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An Analysis of Historical Illinois Farmland Valuations

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AN ANALYSIS OF HISTORICAL ILLINOIS FARMLAND VALUATIONS

by

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A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
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Illinois farmland prices have experienced a dramatic rise in recent years, far outpacing historical rates of gain. Some have pointed to these large increases and think that land must be overvalued. Since 1950, price trends can be broken down into five distinct periods. These periods exhibit differing characteristics which are examined and related to present day valuations. Valuation metrics, including capitalization rates, capitalized values, the price to rent ratio and farm profitability trends, are analyzed. Real inflation adjusted returns are compared to nominal values since these paint a much more accurate picture of gains realized over time by holding farmland. This study also discusses effects past changes in interest rates have had on land prices and explores the potential that interest rate changes may have on farmland values going forward.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION AND OVERVIEW

Central Illinois farmland values have experienced a record climb since the year 2000. Some areas have recorded increases of 300 percent in that timeframe, far outpacing historical average rates of increase (Gloy 2016). Many observers have pointed to a “perfect storm” of falling interest rates and high commodity prices which have been driven by the use of large quantities of corn to make ethanol and increasing demand for meat in developing countries as the main drivers behind the increase in land prices. Only recently have land values begun to retreat as dramatically lower commodity prices have slashed farm profitability, prompting speculation from some of a bubble type event such as that which occurred in the 1980’s.

The purpose of this paper will be to examine a variety of different farmland valuation methods and to provide historical context as to how farmland appears to be priced today relative to historical norms. Returns will be evaluated mainly from an investment standpoint since farm operators may have various non-economic reasons for land purchases.

Since farmland is a capital asset, it will produce earnings indefinitely into the future. Market participants express their views on the present value of these future earnings via the price they pay. A variety of capital asset pricing models can be used. Simple formulas, such as the following asset pricing model, are described in a 2013 paper by Baker, Boehlje and Langemeier of Purdue University:

$$V = R\left[\frac{1}{r-g}\right]$$

Where: V = the present value of the asset

R = present current return or rent payment

g = annual growth rate of the present return

r = discount rate

More elaborate pricing models exist that factor in other variables such as inflation expectations, taxes, and transaction costs. Regardless of the formula used the basic premise remains which is that the present value for farmland is equal to its discounted future returns. The discount rate that is used is very important. The discount rate is usually represented by current interest rates. Most literature related to farmland valuations uses yields on 10 year United States Treasury bills as a benchmark against which to measure farmland returns.

The basic model mentioned above is useful in that its simplicity makes it easy to see what happens to the present value when one or more variables are changed. As an example, using values of $200 for the current rent payment, 1 percent for the annual growth rate and then using different discount rates of 3 percent and 2.5 percent, yield very large differences in present value. Using 3 percent results in a present value of $10,000 while 2.5% results in a present value of $13,333, a significant difference. This provides a good illustration of where the farmland market stands today. As interest rates have steadily fallen, farmland valuations have increased to very high levels that may be unsustainable. Long term interest rates continue to remain low, at levels not seen since the 1950's. Therefore, returns on farmland and other assets that generally compete with farmland from an investment perspective remain very low, also. The

above pricing model provides a good illustration of the effect of low interest rates on asset values. Using a very low discount rate results in a higher present value.

Though the asset pricing model shown above provides a good example, it can be difficult to use in practice. In this case, using just a half of a percentage point difference in the discount rate resulted in a valuation difference of 33.33 percent. In a normal investment environment, this can represent many years' worth of returns. It can be extremely hard to forecast accurate discount rates and growth rates required by the model with any certainty even a few years into the future, much less in perpetuity. Due to the uncertainty of future rates, market participants usually rely on current return and interest rate levels which, if history is a guide, do not stay constant for long. This could possibly be one reason asset prices tend to become overvalued during booms and greatly undervalued when the market inevitably corrects. Trends rarely stay intact for long. For the sake of simplicity, this paper will focus on simpler measures of value such as capitalization rates and values, the price to rent ratio and briefly compare price increases to gross return per tillable acre. These measures and relationships will be discussed in greater detail in terms of historical trends and in terms of the current marketplace.

The price and rent data used in this analysis were taken from the National Agricultural Statistic Service's website, which is an agency of the United States Department of Agriculture. The data included in this analysis was from 1950 through the present. This timeframe was selected since the 1950's saw extremely low interest rates similar to rates that are being experienced today. This data represents an average for the entire state of Illinois. It should be noted that Illinois contains large areas of

excellent quality soils but also areas that are very poor. It is unfortunate that accurate farm rental data does not exist at the county level or even regional level prior to 1990 when much more accurate rent data started being collected, as this might reveal areas prone to long term price discrepancies and abnormalities. Also, rent data was not available for every year prior to 1964, only, 1959, 1954, and 1950. Values for the missing years were estimated and are shown in the table containing rent data in the appendix. Changes in price and rent values over this time period were fairly mild and constant so the estimated values are believed to be accurate. Interest rate data on Ten-Year Treasury Notes are constant maturity rates and are taken from the Federal Reserve Bank of St. Louis's website. The 2016 value is through the end of September.

CHAPTER 2

TREND CHANGES IN LAND VALUES

Farmland prices have seen a dramatic increase in recent years. This rise has closely resembled the last period of rapidly increasing prices in the 1970's which gave way to the bust of the 1980's. During this period, land prices fell nearly 50 percent causing a wave of farm bankruptcies and foreclosures across the country. As shown in Figure 1, land prices began accelerating again in 2004. From this date, values increased from $2650 per acre to a peak of $7700 per acre in 2014. This represents an increase of 290 percent or approximately 9 percent per year over the 10-year period from 2004 through 2014. This rapid increase bears a similar resemblance to the abnormally fast price increases of the 1970's. During the 8-year period from 1973 through 1981 prices increased 370 percent or 17.56 percent per year on average.

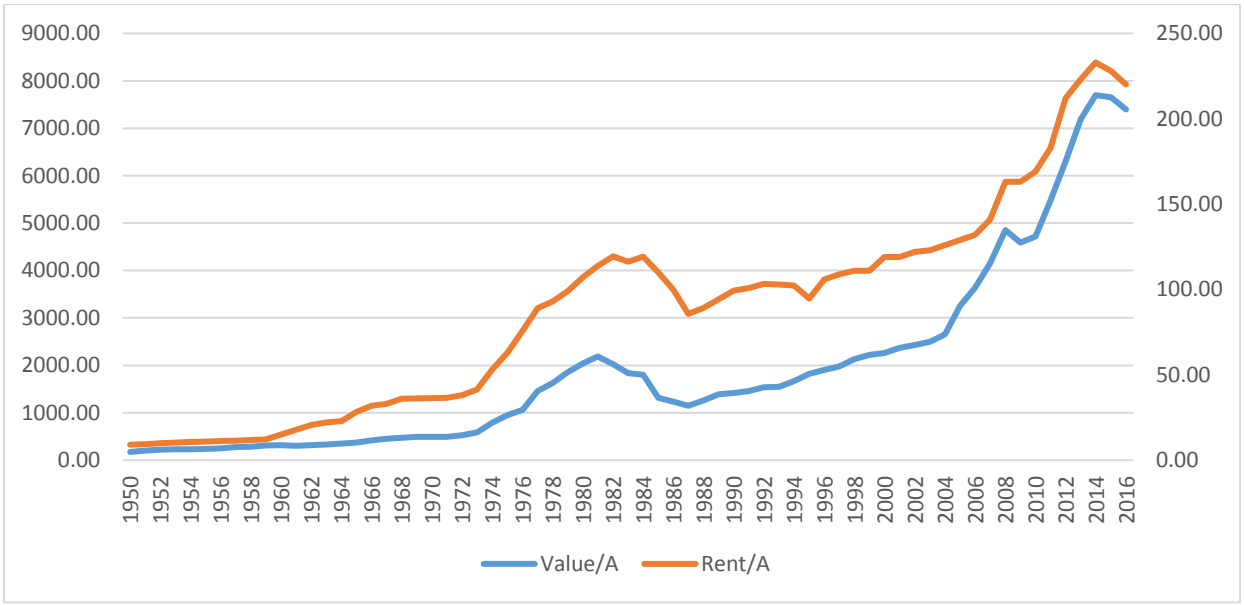

Figure 1. Nominal Illinois Land Values and Cash Rents 1950-2016
Source: National Agricultural Statistics Service

Figure 1 also contains a graph of cash rent values received by landowners over the same time frame mentioned previously. It very closely resembles the graph of farmland prices with rents rising much faster than historical averages over similar time periods. Cash rents provide one of the most important measures of farmland returns. Using cash rent data, it is possible to derive several valuation methods which will be discussed shortly. Recently, land values have begun to pull back from their all-time high as the future earnings potential of farmland has started to be called into question. However, it is too early to declare this a trend of falling prices.

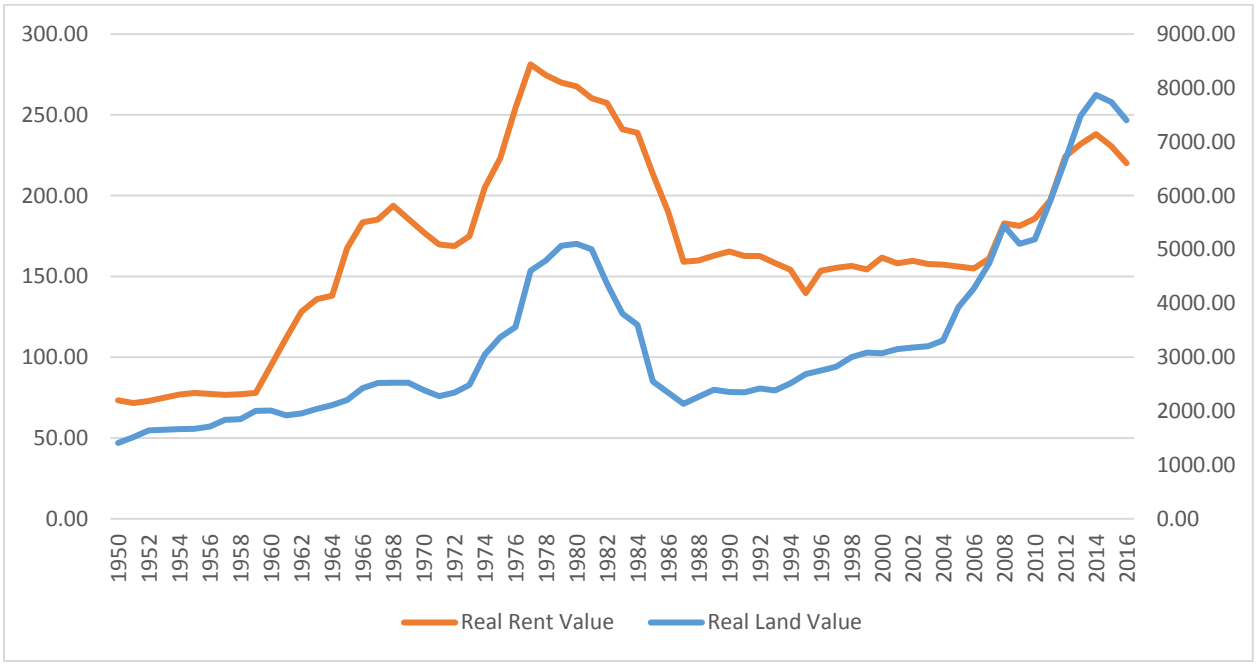

Figure 2. Real Land Values and Cash Rents 1950-2016 (Inflation Adjusted)
Source: National Agricultural Statistics Service, US Bureau of Economic Analysis

Figure 2 shows a graph of real (inflation adjusted) Illinois farmland values in constant 2016 dollars. What is most startling about this graph is how the boom of the 1970's ended. In nominal terms, it has already been shown that when this bubble popped, prices fell approximately 50 percent. However, in real terms after adjusting for

inflation, prices fell from a peak of $5105 in 1980 to a low of $2133 in 1987, representing a decline of 58 percent. Remarkably, land values only eclipsed their 1980 high in 2008, 28 years later. Solely from a price appreciation standpoint, excluding rents received, an unfortunate farmland buyer at the peak of the bubble in 1980 saw real annual compounded returns through 2016 of only 1.05 percent per year. If the initial purchase had occurred at the low in 1987, the buyer would have realized real annual returns after inflation of 4.4 percent per year through the present. For perspective, over the entire 66-year period in question, beginning in 1950, a farmland buyer would have realized real average returns after inflation of approximately 2.93 percent per year.

Figure 3 and Figure 4 provide a summary of the returns to farmland ownership over various time periods presented in nominal terms and also inflation adjusted values given in 2016 dollars. The returns are separated to distinguish returns from cash rent as a percentage of land value and the return from price appreciation in terms of percentage change from a year earlier. These values are summed to provide the total return to farmland ownership. The entire 66-year period has been divided into periods where different trends appear to exist since the rates of return vary greatly over the entire time horizon of this study.

The period of 1950 through 1972 was characterized by gradual, steady increases in land prices providing returns very similar to the returns realized by holding farmland over the entire 66-year period. The boom period of 1970 through 1981 saw returns far above that of the historical average as land prices appreciated on average by 17.5 percent per year. Following this boom period, land prices collapsed during the

period between 1982 through 1987 commonly referred to as the farm crisis. During this period, nominal prices fell by nearly 10 percent per year. However, when rents are included in the ownership equation, annual losses were only a negative 2.65 percent per year, which is still by far the worst time period in modern history to own farmland. It is interesting to point out that it was during this time period of the farm crisis, in real terms, that the only total negative returns were ever recorded over the entire 66-year period except for the recent years of 2009 and 2016 which saw losses of 2.55 percent and 1.39 percent respectively. Following the crisis period, returns recovered to a pace very close to the long term average. The period beginning in 2004 can be described as a second boom driven largely by corn demand for ethanol and other uses. Total returns during this period were not abnormally larger than the long term average, but the price appreciation component was much higher than average, while the returns from cash rent were noticeably lower than any other time period mentioned previously.

	Rent as % of Value	**% Change in Value**	**Total Return**
Level 1950-1972	5.86	5.26	11.12
Boom Period 1973-1981	6.12	17.56	23.68
Farm Crisis 1982-1987	7.13	-9.79	-2.65
Recovery 1988-2003	5.88	5.02	10.89
Ethanol Boom 2004-2016	3.46	9.03	12.49
Entire Period 1950-2016	5.72	6.35	11.99

Figure 3. Return to Farmland Ownership by Period (nominal)

	Rent as % of Value	% Change in Value	Total Return
Level 1950-1972	5.86	2.42	8.29
Boom Period 1973-1981	6.12	9.2	15.33
Farm Crisis 1982-1987	7.13	-12.87	-5.73
Recovery 1988-2003	5.88	2.62	8.5
Ethanol Boom 2004-2016	3.46	6.92	10.38
Entire Period 1950-2016	5.72	2.93	8.57

Figure 4. Return to Farmland Ownership by Period (inflation adjusted)

Given the above data, farmland purchases appear to provide fairly reliable returns of around 12 percent per year or 8.6 percent yearly after inflation. Since farmland is often considered an alternative investment, it is prudent to measure its returns against another benchmark commonly used as an investment vehicle such as the S&P 500. Using data from the website of economist Robert Schiller, annual returns from an investment in the S&P 500 since 1950 including dividends have been 11.03 percent in nominal terms and 7.23 percent when adjusting for inflation. This compares very closely with total farmland returns of 11.99 percent and 8.57 percent after inflation. While farmland ownership appears to have a slight advantage, it is important to remember that these returns do not include expenses that would normally be incurred by landlords such as property taxes and improvements and maintenance of the land which may shave approximately 1 percentage point off of returns. Considering the above data, it is safe to conclude these two asset classes have provided similar returns since 1950. Farmland could also be considered the more stable investment of the two

since the biggest yearly decline was only 27 percent which occurred in 1985 while the largest yearly decline for the S&P 500 was 38% in 2009.

It should be noted that while rents and land values appear to be very closely correlated, rents are based mostly on short term farm profitability and earnings, while land values are influenced by many forces not directly related to farm profitability, such as interest rates and inflation, and represent many years of future expectations. Baker et al, 2013 have demonstrated that farmland can be added to a diversified portfolio and achieve the goals of acting as an inflation hedge and providing returns comparable to an investment in the S&P 500 over time. This increases the demand for farmland from investors without an agricultural background who are looking for safety in times of economic uncertainty. This also suggests that farmland prices are influenced by larger outside market forces not directly pertaining to farm profitability which need to be considered.

CHAPTER 3

VALUATION METHODS

While the returns to farmland ownership from cash rent have already briefly been discussed, this ratio deserves closer examination. This ratio of cash rent to farmland values is also known as the capitalization ratio, representing the rate of return to farmland given the present market price.

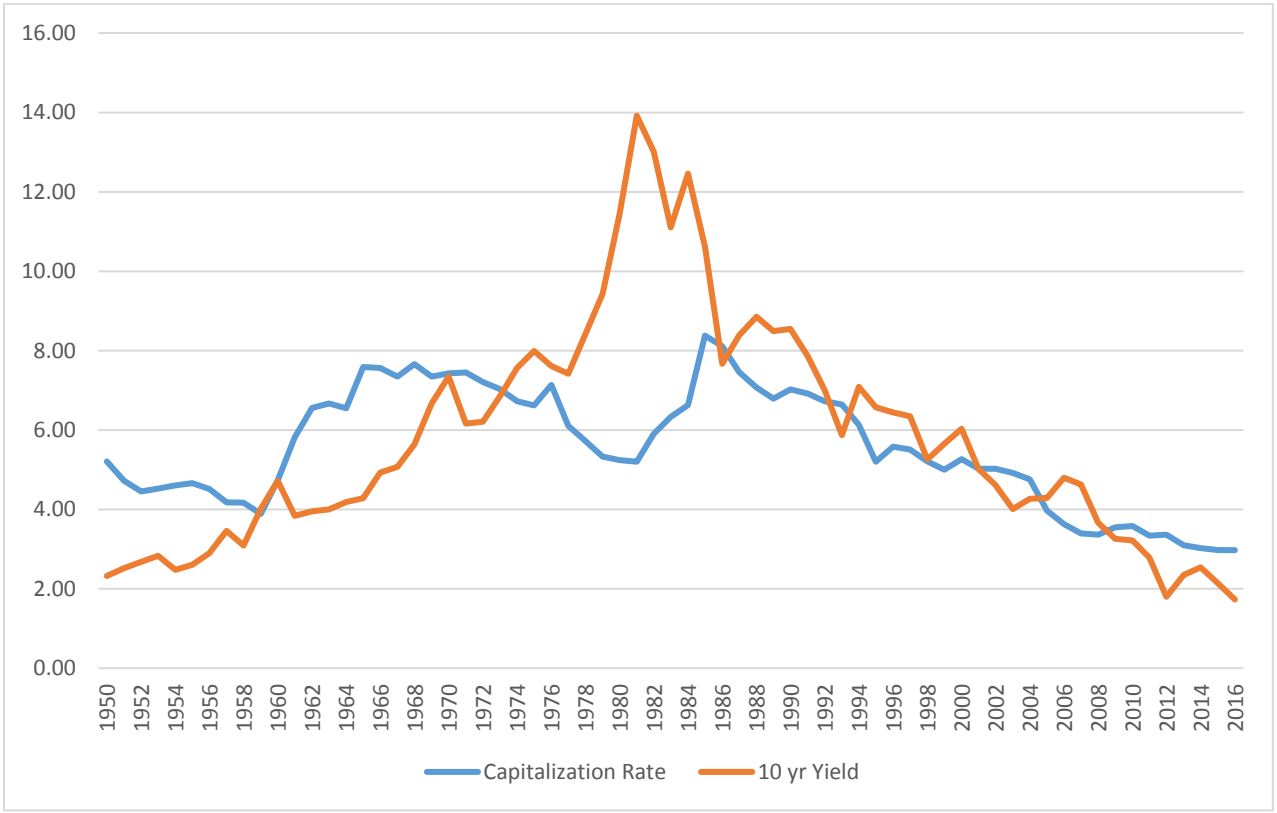

Figure 5. Farmland Capitalization Rates and 10 Yr T-Bond Yields 1950-2016
Source: Bond yield data taken from St. Louis Federal Reserve Bank

Figure 5 shows the capitalization rates for Illinois farmland over time and also the yearly average rate of return on 10 year United States Treasury Bonds. While there is

definitely a relationship between capitalization rates and bond yields, it is by no means perfect.

Since many studies of farmland values tend to compare capitalization rates to 10-year treasury yields, it is reasonable to assume there would be a strong correlation between the two. As shown in Figure 5, this has largely been the case since 1950. The biggest exception occurred during the period of the farm crisis. Prior to 1980, interest rates had seen a gradual, steady increase from a low of around 2 percent in the 1950's rising to the mid 7 percent range by the middle of the 1970's. Capitalization rates followed a similar trajectory during this time period, rising higher than interest rates at times but then converging by the mid 1970's. Interest rates then began to increase at a much faster pace reaching a high of nearly 14 percent by 1981. Capitalization rates and interest rates become very disjointed during this time frame as capitalization rates actually fall while interest rates peak.

Shown in figure 6 is the spread between capitalization rates and interest rates. It is easy to see the time period in which the spread became very negative. Farmland prices were rising very quickly during the 1970's, likely quicker than what was justified by fundamentals. When interest rates began to increase very rapidly in the late 1970's land values couldn't fall fast enough to keep the spread within its' historical range. It took several years for land prices to begin to fall which brought capitalization rates back in line with interest rates by 1985.

This lag was probably due to the limited liquidity commonly associated with the farmland market. It has been established in a study by Johnson of the University of Nebraska 2010, that the farmland turnover rate generally runs less than 3 percent per

year. Given these liquidity issues, it is evident how market discrepancies can occur from time to time.

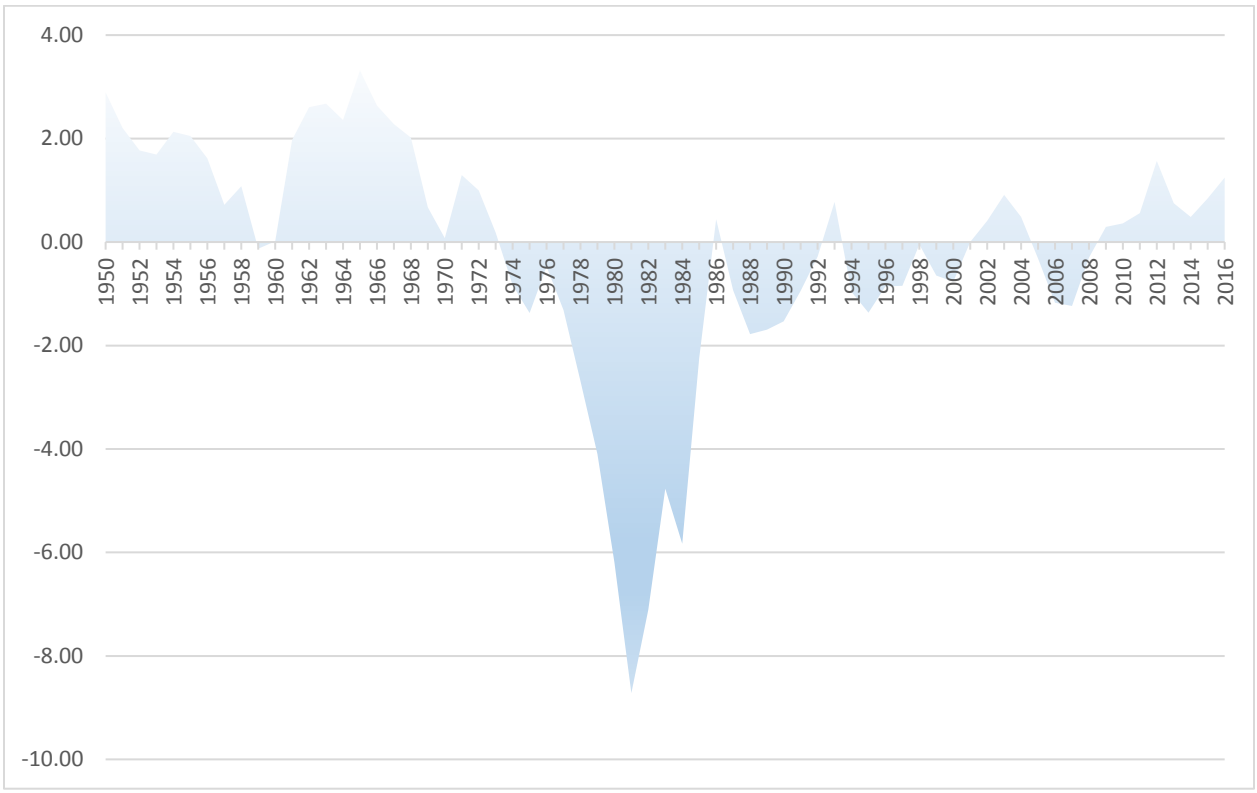

Figure 6. Farmland Capitalization Rates Less 10-Yr. Treasury Yields 1950-2016

As interest rates have steadily trended lower since the mid 1980's, capitalization rates have closely followed and converged in 1987. This marks the exact low in the farmland market with prices steadily rising since. The spread has remained in a reasonable range of plus or minus 1.5 percent. As interest rates have trended lower, farmland prices have trended higher. This fits well with the example using the capitalization model shown on page 2. As interest rates have decreased, the discount rate used for the model has also decreased which results in an increase in the current value of the asset. With current 10-year treasury yields bouncing around the 1.5 – 2

percent range, it becomes evident that capital asset prices remain supported at very high levels.

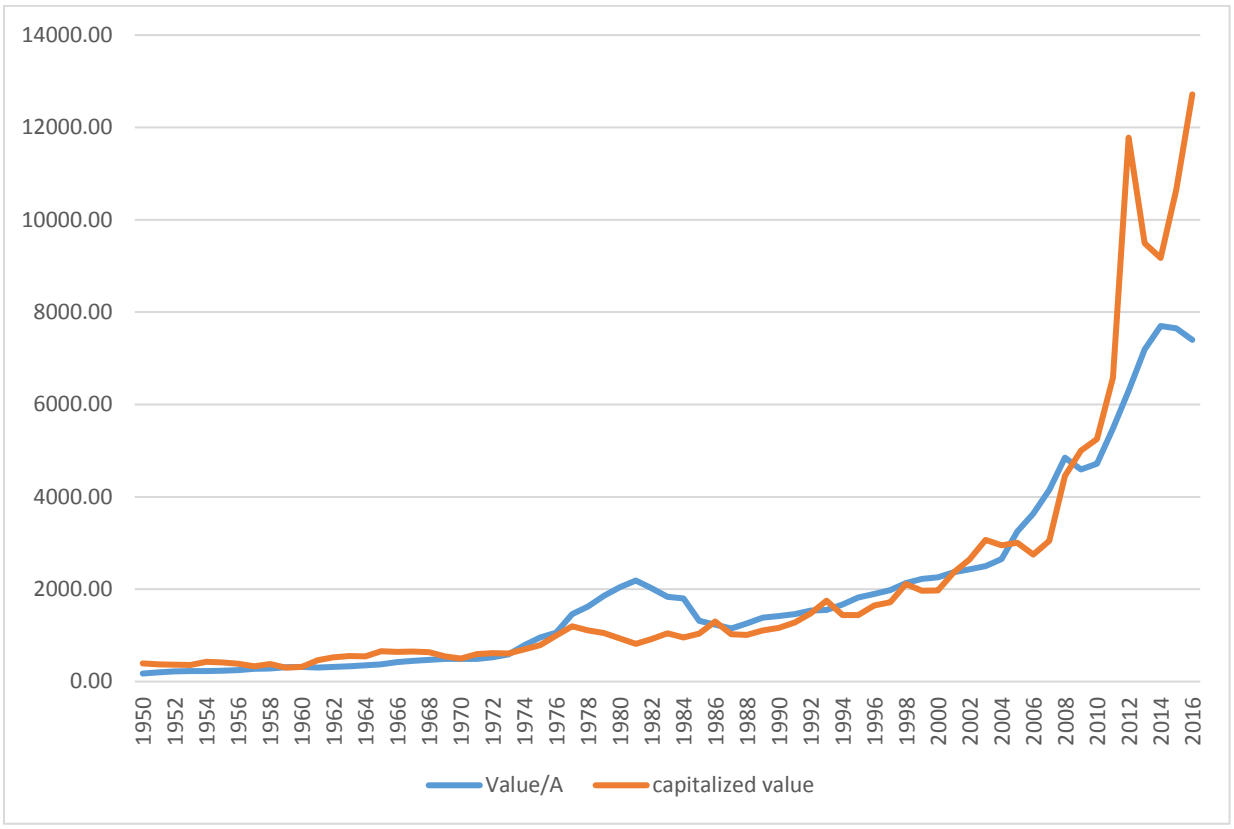

Figure 7. Capitalized Values and Actual Prices 1950-2016

Capitalized values are another way in which farmland prices are often measured. A capitalized value is a simple capitalization model where cash rent is divided by an interest rate, in this case, 10-year treasury yields. Figure 7 shows a graph of capitalized values plotted along with actual farmland prices since 1950. Throughout history, actual prices have tracked capitalized values fairly closely, except several years immediately preceding the farm crisis, and several years during the first half of the farm crisis. The year 1981 marked the largest divergence with an actual farmland price of

$2188 and a capitalized value of $817. This should have provided a clear warning sign that underlying fundamentals did not support such high land prices. Following this divergence, these two values once again converged in the late 1980's as land prices fell dramatically. Beginning in 2011, when interest rates fell below 3 percent for the first time since 1956, capitalized values have remained dramatically higher than actual land prices. Capitalized values have been very volatile over the last 5 years. A difference in the interest rate of 0.81% from 2014 through 2016 has caused capitalized values to jump by $3,543 per acre. Throughout the first three quarters of 2016, actual prices remained $5,316 below their capitalized value, the largest occurrence in this data set. This is another prime example of how volatile markets can become during periods of ultra-low interest rates. This large price difference can probably be attributed to the belief of market participants that rates will not stay this low for much longer, or that the cash rental portion of the equation is likely to fall which would also lead to lower capitalized values going forward.

Another common ratio used to measure the relationship between land values and the income they produce is the price to cash rent ratio. It is simply calculated by dividing the price of land by its earnings, or cash rent received for that specific year. It is very similar to the price to earnings ratio used by investors in the stock markets. A price to cash rent ratio of 15 means an investor is willing to pay 15 dollars for every 1 dollar of cash rental income.

The price to cash rent ratio has an average value of 19.5 since 1950. The lowest value of 11.93 was recorded in 1985, while the highest value of 33.64 was recorded this year, in 2016. At the peak of the farmland price bubble, the price to rent ratio reached a

peak of nearly 20, very close to its' historical average before falling to its low. The low of 1985 coincided very closely with the low in the farmland market after the bubble of the 1970's ended. It has been on an upward trajectory ever since.

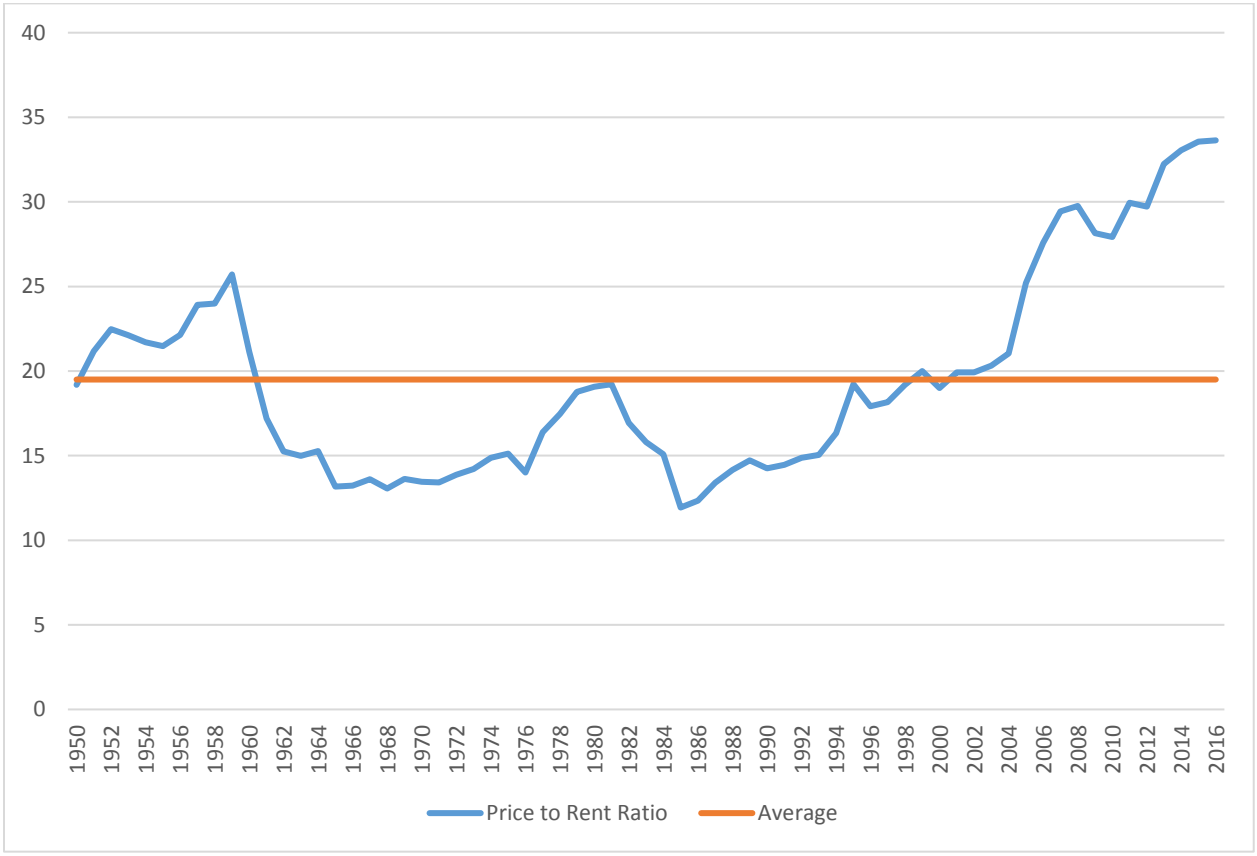

Figure 8. Price to Cash Rent Ratio for Illinois 1950-2016

This rise in the price to cash rent ratio has certainly been caused by declining interest rates. Falling interest rates lead to a lower opportunity cost of capital, increasing investors' willingness to pay more for each dollar of current earnings. Current price to cash rent ratios in the lower 30's, far above modern historical averages, should certainly give prospective farmland buyers a reason to pause.

The most important component supporting the earnings potential of farmland, which to this point has not been discussed, is farm profitability. Rising farm profitability over recent years has supported increasingly higher cash rents. One way to look at this is through the trend in gross farm returns per tillable acre. This data was collected through the Illinois Farm Business Farm Management Associations' website from various Farm Income and Production Reports, published annually by the association. Data was only available from 1994 through 2015. Older data was not included because changes in record keeping procedures would not have allowed for an apple to apples comparison. Gross returns per tillable acre were used before subtracting any expenses since these are the earnings that support cash rent payments.

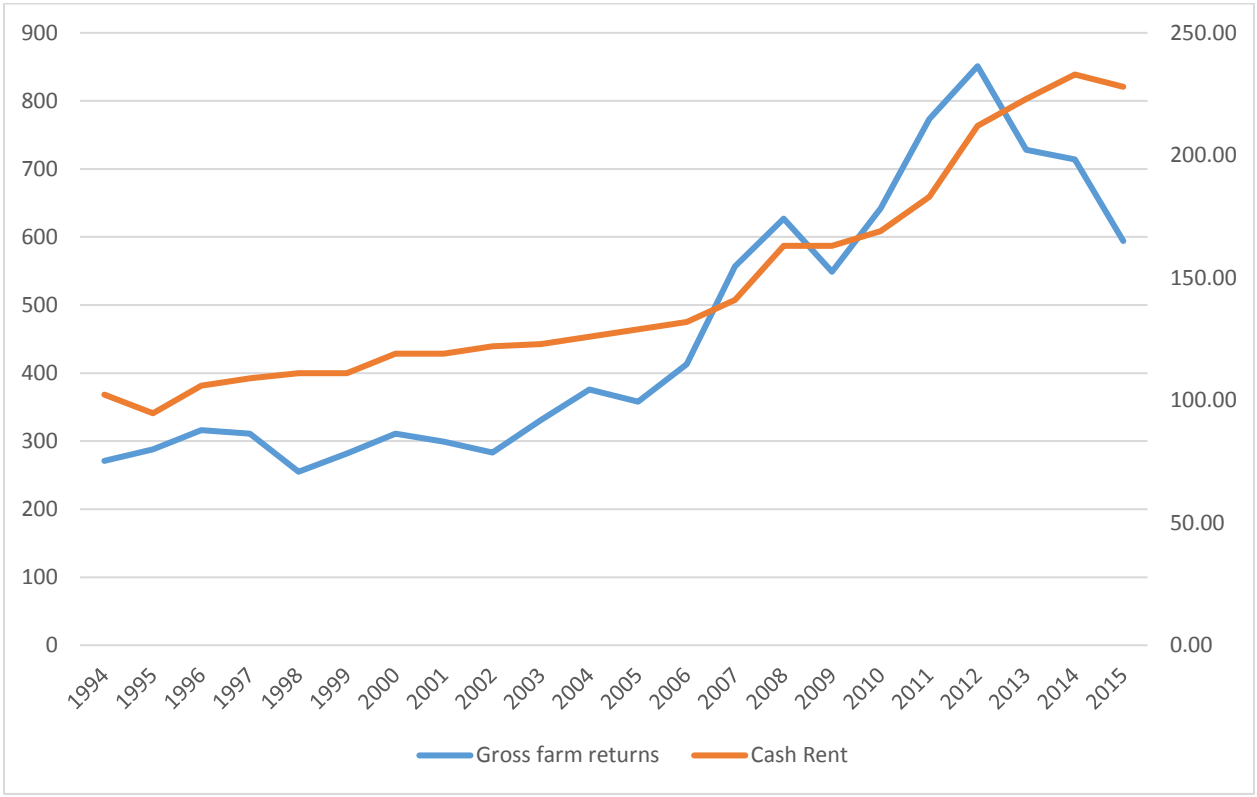

Figure 9. Illinois Gross Farm Returns Per Acre and Cash Rents 1994-2016
Source: Illinois Farm Business Farm Management Association

Figure 9 contains a graph of gross farm returns per tillable acre and cash rents. From 1994 through 2004, gross returns and cash rents followed similar trends of slow, gradual increases. After 2004, gross farm returns began to rise at a faster pace. The graph shows a noticeable lag in the acceleration of cash rents. It wasn't until approximately 2007 that cash rents began increasing at a faster pace. Prior to 2007, cash rent increases had averaged just 2.22 percent per year. From 2007 through 2015, cash rent has increased at a much faster 6.4 percent per year. Also, notice how gross farm returns peaked with a high of $851 in 2012 and have fallen 30 percent through the most recent data available in 2015. Cash rents on the other hand have continued to climb well past 2012 and have only dropped a few dollars an acre. This provided another good illustration of the lags that can occur in the farmland market.

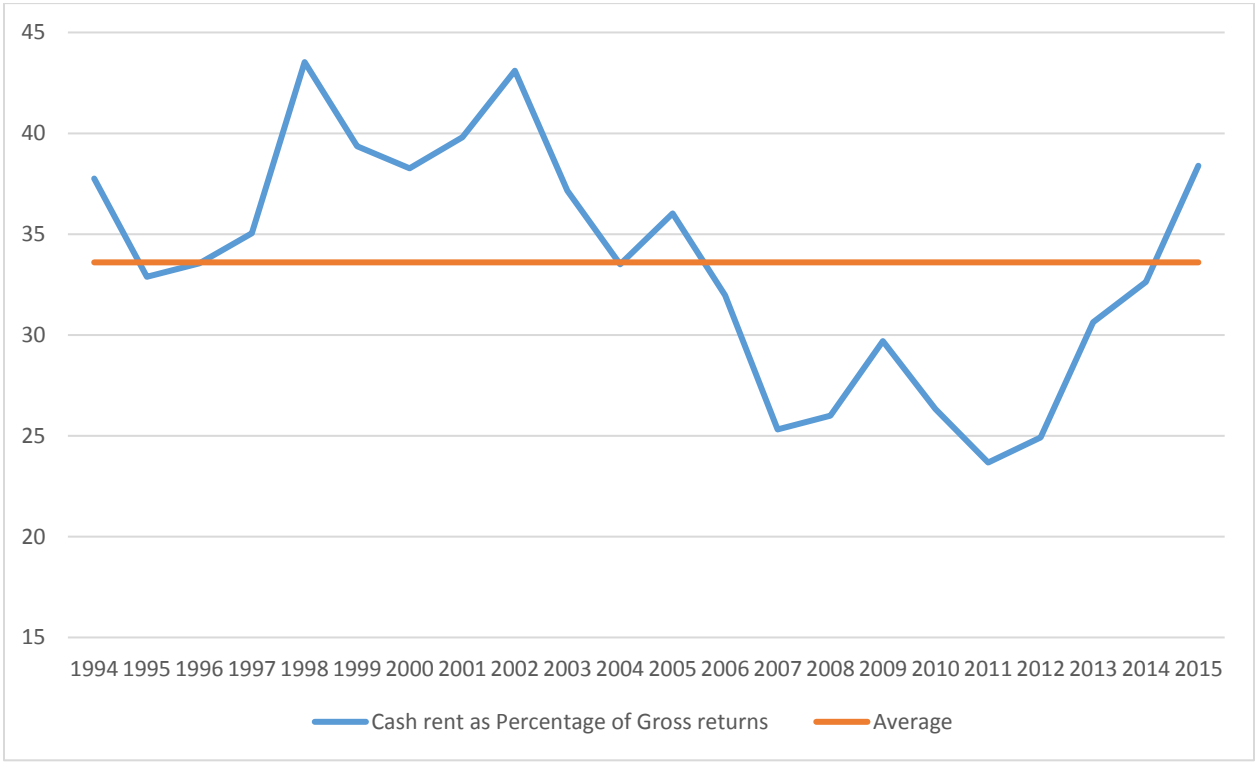

Figure 10. Proportion of Gross Returns Paid for Cash Rent 1994-2015

The graph in figure 10 shows the proportion of gross farm returns per acre that are paid out in the form of cash rent. While fourteen years of data is hardly enough to draw any definite conclusions about long term norms, it is interesting to observe that the average over this time period has been about 34 percent. Even with the dramatic increases in cash rent over recent years, this ratio is still much lower than in the late 1990's through the early 2000's.

CHAPTER 4
SUMMARY AND CONCLUSION

While many may point to large increases in farmland values over recent years that appear to be rising at rates far above historical averages, it is difficult to come to the conclusion, given current market conditions, that land is grossly overvalued considering the data that has been presented.

The most concerning valuation metric discussed that would point to overvaluation would be the price to cash rent ratio. This ratio, with a value of 34, is substantially higher than at any other time since the 1950's. However, when the current low interest rate environment is factored in, and rates of return on competing investments remain low also, it seems realistic to assume that a lofty cash to rent ratio could be supported by market fundamentals for some time to come. The proportion of gross farm returns that are paid out as cash rent does not seem to be excessively high, although there is likely little room for continued upward movement. It is practical to assume that given recent favorable growing conditions, declining input prices due to lower energy costs, that even with recent declines in commodity prices, gross farm income will likely remain high enough to at least maintain current cash rental expenditures.

Capitalization rates also remain in line with 10-year treasury yields, while capitalized values remain well above actual farmland prices. This could be a result of the view among market participants that interest rates are likely to rise slightly in the near future. This aligns with indications by the Federal Reserve that a quarter point hike in short terms rates is likely in the near future. Interest rate risk is probably the most important factor that could have drastic effects on farmland prices going forward.

However, the forecast for interest rates is anything but clear. With most of the developed world stuck in extremely low gross domestic product growth, inflationary expectations that usually fuel increases in longer term interest rates appear to be nonexistent. Other countries including Switzerland, Japan and Germany are even experiencing negative rates of returns on 10-Year government bonds (Iskyan 2016). While few are predicting such a scenario in the U.S., an unexpected event such as recession, or other global calamity could continue to push interest rates down. It is unclear what result this would have on farmland values but lower rates should continue to provide support to asset prices. While it seems equally unlikely, a sudden burst of inflation could result in a quick increase in interest rates which would cause havoc in the farmland market. An event such as the 1980's could be repeated in which interest rates move so quickly, land prices do not have time to adjust to market fundamentals.

Keeping the valuation metrics discussed above in mind, there does not seem to be an overvaluation in the farmland market that would warrant concern at the moment. However, it has been shown in the data that past trends do not continue indefinitely, and potential farmland purchases deserve careful consideration.

Table 1: Annual Price, Rent, Capitalization Rate, 10 YR T-Bond Yield, Risk Premium Data

Year	Value/A	Rent/A	Capitalization Rate	10 YR Yield	Risk Premium
1950	174.00	9.07	5.21	2.32	2.89
1951	200.00	9.45*	4.73	2.52	2.21
1952	221.00	9.84*	4.45	2.68	1.77
1953	226.00	10.22*	4.52	2.83	1.69
1954	230.00	10.60	4.61	2.48	2.13
1955	234.00	10.90*	4.66	2.61	2.05
1956	248.00	11.20*	4.52	2.9	1.62
1957	275.00	11.50*	4.18	3.46	0.72
1958	283.00	11.80*	4.17	3.09	1.08
1959	311.00	12.10	3.89	4.02	-0.13
1960	316.00	14.95*	4.73	4.72	0.01
1961	306.00	17.80*	5.82	3.84	1.98
1962	315.00	20.65	6.56	3.95	2.61
1963	332.00	22.15	6.67	4.00	2.67
1964	349.00	22.85	6.55	4.19	2.36
1965	372.00	28.24	7.59	4.28	3.31
1966	420.00	31.77	7.56	4.93	2.63
1967	449.00	33.00	7.35	5.07	2.28
1968	470.00	36.00	7.66	5.64	2.02
1969	493.00	36.20	7.34	6.67	0.67
1970	490.00	36.40	7.43	7.35	0.08
1971	491.00	36.60	7.45	6.16	1.29
1972	527.00	38.00	7.21	6.21	1.00
1973	590.00	41.50	7.03	6.85	0.18
1974	788.00	53.00	6.73	7.56	-0.83
1975	952.00	63.00	6.62	7.99	-1.37
1976	1062.00	75.80	7.14	7.61	-0.47
1977	1458.00	89.00	6.10	7.42	-1.32
1978	1625.00	93.00	5.72	8.41	-2.69
1979	1858.00	99.00	5.33	9.43	-4.10
1980	2041.00	107.00	5.24	11.43	-6.19
1981	2188.00	113.80	5.20	13.92	-8.72
1982	2023.00	119.40	5.90	13.01	-7.11
1983	1837.00	116.30	6.33	11.10	-4.77
1984	1800.00	119.30	6.63	12.46	-5.83
1985	1314.00	110.10	8.38	10.62	-2.24
1986	1232.00	99.90	8.11	7.67	0.44

1987	1149.00	85.70	7.46	8.39	-0.93
1988	1262.00	89.20	7.07	8.85	-1.78
1989	1388.00	94.30	6.79	8.49	-1.70
1990	1416.00	99.40	7.02	8.55	-1.53
1991	1459.00	100.90	6.92	7.86	-0.94
1992	1536.00	103.30	6.73	7.01	-0.28
1993	1548.00	102.90	6.65	5.87	0.78
1994	1670.00	102.30	6.13	7.09	-0.96
1995	1820.00	94.70	5.20	6.57	-1.37
1996	1900.00	106.00	5.58	6.44	-0.86
1997	1980.00	109.00	5.51	6.35	-0.84
1998	2130.00	111.00	5.21	5.26	-0.05
1999	2220.00	111.00	5.00	5.65	-0.65
2000	2260.00	119.00	5.27	6.03	-0.76
2001	2370.00	119.00	5.02	5.02	0.00
2002	2430.00	122.00	5.02	4.61	0.41
2003	2500.00	123.00	4.92	4.01	0.91
2004	2650.00	126.00	4.75	4.27	0.48
2005	3250.00	129.00	3.97	4.29	-0.32
2006	3640.00	132.00	3.63	4.80	-1.17
2007	4150.00	141.00	3.40	4.63	-1.23
2008	4850.00	163.00	3.36	3.66	-0.30
2009	4590.00	163.00	3.55	3.26	0.29
2010	4720.00	169.00	3.58	3.22	0.36
2011	5480.00	183.00	3.34	2.78	0.56
2012	6300.00	212.00	3.37	1.80	1.57
2013	7190.00	223.00	3.10	2.35	0.75
2014	7700.00	233.00	3.03	2.54	0.49
2015	7650.00	228.00	2.98	2.14	0.84
2016	7400.00	220.00	2.97	1.73	1.24

*Indicates estimated values

Land value and rent data were taken from the National Agricultural Statistics Service website. Ten-Year Treasury Bond yields were taken from the website of the Federal Reserve Bank of St. Louis.

Table 2: Annual Inflation Adjusted Illinois Farmland Values and Cash Rents (Constant 2016 Dollars)

Year	Real Land Value	Real Rent Value
1950	1408.33	73.41
1951	1516.29	71.64
1952	1639.64	72.97
1953	1655.32	74.86
1954	1667.49	76.85
1955	1672.41	77.90
1956	1713.68	77.39
1957	1836.05	76.78
1958	1846.69	77.00
1959	2002.73	77.92
1960	2007.05	94.95
1961	1922.47	111.83
1962	1954.94	128.16
1963	2037.49	135.93
1964	2109.47	138.11
1965	2208.07	167.62
1966	2424.80	183.42
1967	2519.03	185.14
1968	2529.32	193.74
1969	2528.59	185.67
1970	2387.30	177.34
1971	2276.53	169.70
1972	2342.04	168.88
1973	2486.82	174.92
1974	3048.38	205.03
1975	3369.85	223.00
1976	3563.53	254.35
1977	4607.18	281.23
1978	4798.15	274.60
1979	5067.84	270.03
1980	5105.16	267.64
1981	5002.93	260.21
1982	4359.89	257.33
1983	3808.96	241.14
1984	3604.21	238.88
1985	2549.54	213.63
1986	2342.87	189.98

1987	2132.90	159.09
1988	2263.32	159.98
1989	2396.13	162.79
1990	2356.96	165.45
1991	2350.60	162.56
1992	2419.44	162.71
1993	2381.66	158.32
1994	2515.89	154.12
1995	2685.79	139.75
1996	2753.66	153.63
1997	2821.06	155.30
1998	3002.21	156.45
1999	3084.90	154.25
2000	3070.50	161.68
2001	3148.25	158.08
2002	3179.14	159.61
2003	3206.80	157.77
2004	3308.35	157.30
2005	3930.95	156.03
2006	4271.39	154.90
2007	4743.38	161.16
2008	5438.54	182.78
2009	5106.74	181.35
2010	5187.78	185.75
2011	5901.25	197.07
2012	6661.52	224.17
2013	7481.93	232.05
2014	7871.21	238.18
2015	7737.56	230.61
2016	7400.00	220.00

Price data was deflated using a GDP Chain Type Price Index taken from the U.S. Bureau of Economic Analysis.

Table 3: Gross Farm Returns per Tillable Acre and Percentage of Gross Return Paid for Cash Rent per Tillable Acre

Year	Gross Farm Returns/A	Price	Cash Rent/A	Cash Rent as Percentage of Gross Returns
1994	271	1670.00	102.30	37.7
1995	288	1820.00	94.70	32.9
1996	316	1900.00	106.00	33.5
1997	311	1980.00	109.00	35.0
1998	255	2130.00	111.00	43.5
1999	282	2220.00	111.00	39.4
2000	311	2260.00	119.00	38.3
2001	299	2370.00	119.00	39.8
2002	283	2430.00	122.00	43.1
2003	331	2500.00	123.00	37.2
2004	376	2650.00	126.00	33.5
2005	358	3250.00	129.00	36.0
2006	413	3640.00	132.00	32.0
2007	557	4150.00	141.00	25.3
2008	627	4850.00	163.00	26.0
2009	549	4590.00	163.00	29.7
2010	642	4720.00	169.00	26.3
2011	773	5480.00	183.00	23.7
2012	851	6300.00	212.00	24.9
2013	728	7190.00	223.00	30.6
2014	714	7700.00	233.00	32.6
2015	594	7650.00	228.00	38.4

Gross farm return data was taken from the Illinois Farm Business Farm Management Association’s website under various Farm Income and Production Reports.

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