



TIMBERLAND
INVESTMENT RESOURCES_{LLC}

Timberland Investment Essentials:

*Fundamentals for Investment Professionals
with Real Estate Backgrounds*

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Introduction

Real estate typically represents the largest real asset allocation within most institutional investment portfolios. Consequently, many real asset consultants and portfolio managers have real estate backgrounds, which is naturally a reference point for their analysis. In comparison, their exposure to timberland is usually more limited. While there are some common features, investing in forests is fundamentally different than investing in offices, warehouses, apartments, and shopping centers. The purpose of this paper is to provide a “crib sheet” for real asset professionals – whose frame of reference is real estate – to adjust their investment lens for timberland investments.

This paper covers three topics. First, we begin by highlighting the common ground between timberland and real estate investments. Secondly, we identify the key differences between timberland assets and commercial real estate assets. Finally, the paper highlights investing opportunities that timberland properties provide that are not commonly available with real estate.

Common Qualities Between Timberland and Real Estate

Timberland and real estate investing share a number of important attributes. Understanding the commonality of the two asset classes allows investors to better appreciate and take advantage of their unique features.



Location Dependence

The classic real estate mantra of “location, location, location” is applicable to timberland. The performance potential of a forest asset, like real estate, depends in no small part on its location. This goes beyond simply the regional climate or soil quality that can affect the biological productivity of the trees. A good forest investment should ideally be situated in a competitive market for lumber manufacturing or natural capital products such as carbon offset credits, recreational leases, conservation easements, environmental mitigation banking, and solar farms, which can be monetized. In addition, demographic trends and economic development of the surrounding area will affect the land value.

Consider this: two forest properties can have the same species, stocking of timber, and biological productivity but have two very different values. The property that is far removed from mills and is remote from population centers will carry a low value. Another forest property that has many surrounding mills nearby to buy its timber or is in the path of economic development and demographic growth could carry a much higher value and greater income potential.

Diversification is Important

Real estate investing is not monolithic. There is broad diversity across regions and categories. New York City is different than Seattle or Detroit. Real estate assets can come in the form of office buildings, retail centers, hotels, apartments, warehouses, or data centers. Each has its own performance correlations and risks. Understanding these factors gives investors the ability to construct a well-diversified portfolio to manage that variability and risk.

The same applies to timberland. To illustrate, a natural hardwood forest in Pennsylvania, for instance, will have a distinctly different performance and risk profile than a plantation of loblolly pine in Georgia. The hardwoods in Pennsylvania will go into the furniture and flooring market and are also used to make pallets and railroad ties. Meanwhile, the loblolly pine from the Georgia forest will likely be made into lumber and panels that will go into housing developments in Atlanta, Miami, and Nashville. When combined, the forests from Pennsylvania and Georgia can create a portfolio of lower return volatility. Hence, a timberland investor knowing his/her risk tolerance and return objectives can purchase the right diversity of forest properties to better meet his/her investment objectives.

Appraisal Based

A third common feature is that as long-term, non-traded investments, both timberland and real estate are highly dependent on appraisals for valuation. During the holding period of the asset, the valuation and performance of timberland and real estate investments are determined by appraisals. Using an appraisal-based assessment of unrealized value instead of market-derived price (e.g., as generated by stock market exchanges for public equities) raises challenges.

Like real estate, valuation of a timberland property is based on the same three legs of an appraisal: (1) comparable sales; (2) net present value of projected future income; and (3) component value – also known as replacement value or sum-of-parts.



Calculation of Returns

The fourth attribute timberland shares with real estate investments is calculation methodology. The National Council of Real Estate Fiduciaries (NCREIF) provides one of the most widely recognized benchmark indices of institutional investments in real estate and in timberland. NCREIF uses a nearly identical approach to calculate investment returns for its National Property Index (for real estate) and its Timberland Property Index. The functional differences between the two benchmarks are minor and are mostly related to the fact that the timberland index accommodates for partial property purchases whereas it is not a factor in the commercial real estate space. The formulas used by NCREIF to calculate quarterly returns for timberland and real estate are displayed in the paper's appendix.



Key Differences Between Timberland and Real Estate Investments

While timberland and real estate have much in common, there are a few important differences that separate the two asset classes. First, timberland and real estate's returns behave differently over time, which gives them a low correlation in their financial performance. Over the last 20 years, annual returns between timberland and real estate have had a statistical correlation value of -0.35 (Table 1). With a value well below one (1), returns from timberland investments are only loosely associated with real estate. Yet returns have been comparable: 7.12% for timberland versus 7.35% for real estate. A low correlation is good for diversifying a portfolio as timberland assets can help mitigate some of the volatility of real estate assets.

The differences between the two asset classes, however, go beyond this low correlation.

Different Sensitivity to Economic Cycles

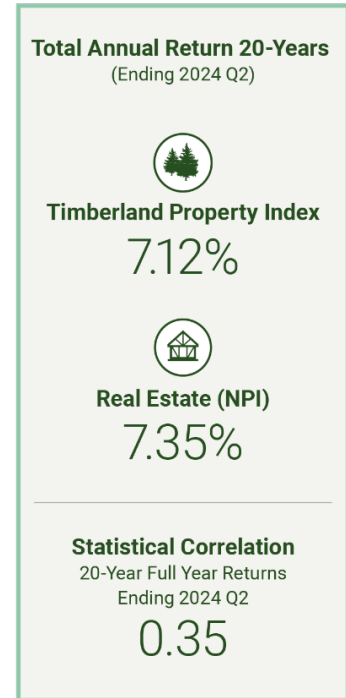
The income profile between timberland and real estate is fundamentally different. In real estate, the built asset – such as an office building – depreciates while income is generated from the tenant's lease payments. In timberland investments, the forest is more like a factory and a warehouse. As a factory, it continues to produce wood perpetually. As a warehouse, the forest stores the wood that it produces. Hence, when a timberland owner harvests and sells the timber, it is like selling stock from a warehouse. The value of the forest asset therefore falls after each harvest.

This has two important implications. First, harvest income from a forest is subject to capital gains tax. However, in many tax jurisdictions, including the U.S., capital gains tax rates are more advantageous than the lease income from commercial real estate properties. This difference is relevant only if the investor is taxable.

The second significance of timberland's different income source, however, applies to all investors – taxable or not. As a "factory" and a "warehouse" timberland offers a low opportunity cost for delaying harvest when market conditions are poor. The forest owner can "store on the stump" the wood not harvested. Compare that to real estate. During weak economic conditions, foregone lease income from the loss of tenants cannot be made up again later. Conversely for timberland, trees that are not harvested for income can typically be kept standing to continue to grow and add value.

This difference is accentuated by market cycles. For example, investments in offices, warehouses, and apartments often do exceptionally well in a strengthening economic climate but tend to underperform in weak economic conditions. In comparison, timberland can "smooth out" and mitigate performance volatility across

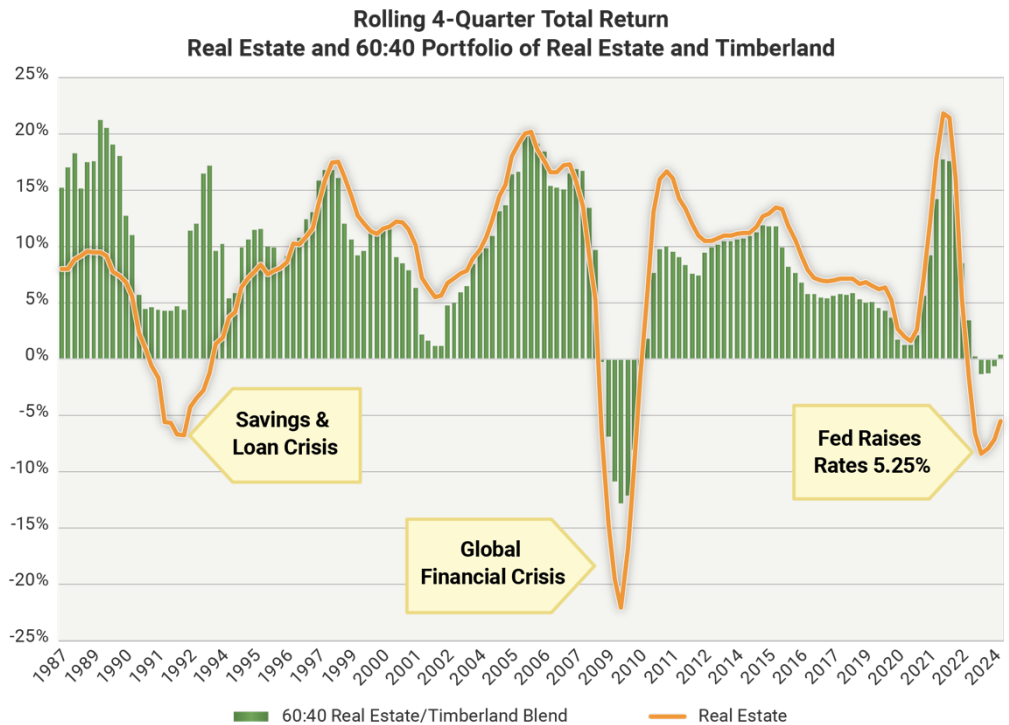
Table 1. Sources: NCREIF Timberland Property Index and NCREIF National Property Index (Classic). Correlation of -1.0 is perfect negative correlation; 0 is no correlation; 1.0 is perfect positive correlation. Returns are calculated on a time-weighted, chain-linked quarterly performance data basis.





economic cycles. With the ability to adjust the timing of when to harvest timber, timberland managers can minimize exposure to weak economic markets. Timberland’s ability to switch between capital gains (growing more wood) and income (harvesting timber) can serve as a complement to commercial real estate.

Figure 1. Sources: NCREIF Timberland Property Index and NCREIF National Property Index (Classic).



This is illustrated in a chart of rolling 4-quarter returns in Figure 1. Real estate returns – marked by the orange line – can be quite volatile and are affected by economic shocks such as the 1990 recession caused by the Savings & Loan Crisis, the Global Financial Crisis of 2007, and the rapid rise of interest rates by the Federal Reserve in 2022-2023. However, when timberland assets are blended with a real estate portfolio, a 60:40 blend can reduce or even eliminate the negative shocks – as shown in the chart as green bars. Notice that a combination of real estate and timberland investments would have kept total returns positive during the Savings & Loan Crisis and would have reduced the losses from the Global Financial Crisis by one-third. A common measure of risk is the standard deviation of returns. By that measure, a 60:40 blend of real estate and timberland offered one-fourth less risk over the past 20 years than a portfolio of only real estate investments (Figure 2).

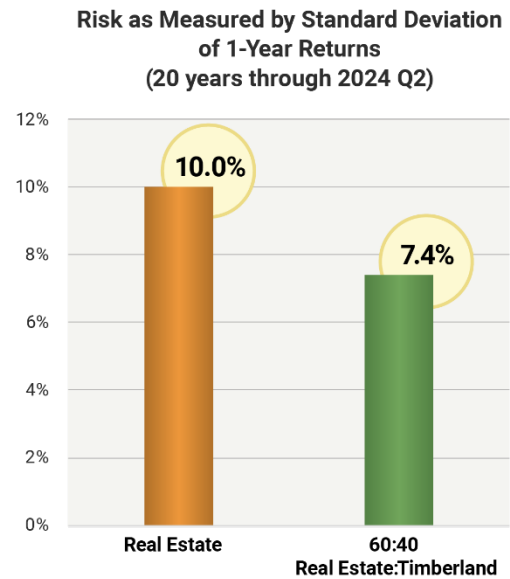


Figure 2. Sources: NCREIF Timberland Property Index and NCREIF National Property Index (Classic).



Interest Rate Hedge

Given timberland’s resilience to economic cycles, it also has historically performed well in higher interest rate environments. This can complement real estate which tends to excel under low-interest rate environments. When measured in 5-year periods over the course of the NCREIF Timberland Property Index, we see a well-defined positive relationship between the 10-year U.S. Treasury bond yield and timberland return (see Figure 3). For comparison, real estate tends to perform better in low or moderate interest rate conditions but weakens when 10-year Treasury yields rise above 6% (Figure 4). Pairing the two asset classes would therefore create a natural interest rate hedge in a real assets portfolio.

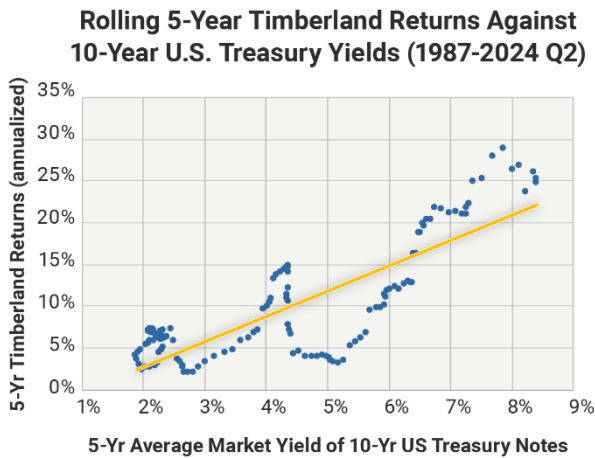


Figure 3. Sources: U.S. Federal Reserve (Treasury yields); NCREIF Timberland Property Index (timberland returns)

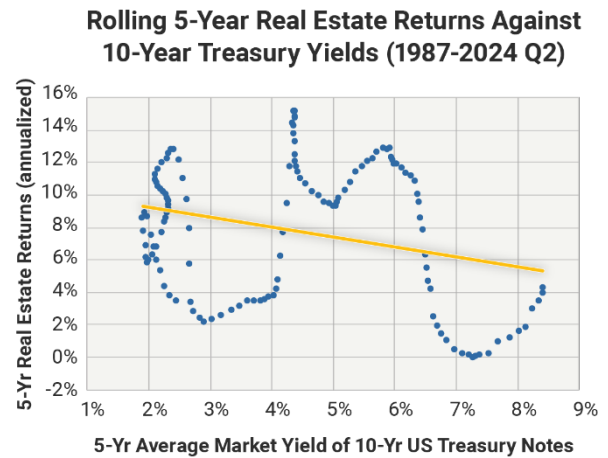


Figure 4. Sources: U.S. Federal Reserve (Treasury yields); NCREIF National Property Index (real estate returns)



Inflation Hedge

If timberland could be a counterweight to real estate against rising interest rates, then by extension, it should also do the same with inflation. Periods of high interest rates tend to reflect elevated inflationary environments. This is borne out over the long run, with five-year timberland returns shown to track positively with inflation (Figure 5). In comparison, real estate investments tend to excel in periods of low or moderate inflation (Figure 6). Combining both real estate and timberland investments together could therefore help “inoculate” a portfolio against risk that long-run inflation stays too high or too low.

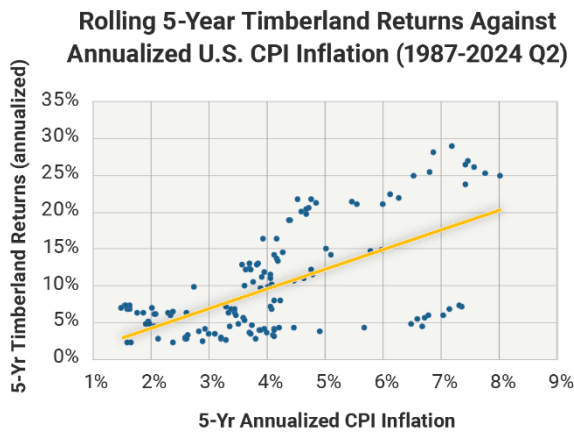


Figure 5. Sources: U.S. Bureau of Labor Statistics (CPI); NCREIF Timberland Property Index (timberland returns)

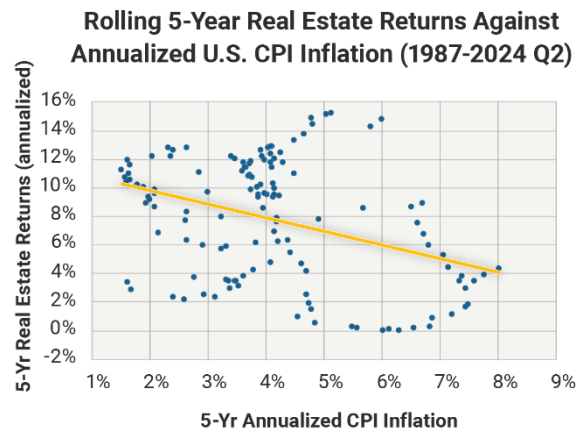


Figure 6. Sources: U.S. Bureau of Labor Statistics (CPI); NCREIF National Property Index (real estate returns)

There is a reason why timberland behaves differently than real estate. In a strong inflationary environment, higher pricing in end-use markets such as residential construction and consumer spending on goods could be transmitted up the value-chain to the resource owner (Figure 7). Wood is used in a wide range of products that permeate across whole segments of the economy. It is an input in baby diapers, toilet paper, clothing¹, Amazon shipping packages, shopping bags, IKEA furniture and newly built homes. This broad and interwoven linkage between the consumer discretionary and non-discretionary needs and the forestland owner helps give timberland resilience to inflationary pressures.

Figure 7. Flow of Price Signals up the Supply Chain to Timberland



¹ Certain textile fibers, such as Rayon, are a product of dissolving pulp which is made from softwood woodchips



Portfolio Enhancement Opportunities with Timberland

To review, timberland is unique among alternative assets. This is good news for investors as it provides portfolio enhancement opportunities that are not easily available with commercial real estate investments alone.

Moving Up the Value Scale of Land Uses

One standout feature about timberland is that it resides on the bottom end of the value scale for land (see Figure 8). Commercial real estate, on the other hand, resides on the top. The implication is that there is greater potential for a forest property to be converted to higher valued land uses compared to real estate. Many commercial real estate properties, whether they are office buildings, data centers, hotels or laboratories have reached their highest economic potential.

Figure 8.



For a diversified portfolio of timberland holdings in the U.S., it is convention to assume 10% to 15% of the assets could convert to *higher and better uses* (HBU) over a 10-year investment hold. HBU includes the purchase of properties by private individuals to serve as a place to hunt, recreate, and possibly a legacy for their children. Alternatively, a conservation easement could be added through funding by an environmental organization. Other higher-valued opportunities could be the conversion to agriculture, the placement of renewable energy infrastructure such as a solar farm, or the development of environmental mitigation credits.

The challenge for the investor and his/her manager is drawing out that extra economic value of a timberland portfolio through higher-valued land uses. It may only apply to a small segment of the overall portfolio but extracting that option value could create alpha for the investor and meaningfully impact returns.²

² Alpha is parlance for additional return above and beyond what the risk and correlation features of the asset could lead an investor to expect (i.e., the Beta).



Environmental Benefits

Another special advantage timberland offers is the ability to provide environmental benefits without sacrificing financial return. Society recognizes that forests offer a wealth of important ecological benefits and services ranging from providing clean air and water, sequestering carbon, and supporting biodiversity. Forests also provide surrounding communities with jobs, recreation, watershed protection, aesthetics, and tourism. For this reason, a large segment of the investment community place timberland in the fast-emerging category of *natural capital solutions* or *nature-based solutions*.

Investors who wish to make progress on environmental objectives in addition to financial return may wish to include forest assets in their real asset strategy. This may reflect self-directed goals – such as achieving net-zero carbon emissions – or positioning an organization better in the public space (such as ESG³ and sustainability ratings).

³ ESG stands for Environmental, Social and Governance. It is shorthand for trying to make responsible investments and activities that are respectful and beneficial to the environment, stakeholders, and society at large.



Summary and Conclusions

The old proverb, “If all you have is a hammer, then everything looks like a nail,” can apply to investing. There is a risk that investors inadvertently assume that what holds true for one asset class is also true for related asset classes. This can inject biases and misconceptions into investment decision making.

To help rectify these risks, this paper highlights timberland and real estate’s important similarities, and recommends that investors consider improving the performance of their portfolios by taking advantage of three important differences between the two asset classes:

- ✔ Timberland can draw upon biological growth to generate capital gains and offer the **flexibility** to monetize that growth when market conditions are right.
- ✔ That optionality gives timberland a **different sensitivity to economic cycles** compared to real estate.
- ✔ **Hedging** against high interest rates or high inflationary environments can be more effective when timberland and real estate are paired together in a real assets portfolio.

Investing in timberland opens new opportunities for investors to improve the overall performance of their portfolio that would have been difficult to achieve with real estate alone. These include the potential to: (a) move up the value chain of land uses; and (b) put environmental and sustainability goals into action.

Knowing these special features for timberland could add “more tools in the toolbox” for unlocking value and building an effective real assets strategy for their portfolios.



APPENDIX

NCREIF Methodology of Calculating Quarterly Returns for their Benchmark Indices



Real Estate

$$\text{Income Return} = \frac{\text{Net Operating Income}}{\text{Beginning Market Value} + \frac{1}{2} \text{ Capital Improvements} - \frac{1}{2} \text{ Partial Sales} - \frac{1}{3} \text{ NOI}}$$

$$\text{Appreciation Return} = \frac{(\text{Ending Market Value} - \text{Beginning Market Value}) + \text{Partial Sales} - \text{Capital Improvements}}{\text{Beginning Market Value} + \frac{1}{2} \text{ Capital Improvements} - \frac{1}{2} \text{ Partial Sales} - \frac{1}{3} \text{ NOI}}$$

Total Return = Income Return + Appreciation Return



Timberland

$$\text{Income Return} = \frac{\text{Net Operating Income}}{\text{Beginning Market Value} + \frac{1}{2} \text{ Capital Improvements} - \frac{1}{2} \text{ Partial Sales} + \frac{1}{2} \text{ Partial Sales} - \frac{1}{2} \text{ NOI}}$$

$$\text{Appreciation Return} = \frac{(\text{Ending Market Value} - \text{Beginning Market Value}) + \text{Partial Sales} - \text{Capital Improvements} - \text{Partial Purchases}}{\text{Beginning Market Value} + \frac{1}{2} \text{ Capital Improvements} - \frac{1}{2} \text{ Partial Sales} + \frac{1}{2} \text{ Partial Purchases} - \frac{1}{2} \text{ NOI}}$$

Total Return = Income Return + Appreciation Return

Note:

- Income return is also known as EBITDDA Return (Earnings Before Interest, Taxes, Depreciation and Depletion)
- Appreciation Return is also known as Capital Gains (realized and unrealized)



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