

Chicago Fed Letter

Rising farmland values: Causes and cautions

by David B. Oppedahl, business economist

On November 15, 2011, the Federal Reserve Bank of Chicago held a conference to explore what has been driving the large and rapid increases in Midwest farmland values. Academics, industry representatives, and regulators presented their views on the factors contributing to these gains, as well as the potential risks posed by them.

Materials presented at the conference are available at www.chicagofed.org/webpages/events/2011/agriculture_conference.cfm.

The consensus of the conference participants was that sound economic fundamentals undergird the recent large increases in agricultural land values—such as the year-over-year gain of 25% recorded in the third quarter of 2011 for the Seventh Federal Reserve District.¹ Yet some expressed concerns about farmland buyers facing more risks relative to the stream of earnings generated by their acres (such as cash rentals of farmland). These risks engender caution not only from the landowners, but also from the financial institutions that have funded a considerable portion of farmland purchases.

After his welcoming remarks, David B. Oppedahl, Federal Reserve Bank of Chicago, briefly described current macroeconomic conditions in the United States: The unemployment rate remains high, and economic growth is still weak, following a severe recession; however, inflation is contained, and nominal interest rates are historically low. Against this domestic backdrop, greater international demand for agricultural products (e.g., from developing nations like China) has helped spur agricultural prices to higher levels. For example, in the past six years, corn prices have tripled and soybean prices have doubled. Combined with such crop price increases, productivity gains have led to larger profit margins on cropland in recent years. Consequently, average net

farm income has been higher over the past eight years than during the previous two decades, and recent Seventh District farmland values have surpassed the previous peak reached in the late 1970s when accounting for inflation. Oppedahl noted that the agricultural sector has relatively less debt now than during the late 1970s. This and other positive underlying trends differentiate the current period of rising farmland values with that of the late 1970s, which preceded the financial turmoil of the agricultural sector in the 1980s.

Expanding on Oppedahl's remarks, Mark Pearson, host of *Market to Market* on Iowa Public Television, pointed out that during the late 1970s and early 1980s the farm sector had little unused debt-repayment capacity, which contributed to severe financial problems and plummeting farmland values. In contrast, over the past few years the equity of the farm sector has grown more rapidly than its debt, expanding the sector's capacity to undertake additional debt. Indeed, the relatively tight domestic and global supplies of key agricultural products (such as corn and soybeans) have generally kept agricultural prices—and farm earnings—much higher than a decade ago. As the U.S. economy recovers from the recession and developing economies expand over the next few years, greater demands will be placed on the world's

resources, especially food and energy. In general, a growing global population will raise the demand for agricultural products. Continued strong demand for U.S. agricultural commodities will push farm incomes and farmland values even higher, Pearson said.

Perspectives on farmland values

Perry Vieth, Ceres Partners LLC, provided an investor's perspective on the agricultural sector, highlighting the attractive returns on farmland. Farmland has provided persistently positive returns from current income and long-term appreciation in land values, averaging

perspective on the recent large gains in farmland values. Some have argued that an increase in farmland purchases by investors suggests a bubble may be forming, even though investing in agriculture may be a sound investment strategy, as Vieth indicated. Based on a survey of farm real estate professionals conducted every year, Duffy reported that 70% of Iowa farmland buyers in 2010 were farmers, while about 25% of them were investors. Thus, Duffy further eased concerns about the development of a farmland bubble. Duffy shared some other Iowa trends, which may be representative for the Midwest. Less than 1.5% of Iowa farmland was sold per year

generally owned for its role in helping to produce profits. Capital asset valuations depend on both the present value of earnings from the asset and *expectations* of future earnings from it—which in turn depend on interest rates and inflation. Because interest rates and inflation are very difficult to forecast, farmland owners may hold faulty expectations about the future earnings of their land and, hence, its current value. Through a model of farmland valuation (which accounts for these factors), Gloy showed that farmland values may decrease when income from farm operations slows, interest rates rise, or inflation picks up.

Sound economic fundamentals undergird the recent large increases in agricultural land values, according to the consensus of conference participants.

an annual return of 11% from 1992 through 2010.² Given the persistent positive returns on farmland, Vieth argued that farmland can provide a hedge against inflation in an investor's portfolio; additionally, since farmland has a low correlation with traditional asset classes, it can help diversify a portfolio. Many avenues exist to invest in agriculture, but Vieth contended that farmland in the Corn Belt³ should be a core holding in a portfolio. That said, he warned that land acquisition decisions involve a host of factors—e.g., legal risks; the leasing environment; and considerations about infrastructure, climate, water, and soils. Furthermore, he noted that identifying strong tenants for farmland enhances its productivity and maximizes the investment returns. Also, knowledgeable tenants can serve as sources for new farmland buying opportunities. With regard to a farmland bubble, Vieth said his concerns were minimal because his analysis shows that the flow of income from farm operations supports even higher cash rents than currently being received by landowners. The upward movement in farmland values also lacks the dependence on borrowing of a typical asset bubble, said Vieth.

Using demographic data, Michael Duffy, Iowa State University, provided another

recently, resulting in 3.5% or less changing hands each year (including inheritances). The composition of farmland ownership has been somewhat altered as more investors have entered the sector and more nonfarmers have inherited farmland. The share of Iowa land farmed by farmland owners fell to 40% in 2007 from 55% in 1982, while the share of land rented by operators (combining both cash and crop share rentals) rose to almost 60% from around 40% over the same period. This trend of more farmland being rented has changed the risk profiles in Iowa agriculture.

Brent Gloy, Purdue University, presented an economist's perspective on the upward trend in agricultural land values. After the farm crisis of the 1980s, farmland values began climbing once again. During the 1990s, this growth was fueled by government support payments and farm productivity enhancements. Then, during the 2000s, further growth was driven by the expansion of biofuel production (e.g., ethanol derived from corn) and the demand for agricultural products in emerging economies. According to Gloy, farmland values will move down "someday but probably not anytime soon." Farmland is a capital asset—a type of asset not easily converted into cash, normally held for a long time, and

Gloy noted that current economic fundamentals of high earnings and low interest rates have encouraged buyers to bid higher on farmland. In recent years, the demand for agricultural products has been rising because of pressures from population and economic growth in emerging economies, as well as production of biofuels. Meanwhile, the ability to expand the supply of agriculture has been limited worldwide by the availability of resources (such as land and water) and lagging productivity in the developing world. Gloy warned that estimates for food demand growth remain uncertain (e.g., the projections for economic and population growth may be too high). Also, he stated that elevated prices for food products will eventually encourage their supply to expand. So, while Midwest farmland values have room to grow further, they do face substantial long-term risks.

Jaclyn D. Kropp, Clemson University, provided further insights on the impacts of government support payments and corn ethanol production on farmland values. She employed a model that treats the value of farmland as the sum of discounted future returns plus an opportunity cost of keeping the land in agricultural use—derived from urban influences and the worth of amenities, such as local temperatures, sunlight, and water. For the model, Kropp used U.S. Department of Agriculture (USDA) data over the period 1998–2008 that cover the Corn Belt and 132 operating corn ethanol facilities. Kropp said her model shows that government payments played a role in boosting farmland values

over the entire period, but that their effects were more significant earlier rather than later. According to Kropp's model, corn ethanol production also boosted farmland values, but the effects of ethanol plants were statistically significant only after 2002. (Establishing two or more ethanol facilities in an area increased the value of neighboring farmland significantly more than establishing a single ethanol facility.) An additional benefit of having such facilities near cornfields was that transportation costs were reduced, Kropp noted. Finally, Kropp said her model also underscores the positive impacts of urban influences and local amenities on agricultural land values.

Jennifer Ifft, USDA, discussed how the influence of urban areas on nearby farmland's values has changed since 1998. She explained that proximity to a city provides a premium on the price of agricultural land because of the land's potential conversion for commercial and residential uses; reduced transportation costs to major markets for agricultural goods; and recreational and lifestyle amenities (e.g., less congested, rustic landscapes) for urbanites and suburbanites. The value of farmland close to cities may be diminished by conflicts between farmers and other parties living nearby over health and environmental issues—such as those surrounding pesticide application, dust, and manure. According to Ifft, the Seventh District had a greater share of urban-influenced farmland relative to the nation as a whole over the period 1998–2010.⁴ Urban-influenced cropland has generally maintained a substantial premium over other cropland in the United States. This premium declined in the Midwest, as dramatic reversals in urban real estate values over the period 2006–10 decreased the influence of urban areas on nearby farmland's values. So, urban influences have not played much of a role in the recent large gains in agricultural land values.

Managing risks in farmland markets

Bruce J. Sherrick, University of Illinois at Urbana–Champaign, spoke further on the risks in farmland markets. Crop insurance coverage has risen to almost 80% of acres, which has lowered the

risks to the incomes and profit margins of Midwest farmers. Moreover, insuring farm revenue, rather than either crop yields or prices separately, decreases operational risks. The percentage of acres on cash rents has increased at the expense of the percentage of acres on crop share rents. Unlike cash rents, crop share rents involve splitting the costs and crops produced according to a set proportion (historically, half for the landowner and half for the farm operator). The control of acres shifted toward farm operators, since landowners undertake less risk from cash arrangements. For Illinois, Indiana, and Iowa, the ratio of rental rates to farmland values has declined over the past decade, indicating that rents have not kept pace with farmland returns. Operators have benefited from taking on greater risks, as the percentage of crop revenue devoted to rent has drifted down in the past decade. If a higher level of corn prices (averaging \$4.25 per bushel in recent years versus \$2.40 per bushel over the period 1973–2005) is assumed, the economic fundamentals support current farmland values, Sherrick argued. However, commodity price declines present a risk to farm income and land values, since crop prices are not guaranteed to stay this high. Farmland values in Illinois, e.g., were higher than the stream of farm income could support in the 1980s, but this has not been the case since then, according to Sherrick's research. Thus, a farmland bubble existed in the late 1970s and 1980s, but one does not exist during the current period of rising farmland values, stated Sherrick. In line with Gloy's remarks, Sherrick said that rising interest rates may be the greatest risk to farmland valuations. Changes to government support of agriculture also present risks, especially if reductions in crop insurance subsidies weaken this key risk-management tool, maintained Sherrick.

Implications for farm lending

Leland A. Strom, Farm Credit Administration (FCA), discussed the upward trend in farmland values from the perspective of the regulator of the Farm Credit System (FCS). FCS capital continued to grow through mid-2011, reflecting strong earnings growth from

agricultural lending. Loans not being paid back in a timely manner made up a small portion of the FCS portfolio. Farm debt held by commercial banks and the FCS was lower in mid-2011 than at the end of 2010, after increasing over the past decade. The reversal of growth in agricultural lending reflected the fewer loans made for farm operations, as well as concerns about collateral risk. Collateral risk arises when the net income from a property does not fully support its real estate value. In a period of rapidly increasing farmland values, questions about collateral risk naturally confront agricultural lenders. For instance, better weather may produce higher yields and suppress crop prices, and higher input costs may reduce net incomes. Both of these scenarios could foster unacceptable levels of collateral risk for lenders. Thus, the FCA provided additional guidance on collateral risk during bank examinations. FCA oversight strategies include analyzing FCS loan portfolios, briefing risk committees, and sharing information among regulators. FCS institutions have responded to increased collateral risk by improving underwriting standards; establishing lending limits based on repayment

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capacity; using conservative loan terms (such as shorter maturities); and evaluating portfolio risk through studies and stress testing. Today's complex and volatile environment warrants extreme caution by all actors in the agricultural lending industry, said Strom.

Jeffrey A. Jensen, Federal Reserve Bank of Chicago, offered the view of a bank regulator on agricultural lending conditions. Given the lessons learned from the 1980s farm crisis, agricultural bankers are more careful that borrowers have and maintain lower debt-to-equity ratios; nowadays these bankers also use better cash flow analytics to screen potential borrowers and gain a better understanding of farm management. Agricultural bankers often employ stress tests on both farm operations and their own institutions to measure if adequate capital is in place to cover the risks from bank lending. Additionally, they also manage credit risk by checking borrowers' creditworthiness; using sound underwriting standards; and making reliable collateral

valuations. Jensen said that examiners have observed conservative lending practices at banks, with debt usually carried at purchase cost (not current valuations). Regulators must ensure the safety and soundness of financial institutions by establishing such best practices.

Kim D. Greenland, Great Western Bank, provided the perspective of a commercial banker from rural Iowa. After the farm crisis in the 1980s, bankers worked with troubled farm businesses to restore the health of the agricultural economy. Today banks are looking to make good loans, not lend into a real estate bubble. Farmers are expanding their operations in response to the recent positive market signals while accumulating cash during a prosperous decade. Farmland values have risen in an environment where a small percentage of farms have exchanged hands and where buyers have a lot of "skin in the game." Demand for credit to purchase farmland has been relatively flat, with no jump in real estate lending. Even so, banks have increased their

share of farm lending over the past five years. Farm balance sheets have been the strongest ever seen, with low debt-to-asset ratios. A lot of agricultural debt has been paid off, even as farmers purchase land and equipment. With more earned equity on farm balance sheets, banks can provide prudent lending that taps this equity as needed, particularly if agricultural income were to decline.

Conclusion

Recently, agricultural land values have increased rapidly because of the economics of agricultural production—the world needs more to eat, while limited resources have slowed the growth of the food supply. In addition, historically low interest rates, the growth in biofuel production, and the dearth of other attractive investments have contributed to rising farmland values. The Midwest has benefited from higher agricultural income, yet risks remain, including the risks that this prosperity itself poses, especially to farmland values.

¹ The Seventh Federal Reserve District comprises parts of five midwestern states—all of Iowa and most of Illinois, Indiana, Michigan, and Wisconsin. For details on recent Seventh District farmland values, see David B. Oppedahl, 2011, *AgLetter*, Federal Reserve Bank of Chicago, No. 1954, November, available at www.chicagofed.org/

digital_assets/publications/agletter/2010_2014/november_2011.pdf.

² These values are based on Vieth's calculations from returns published by the National Council of Real Estate Investment Fiduciaries for its farmland index. For the data, see www.ncreif.org/farmland-returns.aspx.

³ Typically, the Corn Belt is thought to include at least Iowa, Illinois, Indiana, Missouri, and Ohio. See www.ers.usda.gov/data/farmincome/USDA-Production-regions.htm.

⁴ Ifft used a USDA definition of urban influence on farmland. For details, see www.ers.usda.gov/briefing/rurality/urbaninf/.