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Farm Balance Sheets: The Hidden Risk of Non-Real Estate Debt

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Today's soaring farmland values have boosted farm wealth and driven the U.S. farm balance sheet to its strongest level since the 1970s farm boom. In fact, the U.S. Department of Agriculture (USDA) projects 2011 real farm equity to surpass the record highs of the 1970s. Since farmland is the largest asset on a farm balance sheet, rising land prices have pushed U.S. farm debt-to-asset ratios to record lows.

While the industry's overall debt-to-asset ratio is low, some producers have much higher debt-to-asset ratios. In many cases, these producers have more elevated levels of non-real estate farm debt. If farmland values were to fall sharply, as they did in the farm crisis of the 1980s, both farm balance sheets and farm wealth would suffer, especially for farmers with high levels of non-real estate debt.

This article explores the effects of falling farmland values on farm balance sheets, wealth and insolvency. The analysis finds that most producers with a high risk of insolvency tend to carry significant levels of non-real estate debt. Further, most of the operations in this high-risk group tend to be large, with

FARM SECTOR BALANCE SHEETS

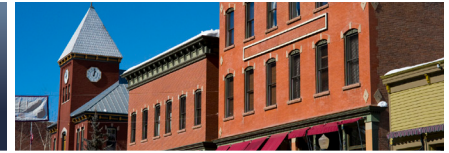
Strong farmland values have bolstered today's farm balance sheets. During the last decade, gains in farm asset values, led by farmland, have outpaced rising farm debt levels. The result has been a 45 percent surge in farm wealth—a windfall similar to that

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more than \$1 million in farm sales—or they tend to be operated by farmers under the age of 35. Echoing the 1980s farm debt crisis, producers with higher levels of non-real estate debt would face the greatest risks to farm bankruptcy if land values fell sharply.

of the farm boom of the 1970s (Chart 1). In addition, rising net worth levels for farmers have helped push debt-to-asset ratios to record lows, thus reducing the risk of insolvency.

Farm assets, in particular farmland values, drive shifts in farm wealth.



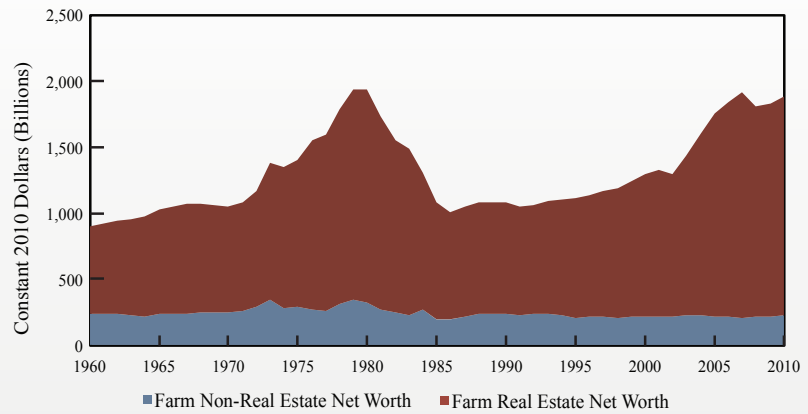
Farmland represents about 80 percent of a farm's total net worth. When land values surge, as in the 1970s and 2000s, so does net worth. Conversely, if farmland values crash, as in the 1980s, net worth plummets.

Non-real estate asset values, in contrast, have a smaller effect on farm net worth. Since 1960, non-real estate assets, such as grain and livestock inventories, machinery and equipment, have changed only slightly in value, largely because many such assets are depreciable.

Farm debt, which is evenly split between real estate and non-real estate debt, may dampen farm net worth. During the 1970s, both farm real estate and non-real estate debt rose sharply as farmers financed a large portion of their farmland, machinery, equipment and other non-real estate purchases with debt (Chart 2). During the last decade, however, farm real estate and non-real estate debt rose more slowly, 25 percent and 10 percent respectively.

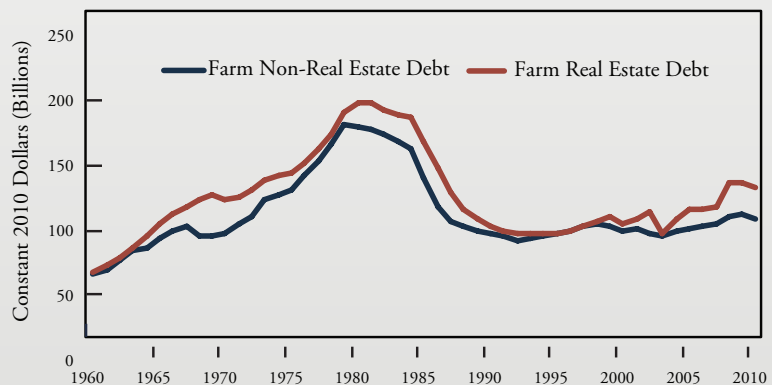
In addition to affecting net worth, changing asset and debt levels also influence leverage ratios and the risk of insolvency. During the 1970s, farmers accumulated debt on par with asset values, and the farm leverage or debt-to-asset ratio held steady at 15 percent. In contrast, during the past decade, the farm sector's more modest debt accumulation has allowed the debt-to-asset ratio to fall to historical lows of less than 10 percent in recent years.

Chart 1
Farm Sector Net Worth



Source: U.S. Department of Agriculture

Chart 2
Farm Sector Real Estate and Non-Real Estate Debt



Source: U.S. Department of Agriculture



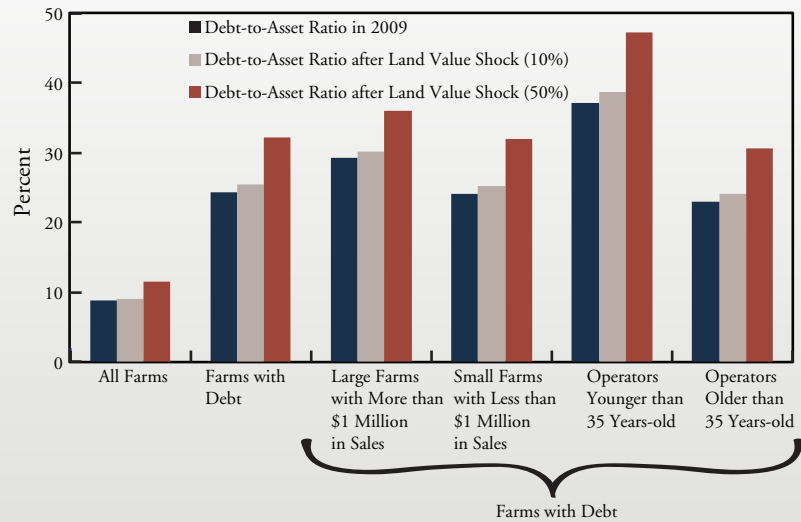
The primary difference between debt accumulation today and during the 1970s is non-real estate debt. The growth of non-real estate debt in the 1970s was nine times that of the 2000s. During the farm crisis of the 1980s, inability to service non-real estate debt obligations was a major contributor to the insolvency of many U.S. farms and ranches (Harl).¹

FARM BALANCE SHEET STRENGTH

While the national farm balance sheet is quite strong today, some agricultural producers have high debt levels and weaker balance sheets. For example, today’s farm debt is concentrated among a third of all producers who account for 70 percent of U.S. agricultural production. Given this concentration, the average indebted producer’s debt-to-asset ratio is three times greater than the ratio for the farm sector as a whole (Chart 3). Among these producers with debt, the most indebted have higher levels of non-real estate debt, which varies by farm size and operator age.

Of producers with debt, large farming operations with more than \$1 million in farm sales are wealthier, but they are more leveraged than their smaller counterparts. On average, large farms’ total net worth is more than 5 times the net worth of small farms, primarily due to a larger investment in non-real estate assets (Chart 4).

Chart 3
Average Debt-to-Asset Ratio by Producer Type Before and After Farmland Value Shocks



Source: 2009 Agricultural Resource Management Survey

Still, large farming operations are more leveraged. On average, large farms’ debt-to-asset ratios are about 30 percent, which is 5 percentage points higher than small farms’ debt-to-asset ratios.²

Compared to enterprises operated by older farmers, farm enterprises operated by producers younger than 35 years old are more leveraged, and they have lower amounts of wealth. Younger operators who have just started farming often use debt to finance the high capital costs of agriculture. As a result, the net worth of farm enterprises with younger

operators is about half of their more established, older counterparts. In addition, the debt-to-asset ratio for farm businesses operated by younger producers is nearly 15 percentage points higher than their more seasoned counterparts.

Thus, of all producer types considered, large farms and farms operated by younger producers with debt are most susceptible to financial stress. The debt-to-asset ratio on farms with a younger operator averages close to 40 percent—a level that has signaled significant insolvency risk in the past (Melichar).³ In addition, these producers

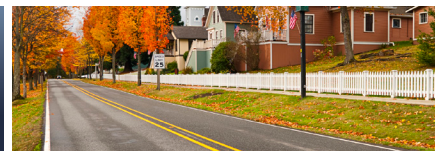
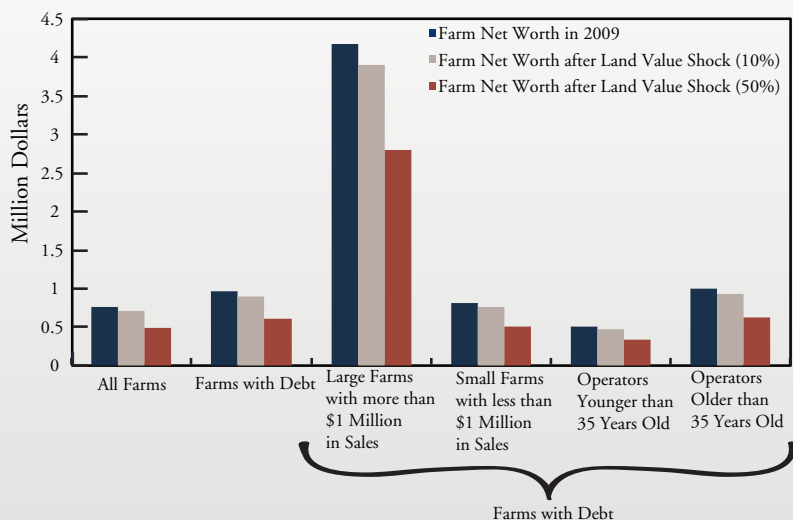


Chart 4
Average Farm Net Worth by Producer Type
Before and After Farmland Value Shocks



Source: 2009 Agricultural Resource Management Survey

have a higher concentration of non-real estate debt. For large farming operations and those operated by younger farmers, non-real estate debt averages about 20 percent of total farm debt, compared to less than 15 percent for both small farm operations and those operated by more experienced farmers.

EFFECTS OF FARMLAND VALUE SHOCKS ON FARM BALANCE SHEETS

A lesson from the 1980s is that high debt-to-asset ratios and too much non-real estate debt can be a catalyst for bankruptcy, especially if farmland values drop. A correction in farmland

markets could slash farm net worth, raise debt-to-asset ratios and increase the risks of insolvency. However, the deterioration of a producer's balance sheet largely depends on the severity of the land value decline.

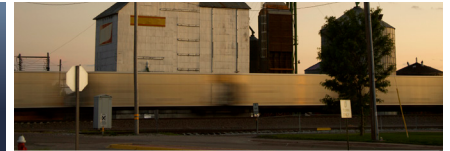
This analysis estimates how the patterns of falling land values in the 1980s would affect today's farm balance sheets. Two scenarios are considered. The first is a 10 percent decline in farmland values—the steepest one-year decline in land values during the 1980s farm crisis. The second is a 50 percent decline,

which equals the persistent decline during the decade of the crisis.

If today's land values were to fall 10 percent, the impact on debt-to-asset ratios and farm net worth would be fairly uniform and modest across most producers. On average, debt-to-asset ratios would not increase significantly (Chart 3). Even the most debt-laden producers, large farmers and young operators, would see their debt-to-asset ratios rise an average of only 1.5 percentage points. In addition, all producer types would experience a 7 percent decline in net worth (Chart 4). As a result, a 10 percent decline in land values would only slightly heighten insolvency risk. The number of insolvent producers with negative net worth would increase 0.1 percent. Even for more leveraged producers, the increase would be 0.2 percent.

If farmland values were to drop 50 percent, the effects would be more severe. On average, producers would lose 35 percent of their net worth, erasing recent gains and dropping producers' net worth to 2004 levels. Overall, debt-to-asset ratios for the farm sector would rise anywhere from 5 to 8 percentage points, raising the risk of insolvency for many producers.

Financial stress would be most severe for producers with relatively more non-real estate debt. After a 50 percent decline in land values, large farming operations and younger operators with significant levels of non-real estate debt could see their average debt-to-asset ratio reach a



dangerously high 40 percent (Chart 3). The number of large farmers facing insolvency could more than double, and the number of young operators could quadruple.

IMPLICATIONS

The strength of today's farm balance sheets has been buoyed by lofty farmland values. If those values fell severely, as in the 1980s, many farm balance sheets could deteriorate rapidly. Net worth could plummet and farm debt-to-asset ratios could escalate, especially for large farming operations and younger operators. For these producers, the risk of insolvency would be significantly higher because of their larger debt loads, especially if they are carrying high levels of non-real estate debt.

History has demonstrated that high debt levels are a concern, but high non-real estate debt levels can be devastating. During the 1970s, farm non-real estate debt surged due in part to strong capital investments and low variable interest rates. But when interest rates rose and income dropped in the 1980s, many

producers could not afford their hefty non-real estate debt payment. As a result, many filed for bankruptcy.

In today's low interest rate environment, there is evidence that non-real estate debt is on the rise. With rising farm capital spending, the total volume of machinery and equipment loans at commercial banks was 73 percent above year-ago levels in the first quarter of 2011 (*Agricultural Finance Databook*). Further, the Farm Credit System reported stronger gains in production and intermediate-term loans at the end of 2010.

In sum, a high level of non-real estate debt was an important factor in many farm bankruptcies when farm incomes and farmland values dropped following the 1970s farm boom. Similarly, recent data suggest farm non-real estate debt is on the rise in the current farm boom. The industry's experience from the 1980s farm bust suggests that if the current run-up in non-real estate debt accelerates, the risks for farm bankruptcies could intensify should farmland values turn down abruptly.

ENDNOTES

¹In the 1980s, when farm income dropped and variable interest rates on non-real-estate loans jumped, these insolvent producers did not have the income or net worth to service their loans. As a result, non-real-estate farm loan delinquency rates jumped to record highs. According to the earliest data available in the *Agricultural Finance Databook*, more than 10 percent of non-real-estate farm loans were delinquent in 1987.

²A debt-to-asset ratio of 30 percent is similar to other reported ratios for large farming operations with more than \$1 million in farm sales. According to data from Kansas State University and the University of Illinois, large farmers had similar debt-to-asset ratios.

³Melichar argues that during the 1980s, if a producer's debt-to-asset ratio rose above 40 percent they were at the tipping point to severe financial stress because if interest rates rose, their debt would be too much to service. As a result, these producers were more likely to file for bankruptcy.

REFERENCES

Harl, Neil E. 1990. *The Farm Debt Crisis of the 1980s*. Ames, Iowa: Iowa State University Press.

Melichar, Emanuel. July 1984. "A Financial Perspective on Agriculture." *Federal Reserve Bulletin*, volume 70, number 1.