

**Iowa farmland market update: Are we seeing a replay of the 1980's?**

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## **“Golden” Era and Farm Crisis: Understanding the Changes in Iowa Land Values since 1910**

There have been three major “golden” eras in U.S. modern agriculture over the last 100 years: 1910 to 1920, 1973 to 1981, and the most recent one was 2003 to 2013, fueled by growing export demand from China, the historically low interest rates and the expanding biofuel market. Figure 1 shows the nominal and inflation-adjusted Iowa land values since 1910, and Figure 2 shows the inflation-adjusted gross and net farm income for the U.S. in the same period. Both figures reveal that with these golden eras, farmland values, commodity prices, and farm income often reached record heights. It is also pronounced that shortly following the first two golden eras the agricultural sector has contracted heavily: The first one ended in a long, drawn-out decline in land values from 1921 to 1933, the second golden era ended with a sudden collapse from 1981 to 1986.

With the current corn price cut in half compared to the 2013 peak level of US\$7 per bushel and the farm income declining more than 30 percent in less than 3 years, many agricultural lenders, academics, and other stakeholders in the U.S. farm sector worry another farm crisis. To either debunk or confirm the belief of a replay of the farm crisis, it is useful to closely investigate the previous two farm crises in the 1920s and 1980s, and equally important, the golden eras before them.

The first golden era started at the turn of the century. Rising corn prices, beginning in the early 1900's, sent the price of farm land and buildings on an upward path. The \$43/acre level of 1900 was the highest experienced to that date (Murray 1967). Almost each year in the 1900-1914 period brought a new all-time high record for land values. With the continuous gains in Iowa farm revenue, the demand for more acreage increased. For incidence, a farmer who bought a quarter section (160 acres) for \$7,000 in 1900 saw the value of his farm rise steadily until it reached a value of \$20,000 in 1914 (Murray 1967). Returns such as these caused nontraditional agricultural land buyers to enter the market. This increased demand for rural property led to land speculation and increased investment activity.

During this time, the nontraditional investors would buy the land with a minimum down payment and then wait until the market value for the property reached a point where they would then sell for profit. This eventually led to exuberant speculation and over-valuation of the farmland, causing a land boom. At the height of this agricultural land boom, there was a sharp decline in prices of farm products. Corn, which had been selling for \$2 a bushel in the summer of 1919, plunged to 41 cents in 1921 (Murray 1967). This reduced the overall value of the farmland and virtually halted all investment activity. A majority of farmers who bought land during this boom relied heavily on mortgages, and subsequently found it more difficult to pay these mortgages off (Rajan and Ramcharan 2015). The number of farm mortgage foreclosures in Iowa rose from non-existent from 1910-1920 to 2,000 in the 1920s and more than 6,000 following the Great Depression in 1933. In summary, the 1920s farm crisis featured a long, drawn-out

decline in farmland values which is further dampened by the economy-wide Great Depression from 1929-1933.

Much like the farm crisis prior to the Great Depression, the farm crisis in the 1980's had some similarities. Several important factors have fueled the 1970s land boom and ever-increasing investment in U.S. agriculture (Barnett 2000): intentional devaluation of U.S. dollar designed to reduce an overall trade deficit which led to massive increases in agricultural exports; various tax codes, especially substantial income tax deduction for interest expenses that encouraged borrowing; below-market-rate farm loans available to producers through the Farmers Home Administration; and lastly, a very strong demand for U.S. agricultural exports in part due to the Nixon's visit to China and the crop failures in the Soviet Union in 1973. All these factors generated a boom atmosphere, a rise in production, farm products' prices and net farm income from 1970 to 1973, which led to massive investment in agricultural assets, especially farmland.

Two things are worth pointing out for this period: One, the U.S. agricultural sector was (as still is) heavily integrated to the larger national and global economic systems and thus increasingly vulnerable to outside economic and political influences (Barnett 2000). Second, the overall inflationary environment largely affected farmland investment activities and farmland values: during the high-inflation era of 1970s, many agricultural producers and investors tried to "index" their wealth to inflation by purchasing farmland as a store of wealth as a hedging tool (Barnett 2000), which further intensified the land boom.

The most striking aspect of this period in American agricultural history is that debt capital largely financed the massive investment in agricultural assets. With both the nominal interest rates and the rate of inflation very high in the "stagnation" period of the 1970s, in real (inflation-adjusted) terms, debt financing for investment purchases was unbelievably inexpensive. Additionally, the loan requirements by lenders like FHA was very lenient. By 1978, the debt incurred averaged 76 percent of the purchase price. Between 1970 and 1980, the amount of farm mortgage debt outstanding in the U.S. grew from \$71.4 billion to \$113.2 billion in constant 1982 dollars, an increase of 59 percent. This was the first time debt has been used to finance a capital formation at this scale. This resulted in a highly leveraged agricultural sector, which was hit hard by the sharp rise in nominal and real interest rates in early 1980s, a substantial increase in the dollar, a significant drop in U.S. commodity prices due to the plummeting of the export market and record-level agricultural production.

### ***Are We Going to See a Replay of 1920s or 1980s Farm Crises?***

With the farmland values and cash rent in Iowa and across the Corn Belt declining three years in a row, many worried about a replay of the 1980s farm crisis which is still vivid for many producers and lenders who witnessed the collapse of the farm sector and many farm businesses. However, it is more important to put today's problems into perspective by comparing across the previous boom-bust cycles of U.S. agriculture.

<b>Average % change in inflation-adjusted values per year</b>			
<b>Golden Eras</b>			
	<b>Land</b>	<b>Gross Income</b>	<b>Net Income</b>
<b>1910-1920</b>	1.2%	0.8%	0.2%
<b>1973-1981</b>	9.7%	0.9%	-3.2%
<b>2003-2013</b>	11.1%	4.5%	8.1%
<b>Crises and Declines</b>			
	<b>Land</b>	<b>Gross Income</b>	<b>Net Income</b>
<b>1921-1933</b>	-5.8%	-1.9%	-1.0%
<b>1981-1987</b>	-15.0%	-2.5%	2.6%
<b>2013-2016</b>	-6.0%*	-2.7%	-9.5%

Table 1. Average Annual Percentage Change in Inflation-adjusted Iowa Land Values and Farm Income

Note: The average land value change from 2013 to 2016 is approximate because the 2016 land values are unknown yet. The 1910-1933 gross and net farm income changes are for the whole U.S. due to limited data at the state level. The land values are based on USDA Census of Agriculture and USDA NASS Land Value and Cash Rent Survey, while the data on farm income is from the USDA Economic Research Service Farm Income and Wealth Statistics database.

Table 1 presents the average annual percentage change in inflation-adjusted Iowa land values, gross and net farm income. While it is concerning to see that since 2013, the gross and net farm income has decreased 2.7% and 9.5% per year respectively, it is equally important to note that throughout 2003 to 2013, the gross and net income had consistently grown 4.5% and 8.1% every year, reaching almost record-high levels in both farm income and land values. A comparison between this third golden era and the previous two reveal that farmers accumulated much more income, especially cash, during the most recent decade than what they have in the 1910s and 1970s before those farm crises. The net cash income before the 1980s farm crisis is actually much smaller, even though land values skyrocketed during the same time. In other words, the high commodity prices in the 2000s seem to position agricultural producers nowadays to withstand the current headwinds.

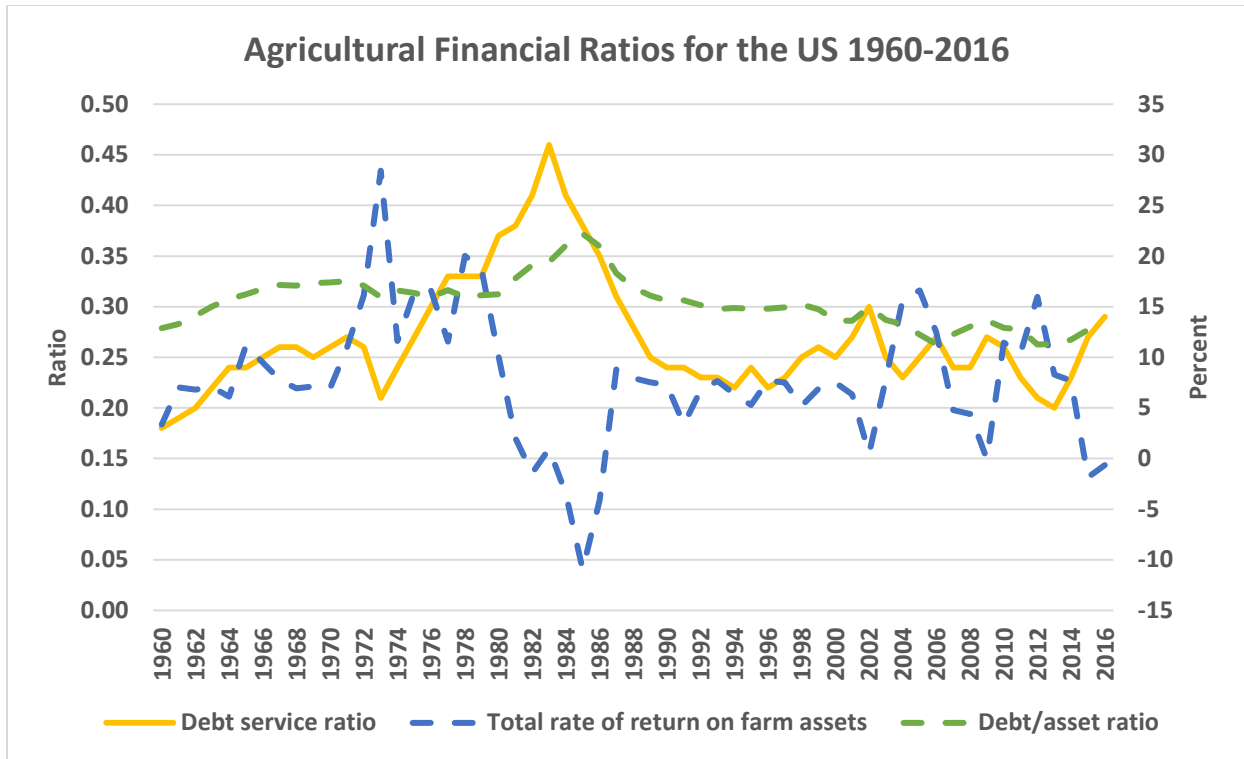


Figure 3. The Agricultural Liquidity, Profitability and Solvency Ratios for the U.S. 1960 – 2016

Source: USDA Economic Research Service Farm Income and Wealth Statistics. Please use the right y-axis titles for the two dashed lines: total rate of return on farm assets, and debt to asset ratio.

Another useful aspect is to investigate how agricultural financial ratios and agricultural delinquency rates of the previous farm crisis periods compare to current levels. Figure 3 shows the agricultural liquidity and solvency ratios for the U.S. since 1960, and Figure 4 shows the agricultural loan delinquency rates since 1970. In particular, the debt service ratio measures the share of value of production used for debt payments, and a higher value suggests a lower liquidity. Although the current rate is rising, it is still well below the 1980s farm crisis level. The profitability ratio, such as rate of return on farm assets, is now inching down, but is also higher than the 1980s levels. It is likely that with the current stagnation of commodity prices and continued decline in farm income, the debt service ratio will continue to rise and the profitability ratio remain flat or even further decrease. However, it is more likely a liquidity and working capital problem, as opposed to a solvency problem. The balance sheet of the U.S. farm sector is still very strong, which can be seen from the low level of the debt to asset ratio in Figure 3. Similarly, although we see the loan repayment index continued to decline, but the delinquency rates for both agricultural loans in general, as well as farmland loans, are still at very low

levels, which is likely the result of more stringent loan terms than what the agricultural lenders offered in the 1970s and 1980s.

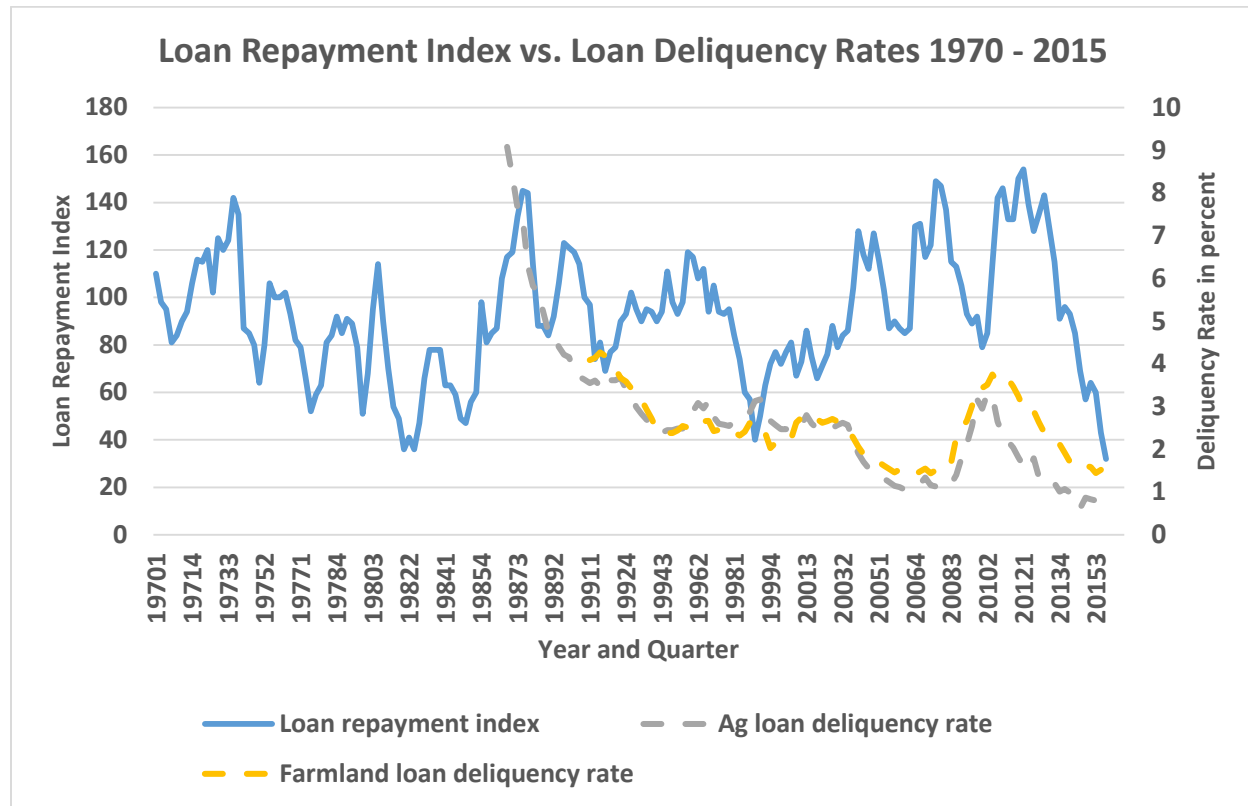


Figure 4. The Agricultural Loan Repayment Index and Delinquency Rates 1970-2015

Source: Federal Reserve Bank (2016).

It is very important to point out the strength of the agricultural safety net: in 1987, the total acres insured in the Federal Crop Insurance program was only 50 million acres for the entire U.S., and now just total cropland insured in Iowa already exceeded million acres, representing 93% of Iowa's corn and soybean production acres (USDA RMA 2015). If the 1980s' farm crisis represents the failure of the government's safety test in the 'stress test', now agricultural producers and the farm sector in general have a much stronger safety net compared to the 1980s.

Many people are concerned about a potential farmland bubble burst, or a replay of the 1920s economic depression or 1980s farm crisis. There are legitimate reasons to be cautious, especially with the slowing Chinese economy and potential rise in interest rates. However, Iowa farmland values do not appear to be in a speculative bubble that caused dramatic declines in the 1980s farmland values or the urban real estate market in the mid-2000s. In the 1970s, there wasn't steady growth in farm income before the sudden collapse of farmland values. Farmers now have accumulated substantial income during the last decade thanks to high commodity prices, and the current

farmland values don't seem to diverge too much from the economic fundamentals. There wasn't irrational buying and selling in a panic and the demand for U.S. crop and livestock products is still very strong. The downward pressures on farmland values likely will continue and play out next year and beyond, but it will more likely be a rational and modest correction as opposed to a sudden change.

### **Looking Ahead**

Focusing on the Iowa Land Value Survey, the longest-running survey of its sort in the U.S., this article discusses the trends and determinants of Iowa farmland values since 1910, focusing on the three golden eras and the 1920s and 1980s farm crises. In addition, this article compares the rate of return to investment in Iowa farmland vs. the stock market.

With the decline in farm income and a possible increase in interest rates, we might see farmland values continue to recede if the forecasts for low commodity prices and the global stock recovery for grains and oilseeds are realized next year and beyond. The Iowa farmland market appears to have peaked for the foreseeable future, and we may expect to see the Iowa farmland market drifting sideways.

It is not possible to rule out the possibility of a collapsing U.S. farm sector, however, the odds of commodity prices collapsing, a sudden stoppage of the Chinese economy, interest rates rapidly increasing, and/or land values collapsing are not high. The odds are not zero, but it doesn't appear these events will occur in the foreseeable future. The third golden era appears to have ended with an orderly adjustment as opposed to a sudden collapse.

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