

Timberland and Farmland: Working Together in a Mixed Asset Portfolio

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A combination of timberland and farmland can reduce variance in portfolio returns

Timberland and farmland assets have been used and tracked as components of institutional portfolios for over two decades, establishing a strong historical record of performance, low to moderate risk, and favourable diversification characteristics. While investors have generally treated timberland and farmland as separate asset classes, both are income generating and land appreciation investments with biological growth components. Both offer comparable risk-adjusted returns and inflation protection. Structuring coordinated investments in these two natural resources has the potential benefits of generating operational efficiencies and augmenting the risk-reducing diversification of a broader portfolio. This article provides a comparison of the risk-return profile of a combined timberland/farmland investment to commercial real estate and other financial assets. Further, we analyse the performance results over the past 25 years for pure timberland investments and pure farmland investments compared to a combined timberland/farmland model portfolio.

Based on the National Council of Real Estate Investment Fiduciaries (NCREIF), data for the years 1992 through 2016, investments in US timberland and US farmland have provided annualised total returns of 9.6% and

11.8% respectively. Both timberland and farmland have historically provided a relatively high rate of return for their associated level of risk compared with other asset classes. To illustrate the potential benefits of a coordinated investment across these two natural resource classes, we constructed a theoretical combined timberland/farmland investment portfolio based on historical returns for assets in the United States. Our model timberland/farmland portfolio consists of 50% timberland and 50% farmland (rebalanced quarterly), and reflects the geographic, species mix and age-class distribution of the timber properties reporting into the NCREIF Timberland Property Index, and similarly, the geographic distribution and the mix of row and permanent crops underlying NCREIF's Farmland Property Index.

Chart 1 illustrates the risk-return profile for a combined timberland/farmland investment, compared to pure timberland, pure farmland, commercial real estate, and various financial assets during the past 25 years (1992 – 2016). The historical return for the combined timberland/farmland investment is positioned between the individual historical returns for timberland and farmland, yet has a lower volatility than either of its components. The standard deviation of the timberland/farmland combination dropped to 6.4% versus 9.2% for pure timberland and 6.9% for pure farmland.

Investment returns for timberland and farmland are correlated, at roughly 0.25 during the years 1992 through 2016, but are far from perfect substitutes. These two natural resources have performed differently under specific economic and policy conditions and are sensitive to different market drivers. To illustrate the differences in performance between farmland and timberland over a variety of periods, we evaluated their relationship over three separate intervals: the first time period, 1976-1990 starts at the earliest point in time when synthetic returns are available for both timberland and farmland¹; 1991-2009 covers the period from when NCREIF-reported performance returns became available for both asset classes up through the peak of the Global Financial Crisis (GFC); and finally 2010-2016, the period following the GFC. We have also included historical performance of NCREIF's Commercial Real Estate Property Index (NPI) as a point of reference (See Chart 2).

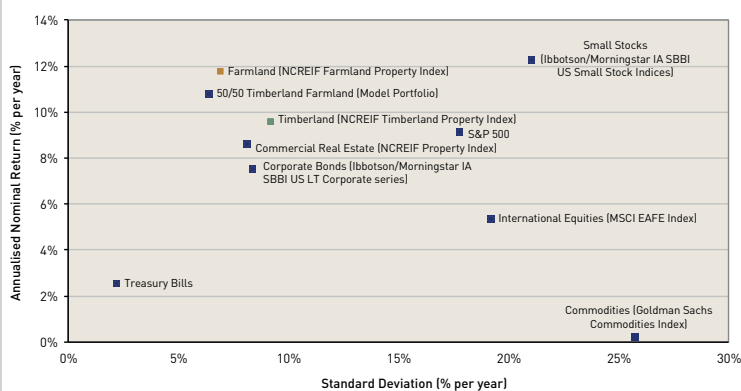
Over extended periods of time, US timberland, US farmland, and US commercial real estate have all delivered high single-digit to low double-digit returns. However, performance for each of the three real assets has departed from the average in particular time periods. In the first period (1976-1990), timberland returned an average 14.9%, its strongest performance in all three periods, while farmland registered its lowest average returns. In the

decade and a half preceding the GFC (1991-2009), timberland and farmland both posted moderate returns of 12.2% and 11.3% respectively, while commercial real estate dropped to an average of 7.2%. In the wake of the GFC, timberland returns dropped sharply to an average of 5.3%, reflecting the collapse in US residential construction activity and an exceptionally lackluster housing recovery in the post-GFC period. Farmland returns were exceptionally strong following the GFC, averaging 13.4%, and showing limited vulnerability to the global economic slowdown. Supporting robust returns for farmland investments in the period 2010-2016 were a variety of factors, including US government mandated use of ethanol in car fuel coupled with trade restrictions limiting US imports of ethanol; historically high commodity prices; and strong Chinese imports of agricultural commodities.

Offsetting each other's periods of weak performance, a combination of timberland and farmland have historically delivered consistent returns

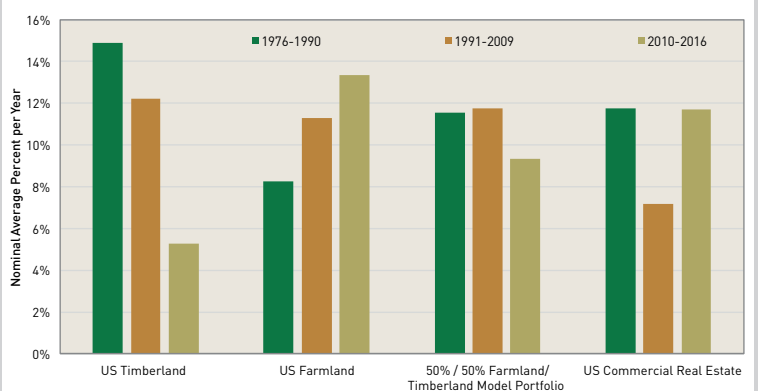
Mixed together in equal proportions, the 50/50 combination of timberland and farmland showed consistent return performance across all three distinctly different periods. Offsetting each other's weak performance periods, the combined timberland and farmland portfolio had an average total return

Chart 1: Historical Risk vs. Return for US Asset Classes (1992 – 2016)



Source: Morningstar, Macrobond, NCREIF, Hancock Natural Resource Group, August 2017

Chart 2: Comparison of Annualised Returns for Real Assets (% per year)



Source: NCREIF, HNRG Research, August 2017

over the three periods of 10.9%, with a spread between the highest and lowest average return over the three periods of 243 bps. This compared favourably with US commercial real estate, which had an average total return over the three periods of 10.2%, with a spread between the highest and lowest average return over the three periods of 461 bps.

The return information from Chart 2 is summarised in Table 1 and illustrates the complementary nature of timberland and farmland in a coordinated investment portfolio.

Table 1: Historical Annualised Returns (% per year)

	US Timberland	US Farmland	50/50 Timberland/ Farmland Model	US Commercial Real Estate
1976-1990	14.9%	8.3%	11.6%	11.8%
1991-2009	12.2%	11.3%	11.7%	7.2%
2010-2016	5.3%	13.4%	9.3%	11.7%

Source: NCREIF, HNRG Research, August 2017

A combined timberland and farmland portfolio can bring strong diversification benefits when combined with equities and fixed income assets. Over the entire 25-year period, the combined timberland and farmland model portfolio averaged a 0.10 correlation to the S&P 500, and a negative 0.12 correlation to long-term corporate bonds (Morningstar Ibbotson US long-term corporate bond index).

Having a broader mandate across both timberland and farmland enhances an investor's ability to act opportunistically

A coordinated approach to incorporating timberland and farmland into an institutional portfolio expands the opportunity set of properties targeted for acquisition and provides greater flexibility in building a set of investments to meet individual investor objectives. Neither timberland nor farmland has the depth of investible properties of commercial real estate. Institutional investment submitted to and reported by NCREIF for commercial real estate is presently on the order of \$539 billion, while timberland is \$25 billion and

farmland is \$8 billion. Broadening the search for properties across timberland and farmland allows more flexibility in assembling a portfolio of properties and reduces the pressure to place capital in an overheated market in either the timberland or farmland space. The flow of large scale, high-quality timberland and farmland properties to the market is neither smooth nor continuous, and having a broader mandate across both timberland and farmland can enhance an investor's ability to act opportunistically. For example, farmland values in

the US mid-west are finally beginning to ease after a period of sharp appreciation, responding to the significant price correction that has occurred in grain and oilseed prices. Concurrently, US timberland prices remain strong, reflecting the on-going recovery in US residential construction.

With a wide range of investment options, timberland and farmland investors can build a diversified portfolio of properties to help insulate their exposure to many market and macro-economic risk factors

Similar to commercial real estate and financial assets, farmland and timberland are vulnerable to macro-economic and market risk factors. In the case of timberland, residential construction activity is a key source of demand and a dominant value driver for many investments. The cyclicity of housing demand can result in pronounced swings in timber prices, but timberland owners often have the capability to allow their trees to continue growing and defer their harvest operations to coincide with stronger market conditions.

For farmland investments, the dynamics of international trade are an important consideration, including shifts in foreign exchange rates and cross-country trade agreements. Timberland and farmland encompass a wide array of forest and crop types (row and permanent) producing for a multitude of end-use markets. With a wide range of investment options, timberland and farmland investors can build a diversified portfolio of properties to help insulate their exposure to many risk factors.

In addition to market and macro risk factors, timberland and farmland investments are also exposed to the possibility of physical crop damage resulting from weather, pests and disease. These physical-casualty risks generally account for a relatively small proportion of annual revenue and can be proactively addressed through management practices in the operation of the farms and timber plantations, crop insurance for agricultural properties, and most importantly, geographic diversification in portfolio construction. In most cases, the impacts of weather events (droughts, floods, hurricanes,

etc.) and outbreaks of diseases or pests are location specific. Being able to assemble a geographically diverse portfolio of properties mitigates and limits the associated damage of these physical risks. In addition, the restricted supply resulting from these physical-casualty events often has an off-setting positive impact on product pricing in the affected area.

The above review of the historical performance and investment characteristics of timberland and farmland suggests that a combined management approach, when incorporating these two asset classes into a broad institutional portfolio, has the potential to reduce the volatility of returns and facilitate the property acquisition process.

FOOTNOTES

¹ Timberland returns prior to 1987 are the Hancock Timberland Index, a synthetic nominal total return series based on historical timber prices and assumed capitalization rates. Early farmland returns, prior to 1991 are based on methodology within the 2009 study by Francis and Ibbotson; Contrasting Real Estate with Comparable Investments.



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