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### *In This Issue*

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## American Agriculture Braces For 2017 Headwinds

The American agriculture sector faces many headwinds at the outset of 2017. A strengthening of the relative value of the US dollar, falling commodity prices, and rising labor costs are squeezing crop budgets. These factors, combined with looming increases in interest rates and the prospect of significant changes being made to US immigration and trade policy, have the potential to materially influence some segments of the US agriculture sector this year and beyond.

### Welcome to Our Inaugural State of the Market Report

This is our first *State of the Market*, which provides an overview of the trends and forces that drive farmland returns. In this issue, we review and discuss how these trends can affect current and future farmland returns. We also take a close look at the National Council of Real Estate Investment Fiduciaries (NCREIF) Farmland Index and provide context and commentary on the recent and projected future performance of the asset class based on the larger macro trends discussed earlier. Finally, we provide our thoughts on how farmland investors can navigate the current environment and achieve their objectives.



## Trends

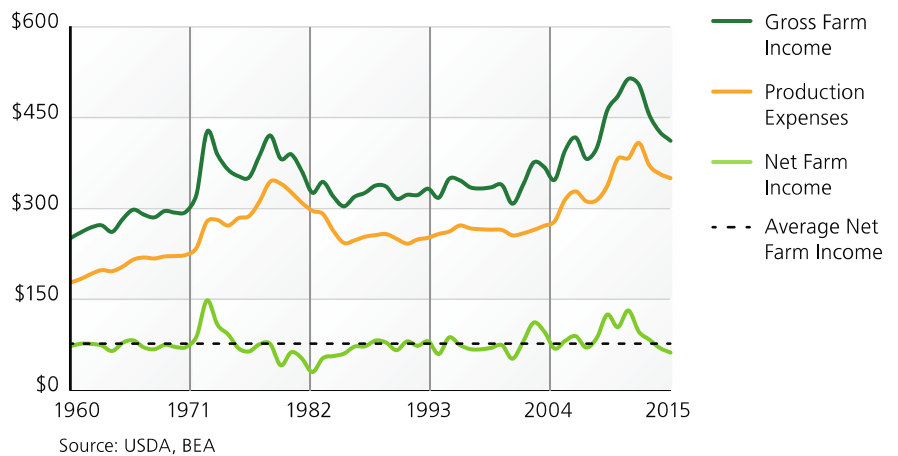
For the fourth consecutive year, the Economic Research Service (ERS) of the United States Department of Agriculture forecasts a reduction in net farm income in 2017. In nominal terms, net farm income is expected to fall 8.7 percent to \$62.3 billion. The projected decrease from 2016 is largely attributable to a decline in the value of inventory adjustment, which is expected to drop by \$9.3 billion, mainly from lower commodity prices. Cash receipts from crops and animal products and direct farm payments are expected to remain relatively unchanged from 2016, because, in general, lower average prices are expected to be offset by higher crop yields.

If achieved, the 2017 net farm income forecast would be 50 percent lower, in nominal terms, than the \$123.7 billion achieved in 2013. This anticipated reduction is largely expected to be attributable to a continuation of steadily falling commodity prices since 2013. After adjusting for inflation, the 2017 farm income forecast is 20 percent below the average of \$77.6 billion achieved between 1960 and 2016.<sup>1</sup>

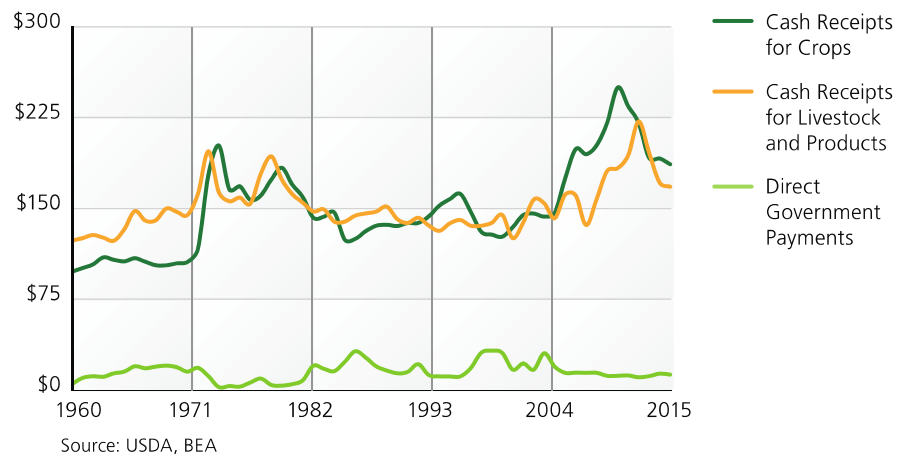
Production expenses are forecasted to be \$350 billion in 2017, which would be a reduction of 10.4 percent in nominal terms from the record of \$390.5 achieved in 2014. Despite expectations of higher yields and total production for the top 14 planted crops, seed, pesticide, and fertilizer expenses are expected to decline 5.4 percent in 2017 because the number of acres planted is expected to decline. Labor costs, however, are forecasted to increase 5.5 percent. Additionally, higher debt levels and rising interest rates are expected to increase interest expenses 15 percent in 2017.

The ERS expects total farm asset and farm real estate values to decline 1.1 and 0.3 percent in nominal terms respectively in 2017. Therefore, in real terms,

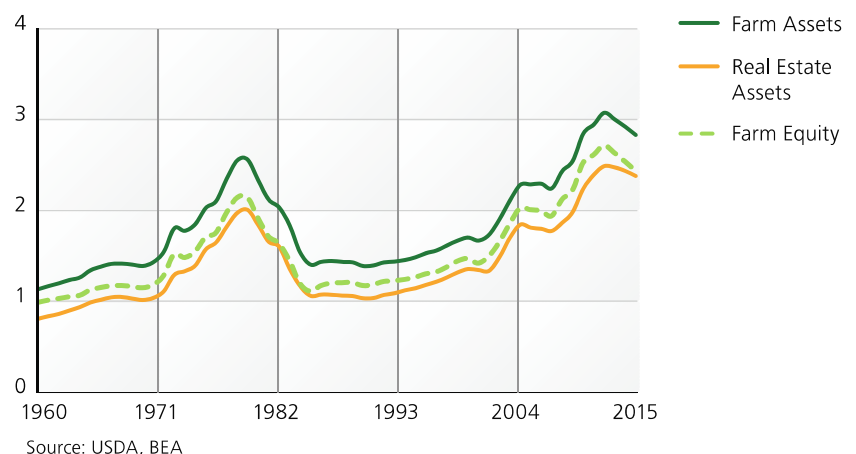
**Farm Income Components:  
1960 to 2017F, billions, 2017 dollars**



**Cash Receipts Components:  
1960 to 2017F, billions, 2017 dollars**



**Farm and Real Estate Assets and Farm  
Sector Equity: 1960 to 2017F, trillions, 2017 dollars**



*Trends continued*

the aggregate value of farm assets is expected to fall 7.9 percent to \$2.8 trillion from the record high of \$3.1 trillion achieved in 2014. Meanwhile, agricultural real estate is expected to fall 4.3 percent to \$2.4 trillion over the same period.

Farm sector equity is forecasted to drop 2.1 percent, or \$51.2 billion in nominal terms, to \$2.4 trillion in 2017. In real terms, the value of equity is forecasted to decline 10.3 percent, or 278.9 billion, from its peak value of 2.7 trillion in 2014.

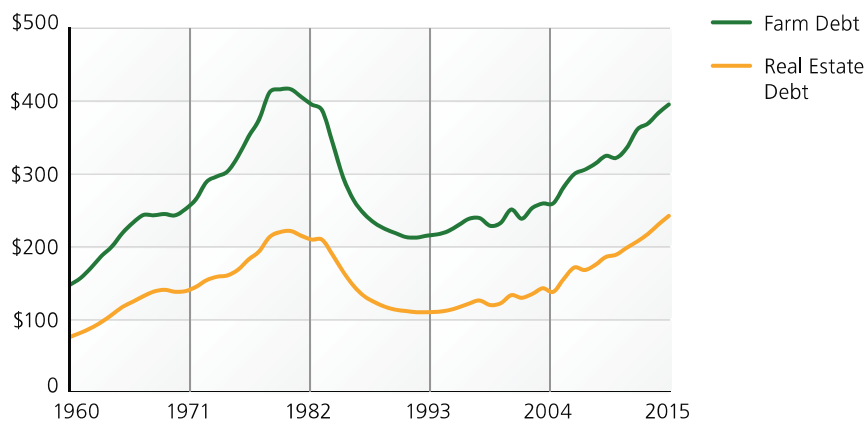
The value of farm sector equity correlates highly with the value of farm real estate because farmland is by far the largest asset on most farmers' balance sheets. Interestingly, though, the ratio of farm real estate to farm sector equity is expected to reach a new high of 97.6 percent in 2017. The only other instance when the ratio exceeded 97 percent was in 1983 and 1985 when land values underwent downward corrections.

The ERS forecasted farm real estate debt to reach a record high of \$240.7 billion 2017, which would be an increase of \$16.4 billion, or 7.3 percent in real estate mortgage loans. The forecast reflects ERS's expectation for "continued expected demand for cropland combined with anticipated low interest rates, strong balance sheets, substantial accumulated working capital, and strong yields. An additional contributing factor to the increase in farm real estate debt is increasing use of real estate as collateral to secure non real estate borrowing".

The ERS forecasts non-real estate debt to increase \$3.0 billion, or 2 percent, to \$154.4 billion in 2017. The agency cited declining farm input costs and lower commodity prices, which reduces demand for farm machinery and vehicles, as the reasons for slower growth of non-real estate debt.

Given that debt is predicted to increase and asset values are expected to fall,

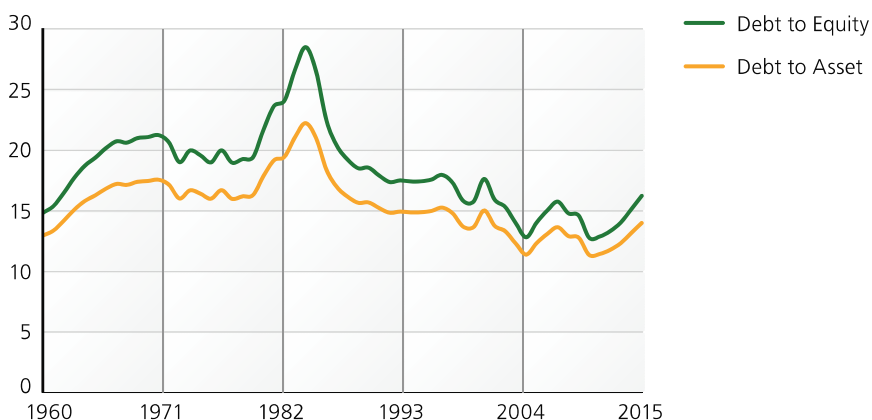
**Farm and Real Estate Debt:  
1960 to 2017F, billions, 2017 dollars**



Source: USDA, BEA



**Farm Sector Debt Ratios:  
1960 to 2017F**



Source: USDA, BEA

both the debt-to-asset and debt-to-equity ratios of the farm sector are expected to move higher to 16.2 and 13.9, respectively, in 2017. If realized, the ratios would be the highest level attained since 2002, suggesting a modest increase in financial risk relative to recent years.

While they are forecasted to increase, the debt-to-equity and debt-to-asset ratio forecasts were lower than their respective averages of 18.2 and 15.4, which are a reflection of metrics reported since 1960.



## Farmland Index

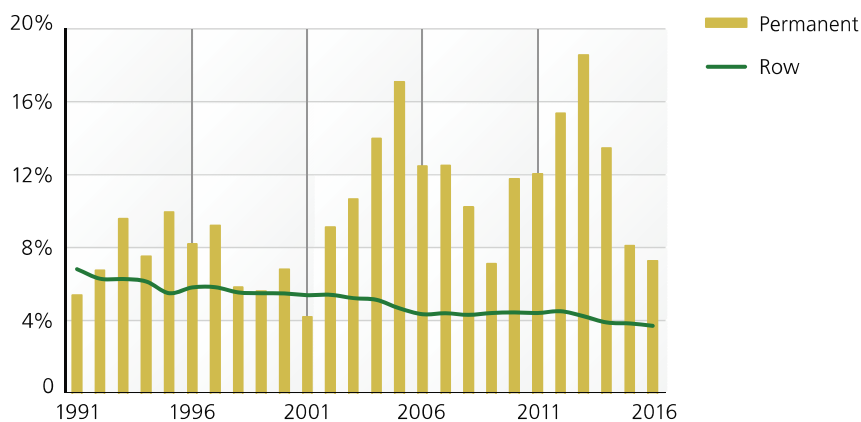
The NCREIF Farmland Index reports the performance of 743 properties that had a market value of nearly \$8.0 billion as of December 31, 2016.<sup>ii</sup> The aggregate index posted a total return of 7.1 percent for the year. This performance was comprised of an income return of 5.2 percent and a capital return of 1.9 percent. The 2016 total return was the lowest attained since 2009, and the 2016 income return was the lowest since 2001.

NCREIF's Annual Cropland Index consists of 492 properties, which were worth \$4.4 billion in 2016 – an average of \$9.0 million per property. The annual index posted a total return of 4.7 percent in 2016, with income returns of 3.6 percent and capital returns of 1.1 percent.

The NCREIF Permanent Cropland Index consisted of 251 properties worth \$3.6 billion in 2016 – an average of \$14.2 million per property. The permanent index posted a total return of 10.1 percent, with income returns of 7.2 percent and capital returns of 2.8 percent.

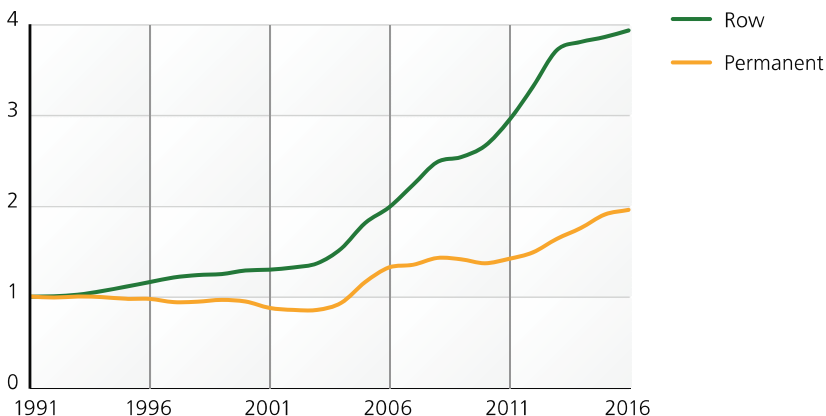
In aggregate, income returns from the NCREIF Permanent Cropland Index remained robust in 2016 despite capital returns more than doubling in value since 2004.

**NCREIF Income Returns from Permanent and Annual Cropland: 1991 to 2016**



Source: NCREIF

**Index of NCREIF Capital Returns from Permanent and Annual Cropland: 1991 to 2016, base year is 1991**



Source: NCREIF

*Farmland Index continued*

The NCREIF Row Cropland Index, however, exhibited below average performance last year. The income and total return, at 3.6 and 4.7 percent respectively, were both the lowest registered since NCREIF began tracking farmland returns in 1991. The compressed income rate of return from leased row cropland was largely due to a run up in farmland values. In fact, the index of NCREIF capital values indicates the value of row cropland has more than quadrupled since 1991. During this period, those participating in the row cropland segment of the market rationally bid up land prices in response to a reduction in the opportunity cost of capital and an increase in expected future farm income.

For example, income returns from the NCREIF row index oscillated above and below the 10-year annual average constant maturity Treasury yield until 2008, when accommodative monetary policy drove treasury yields lower. Despite the significant increase in farmland values, NCREIF income returns have remained at least 110 basis points higher than the 10-year yield since 2010.

In addition to a lower opportunity cost of capital, the relative value of the US dollar, by most measures, fell consistently from 2001 to 2011 – remaining historically weak until 2014 before rising again in 2015. The weakening of the relative value of the dollar reduced the relative cost of US agricultural exports for foreign consumers, and commodity prices rose to ration demand. Moreover, increasing foreign demand for feed and food since 2001, particularly from China, and policies encouraging bio-fuel production, also helped support higher commodity prices.

Higher commodity prices increased the expectation of future farm income, and a continual reduction in the opportunity cost of capital reduced the rate at which farmland owners discounted future farm income. Again, the combination of higher farm income expectations and

**NCREIF Income from Annual Cropland and the 10-Year Treasury Constant Maturity Rate: 1991 to 2016**



lower discount rates caused farmland market participants to drive up prices, perhaps to a point that justifies the 3.6 percent income return posted by the NCREIF Row Cropland Index in 2016.

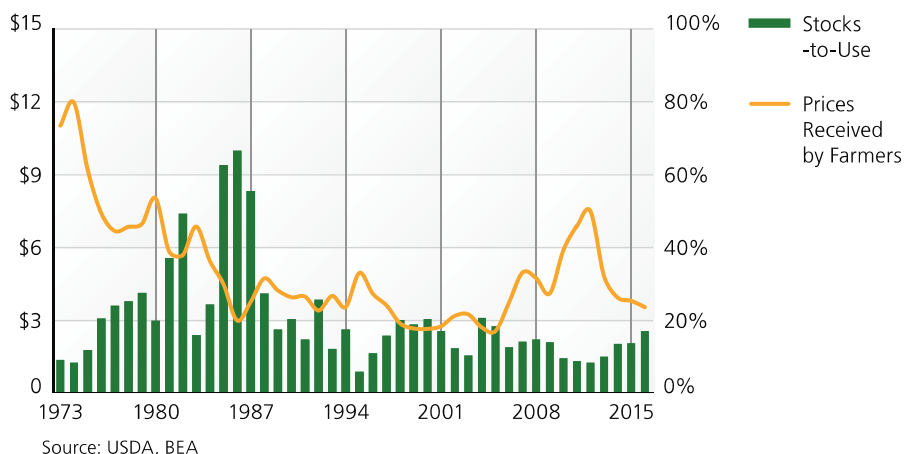
## Our Thoughts

A paradigm shift has occurred in the agriculture sector. In 2017, net farm income is expected to be at half the level achieved in 2013. In terms of cash receipts, the two leading crop commodities in the US (corn and soybeans) experienced significant price declines between 2012 and 2016. The nominal price of corn fell 50.6 percent from \$6.89 per bushel in 2012 to \$3.40 per bushel in 2016. The nominal price of soybeans fell 34 percent from \$14.40 per bushel to \$9.50 during the same period. The price of other important row crops, such as wheat, alfalfa, cotton, rice, and sorghum, experienced similar declines over the same period.

Two leading farm sector analysts, Brent Gloy and David Widmar, have observed that a significant driver of declining commodity prices is the increased number of acres being managed globally for the production of row crops.<sup>iii</sup> This increase has led to increased global production, which, combined with continued productivity increases, has likely suppressed commodity prices. Farm booms always seem to pit the old adage, “Buy land. They’re not making any more” against the other old adage, “In agriculture, high prices cure high prices.” The latter has historically held true as farmers around the world bring more acreage into production to take advantage of high crop margins.

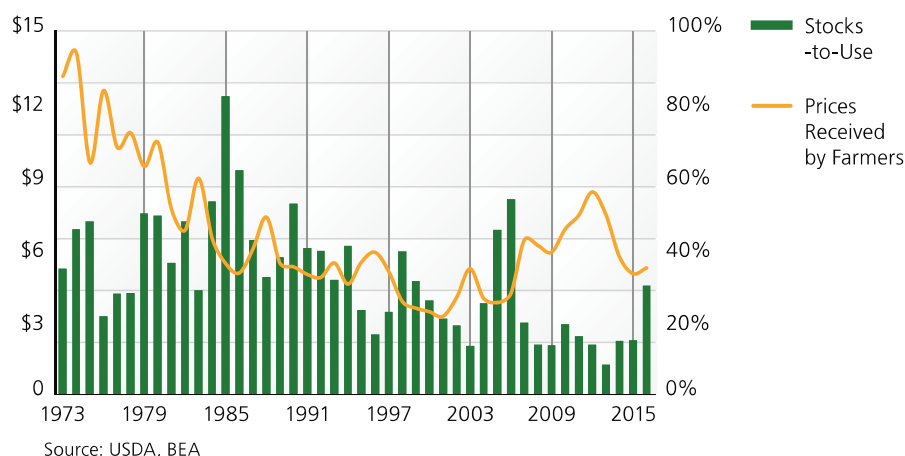
Once land is brought into crop production, it tends to stay in production. Given the additional land brought into production globally since 2000 (12 percent), and the increases in agricultural productivity that have been achieved since then, the potential for a long-term, structural over supply of major row crops exists.

**Average Annual Price and Stocks-to-Use Ratio of U.S. Corn: 1980 to 2016, dollars per bushel, 2017 dollars**



*Farm booms always seem to pit the old adage, “Buy land. They’re not making any more” against the other old adage, “In agriculture, high prices cure high prices.”*

**Average Annual Price and Stocks-to-Use Ratio of U.S. Soybeans: 1980 to 2016, dollars per bushel, 2017 dollars**



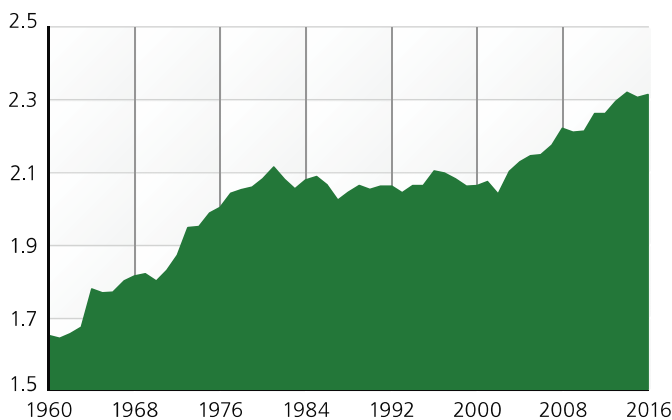
*Our Thoughts continued*

In many instances, current commodity prices cannot generate enough revenue to cover production costs, row cropland rents, and farmers’ wages. Income expectations and cash rents for row cropland have slowly been adjusting downward since 2014 in response to the lower commodity price environment. Row cropland prices, however, continue to exhibit stickiness and a reluctance to follow cash rents.

Aggregate lease rates for row cropland are trending below 4 percent (NCREIF row cropland income is at 3.6 percent). The reduction in commodity prices is squeezing margins and forcing farmers to renegotiate rents downwards. AgIS believes passive row cropland investments offer limited value given the current margin squeeze and we expect the value of cash rents and farmland to fall further in the coming years.

Despite that less than optimistic outlook, however, we still see strong investment opportunities in agriculture outside of the corn, soybean, wheat, and rice crop segments. While nut and fruit prices have fallen from historical highs, permanent cropland investments continue to generate relatively strong income returns (recall, the NCREIF Permanent Crop Index generated a 7.2 percent income return in 2016).

**Harvested Area of 13 Major Row Crops Throughout the World: 1960 to 2016, billion acres**



Source: USDA PSD

Additionally, we continue to advocate [moving beyond ‘buy-hold-lease’ farmland strategies](#)<sup>iv</sup> and investing in platforms that integrate farming operations, land, and improvements at the primary stage of production with processing and marketing stages. Integrating activities throughout a supply chain can enable agribusinesses to capture value by reducing the costs associated with transacting in the market. Furthermore, the additional coordination enables such firms to secure supply, control quality, ensure food safety, and swiftly respond to changing regulations. And most importantly, integration enables companies operating in the sector to create value for consumers

by extending the availability of perishable items or offering new or enhanced products. To fully capitalize on these platforms and the trends influencing them, AgIS Capital is currently focusing on food crops and products that are primarily destined for US consumers, rather than on feed, fiber and fuel crops. We believe that, now more than ever, investing in these types of integrated platforms will be the key to maximizing the risk-adjusted returns of agricultural investments.



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Disclaimer: Our belief of future market performance is based on expectations that may or may not come true. Investors should perform their own due diligence before undertaking farmland investments.

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<sup>i</sup> In this article, prices adjustments for inflation are made using the Bureau of Economic Analysis's Implicit Price Deflators for Gross Domestic Product ([Table 1.1.9](#)), except for 2017, during which period prices are expected to increase 2 percent. The price index is then rebased from 2009 to 2017 to display statistics in terms of the value of the dollar in 2017.

<sup>ii</sup> The NCREIF Farmland Index tracks the performance of seven institutional farmland investors. These investors only report the returns of income generating assets, so the index does not account for investments with immature biological assets (i.e. a two-year-old almond orchard). All properties are reported on an all-cash, unlevered basis. The market value of each property is determined by real estate appraisal methodology. Investors must provide a quarterly appraisal for each property. A professional third-party appraiser is required to value each property once every three years, however most investors are thought to have each asset valued by a professional once each year. Managers can directly operate, custom farm, or lease of permanent cropland to tenant farmers, but all row cropland assets reported to NCREIF are leased.

<sup>iii</sup> Brent Gloy and David Widmar, Tight Budgets Likely to Persist in 2017: <http://ageconomics.com/2017/01/09/tight-budgets-likely-persist-2017>

<sup>iv</sup> Cody Dahl and Brent Gloy, Moving beyond 'buy-hold-lease' farmland strategies: <http://www.pionline.com/article/20141230/ONLINE/141239996/moving-beyond-buy-hold-lease-farmland-strategies>. If you have trouble accessing the link, please contact Cody Dahl at [cdahl@agiscapital.com](mailto:cdahl@agiscapital.com).