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MEASURING AND ANALYZING FARM FINANCIAL STRESS

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J. Michael Harris, Robert Williams, Mitch Morehart, Ken Erickson, and Ashok Mishra
(The views expressed are the authors' and should not be attributed to ERS or USDA)

The financial health of the agricultural economy has been excellent for the past few years, especially with farm income reaching record levels. However, the U.S. economy has experienced significantly slower growth and a credit crisis. Although the U.S. farm sector has been mostly shielded from the economic downturn, farm financial stress is still possible under current conditions. Are some U.S. farm businesses, especially those with term debt, poised to experience significant financial stress in 2010? We use the Agricultural Resource Management Survey (ARMS), sponsored jointly by USDA's Economic Research Service (ERS) and National Agricultural Statistical Service, to help answer this question.

Financial Stress

Agricultural economists generally agree that financial stress is composed of an income problem, a debt problem, or a combination of the two. The seriousness of the *debt problem* is measured by the debt-to-asset ratio (leverage ratio) and the interest rate relative to the rate of return on assets. Brake and Boehlje (1985) suggest that "the common element in farm financial problems...is unserviceable debt..." "too much debt service." The key point is that financial stress is not solely related to debt; income and balance sheet measures must also be used to quantify financial stress (Johnson et al., 1987). The interwoven income and balance sheet perspective is further illustrated when one considers farm stress as a cash flow concept that does not overlap entirely with either net income or profitability. Investments may be profitable but may result in cash flow problems for a business owner. The issue is being able to meet financial obligations as they come due.

Measuring Financial Stress

Standard financial ratios and other financial performance measures have been developed for agriculture as a sector of the U.S. economy and for farms as individual businesses using secondary and primary survey data for many years. Although these ratios provide useful insights into the financial viability of U.S. farms and ranches, they typically only reflect one of four dimensions of farm performance: profitability, solvency, liquidity, or efficiency. To compliment perspectives that can be drawn from use of a variety of single dimension indicators, measures of financial stress have been developed that combine information from both the income statement and the balance sheet. Stress measures also combine several dimensions of financial performance to enable a more focused assessment of the ability of farms and farm operators to meet their financial obligations. ERS measures the overall financial performance of farms and ranches in at least four primary ways (box). *Here we present a Venn diagram of financial conditions which reflects widely used benchmarks for measuring potential problem levels for three performance*

indicators—working capital, debt/asset ratio, and term debt coverage. We focus first on all farms in 2008 and then only on farms with debt.

Conclusions

- Only 1.4 percent of farm businesses were at risk in 2008; 8.7 percent experienced low term debt and working capital; less than 1 percent experienced high debt/asset ratios and low working capital; and less than 1 percent experienced low term debt and high debt/asset ratios.
- Overall, the farm sector's financial performance is quite favorable when compared with the 1981-86 farm financial crisis years. Farms have become significantly less leveraged. Lenders have a smaller stake in farm assets, and both farmers and lenders have less financial risk exposure from farm business debt.
- The share of farm operators who use debt capital to finance business activities has dropped over the past two decades. Debt makes up a smaller share of their capital structure.
- In 1991, 50 percent of farm business debt was held by 23 percent of farm operators. By 2008, the same proportion of debt was held by 15 percent of operators. Debt appears to be concentrated among fewer farm operators.

References

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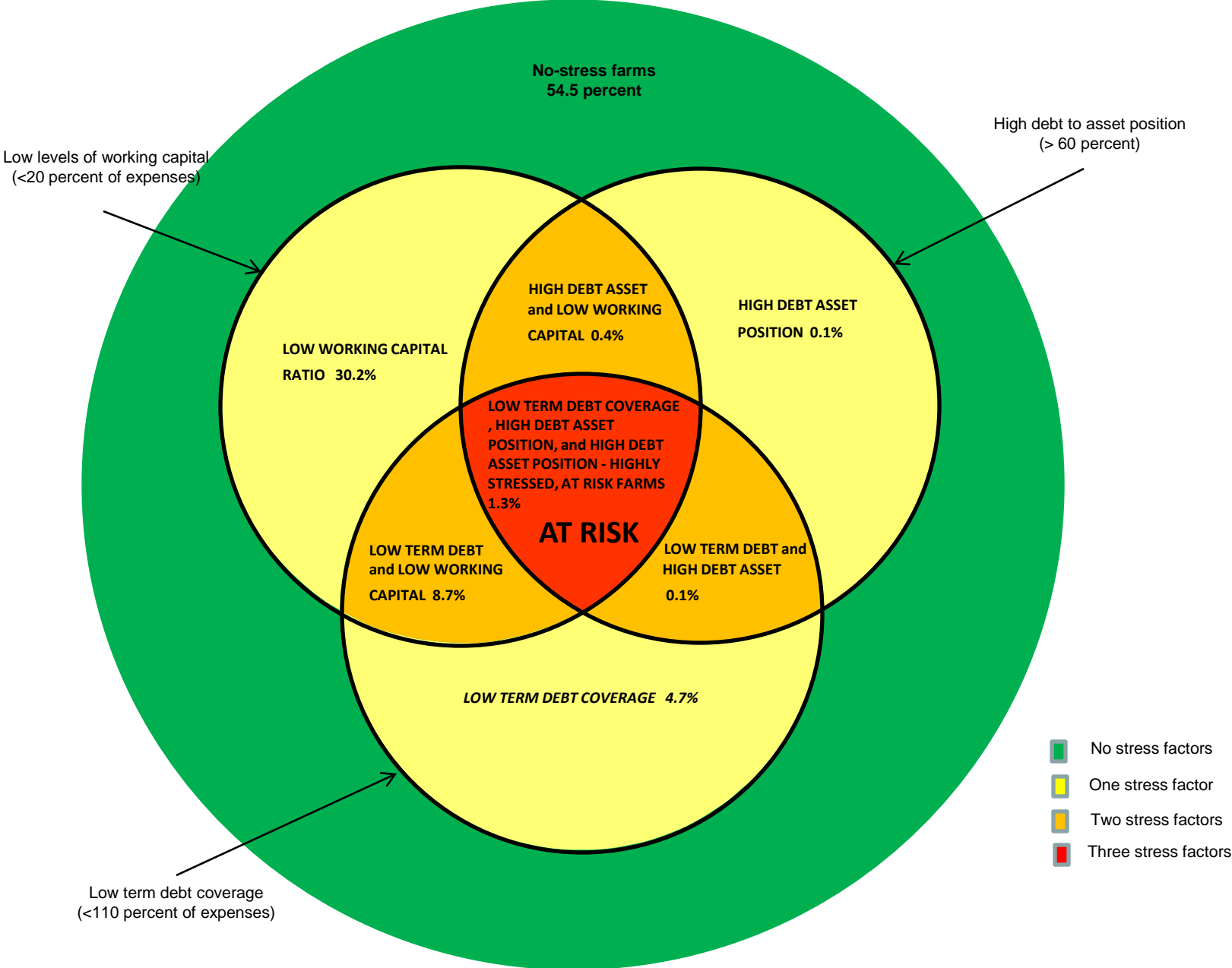
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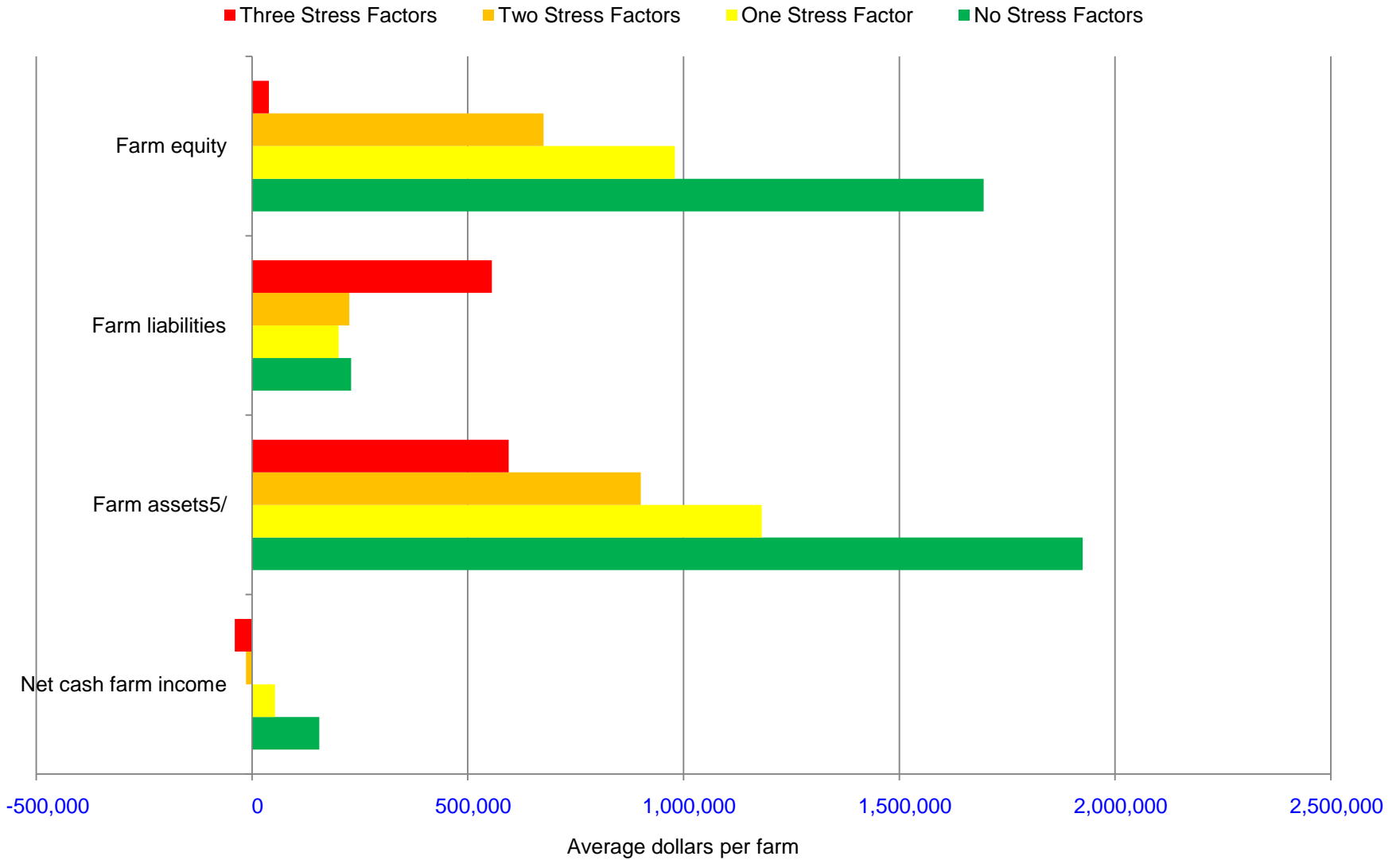
FOUR WAYS TO MEASURE FINANCIAL STRESS

	<i>Method/components</i>	<i>Advantages</i>
Overall financial performance	Net income and solvency position measured by debt/asset ratio.	Longer term assessment of earnings relative to solvency. Also long time series.
Four-quadrant income/solvency measure	Negative-income, low-debt farms, Negative-income, high-debt farms, Positive-income, low-debt farms, Positive-income, high-debt farms.	Provides perspective about debt volumes that may not be serviced.
Venn Diagram of Financial Condition	Working capital relative to input costs. Debt-to-asset ratios. Term debt coverage.	Hybrid measure provides both shorter and longer term perspectives.
Triangle Nonrepayment Model	Debt-to-asset ratios. Term debt coverage.	Hybrid measure provides perspective on long-term debt coverage.

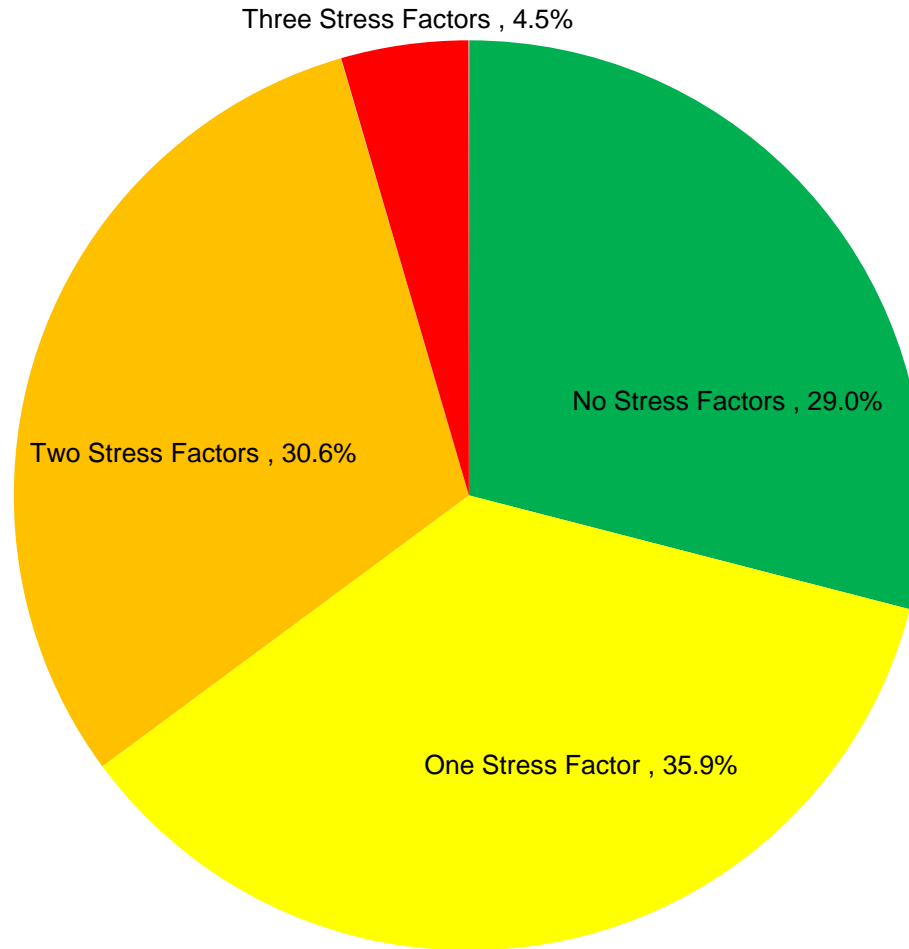
FEW FARM BUSINESSES WERE AT RISK IN 2008



Financial Characteristics of Farms with Debt by Number of Stress Factors, 2008



NUMBER OF FINANCIAL STRESS FACTORS, FARMS WITH DEBT, 2008



Selected Results from Logit Analysis - Farms with Debt, 2008

