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## Comparing the stock market and Iowa land values: A question of timing

By Mike Duffy, retired extension economist

This article examines which is a better investment—the stock market or farmland? It is an update of earlier versions.

Iowa farmland values have shown yearly increases for 13 of the past 14 years. Except for 2009, Iowa farmland values have set a record high every year since 2003. Based on the Iowa State University Farmland Value Survey, the 2013 estimated average farmland value in Iowa was \$8,716 per acre. This was an increase of 5.1 percent from the 2012 estimate. Iowa land values have increased by double digits eight of the past 10 years. The estimated land values have increased 369 percent since 2000 and 72 percent since 2010.

The value used for the stock market is the composite value of the Standard & Poor's Index (S&P) average in each December. The S&P is used as a proxy for the stock market because the industries included in the index are more reflective of an investment in farmland.

The S&P has experienced double digit changes since 2000. There have been five years with double digit increases (2000, 2004, 2010, 2011 and 2013). There have been three years with double digit decreases (2001, 2003 and 2009). The December 2000 S&P was 20 percent lower than the December 2013 value. However, the S&P has increased 17 percent between December 2013 and March 2014. Comparing March 2014 to December 2000 there has been an eight percent increase in the S&P.

To determine which option provided the better investment, this article compares and contrasts the returns to farmland and the stock market since 1950. It also discusses some of the important factors to consider over the next few years.

### Background

The returns to land or stock shares are composed of two parts. The first is capital gains or the increase in value. Obviously, this also could be a capital loss

if values decrease. The second component is yearly returns.

Owning land has an unavoidable annual ownership cost not associated with stocks. Property taxes must be paid and should be included in a comparison

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of owning stocks or farmland. Additionally, if farmland is held as an investment and not by an owner-operator, there could be a professional farm manager involved and the fee for this service would have to be considered. There is also a need for some maintenance and insurance with farmland not associated with owning stocks.

The data used for this analysis comes from various sources. The Iowa average land values and rental rates come from the USDA. The average land tax per acre is calculated using data from the USDA Economic Research Service (ERS) farm income data. Taxes per acre were calculated as the yearly Iowa farm real estate taxes paid divided by the total farmland acres for that year.

The Standard & Poor's averages and yearly dividends for 1950 to 2013 were obtained on the web site ([www.econ.yale.edu/~shiller](http://www.econ.yale.edu/~shiller)) of Dr. Robert J. Shiller at Yale University. The September dividend value for each year is used. The December closing value is used as the price. These months were selected to mimic the farmland market situation. The USDA farmland prices are as of January 1 of the year and in Iowa rental arrangements have to be set by September 1 or, if not terminated, the existing lease will remain in effect. Three other dividend months were examined. March, when leased property changes hands if needed; December, the same month as price; and a yearly average dividend were all estimated. Estimated returns did not vary significantly with the different dividend months. For simplicity, only the estimate using the March dividend will be presented and discussed.

A few assumptions are necessary to determine which provides the better investment. It is assumed \$1,000 is invested in each alternative at the end of the year before the analysis begins. The amount of land or stock purchased will depend on the existing value. For example, in 1949 the average farmland value in Iowa was \$158 per acre. So, for \$1,000, 6.33 acres could have been purchased.

A second assumption is that all the net land rent or the dividend earned in any year will be reinvested in the land or the stock market. This will increase the number of units held. To continue the example above, average Iowa farmland rent in 1950 was \$10.99 per acre. Average taxes in 1950 were

calculated to be \$2.21 per acre. Subtracting taxes, a 7 percent of gross rent management fee and a 6 percent of gross rent charge for insurance and maintenance, the net return per acre in 1950 was \$7.35.

The net rent in 1950 represented a 4.57 percent return ( $\$7.35/\$161 = 4.57\%$ ). For the \$1,000 investment, this would be a return of \$45.70. In 1950, the average land value was \$161 per acre. If the entire return were invested back into land, .28 acres could have been purchased ( $\$45.70/\$161 = .28$ ). So, at the end of 1950 the investor would have 6.61 acres worth \$1,065 ( $\$1,065 = (6.33+.28)*161$ ). This process is repeated each year in the analysis.

The December 1949 S&P was \$16.88. This means 59.24 shares could have been purchased for \$1,000. The September 1950 dividend was \$1.33. This means an additional 4.42 shares and had \$1,105 at the end of 1950.

Land taxes, a management fee, insurance and maintenance are the only ownership costs considered for land. There is no ownership cost assumed for stocks. No transactions costs or other costs are considered in this analysis.

The annual percentage changes since 1950 in the S&P and Iowa land values reflect considerable yearly variation in both investments. Land values changed an average of 7.0 percent with a standard deviation of 11.2 percent. Yearly percentage change for land ranged from a negative 28.1 percent to a positive 36.8 percent.

The Standard & Poor's yearly closing value showed an average percentage change of 8.7 percent with a standard deviation of 16.6 percent. The yearly percentage change in the S&P ranged from a negative 42.5 percent to a positive 52.2 percent.

The yearly return to land after taxes, management fee, and insurance and maintenance has averaged 4.8 percent of land values since 1950. The standard deviation of the yearly return to land has been 1.1 percent. The maximum yearly return was 6.9 percent while the low was 1.1 percent. The S&P yearly September dividend has averaged 3.4 percent of the S&P closing level from 1950 to 2013. The standard deviation was 1.4 percent, the maximum yearly return was 7.7 percent and the lowest yearly return was 1.1 percent over the same time period.

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## Analysis

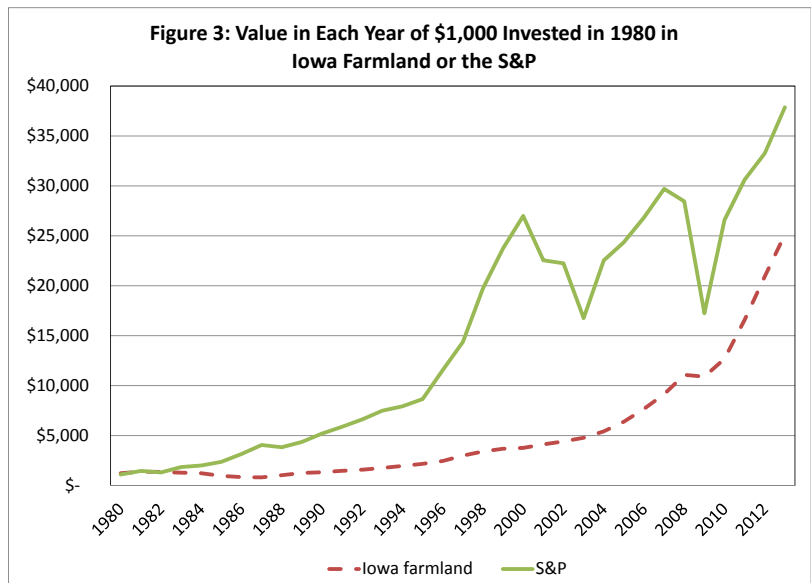
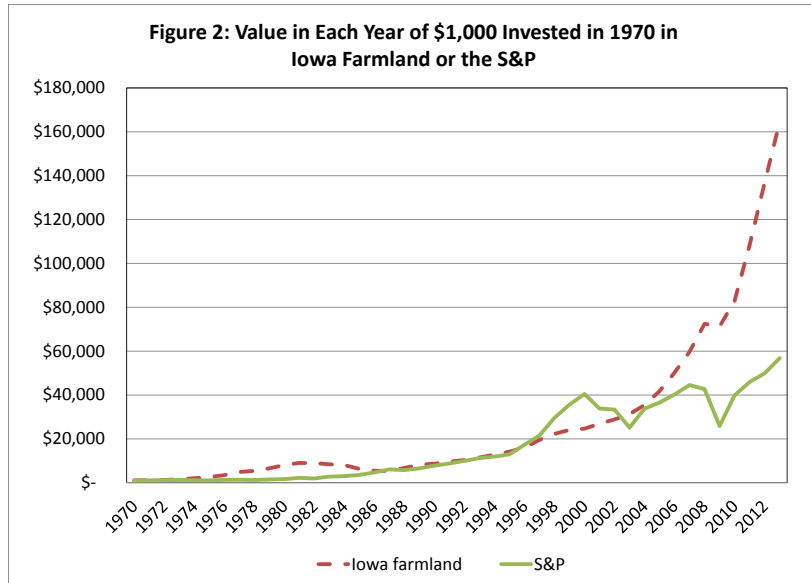
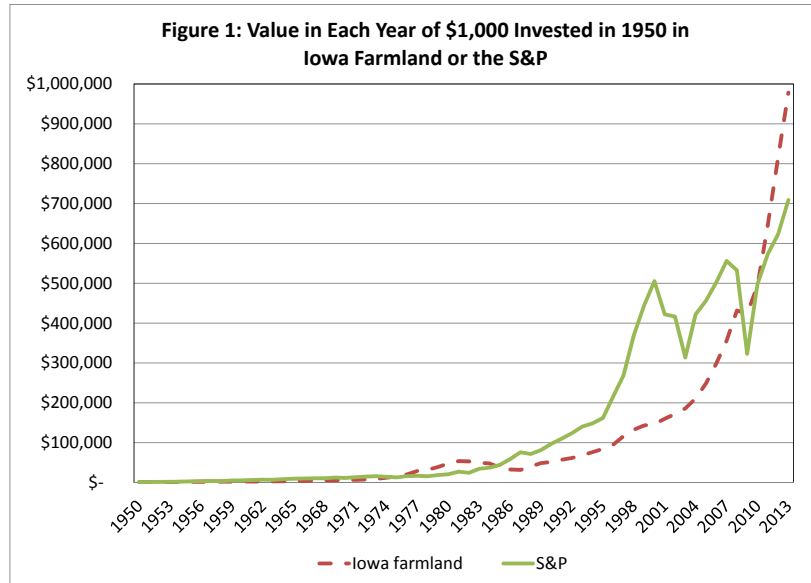
Figure 1 shows the return to \$1,000 invested in 1950. At that time, \$1,000 would have purchased 6.33 acres or 59.24 shares of the S&P. Using the assumptions discussed previously, an investor at the end of 2013 would have 113.75 acres worth \$978,222. Alternatively, they would have 457.06 shares of the Standard & Poor worth \$708,824. In other words, the value of the S&P investment would be 72 percent of the value of the land investment.

There have been periods since 1950 when the returns to the stock market have been higher. However, for the most part, land has shown higher returns over the past 50 years. It is interesting to note the recent dramatic swings in the S&P, as shown in Figure 1.

Figure 2 shows what would have happened if the \$1,000 investment in land or the S&P had been made in 1970. At that time \$1,000 would purchase 2.62 acres or 10.07 shares of the S&P. By 2013, the land investment would have been worth \$164,303, while the S&P investment would have been worth \$56,775. An investment made in the S&P in 1970 would be 35 percent of the value of an investment in land.

Figure 3 presents the results of a \$1,000 investment had it been made in 1980, near the previous peak in Iowa land values. In 1980, the \$1,000 investment in land would have purchased only .65 acres of land or 9.99 shares of the S&P. By 2013, the land investment would have been worth \$25,139 while the S&P investment would have been worth \$37,868. The land investment would only be 68 percent of the stock market investment.

Figure 4 shows a comparison of the values in 2013 based on investing in each individual year. This figure presents the returns to S&P as a percent of the returns to Iowa farmland. In other words, the value for any year would be the present



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value of an investment in the S&P made in that year as a percent of an investment in farmland made that same year. In Figure 4 if the value is above 100 percent then the S&P would have a higher value; conversely, if the value is below 100 percent, then the farmland would have a higher value for funds invested in that year.

Figure 4 shows that the timing of the investment makes a difference in which appears to be a better investment. Land would have been the better investment in all years except the period from 1978 to 1984. This period coincides with the rise in land values during the 1970s. Land values in Iowa began their rapid rise in 1973 and peaked in 1981.

**Discussion and conclusions**

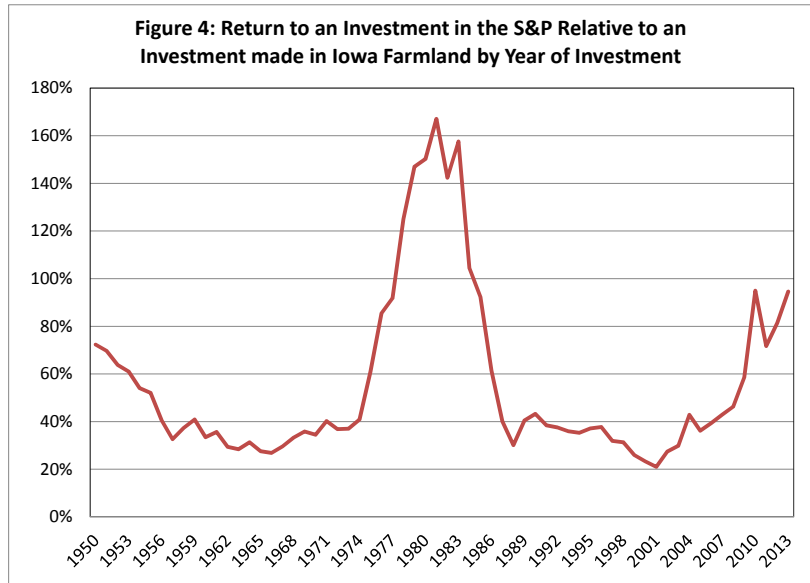
Which is the better investment, Iowa farmland or the stock market, is a complicated question and one for which there is no one best answer. Several factors need to be considered when trying to answer this question and several assumptions have to be made.

In this article, real estate taxes, a management fee, insurance and maintenance were subtracted from the return to land. These were the only ownership costs assumed for land. There would be other costs that would vary with the individual circumstances.

This study also assumed there would be no transactions costs. There would be costs associated with either the purchase of land or the purchase of stocks.

Investing \$1,000 in the stock market would not be difficult but investing only a \$1,000 in the Iowa farmland market would be. Although the methodology employed here could be scaled up to any level of investment, it is simply not possible for the majority of people to find the wherewithal to purchase enough land for a viable unit.

Finally, this study assumed average performance for land values, rents and for the stock market. Deviations from average performance would produce different results.



The majority of farmland is purchased by existing farmers or people who want to be farmers. They purchase the land for a variety of reasons that may or may not fit with traditional investment.

The analysis presented here compares the value of an investment based on the value of the asset at that time. Many farmers don't intend to ever sell their land. Land becomes a means of security, their estate and it has a certain prestige associated with owning it. Gains in value are only recognized if the asset is sold.

What will happen to the value of farmland over the next several years? The future is hard to predict, but in this case it is especially difficult. There are several factors that will have an immediate impact on land values and other longer-term factors that will determine the future performance of land.

The value of land is determined by its income earning potential. For the most part, in Iowa, that means the returns to corn and/or soybeans. Returns will be influenced by a number of factors over the next several years. Oil prices, ethanol prices, crop yields, costs of production, economic recovery, alternative biomass sources, and a host of other major issues will have an influence on the price of land.

Another uncertainty in the land market is the changing landowner demographics. In 1982, 12 percent of the farmland in Iowa was owned by someone over 75 years old. By 2012, this percentage

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had more than doubled to 30 percent. In 2012, over half, 56 percent, of the farmland in Iowa was owned by someone over the age of 65. How this land will be transferred from one generation to the next is not entirely clear at this time. It appears that the majority of it will be passed on to the children, usually in equal shares. This means there will be more landowners and more out of state owners. Whether they will want to continue to own the land or sell it is unknown. Too much land being offered for sale is not a problem at this time but it could become one if the next generation doesn't want to hold on to the land.

The performance of the stock market for the next few years is also not clear. The U.S. stock market will be impacted by what happens in the European Union and China, among other places in the world. We are no longer insulated from the economic conditions throughout the world.

The imbalance of trade is an area of uncertainty with respect to possible impacts on the U.S. economy and the performance of the stock market and the land market.

A complete discussion of all the factors that could influence the land or stock market is beyond the scope of this article. Suffice it to say there is considerable uncertainty as one looks ahead. While uncertainty about the future is not new, there is a level of concern for both the land market and the stock market.

Land and the stock market are different types of investments and assets. This simple comparison was based strictly on averages. There are a number of individual stocks that perform better than the S&P. But, there are some that don't perform as well. Anyone contemplating which is a better investment needs to know his or her goals.

Figure 4 raises an interesting question regarding the situation we are currently experiencing. The last time the stock market appeared to be a better value was the last time the land market was booming. What will this chart look like in 20 years relative to the current time period?

Land's performance relative to the stock market over the past few years has been spectacular. Will this trend continue? Time will tell. Which is the better investment? As the old saying goes, timing is everything in the success of a rain dance.



## Gearing up for summer leasing meetings

by Ann Johanns, extension program specialist, 641-732-5574, aholste@iastate.edu

Farm tenants and land owners are invited to Iowa State University Extension and Outreach farmland leasing meetings during July and August. The three-hour workshops are designed to assist landowners, tenants and other agri-business professionals with current issues related to farmland ownership, management and leasing agreements.

Each workshop attendee will receive a current set of beneficial materials regarding farm leasing arrangements and farmland ownership. Resources on farmland surveys and leasing arrangements also are included.

Topics to be covered in the 2014 meetings include:

- Nutrient Reduction Strategy
- Iowa Cash Rental Rate Survey and Land Values Survey
- Comparison of different types of leases
- Lease termination
- Impacts of yields and prices
- Calculating a fair cash rent
- Use of spreadsheets for leasing decisions
- Issues unique to this year's production and an outlook for 2015.
- Available Internet resources