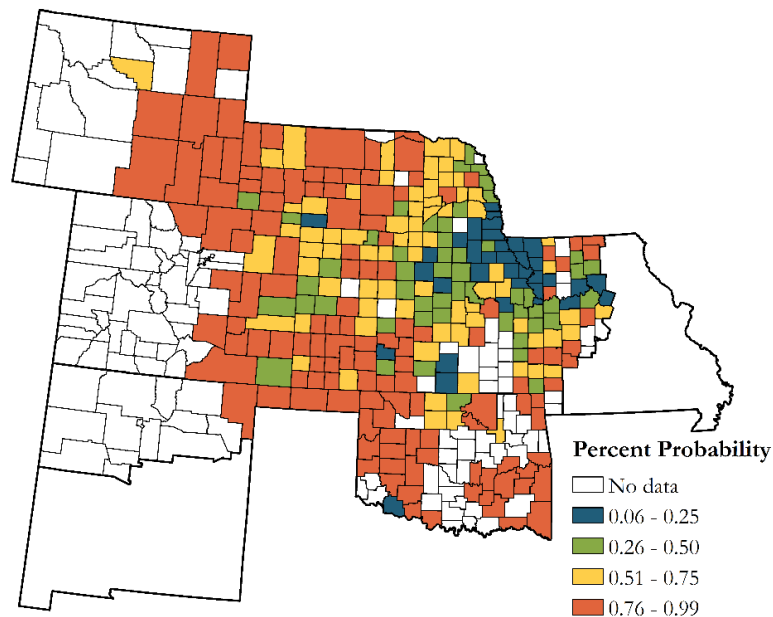
2016



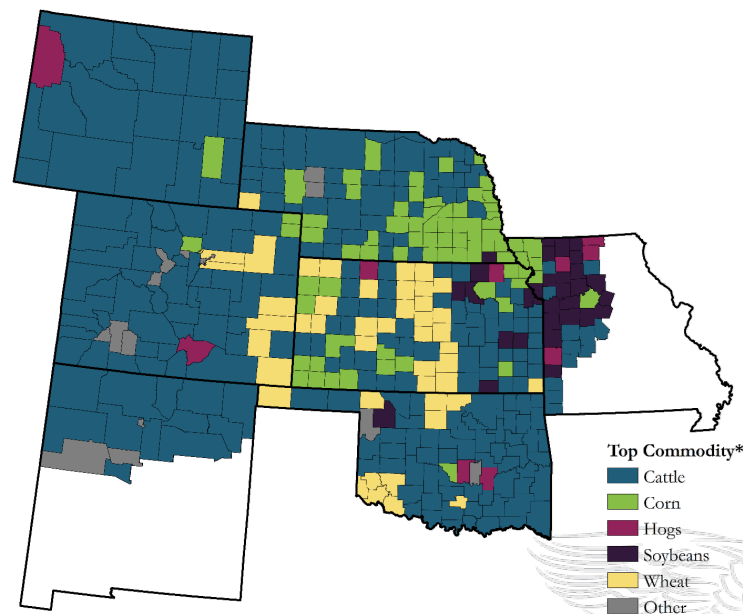


For example, in 2016, lending stress was more likely in areas more concentrated in cattle production.

## Probability Bankers will Report Lower Repayment Rates, 2016



## Top Commodity by Sales



# Linking farm household and business conditions with agricultural lending conditions.

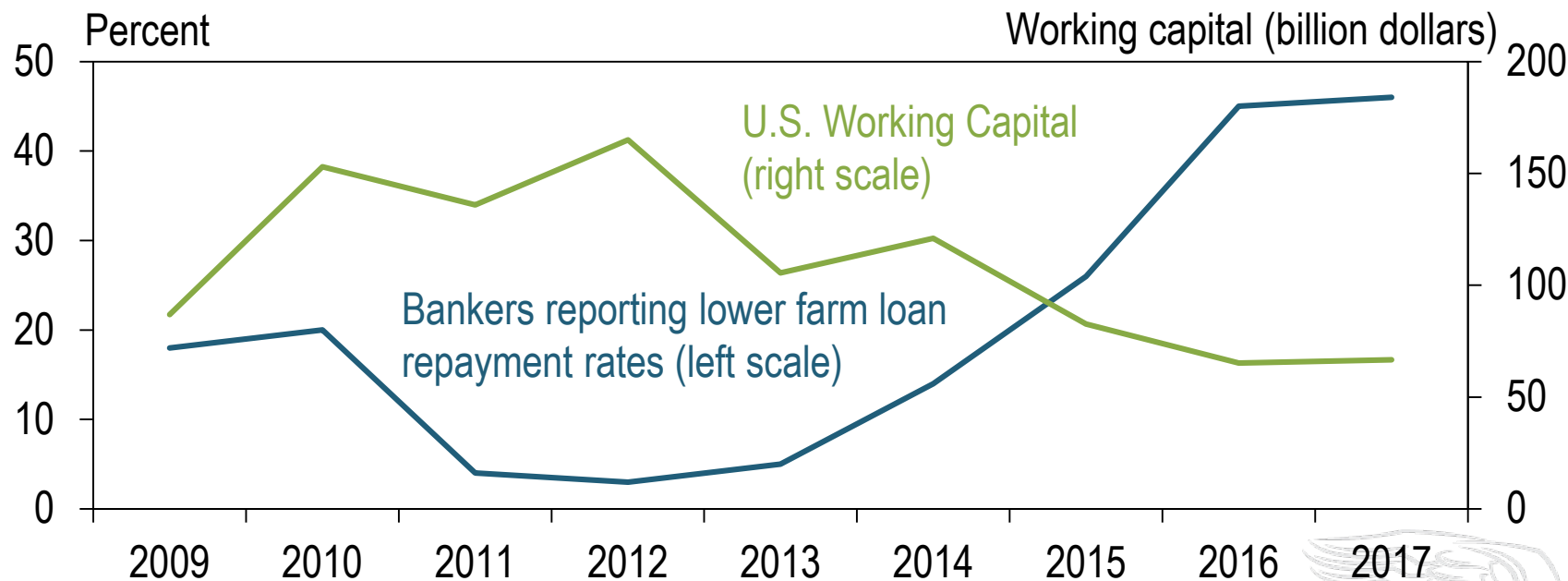
- **Working capital on farms is the most important determinant of repayment rates at agricultural banks.**





As working capital has declined, agricultural lenders have been more likely to report lower repayment rates on farm loans.

## Farm Sector Liquidity and Farm Loan Repayment Rates



# Linking farm household and business conditions with agricultural lending conditions.

- Working capital on farms is the most important determinant of repayment rates at agricultural banks.
- **Farm household and operational expenses are very important, but only those expenses that have increased substantially year-over-year tend to significantly affect repayment rates.**
  - e.g. health insurance



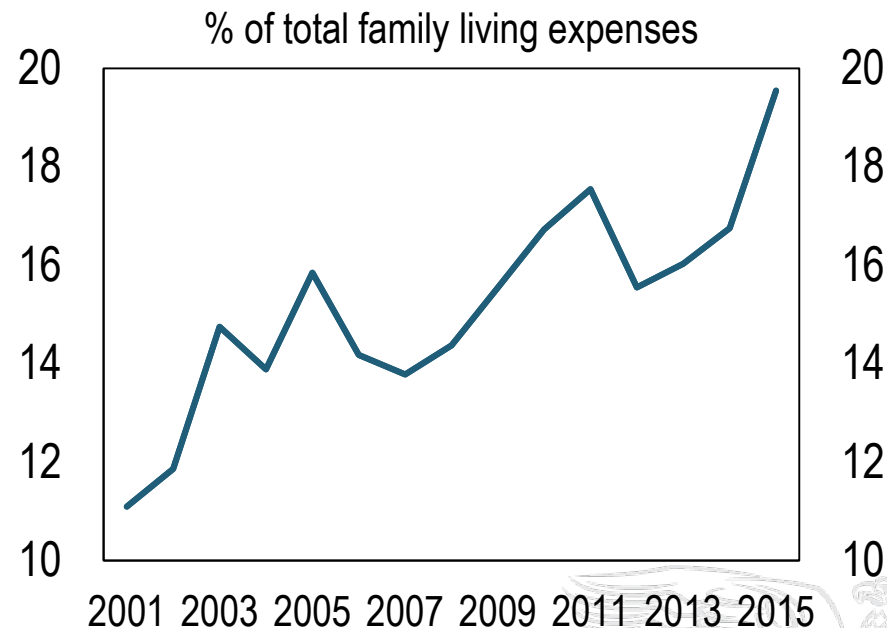
Health care expenses have increased significantly for farm households in recent years.

According to data from Kansas Farm households

- Higher health insurance expenses as a share of total family living expenses

Are significantly correlated with a greater likelihood of bankers reporting lower repayment rates.

### Health Insurance Costs on Kansas Farms



Source: Kansas Farm Management Association

# Linking farm household and business conditions with agricultural lending conditions.

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  - e.g. health insurance
- **Higher off-farm incomes contribute to higher loan repayment rates.**
- **Farm type, management, and operator age also affect farm loan repayment rates.**



# Concluding Thoughts

- Lower commodity prices and farm income have contributed to higher loan demand and lower repayment rates.
- However, farmland values have remained stable and have supported agricultural credit conditions.
- At a regional level, stress in agricultural lending has been more likely in areas with a greater share of wheat and cattle production and may be compounded in areas with high concentrations of oil and gas activity due to oil price volatility.
- Models utilizing farm- and bank-level data suggest that reductions in farm working capital or sharp changes in farm and/or family living expenses can significantly affect a farm borrowers ability to repay loans.



# Thank you

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