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Accounting for Underestimated Debt in Farm-Sector Liquidity and Solvency Measures

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This policy brief summarizes the financial state of the current farm economy. It also explores how higher debt levels stemming from potential debt underestimation could affect key farm-sector liquidity and solvency measures.

Current Farm Financial Situation

Record high farm debt and weakening farm income — both today and projected in upcoming years — elevate the need to evaluate the farm sector's financial health. Trends in several indicators suggest the importance of taking note of today's farm financial conditions.

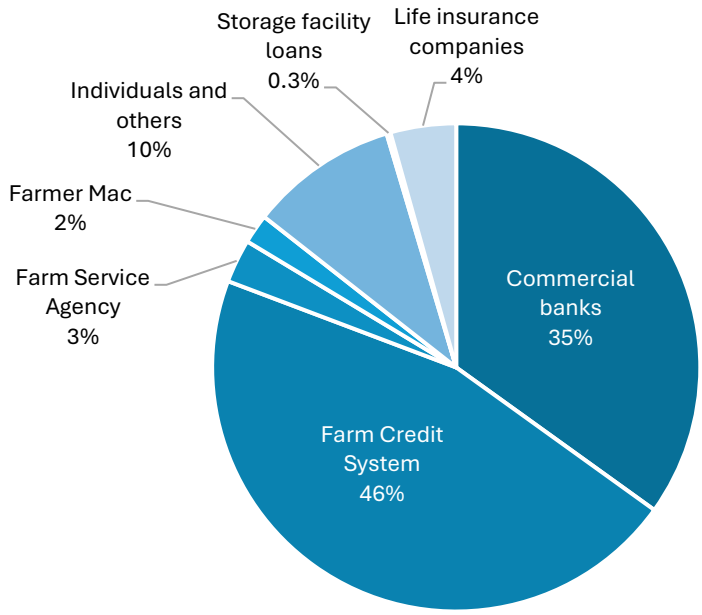
Farm Debt and Income Trend. The USDA Economic Research Service (ERS) forecasts 2024 farm-sector debt to total more than $542 billion — in nominal terms, a more than 4% increase from 2023 and a 52% increase from 2015. Further, 2024 is the highest inflation-adjusted farm-sector debt on record; it eclipses the 1980s peak of nearly $517 billion. At the same time, net farm income has declined from its 2022 peak to a level slightly above the 20-year average. Crop farm income declines have been more drastic. Longer-term forecasts project flat or slightly declining farm income.

Financial Health of Farm Sector. Despite farm debt increasing and net farm income decreasing, farm-sector financial indicators don't suggest a high degree of alarm or widespread stress. For 2024, the debt-to-asset ratio is forecast at 12.86, which is low in absolute and relative terms. On the other hand, most liquidity and debt repayment measures have deteriorated from their 20-year averages.[1] Although still at levels considered safe, liquidity and debt repayment could pose concerns if farm income declines further.

[1] Some indicators, such as current ratio, are only reported back to 2009.

Concerns about Potential Underestimation. This current picture could look different if U.S. farm-sector debt is underestimated. Recent research and multiple discussions with producers and farm lenders indicate farm debt extended by "individuals and others" likely is understated in official estimates. Estimated debt held by other lender categories (see Figure 1) is based on publicly reported debt volumes, but approximating the "individual and others" category relies on debt reported for an annual USDA farm survey. The challenges of using farm survey data in farm-sector debt estimates and the classifications of farm lenders have been discussed in detail in previous publications.

Figure 1. Share of Total U.S. Farm-Sector Debt Held by Lender Type, 2023



Source: USDA Economic Research Service.

Potential Ranges of Farm Debt Underestimation

The actual extent to which farm debt is underestimated is unknown. This brief assumes that debt from "individuals and others" is two to three times larger than estimated by USDA. Debt counted in the "individuals and others" category includes financing offered by credit unions, private banks (e.g., Rabobank), implement dealers, input providers, credit card companies and individuals (e.g., friends, family). Below, we discuss how this range of underestimated debt is defensible, simple and transparent for both nonreal estate and real estate debt.

Nonreal Estate Debt. Debt not secured by real estate makes up about one-third of farm-sector debt and largely covers short-term operating credit and intermediate credit for equipment, machinery and breeding stock. Nearly $30 billion of $174 billion in nonreal estate debt was estimated to be financed by "individuals and others" during 2023. For demonstration purposes, we discuss potential underestimation in a scenario in which half of this $30 billion is for equipment and half is for inputs.

- *Equipment debt*. Recent research suggests nontraditional equipment loan volume is likely underestimated by at least 50% — meaning the farm sector would have at least an additional $15 billion in farm debt today. The $15 billion estimate is consistent with estimates stated in the same recent research, which shows $15 billion to $23 billion of nontraditional farm equipment debt

from 2014-18 originated from only select states, which make up about half of that market. Therefore, total nontraditional equipment loan volume would be greater than this range.

- *Input financing*. Some share of debt provided by "individuals and others" finances inputs; suppose this is approximately $15 billion out of $30 billion. Research on operating credit held by "individuals and others," including vendors, is very limited. Five years ago, an industry norm suggested 10% of farm expenses were financed with some type of trade credit or vendor finance, which would typically be counted as debt in the "individuals and others" category). This would have been $20 billion to $40 billion in 2023, depending on the type of farm inputs financed. Recent industry estimates suggest that the share of inputs financing by nonreporting lenders is higher than 10%. Thus, $30 billion (double the $15 billion assumed in the USDA-released estimates) is a reasonable lower bound for the share of inputs financed by individuals and others.

- *Nonreal estate debt totals (equipment debt + input financing debt)*. At a minimum, these estimates suggest that lending from "individuals and others" doubles the $30 billion currently estimated by USDA ERS. Although our estimates above do not directly include short- and intermediate-term loans for purposes other than equipment or inputs, we have no reason to believe that debt in these areas is more completely reflected in reports to USDA. Thus, the total debt in the "individuals and others" category could plausibly range from $60 billion to $90 billion.

Real Estate Debt. In 2023, debt secured by farm real estate made up an estimated two-thirds of farm-sector debt, and about $21 billion or 6% of total real estate lending was estimated to come from "individuals and others." Some nonreporting lenders use the secondary market to sell off farm real estate loans after originating them. Loans held by Farmer Mac, considered a secondary market, would be reported; Farmer Mac indicates that nonreporting lenders are tied to about 35% of its farm and ranch loan portfolio from 2011-20. Although these numbers cannot be directly used in our estimates, this research supports the major role played by nonreporting lenders — those that would be considered "individuals and others" — in financing farm real estate.

The volume of nonreported real estate debt is likely at least double official estimates (i.e., $42 billion assuming doubling of 2023 reported levels) but challenging to precisely estimate. Considering feasible ranges of debt held by various types of nonreporting farm real estate lenders demonstrates that the $42 billion estimate is plausible.

Rabobank reported a $15 billion loan portfolio a few years ago, and some share was likely secured by real estate. Collateral-based nonreporting lenders may currently hold $5 billion to $10 billion, and credit unions[2] may finance $2 billion to $3 billion or more. Institutional and private investors, including pension funds and hedge funds, likely hold at least $15 billion — potentially substantially more. Individuals, including relatives, also likely play a meaningful role, as indicated in Kansas Farm Management Association data. If individuals hold only 1% of total farm real estate debt, then they would contribute about $5 billion to farm real estate financing.

[2] Credit unions are required to report agricultural loans to their regulator, the National Credit Union Administration (NCUA) and these variables are included in quarterly call report data. However, Farm-sector debt estimates treat credit unions as "individuals and others."

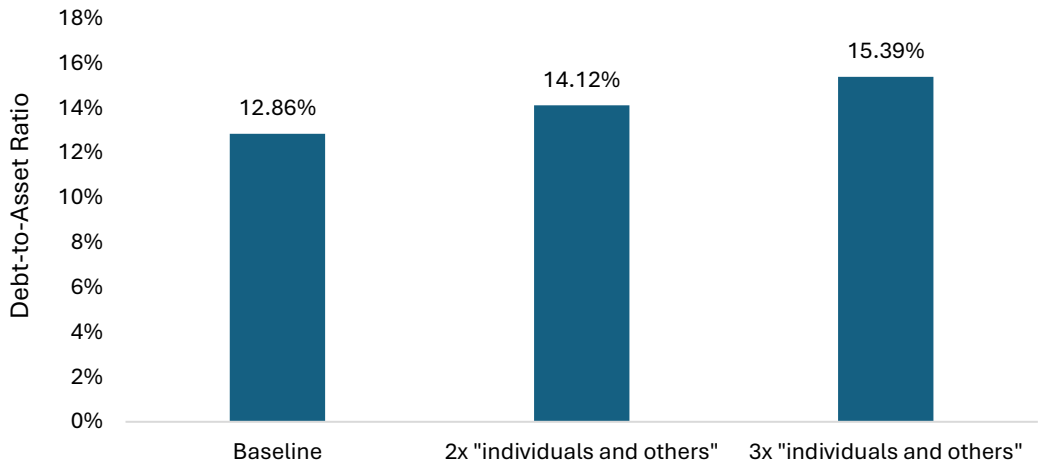
Summary. In short, though nonreported nonreal estate debt could be two times to three times the amount (i.e., $30 billion) currently included in farm-sector debt estimates, we are less certain about real estate debt. We are comfortable with estimating nonreported real estate debt to be likely double official estimates. Higher values are difficult to justify without more data or research. We use ranges to reflect overall uncertainty while still being feasible.

Underestimated Debt and Key Farm Financial Ratios

By assessing financial ratios, this brief quantifies the effect of greater debt on farm-sector finances.

Debt-to-Asset Ratio. The debt-to-asset ratio, which summarizes farm solvency, reports the share of an operation's assets financed by debt. Higher debt-to-asset ratios indicate a greater reliance on debt than owner equity. The U.S. farm balance sheet published by USDA ERS in December forecast the 2024 debt-to-asset ratio at 12.86%. Figure 2 highlights the 2024 forecast as a baseline, and it shares two scenarios to indicate how the debt-to-asset ratio adjusts under higher debt levels held by "individuals and others." The ratio increases from 12.86% in the 2024 forecast to 14.12% and 15.39% if "individuals and others" debt were two times to three times larger, respectively. This is considered a safe debt-to-asset level that puts the farm sector at relatively low vulnerability.

Figure 2. Farm-Sector Debt-to-Asset Ratio in Baseline 2024F and Scenarios with More "Individuals and Others" Debt*

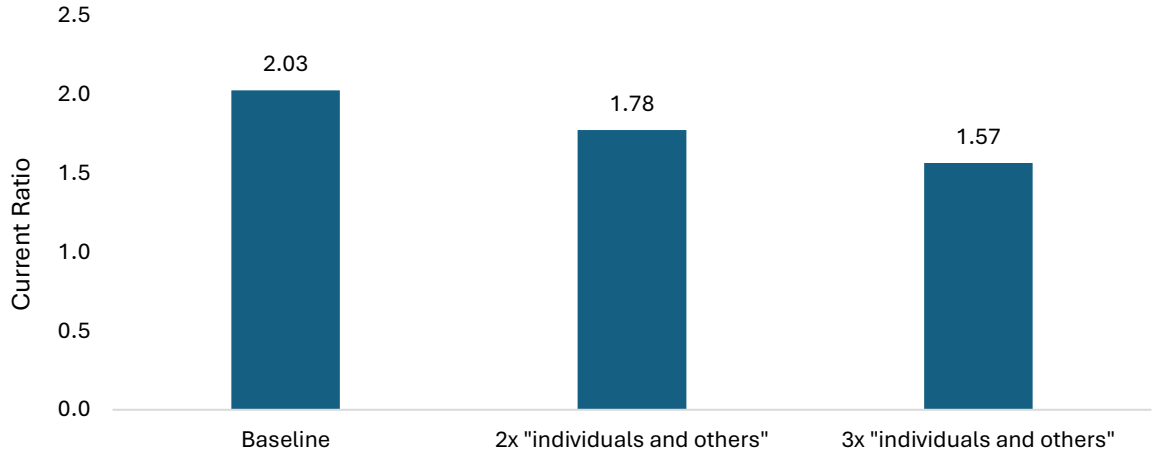


* Baseline 2024 forecast case originates from USDA ERS balance sheet, December 2024.

Current Ratio. A liquidity measure, the current ratio compares current assets, which are cash and assets easily convertible to cash, and current liabilities, which are short-term debts. If the ratio totals or exceeds 1.0, then current assets are available to pay off current liabilities. Based on the December 2024 balance sheet forecast from USDA ERS, the farm sector has a relatively strong 2.03 current ratio. This is lower than the 2009-23 average of 2.11 and higher than the lowest level during that period — 1.59 in 2016.

Sensitivity analysis in Figure 3 shows the change in current ratio if the farm sector had two to three times more debt from "individuals and others" than stated in the 2024 forecast. In both scenarios, the ratio drops but still exceeds 1.5. Although standards vary by institution as well as individual lender and farm preferences, this current ratio level would largely be considered acceptable or moderately risky.

Figure 3. Farm-Sector Current Ratio in Baseline 2024F and Scenarios with More "Individuals and Others" Debt*



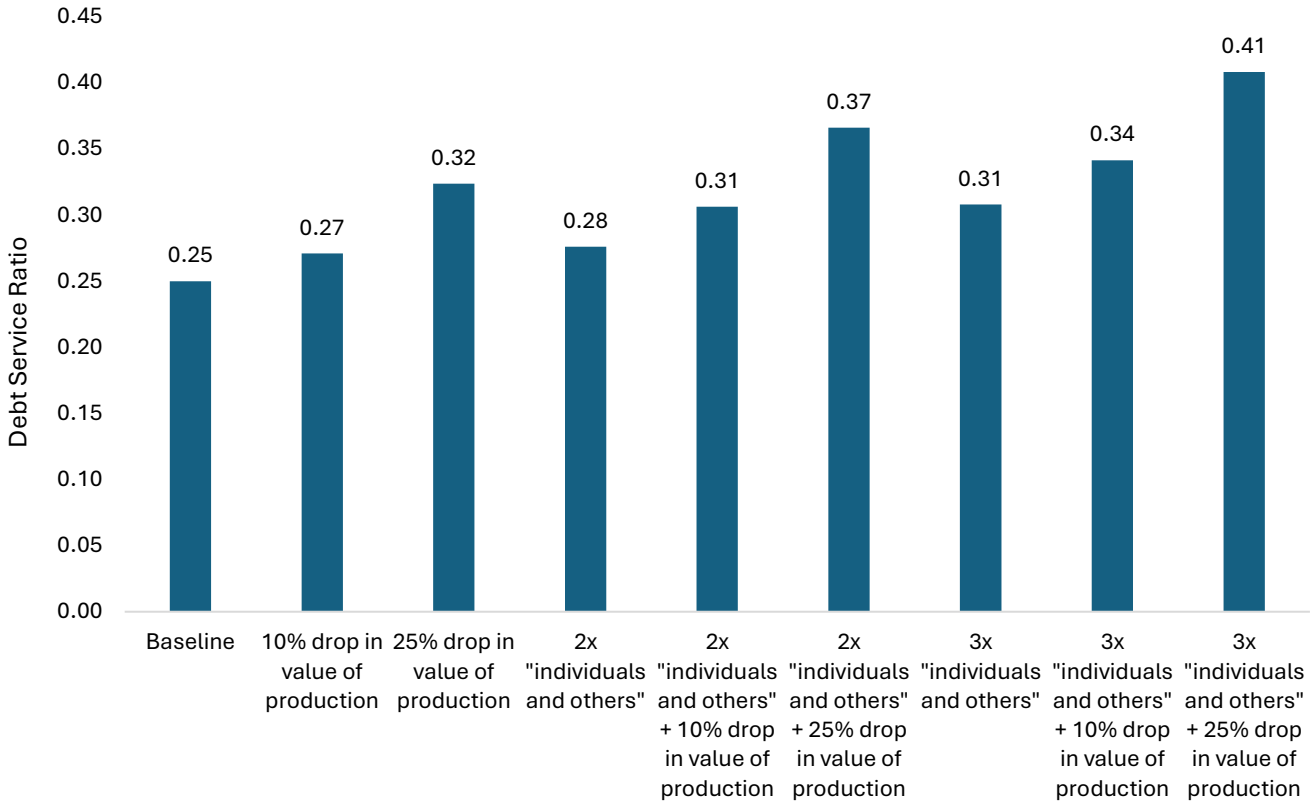
* Baseline 2024 forecast case originates from USDA ERS balance sheet, December 2024.

Debt Service Ratio. The debt service ratio compares annual interest expense, which is influenced by the current higher interest rate environment, and principal repayment commitments to the sum of farm value of production and government payments. The higher the ratio, the more income is needed to satisfy debt obligations. Based on the December 2024 farm balance sheet forecast, the farm sector's debt service ratio (i.e., 0.25) indicates farms on average will use 25% of production value and government payments to cover annual debt-related expenses. This is slightly higher than the 2004-23 average of 0.24 and approaching the 2018 peak of 0.28. Given the direct relevance of this ratio for farm lenders, we examine how lower production value and higher debt levels affect this ratio.

Figure 4 provides scenario analysis to test the effect of higher "individuals and others" debt and lower value of production on the debt service ratio. This ratio likely ranges from 0.28 to 0.31 under our assumptions for double or triple "individuals and others" debt — high levels compared with the past two decades. Combining lower value of production with higher "individuals and others" debt would further strain the debt service ratio. A 25% value of production decline would increase the debt service ratio to 0.37 to 0.41, assuming two times and three times more "individuals and others" debt, respectively.

In the most pessimistic scenario where value of production declines by 25% and "individuals and others" debt is three times higher than estimated, the debt service ratio reaches 0.41, meaning 41% of farm production value and government payments would be required to repay debt. Several other scenarios suggest debt repayment will use at least one-third of production value and government payments.

Figure 4. Farm-Sector Debt Service Ratio in Baseline 2024F Case and Scenarios with Greater "Individuals and Others" Debt and Lower Value of Production



* Baseline 2024 forecast case originates from USDA ERS balance sheet, December 2024.

Implications

Ratios evaluated in this brief quantify changes in financial health measures if farm debt has been understated. The debt-to-asset solvency metric details changes in farm leverage. Liquidity ratios — current ratio and debt service ratio — track how well farms could meet immediate financial obligations if they carry added debt. Comparing the ratios shared in this brief to historical averages and industry-accepted benchmarks helps with interpreting to what extent more debt would pressure farm finances.

- In recent years, the *debt-to-asset ratio* has maintained relatively low levels — largely due to farmland value appreciation. From 2004 to 2023, it averaged 12.75% for the U.S. farm sector, according to USDA ERS. The Farm Financial Standards Council suggests a debt-to-asset ratio no greater than 30% means a farm has a strong position. In this brief, the scenarios with added debt would have higher debt-to-asset ratios but not lead to farm sector financial vulnerability.

- Between 2009 and 2023, the U.S. farm sector's *current ratio* averaged 2.1, according to USDA ERS. The current ratio exceeded 2.0 from 2009 to 2014 and then topped 2.0 again from 2021 to 2024. Benchmarks from the Farm Financial Standards Council[3] suggest a strong current ratio would reach at least 2.0. Financially vulnerable businesses would have current ratios at 1.3 or lower. If

[3] Benchmarks set by the Farm Financial Standards Council are published by the Center for Farm Financial Management at the University of Minnesota: https://www.cffm.umn.edu/wp-content/uploads/2019/02/FarmFinanceScorecard.pdf.

farm debt were underestimated as assumed in this brief, then the farm sector's current ratio would weaken but not reach this point of financial vulnerability.

- The *debt service ratio* averaged 0.24 between 2004 and 2023, meaning the average farm would use roughly one-quarter of its farm production and government payments to satisfy debt obligations. The USDA ERS forecast for the ratio in 2024 (0.25) approximately will equal this average. Several scenarios shared in this brief suggest a more troublesome picture for the debt service ratio. If "individuals and others" farm debt increases by three times and value of production declines by 25%, then the ratio would grow to reach 0.41, meaning farms would use 41% of production and government payments to repay debt.

Parting Thoughts

According to this analysis, farm-sector debt repayment measures show signs of weakening. In scenarios where farm debt is meaningfully underestimated, these measures may hold greater concern.[4] With overall farm debt at an all-time high, an increase in loan delinquencies or conversion of short-term loans into long-term, real-estate-backed loans will likely be one of the first signs of financial stress. Although commercial bank farm loan delinquencies are currently low, some banks experienced increases in the most recent quarter. Farm leverage is not a primary concern for the farm sector as a whole, even with substantial levels of debt underestimation.

Even with relatively large levels of underestimation, the farm sector in aggregate is not in or near a crisis. However, debt is not held evenly across farms. If economic conditions worsen, then debt repayment could become problematic in some areas, which would amplify the negative effects to all producers, lenders, supply chains and rural economies. Further, low delinquencies reported by commercial banks and Farm Credit System lenders may be partially attributable to nontraditional or nonreporting lenders assuming credit provision for more financially marginal farm operations.

Future analyses should consider differences in debt holdings by different farm sizes, operator ages, specializations and regions. Crop farm income is currently at 20-year lows. Reports from various stakeholders suggest that crop farms face widely varying financial conditions but are generally entering a period of "belt tightening". The economic assistance for farms included in the American Relief Act, 2025, may mitigate some financial concerns for the nation's crop producers.

If farms challenged by repaying loans also have high levels of debt from nonreporting lenders, then conditions may be worse than indicated in this brief. The share of farms facing severe financial stress may be more critical than average sector-level financial ratios. There is a "tipping point" for the number of farms that fail to repay loans or go bankrupt; if reached, this could lead to a broad decline in farm asset values similar to the scenario experienced during the 1980s. Today, lack of information on debt from nonreporting entities makes it difficult to assess how close the farm sector is to such a tipping point.

Related Research

This brief draws from the following publication on farm equipment debt but also explores broader implications of farm debt underestimation.

[4] This concern may be less if debt held by "individuals and others" has been consistently underestimated over time. That said, we believe that agricultural lending has changed substantially during the past two decades and had several new entrants. Further, ample evidence suggests nonreporting lenders have been expanding outside of the agricultural sector.

Briggeman, B., Byers, L., Ifft, J., Kuhns, R., Miller, N., & Yu, J. (2024). Is U.S. farm sector debt underestimated? Evidence from equipment lending. *Agricultural Finance Review*, *84*(2/3), 191-207.

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