Rural & Farm Finance Policy Analysis Center
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Picturing Farm Financial Conditions Through the Lens of At-Risk Loans

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By combining past due, nonaccrual, restructured and charge-off loan dollar values reported by Farm Credit and commercial bank lenders, this policy brief estimates a baseline for state-by-state "at-risk loan" volumes in the 10 collaborating RaFF states. A relatively high and increasing proportion of at-risk loans in a state or region would suggest increasing financial stress and a possible motivation for policy intervention.

Introduction

The U.S. farm sector has gradually increased its debt load over time. This year, it holds an estimated $591 billion in debt to finance production inputs, land, machinery and other investments.[1] Multiple factors that cause changes in commodity supply, demand or prices affect whether farms earn enough to repay their loans. Farms that fall short may eventually default on their debt and file for bankruptcy.[2] Such farm-level financial stress would have spillover effects on farm lender balance sheets, into rural communities and across agribusinesses.

[1] The USDA Economic Research Service publishes farm debt volumes in its farm sector balance sheet: https://data.ers.usda.gov/reports.aspx?ID=4041.

[2] No universal definition describes a default. A loan agreement or security agreement outlines the events (e.g., late loan payments, collateral sale) that would dictate default (https://nationalaglawcenter.org/lending-for-livestock-creditor-for-crops-when-default-occurs/). At some point, borrowers who do default may file for bankruptcy to establish a repayment plan (https://www.uscourts.gov/court-programs/bankruptcy/bankruptcy-basics/chapter-12-

Macroeconomic challenges, such as recessions, often trigger farm financial strain. Multiple periods of low commodity prices are also a trigger. Additionally, regional disruptions such as droughts, severe weather and disease outbreaks play a role. Studying how such events affect debt repayment would better illuminate farms' financial positions and inform the policy interventions or other actions that may most effectively respond to critical financial stress levels.

The analysis presented in this brief approximates farm financial stress by estimating an at-risk loan rate for the 10 states part of RaFF's network. For loans secured by farmland[3] and agricultural production loans, it computes this rate by summing the dollar value of past due loans, nonaccrual loans, restructured loans accruing interest and charge-offs — collectively termed "at-risk loans" — by state and presenting the sum as a share of all loans of a particular type. It draws on publicly released data reported by Farm Credit institutions and commercial banks, which together extend close to 80% of U.S. farm debt. The reporting of this information is mandated by federal guidelines, and the data are audited.

Although this brief summarizes historical estimates for at-risk loan rates, the models used to estimate these volumes can be adjusted to assess how varying policy scenarios and operating conditions would affect at-risk loan volumes and rates in the future. In effect, the model would help with stress-testing state-wide farm loan portfolios.

Methodology

To estimate at-risk rates, the analysis used loan financial performance data published in Farm Credit and commercial bank call reports and farm interest expense data collected by the U.S. Census of Agriculture. The approach was modeled after similar work Key, Burns and Lyons (2019) developed for a USDA Economic Research Service publication. The following descriptions share more about how these data were applied in the at-risk estimations by lender type. For more information about the methods used, please contact the authors of this brief.

Farm Credit

To fully reflect historical lending activity, the analysis accounts for predecessor institutions — those before mergers and acquisitions — being part of present-day institutions. The following describes the data preparation steps taken. For the predecessor and present-day institutions, we first summed their reported past due, nonaccrual, formally restructured accruing and charge-off debt data to find at-risk loan volumes by loan type: agricultural production loans and loans

bankruptcy-basics). Depending on the farm and situation, some farms may choose to stop operating if they are unable to repay debt.

[3] This analysis assumes all loans secured by farmland are agricultural loans, though this loan category may include other loans for which farm real estate serves as collateral.

secured by farmland. Then, we collected data for the total volume of agricultural production loans and loans secured by farmland held by Farm Credit institutions.

Using the county interest expense data reported in the U.S. Census of Agriculture, we summed the interest expense from all counties where an institution operates. Then, we computed the share of interest recorded per county relative to total expenses recorded in counties where an institution operates. For each county, we applied its share to the sum of an institution's loan holdings to estimate the loan volume an institution maintains. We summed each state's county-level values to find state totals. Then, we computed at-risk rates using the state estimates.

Commercial Banks

Multiplying farm interest expense — both non-real estate interest and real estate interest — by branch-level summary of deposits data from the Federal Deposit Insurance Corporation serves as a form of weighting to estimate agricultural activity. By bank, we showed these values as a percentage of interest × branch deposits across states. For each bank and each state, we multiplied the interest × branch deposits share by the dollar value of a bank's agricultural production loans and loans secured by farmland to estimate the dollar amount of an agricultural loan portfolio in a state. Note, banks headquartered and operating in one state had 100% of their loan portfolios allocated to their respective home states. Those conducting business in more than one state had portfolios allocated across states where they operate.

For each bank institution, we summed past due, nonaccrual and charge-off volumes for a loan type to estimate at-risk loan volumes. For each bank, we multiplied the interest × branch deposits share by the at-risk loan volume. Dividing the at-risk loan volume by total loan volume estimates an at-risk rate.

Results for At-Risk Agricultural Production Loans by State

Agricultural production loans finance purchases of machinery, livestock, equipment, seed, feed, crop protection products and other inputs needed to produce agricultural commodities. For the U.S. overall, an estimated one-third of farm debt finances such non-real estate investments.[4]

Across states, estimated at-risk rates for agricultural production loans averaged less than 1% in most years — the exceptions being 2009, 2010 and 2019. On average, the rate reached nearly 2% in 2009.

Figure 1 indicates the at-risk rates trend somewhat similarly across states, but the data do have some variation. For example, though at-risk rates for agricultural production loans were relatively

[4] The U.S. farm balance sheet from the USDA Economic Research Service reports non-real estate loan dollar values by year: https://data.ers.usda.gov/reports.aspx?ID=4041. Non-real estate loans and agricultural production loans are assumed to finance similar farm investments.

high for all states in 2009, they notably spiked in 2009 for Illinois, Minnesota, Missouri, North Dakota and Texas. After that time, at-risk rates in some states (e.g., Missouri) quickly returned to lower levels. Other states (e.g., Illinois, Texas) saw at-risk rates more slowly retreat or increase slightly before declining (e.g., Indiana).

Results for At-Risk Loans Secured by Farmland by State

A loan secured by farmland has farm real estate (e.g., pasture, cropland) posted as collateral. An estimated two-thirds of all U.S. farm-sector debt finances real estate.[5]

Within the 10 RaFF states, loans secured by farmland averaged their greatest at-risk rates across states from 2009-11 and 2019-20. In these years, at-risk rates across all states averaged at least 1%. They reached their highest levels — greater than 1.5% — in 2009 and 2010.

By state, Figure 2 shares estimated at-risk rates for loans secured by farmland. Those rates peaked in 2009 or 2010 for Arkansas, Illinois, Indiana, Minnesota, Missouri, North Dakota and Texas. For Iowa, Kansas and Nebraska, the at-risk rates for loans secured by farmland reached higher values in later years. Only in Arkansas, Illinois and Texas did estimated at-risk rates top 2% in any year.

In several states, at-risk rates ticked up in recent years. They increased the most in Kansas

Concluding Comments

Overall, loans secured by farmland and agricultural production loans averaged comparable at-risk rates. In most states, at-risk rates have been low in recent years after experiencing higher levels in 2009 and 2010. However, since 2022, these rates have elevated somewhat — signaling slightly more financial stress in the farm sector. What we see from the history of at-risk loan volumes is that the situation can change quickly. In many cases, the largest increases in at-risk loans occur within one year.

To pinpoint factors driving changes in at-risk rates, we've done preliminary analysis into correlations between these rates and multiple factors, including those related to state-level farm income and macroeconomic conditions. This analysis indicates farm receipts have been a major contributor to at-risk rates for production loans. For loans secured by farmland, the current year's net farm income and the previous year's net farm income have been notable at shaping at-risk rates. Macroeconomic factors weren't as correlated with at-risk rate changes over time.

[5] The U.S. farm balance sheet released by the USDA Economic Research Service includes the dollar value of real estate loans: https://data.ers.usda.gov/reports.aspx?ID=4041.

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Tables & Figures

Figure 1. Estimated Share of Agricultural Production Loans Considered At-Risk by State (vertical axis is % of total production loans)

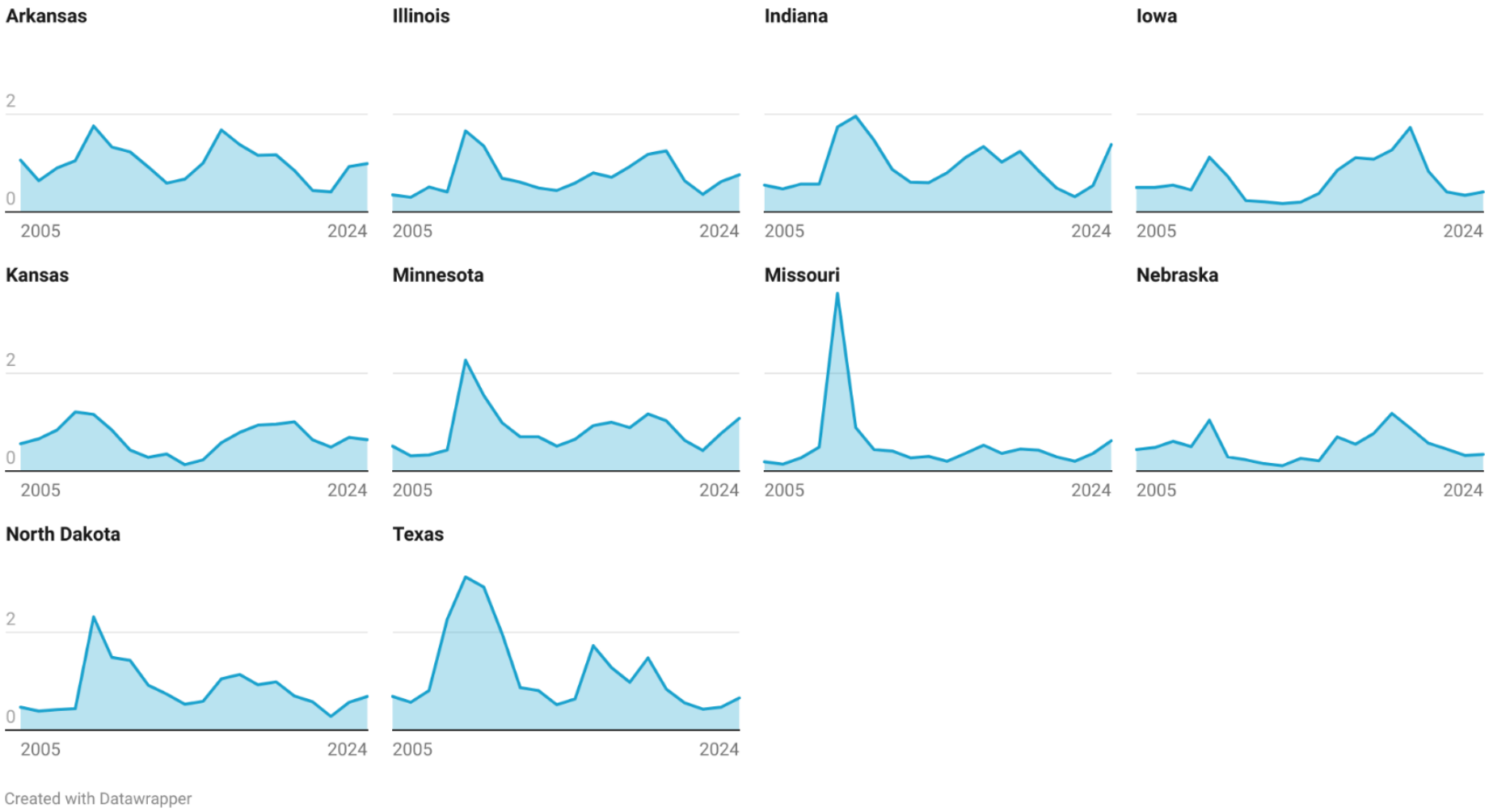


Figure 2. Estimated Share of Loans Secured by Farmland Considered At-Risk by State (vertical axis is % of total loans secured by farmland)

