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Where are Iowa and U.S. Land Values Headed?

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After three consecutive declines since its 2013 peak, the average land value for all qualities of farmland saw its first increase. The estimated $7,326 per acre statewide average for all qualities of land represents a 2.0 percent increase from November 2016. To many, this recent 2.0 percent indicates a turnaround of the farmland market—58 percent of the respondents to the 2017 ISU survey expected another hike in their counties' land value a year from now. However, as opposed to a result of improving farm income, this recent increase in land market is mainly driven by limited land supply. Given the rising interest rate and heightening farm financial stress across the Midwest, this recent bump could likely be just a temporary break in a continued downward adjustment in the farmland market.

Many supply and demand factors were behind this recent increase in the land market. First, the farmland market has always been a thin market with less farmland sales, but the past four years the farmland market has been extremely tight: for four consecutive years, more respondents to the ISU survey reported less sales in their county compared to the previous year. In this year's survey, only 20 percent of the respondents reported more sales activities, while 44 and 37 percent reported less or similar sales activity, respectively. The limited farmland supply helped buoy market prices in many areas across the state. Second, the U.S. Department of Agriculture Economic Research Service forecasted that U.S. farm sector profits are relatively stable in 2017 after 3 consecutive years of decline: U.S. net farm income is forecast to increase $1.7 billion (2.7 percent) from 2016 to $63.2 billion in 2017 and net cash income is forecast to increase $3.7 billion (3.9 percent) to $96.9 billion. Third, the 2017 Iowa State University Cost of Production estimates revealed that the estimated average cost for corn production in Iowa dipped by 12 percent to $3.51/bushel for corn following soybean production, and the average cost for soybean dropped by 9 percent to $9.56 for herbicide resistant soybeans. Despite continued declines in commodity prices, the corresponding drop in production costs have resulted in breakeven or positive production margin for many producers this year, which has a positive impact on farm income and asset values.

The 2.0 percent increase boosted confidence of our respondents in the perceived strength of the farmland market despite growing farm financial stress, especially in the medium term. Fifty-eight percent of the respondents to our 2017 ISU survey forecasted an increase in their local land market a year later, while 25 percent expected a lower land value, and 18 percent forecasted no change a year later. Looking at the land market five years from now, a vast majority of respondents (83 percent) expect a higher land value than current levels, with only 13 percent forecasting a decline. This is consistent with their corn and soybean price forecast, which is a slow but steady improvement in the cash crop markets, both corn and soybean. The farm managers and rural appraisers at the May 2017 90th annual Soil Management and Land Valuation conference also expected a stabilization in Iowa's farmland market in late 2017 throughout 2018, but it may rebound a bit in the medium run before 2020.

I would caution any immediate hail of the turn of the Iowa farmland market given the stagnant farm income and rising interest rates. The fundamentals of the U.S. farm economy haven't improved significantly, so this recent increase in land value to some extent is defying logic. There are several reasons for my caution. First, despite the 2.0 percent increase in nominal average state land values, the inflation-adjusted Iowa farmland value on average actually saw a 0.2 percent decline. In other words, the growth in general inflation in the U.S. economy actually outpaced the seeming gain in the farmland market. Second, the recent increase is largely influenced by very limited farmland supply, so if more farmers are forced to liquidate a portion of their assets due to heightening farm financial stress, there will be more land parcels available on the market, potentially allowing the land market to go down in the future. An analysis by Dr. Alejandro Plastina using farm data from the Iowa Farm Business Association shows that the share of financially stressed farms (vulnerable liquidity or solvency ratings) increased from 38 percent in December 2014 to 47 percent in December 2016. The Federal Reserve Banks in Chicago and Kansas City also reported continued deterioration in agricultural credit conditions, as a result, the downward pressures on the farmland market are still present. Finally, many neighboring states, from Kansas and Nebraska to Illinois and Indiana, all saw a modest decline in their land market compared to a year ago, according the surveys conducted by the Federal Reserve Banks of Chicago and Kansas City. There is no explicit reason to believe that Iowa's land market has a fundamentally different dynamics than those of neighboring states, especially Illinois and Indiana. Actually, the Ag Economy Barometer, a nationwide producer survey conducted by Purdue University, reported that more producers expected to see a lower land value in their area as opposed to a higher land value.

Put simply, land value is the net present value of all discounted future income flows. With certain assumptions imposed, one could think of land value being net income divided by interest (discount) rate. To understand the changes in land value over time and across space, it is useful to examine how net income and interest rates will change over the next few years. In particular, trends in net income for a particular region will be reflected in the farmland market, which tends to be localized.

With the boost of strong yields, the prospect for the agricultural economy is showing signs of stabilization after four consecutive years of declines. USDA Economic Research Service forecasted in August 2017 that U.S. net farm income will rise 2.7 percent in 2017. However, the USDA Office of Chief Economist long-term forecast to 2026 expected a slow improvement in farm income as opposed to a sudden rebound. In other words, in the immediate future, we are likely to see stagnation in the net farm income and farm sector profits, which is prone to shocks of NAFTA renegotiations and implies a stagnant land market in the near future.

In addition, even with the shift in its leadership, the Federal Reserve Bank will likely continue its efforts to raise the interest rates. Over the past two years, the Federal Reserve Bank has made three hikes, each 25 basis points, to the short-term federal funds rate to over 1 percent. The agricultural lenders have responded to raise the fixed and variable agricultural loans rates to its highest level in five years at more than 5.5 percent. This trend will likely continue especially in light of the growing agricultural debt repayment problems experienced at some agricultural banks.

With stagnant future farm income and a highly probable increase in interest rates, we might see farmland values continue to recede due to stagnant commodity prices, new uncertainty regarding agricultural trade such as NAFTA renegotiations, and possible stress sales from some

producers. Despite the recent increase driven by limited land supply, the economic fundamentals suggest that the Iowa farmland market appears to have peaked for the foreseeable future, and we may expect to see it drifting sideways. In other words, it seems that current farmland market hasn't fully capitalized the reduction of net farm income off its 2013 peak yet.

U.S. crop agriculture continues on an amazing productivity run. The last five corn crops were the five largest ever produced, and the last four soybean crops were the four largest ever. This run is the result of a combination of improved seed genetics and mostly favorable weather conditions, and it is likely to continue into the next season. While these phenomenal yields help drive the per bushel production cost down, the abundant supply resulting from record yields also often leads to even lower commodity prices. Although current futures prices for the 2018 crops are offering a somewhat better outlook with the 2018/19 season average corn and soybean price around $3.80 and $9.90 per bushel, respectively, projections for the 2018/19 crop margins would be slightly below breakeven for both crops because of current wide basis levels. The likely high yields for next production season will exacerbate the oversupply of corn and soybean and thus keep the prices at low levels. This low-to-negative crop production margin likely will put additional downward pressure on the land market. Similarly, both the hog and cattle prices were stable compared to year ago, but about 20 percent lower than two years ago, and the effects of strong livestock profits compensating crop profit loss are much weaker.

Farmland sale activities tend to be correlated with changes in land values—with the current farm downturn, landowners tend to continue to hold to land parcels and postpone their land sales, which results in a continuation of less farmland sales. With the continued decline in farm income and profitability, some existing landowners may reconsider retirement and sell their land eventually. The heightening farm financial stress is already putting pressure on some vulnerable producers to liquidate some of their assets. To the extent that this will lead to more land parcels on the market, which is not much given the current tight market, there could be additional downward pressure on the farmland market. According to the 2012 Iowa Farmland Ownership and Tenure Survey, half of Iowa's farmland has been held for more than 20 years. As a result, a large influx of farmland supply is not likely, but this potential rise in farmland sale activity and continued decline in farmland values might present opportunities for beginning farmers and ranchers to enter the market.

Farmland has historically been a fairly robust investment that generates relatively stable returns. Since 1941 the nominal and inflation-adjusted Iowa farmland values have averaged a 6.5 percent and 2.7 percent increase per year, respectively. Farmland values have increased 73 percent of the years, decreased 26 percent of the years, and remained unchanged for three years between 1910 and 2017. While 20 percent of Iowa farmland is mainly owned for family or sentimental reasons, the strong robust returns have and will continue to attract interested farmers and investors to invest in the farmland market.

There are several unique uncertainties worth watching over the next year or two. First, it remains unclear how quickly and by how much the Fed will raise interest rates. Second, it is uncertain how the trade agreement renegotiations like NAFTA will affect agricultural exports and farm income. This is particularly relevant for Iowa as it is one of the few states that have a trade surplus with Mexico, and disruptions of NAFTA could have major negative implications for the Midwest agricultural economy. Third, the agricultural sector is closely watching possible policy changes, especially the 2018 Farm Bill discussions and the impacts of new tax reform. Fourth, it

is critical to watch whether the improved farm income and land market lead to landowners' growing interest in selling land, or more stressed sales from financially stressed producers.

If we define a "golden era" in agriculture as a period when the inflation-adjusted value of farmland significantly exceeds the 1910 level, we can argue that there have been three major golden eras in modern U.S. agriculture over the last 100 years: 1910–1920, 1973–1981, and most recently, 2003–2013. With current commodity prices and U.S. farm income and asset values declining significantly, many farmers and agricultural professionals worry about the current farm downturn deteriorating into another farm crisis. However, I would argue that despite the growing financial stress across the Midwest over the past few years, we are unlikely to see a replay of 1980s farm crisis as evidenced by the sudden, precipitous collapse of the U.S. agricultural land market and mounting delinquent farm loans and foreclosures. This somewhat optimistic outlook mainly stems from the strong farm income growth from 2003 to 2013, the historically low interest rate environment, and more prudent agricultural lending practices. In addition, our analysis suggests that the trajectory of the current farm downturn will likely be a gradual, drawn-out one like that of the 1920s farm crisis, as opposed to a sudden collapse as in the 1980s farm crisis.

Across the Midwest, there are signs of deteriorating agricultural credit conditions and a continued, prolonged downturn in the agricultural economy, although with a much slower pace. Given the rising interest rates and stagnant farm income, I would not be surprised to see a continued decline in values in the future. This recent bump of Iowa farmland market, to me, seems more like a temporary break in a downward adjustment trajectory.