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Are Farmland Prices in Line with Farmland Returns?

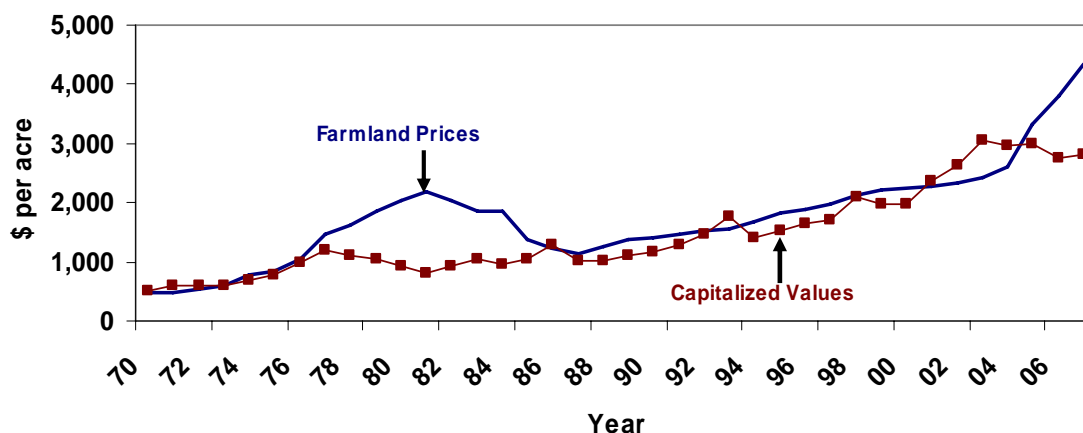
Reports suggest that farmland prices continue to increase. Results from a lender survey conducted by the Federal Reserve Bank of Chicago suggest that prices increased by 3% in northern Illinois between the middle 2006 and middle 2007 (see http://www.chicagofed.org/publications/agletter/august_2007.pdf). Members of Illinois Society of Professional Farm Managers and Rural Appraisers indicate that prices increased 5.9% during the first half of 2007 (see <http://www.ispfmra.org/pdfs/Summer07Newsletter.pdf>).

Recent increases raise questions about whether increases in farmland prices are outpacing increases in farmland returns. This issue is examined here by comparing farmland prices to capitalized values.

Illinois Farmland Prices

USDA's estimates of average Illinois farmland prices are shown by the solid line in Figure 1 (see Table 1 for data). These average prices mask differences across Illinois. Farmland prices, for example, are much higher near Chicago. Because differences exist, price-to-return relationships vary across Illinois.

Figure 1. Farmland Prices and Capitalized Values in Illinois, 1970 - 2007.



Farmland prices increased from \$490 per acre in 1970 up to \$2,023 per acre in 1982 (see Figure 1). Then prices decreased, reaching a low of \$1,149 per acre in 1987. Since 1987, farmland prices have increased each year. The average yearly increase since 1987 had been 7.0 percent.

Since 2003, increases have been above 7 percent. Farmland prices increased 7.4 percent between 2003 and 2004, 27.6 percent between 2004 and 2005, 14.1 percent between 2005 and 2006, and 13.9 percent between 2006 and 2007. Between 2003 and 2007, farmland prices increased by \$1,900 per acre, representing a 78 percent increase.

Capitalized Values

Capitalized values represent the earning potential of farmland from agriculture. A capitalized value for a given year equals cash rent divided by an interest rate and assumes that investors receive the current cash rent each year in the future and the interest rates do not change. Higher cash rents cause higher capitalized values. Lower interest rates cause higher capitalized values.

Figure 1 shows capitalized values based on cash rents reported by the USDA and interest rates on 10-year treasury notes (see Table 1 for data). Farmland prices and capitalized values closely tracked each other from between 1986 through 2004. During this period, farmland prices averaged 7 percent higher than capitalized values.

Farmland prices exceeded capitalized values recently. In 2006 and 2007, farmland prices averaged 46 percent higher than capitalized values. Prior the current period, the last time farmland prices exceeded capitalized values by a large margin was from 1977 through 1981. During the late 1970s, farmland prices increased because of strong commodity prices. In the 1980s, financial stress occurred, leading to declining farmland prices.

Current Farmland Prices and Capitalized Values

A question exists whether the current period of high farmland prices relative to capitalized values will mirror the 1977 through 1981 period. Will farmland prices decline in the future? While farmland prices may decline, there are two differences between the current period and 1977 through 1985.

First, much of the decline in capitalized values between 1977 and 1981 was associated with higher interest rates. Interest rates increased from 7.42 percent in 1977 to 13.92 percent in 1981. It is doubtful that interest rates will show similar increases in future years.

Second, cash rents are expected to increase over the next several years because of robust agricultural returns. Rising cash rents will increase capitalized values causing the difference between farmland prices and capitalized values to narrow. However, cash rents need to increase by large margins before farmland prices are only 7% higher than capitalized values, the relationship between 1986 through 2004. In 2007, the Illinois farmland price is \$4,330, the interest rate is 5 percent, and the cash rent is \$141 per acre. Given that farmland prices and interest rates do not change, cash rents need to increase by \$62 per acre to \$203 per acre before farmland prices are only 7 percent higher than capitalized values.

Summary

While farmland prices exceed capitalized values currently, likely increases in cash rents will bring farmland prices and capitalized values more closely in line with historical average difference. It is not likely, however, that increasing cash rents will cause farmland prices to equal 1.07 times capitalized values, the historical average from 1986 through 2004.

In the longer term, some questions exist whether farmland prices can maintain their current levels relative to capitalized values. Either a new relationship between farmland prices and capitalized values exists where farmland prices exceed capitalized values by a large margin, possibly caused by more urban demand for farmland. Or growth in farmland prices must slow so that capitalized values catch up with farmland prices.

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Table 1. Illinois Farmland Prices and Capitalized Values, 1970 to 2007.

Year	Farmland Prices ¹	Cash Rents ²	Interest Rate on 10-Year Treasury Notes ³	Capitalized Value ⁴
1970	490	36	7.35	495
1971	491	37	6.16	594
1972	527	38	6.21	612
1973	590	42	6.85	606
1974	788	53	7.56	701
1975	846	63	7.99	788
1976	1,062	76	7.61	996
1977	1,458	89	7.42	1,199
1978	1,625	93	8.41	1,106
1979	1,858	99	9.43	1,050
1980	2,041	107	11.43	936
1981	2,188	114	13.92	818
1982	2,023	119	13.01	918
1983	1,857	116	11.1	1,048
1984	1,845	119	12.46	957
1985	1,381	110	10.62	1,037
1986	1,232	100	7.67	1,302
1987	1,149	86	8.39	1,021
1988	1,262	89	8.85	1,008
1989	1,391	94	8.49	1,111
1990	1,405	99	8.55	1,163
1991	1,459	101	7.86	1,284
1992	1,536	103	7.01	1,474
1993	1,548	103	5.87	1,753
1994	1,670	100	7.09	1,410
1995	1,820	100	6.57	1,522
1996	1,900	106	6.44	1,646
1997	1,980	109	6.35	1,717
1998	2,130	111	5.26	2,110
1999	2,220	111	5.65	1,965
2000	2,260	119	6.03	1,973
2001	2,290	119	5.02	2,371
2002	2,350	122	4.61	2,646
2003	2,430	123	4.01	3,067
2004	2,610	126	4.27	2,951
2005	3,330	129	4.29	3,007
2006	3,800	132	4.80	2,750
2007	4,330	141	5.00	2,820

¹ Farmland prices taken from National Agricultural Statistical Service, U.S. Department of Agriculture.

² Since 1999, taken from National Agricultural Statistical Service, U.S. Department of Agriculture. Prior years from Economic Reporting Service, U.S.

³ Taken from website of Federal Reserve Bank of Kansas City (<http://www.kc.frb.org/>).

⁴ Equals cash rent divided by 10-year treasury note rate.