



TIMBERLAND INVESTMENT RESOURCES_{LLP}

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EUROPE

LOOKING BACK & AHEAD

VOLUME XV, SPRING 2025



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Looking Back & Ahead

March 2025

Hello to our Clients, Partners, and Friends:

As another promising year unfolds, I am pleased to present our annual newsletter. As we have grown, we have maintained these two areas of focus — team and performance — both of which undergird our culture and the core philosophies by which we operate our company. We believe this approach has enabled us to deliver double-digit composite returns for three of the last four years and exceed the NCREIF Timberland Index by more than 100 basis points over our 20-year history.

Against this backdrop, last year brought significant events and challenges. While some older, less-efficient mills closed in the face of weakened lumber or pulp markets, demand for timberland soared, pushing valuations higher. In this issue, we explore three emerging trends for the year ahead and beyond: rising home construction will drive demand and prices for lumber higher; U.S. sawmill operating rates will rise; and income from timber sales will account for a growing share of returns for timberland investors.

Along with these, we highlight the status of Enhanced Timberland Opportunities IV, the Sustainable Forestry and Natural Capital Fund, and the Rural Impact Initiative. We also get an engaging look at how business intelligence and decision support systems are transforming forestry investment from Ryan Belcher, TIR's Senior Manager of Business Intelligence. TIR's efforts in wetland mitigation banking is another area you can read about.

Chung-Hong Fu, TIR's economist, offers a three-step framework for thinking about hedging for unanticipated surges in prices. He demonstrates how timberland, as an asset class, can serve as an effective inflation hedge.

We thank our clients and their advisors, without whose support and confidence the legacy we are building would not be possible. I trust you will gain insight from this year's newsletter, and as always, we encourage your feedback.

Thank you again for your continued trust and partnership.

Kind Regards,

Mark Seaman

Managing Partner, Chief Executive Officer
Timberland Investment Resources, LLC





Timber Market Highlights

Looking Back at 2024 and Forward to 2025 and Beyond

By Chung-Hong Fu, Ph.D., Managing Director of Economic Research and Analysis

Last year was a year with significant events and challenges. For the timberland investor, 2024 was a mix of good and bad. In terms of bad news, a number of mills were shuttered or suspended due to weakened lumber or pulp markets. On the positive side, demand for timberland had never been stronger, which led to higher valuations. We highlight three important developments in 2024 for the timberland asset class, then we peer into our crystal ball to offer three emerging trends for this year and beyond.

Looking
Back on
2024

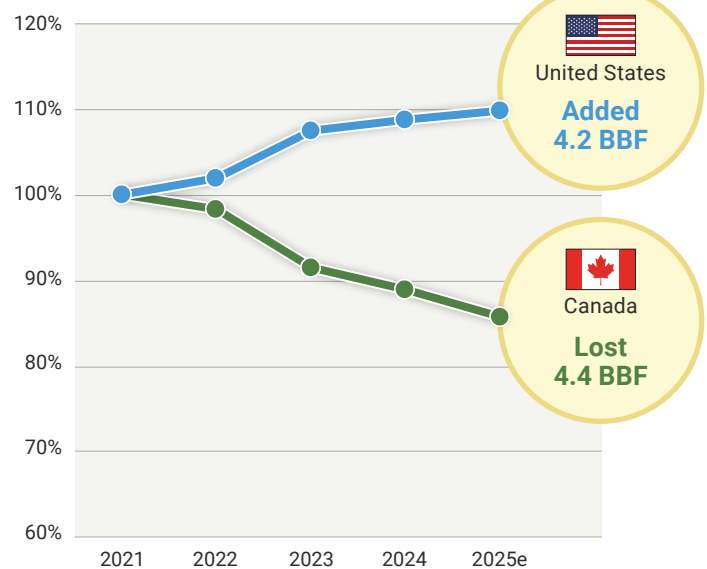
#1 Lumber Market Realignment Towards Domestic Producers

The United States is not self-sufficient in its wood needs. For decades, it has had to import lumber from Canada, along with smaller amounts from offshore. However,

Canada has faced mounting constraints on its timber resources for the past decade. This has culminated in the curtailment and closure of sawmills across Canada, primarily in the western province of British Columbia. Weak lumber prices in 2023 and 2024 accelerated those capacity reductions.

Granted, weak lumber prices also led to the closure of some higher-cost mills in the U.S. Pacific Northwest and the U.S. South. However, fresh capital investments in new mill capacity have more than made up for those losses. Altogether, Canada has lost an estimated 4 billion board feet of softwood lumber capacity since 2021. Meanwhile, U.S. capacity has grown by a similar amount (see Figure 1).

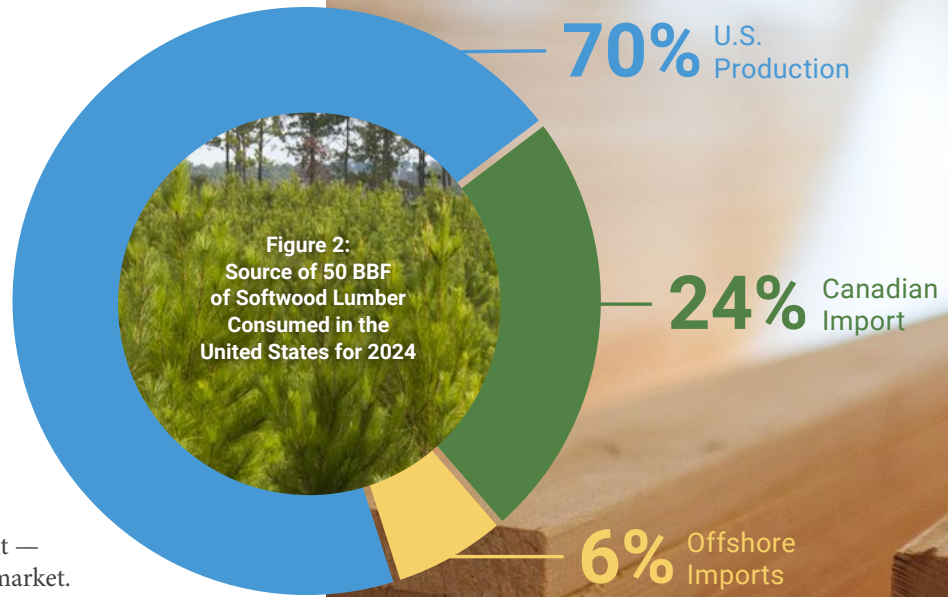
Figure 1: U.S. and Canadian Softwood Lumber Capacity Relative to 2021 Baseline



Source: Forest Economic Advisors



As mill capacity shifts south away from Canada and towards the U.S., domestic sawmills have taken market share away from Canadian producers. Last year, Canadian mills supplied about 24 percent of the 50 billion board feet of softwood lumber consumed in the United States (see Figure 2). As recently as 2016, Canada imports supplied 32 percent — effectively one-third — of the U.S. market. In the following eight years, Canadian producers ceded 8 points of market share to U.S. producers. Given the market realignment away from Canada, U.S. timberland owners are in a better position to benefit from any future recovery in lumber demand.

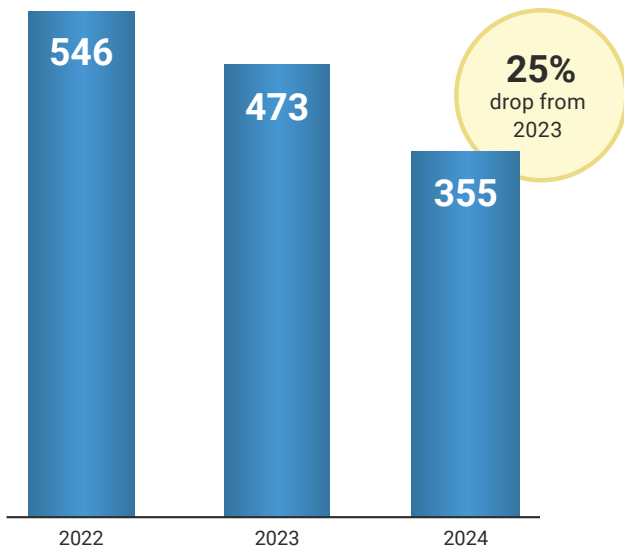


Source: Forest Economic Advisors

#2 Multi-Family Starts Hurt by Higher Interest Rates

New home construction declined 4 percent from 1.42 million starts in 2023 to 1.37 million in 2024. The reduction was not from single-family homes. In fact, single-family starts rose 6.5 percent for the year to reach 1.01 million. Instead, the decline came in the multi-family sector, with starts for condominiums and apartments down 25 percent for the year (see Figure 3).

Figure 3: Multi-Family Housing Stats (Thousand Units)



Source: U.S. Census Bureau



New home construction declined 4 percent from 1.42 million starts in 2023 to 1.37 million in 2024... the decline came in the multi-family sector, with starts for condominiums and apartments down 25 percent for the year



This shift affected timber markets because multi-family starts still use lumber and wood panels in their construction. While an apartment unit will need less framing lumber than a single-family home, apartments are important users of wood trusses, wood I-joists, oriented strandboard (OSB), and engineered wood products like glulam (glue laminated lumber). Many of these building products are made from southern yellow pine, which are sourced from Southern pine plantations. Thus, the falloff in apartment and condo construction last year hurt sawtimber prices in the South.

There are a couple of reasons for the reduction in multi-family starts. First, apartment construction expanded rapidly in the first two years of the COVID-19 outbreak, as developers were attracted by strong demand for rental housing and cheap construction loans, which created a glut of apartments in many major metro areas by late 2023 and early 2024. Rent rates fell, and developers were discouraged from building more. The second factor is that interest rates rose significantly in 2023 following the Federal Reserve's efforts to address rising inflation by increasing the federal funds rate from effectively zero percent in March 2022 to above 5.25 percent by July 2023. Higher rates made it more difficult for apartment and condo builders to obtain a building loan.

However, things are changing. By the end of 2024, the excess supply of apartment space had been largely absorbed. Rent and lease rates were rising once more. In addition, interest rates had stabilized, with banks becoming amenable to lending once more to multi-family housing developers.

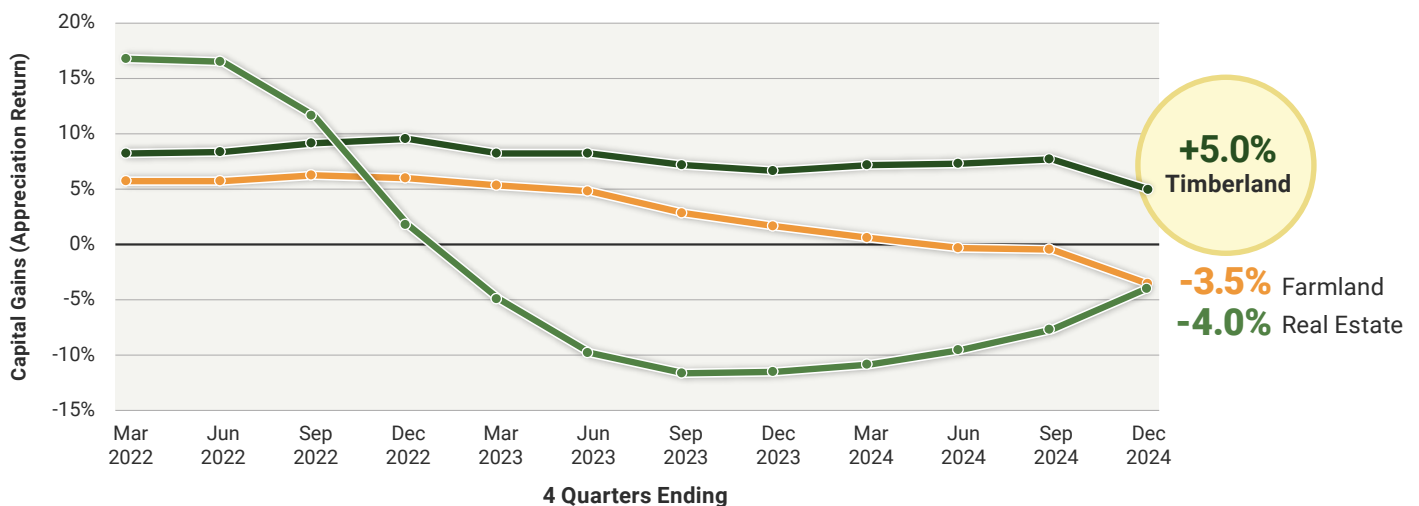
#3 Timberland Led Real Assets in Value Creation

Timberland was a lead performer in 2024 in terms of value creation among its real assets peer group. U.S. timberland investors, collectively, received capital gains of 5 percent for 2024, while farmland and real estate had capital losses of 3.5 percent and 4.0 percent respectively (see Figure 4).

There are several likely reasons for this outcome. For one, timberland valuations benefited from continued strong demand for forestland in *retail* land markets. These are smaller-sized parcels favored by individual landowners and smaller family offices. Retail land parcels tend to trade at a premium to wholesale values.

Timberland values were also supported by continued demand for natural capital solutions — also known as “ecosystem services,” these are resources provided by a forest outside of

Figure 4: Rolling 4-Quarter Capital Gains of U.S. Real Assets



Source: Nation Council of Real Estate Investment Fiduciaries (NCREIF)



commercial timber production that can be monetized in private markets, such as solar farms, environmental mitigation banking, and carbon capture and storage.

We also believe some of the strong valuations were due to buyers believing there will be a future recovery of timber prices. Expectations of a timber market recovery often translates into higher pricing for productive timberland properties in competitive wood markets.

In comparison, farmland assets faced declining prices for many types of crops, such as wheat, cotton, and corn. Likewise, commercial real estate faced falling valuations because of poor demand for office space. Weakened demand was further compounded by higher interest rates, which made it more expensive for existing building owners to roll over their debt or prospective buyers to take on new debt.

Looking Ahead to 2025

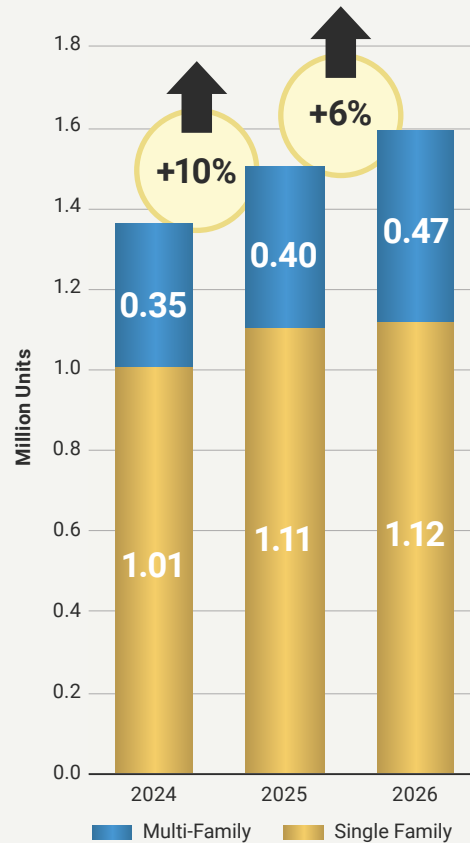
#1 Lumber Markets Turn the Corner

While last year was a challenging year for lumber markets, we think 2025 will be different. Forecasts vary across different analysts and economists, but the consensus is that new home construction is primed to grow in 2025. Fastmarkets RISI, a leading research group for the forest products sector, for example, projects housing starts will increase 10 percent to 1.51 million this year (see Figure 5). RISI then expects housing starts to reach 1.6 million in 2026.

There are several reasons for the increased optimism. Demand for new homes is being supported by rising wages, steady employment, and the limited inventory of existing homes for sale. In fact, there were only 3.3 months of supply of homes in the final month of 2024, as tracked by the National Association of Realtors. For reference, a 6-month supply is considered a balanced market. In addition, builders have the advantage over the existing home market by offering mortgage rate buydowns, which can cut mortgage rates for home buyers by 1 or 2 percent below market levels.

Beyond new home construction, home repairs and remodeling are also expected to grow in 2025. Rising home values and the limited availability of homes to purchase will encourage more homeowners to take on home improvement projects. According to the Joint Center for Housing Studies

Figure 5: U.S. Housing Starts Forecast



Source: Fastmarkets RISI

of Harvard University, spending on home improvement and maintenance is projected to increase 1.2 percent in 2025 following two consecutive years of declines.

All combined, rising home construction is expected to drive lumber demand higher. In turn, that will result in higher lumber prices and better profitability among mills across the U.S.

#2 Operating Rates of U.S. Sawmills Will See Gains

The rising use of lumber will push operating rates of U.S. sawmills to their highest levels since the pandemic, Aided by fewer lumber imports. As mentioned earlier, the loss of Canadian lumber capacity will constrain Canada's ability to export to the U.S. Another source of imports, the European Union, is also facing supply constraints due to timber losses resulting from the spruce bark beetle outbreak across central Europe.



Fewer lumber imports combined with a rise in home construction will help stage a lumber market recovery. We expect sawmill operating rates in the U.S. South will rise from an average of 75 percent last year to levels just shy of 80 percent this year. If the trend continues, Southern mills could break above the 80 percent rates next year. For mills in the Pacific Northwest, average operating rates could rise from 79 percent in 2024 to above 80 percent this year. In a healthy lumber market, sawmills typically run at the low 80s relative to their stated capacity. They rarely run close to 100 percent except in extraordinary market conditions because mills need to take downtime for scheduled maintenance.

This has positive effects on timberland owners. When mills run longer or faster, they need to buy more timber. They are also more inclined to pay more for logs they need to meet their production targets. In local wood markets where there is healthy competition between neighboring mills, timberland owners benefit from rising timber prices.

#3 Greater Contribution of Income to Total Timberland Returns

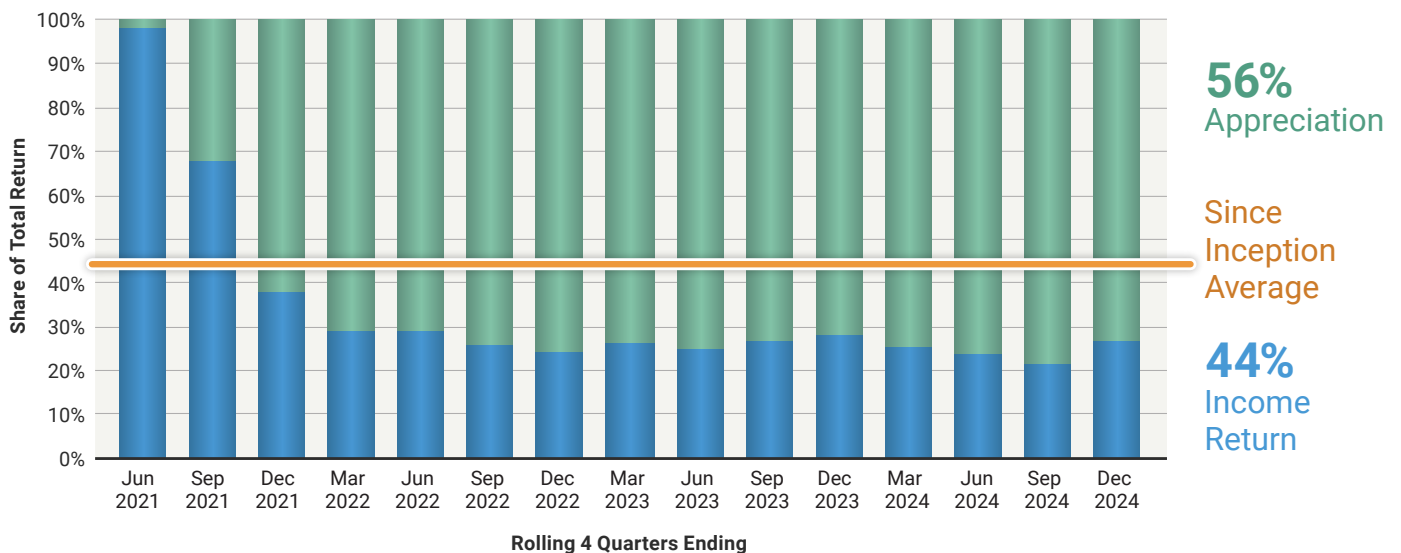
Our third and final prediction for this year is that timberland, as an asset class, will see a shift in its return makeup. More of the return could come from income — such as from timber sales — and less from appreciation (a.k.a. capital gains).

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A lot of timberland's performance for the last three years has been driven by appreciation (see Figure 6). As a case in point, of the 6.97 percent that timberland generated in 2024, 5.04 percent was from appreciation and 1.86 percent was from income — a 3:1 ratio. This was an anomaly. Since the inception of the National Council of Real Estate Investment Fiduciaries (NCREIF) Timberland Property Index in 1987, 56 percent of annual timberland returns came from appreciation, with the remaining 44 percent from income.

Going forward, starting this year, we could see a transition towards the long-term norm of a 6:4 split between appreciation and income returns. The key factor is rising demand for sawtimber — large-size logs used to make dimensional lumber — which can provide greater levels of harvest revenue among timberland investors. The last time income dominated returns was in 2020-2021, when record-high lumber prices above \$1,000 per thousand board feet helped elevate sawtimber prices across the South and the Pacific Northwest. We do not expect a repeat of the extremes seen in the pandemic, but income is expected to play a larger role in providing timberland investors with a competitive return against its real asset peers for 2025 and beyond. 🌲

Figure 6: Contribution of Timberland Returns from Income and Appreciation



Source: NCREIF



Fund Update

HIGHLIGHTS:

The Enhanced Timberland Opportunities IV fund raised \$97 million in total capital commitments.

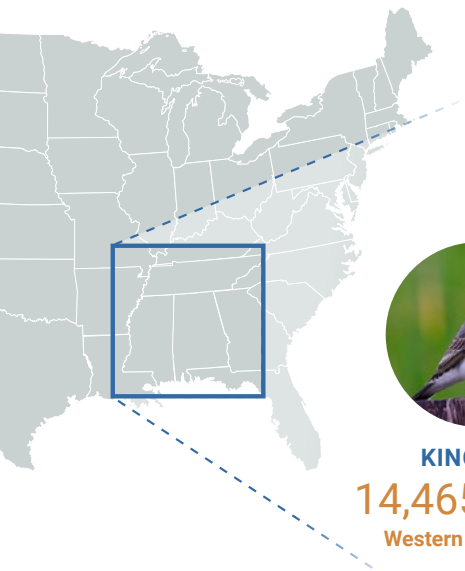
The TIR Sustainable Forestry and Natural Capital Fund achieved another milestone with an interim close near \$80 million.

TIR continues to make progress identifying investors and operating partners for the **Rural Impact Initiative**.

Eastern Timberland Opportunities IV Reaches Final Close and Completes Four Transactions

At the end of 2024, TIR held its final close for Enhanced Timberland Opportunities IV. The fund raised \$97 million in total capital commitments from existing and new investors globally. ETO IV invests alongside TIR's Luxembourg-based Sustainable Forestry and Natural Capital Fund, creating an expected investable \$200 million-\$250 million capital pool. Tim Hartigan, TIR's President, headed up the capital-raising effort and oversees portfolio management for ETO IV.

ETO IV follows the successful track record and investment strategy of TIR's earlier flagship funds — ETO, ETO II, and ETO III. Its focus is on acquiring a portfolio of high-quality, mid-market timberland assets that are diversified by geography, timber species and age class, and end-use timber market exposure. ETO IV invests in all the major timber-producing regions of the United States.



As of January 2025, ETO IV was about 50 percent invested.

During 2024, ETO IV purchased a 50 percent interest in four properties:



KINGBIRD

14,465 Acres
Western Tennessee



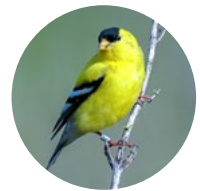
GREEN HERON

19,500 Acres
Alabama



MEADOWLARK

7,583 Acres
Central Mississippi



GOLDFINCH

6,274 Acres
Eastern Tennessee

ETO Fund Series Performance through December 31, 2024

	Vintage Year	Capital Commitments	Since Inception Gross Return	Since Inception Net Return	NCREIF South	NCREIF
ETO	2008	\$112.4	5.53%	4.67%	4.18%	4.87%
ETO II	2014	93.3	8.63%	7.76%	5.76%	5.90%
ETO III	2020	115.2	9.87%	9.00%	8.18%	8.19%
ETO IV*	2023	96.9	9.76%	8.91%	4.05%	3.86%

Note: National Council of Real Estate Investment Fiduciaries (NCREIF) and NCREIF South benchmarks are gross-of-fee returns

*ETO IV is approximately 50% invested.



The fund is focused on unlocking the sustainability and commercial option value in U.S.

Sustainable Forestry and Natural Capital Fund Achieves Interim Close and Anticipates a Final Close in June 2025

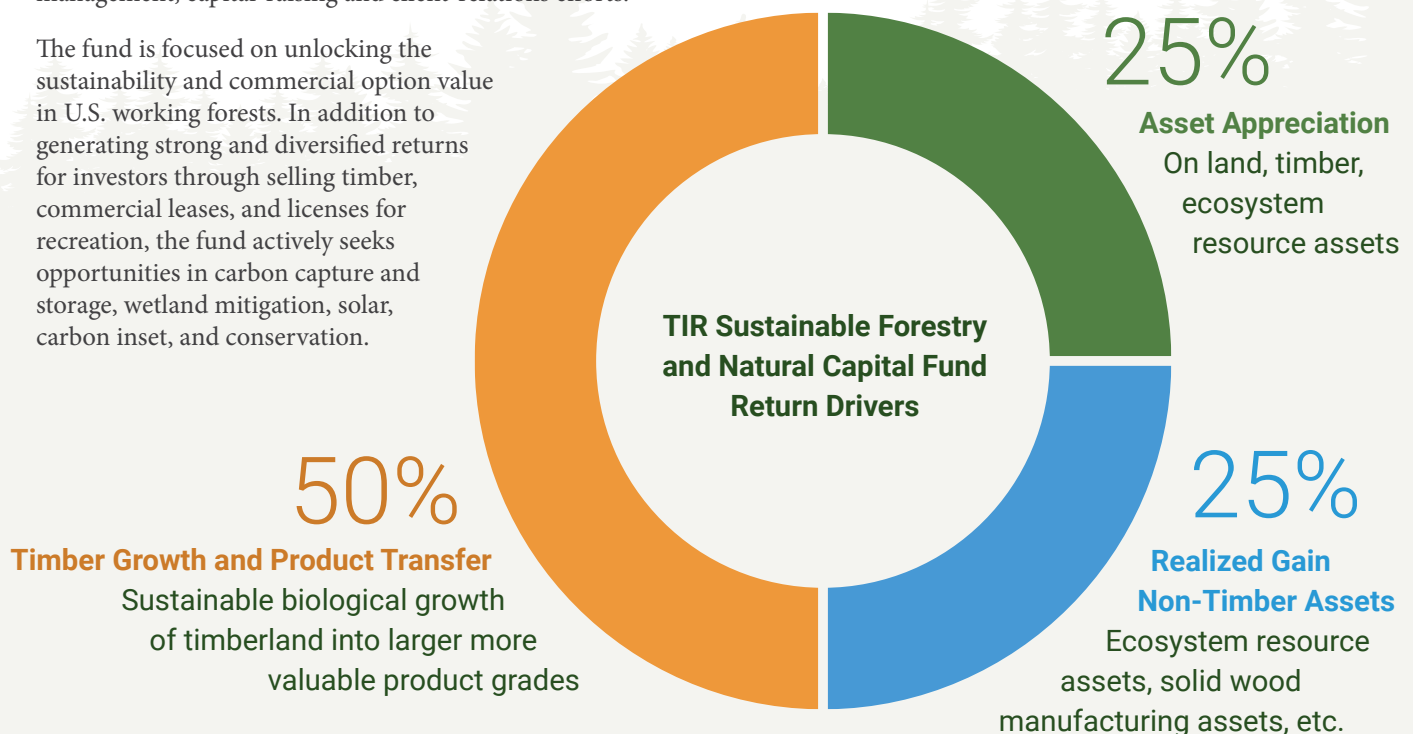
The TIR Sustainable Forestry and Natural Capital Fund achieved another milestone last year with its interim close near \$80 million. The fund secured strong support from a diverse group of investors including pension funds, insurance companies, government organizations, and family offices.

Directed primarily at European and Japanese investors, the Luxembourg-registered, Article 9-certified, commingled fund invests in U.S. working forests to generate competitive, long-term financial and environmental returns. Timberland Investment Resources Europe, TIR's European affiliate, manages the fund. TIR-Europe partners Gian Paolo Potsios and Hugh Humfrey have been responsible for the fund's portfolio management, capital-raising and client-relations efforts.

The fund is focused on unlocking the sustainability and commercial option value in U.S. working forests. In addition to generating strong and diversified returns for investors through selling timber, commercial leases, and licenses for recreation, the fund actively seeks opportunities in carbon capture and storage, wetland mitigation, solar, carbon inset, and conservation.

Our commitment to sustainability is demonstrated by the fund's Article 9 designation for its sustainable investment and carbon sequestration properties, alignment with six of the United Nations' Sustainable Development Goals, and Sustainable Forestry Initiative certification.

Last year, the fund co-invested alongside TIR's Enhanced Timberland Opportunities IV on the Goldfinch property in Tennessee and the Meadowlark property in Mississippi, as well as an add-on acquisition to the Green Heron property in Alabama. Combined with its two other properties, the fund's diversified portfolio covers nearly 47,000 acres. TIR expects to conduct its final close on the fund near the end of June 2025.





RURAL LISC

Last year, TIR proudly announced its formal partnership with Rural LISC, an affiliate of the Local Initiatives Support Corporation (LISC), one of the largest and most experienced non-profit community development finance institutions in the U.S.

TIR's Rural Impact Initiative to Launch Innovative Forest-Focused Economic Development Initiative

TIR continues to make progress identifying investors and operating partners for its Rural Impact Initiative. This initiative seeks to catalyze economic development in depressed rural communities by harnessing TIR's forest-based market expertise together with impact investing.

The Rural Impact Initiative will invest across the forest-based value chain — from timberland assets to milling infrastructure and related activities — in an effort to jumpstart economic activity, create jobs, and build local wealth. Justin Fier, Managing Director of Impact Strategy for TIR, is overseeing the development effort.

Last year, TIR proudly announced its formal partnership with Rural LISC, an affiliate of the Local Initiatives Support Corporation (LISC), one of the largest and most experienced non-profit community development finance institutions in the U.S. LISC works alongside local communities to channel capital, enhance infrastructure, and empower communities to take advantage of opportunities to create economic growth.

Rural LISC brings an impressive record of fighting poverty in rural communities and building strong and aligned coalitions of local supporters. This puts it in an excellent position to advise TIR on how to manage its targeted social impact objectives such as workforce and small business development.

At the core of Rural LISC's collaboration with TIR, we will be leveraging its development model, which has been successful transforming communities in all 50 states. The model combines creative capital, tailored technical assistance and training, and wealth building support — all to foster entrepreneurial drive, create homegrown businesses, and boost resiliency in rural communities. These efforts will become the backbone for new demand-driven, forest-based product and job ecosystems that will invigorate depressed rural communities. 🌲





Inflation Risks and Timberland Investments

By Chung-Hong Fu, Ph.D., Managing Director of Economic Research and Analysis

Introduction

Following the COVID-19 pandemic, annual inflation in the United States peaked at 9.0% in June 2022 after averaging 2.12% over the preceding 10 years. The 9% rate was a 40-year high. Since then, aggressive monetary tightening by the U.S. Federal Reserve has pushed the inflation rate to under 2.8% by the close of 2024. Based on bond market data at that time, investors are assuming long-term inflation will settle below 2.5% over the next two to 10 years. It appears that the inflation beast has gone back into hibernation.

But has it? New as well as unknowable risks are on the horizon that could push inflation rates higher again. Thus, investors need to consider defensive strategies that can help protect their portfolios from ever-persistent inflation risks. High on the list: adding investments in real assets such as timberland.

In this article we provide a three-step framework for thinking about timberland as an inflationary hedge. First, we highlight actual risks that can lead to another inflationary cycle. Next, the case is made that unexpected shifts in inflation rates can do significant damage to investor portfolios' purchasing power. Third, we argue that certain types of assets, including timberland, can serve as an effective hedge against inflation. Adding them into an investment allocation can help insulate a portfolio against unexpected and harmful surges in prices.

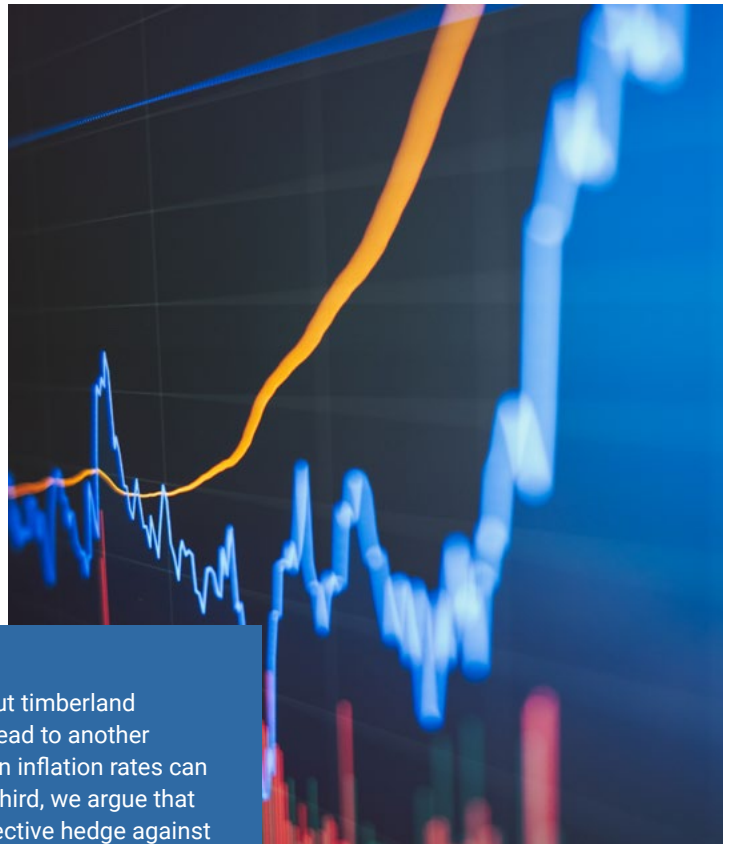
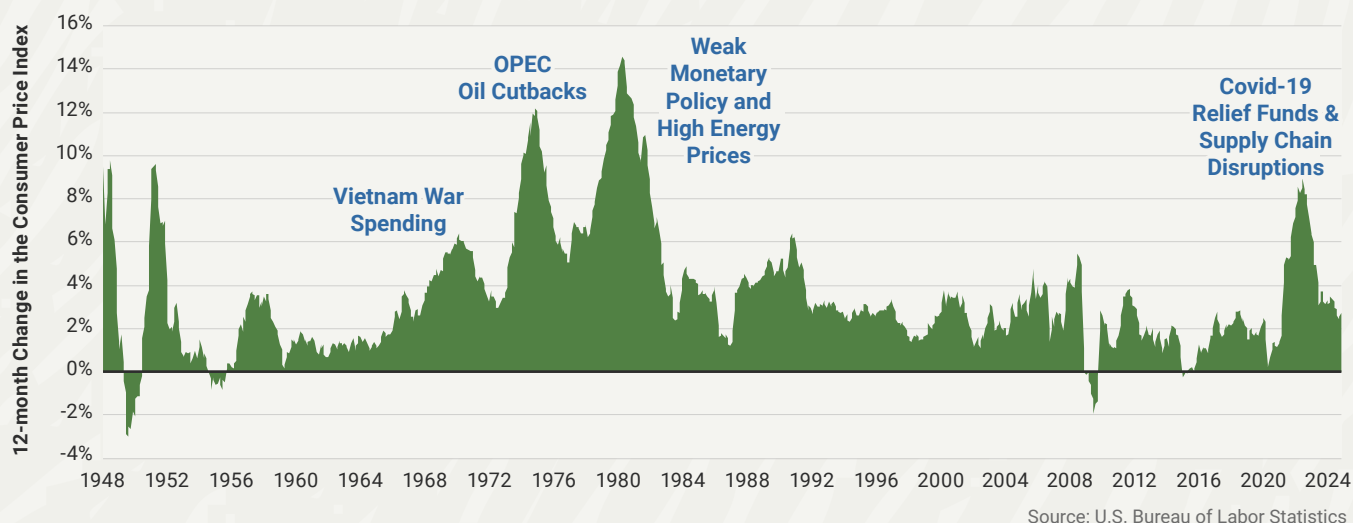




Figure 1: United States Inflation Rate, Using the Consumer Price Index



Inflation Risks

DEFINING INFLATION

Let us begin by defining what inflation means and what can cause it. Inflation is the overall rise in the prices of goods and services. It is measured through commonly accepted price indexes such as the Consumer Price Index (CPI), the Price Index for Personal Consumption Expenditures (PCE) and the Gross Domestic Product Price Deflator. The CPI is the most widely reported metric for inflation and the one our analysis will be based on.

Inflation occurs when *too much money chases too few goods and services*. This can occur from either too much demand or not enough supply, or both. If people want to buy goods or receive services, but businesses and workers cannot keep up, we will have *demand-pull inflation*. On the other hand, if there is a shortage of key materials or services which results in a rising cost in the supply chain, then we have what is known as *cost-push inflation*.

A SHORT HISTORY OF INFLATION

The United States has experienced several incidences of both demand-pull and cost-push inflation since World War II (see Figure 1). The 1960s saw demand-pull inflation from the combination of a tax cut and heavy defense spending related to the Vietnam War. In contrast, cost-push inflation was caused by an energy shortage in the mid-1970s. OPEC curbed production by its member countries, thereby causing energy prices to escalate. As a key input, increasing energy prices were quickly transmitted across the U.S. economy.

While energy prices were a big factor, demand-side factors also played a large role in the latter half of the 1970s. The U.S. Federal Reserve (“the Fed”) kept an accommodative monetary policy in hopes of boosting employment after

The most recent inflationary cycle began during the COVID-19 pandemic. This was both supply-side and demand-side driven.

the U.S. fell into a recession from the OPEC oil embargos. However, the Fed probably held interest rates too low for too long, contributing to an overheated economy. Combined with heavy deficit spending by the government, this led to a second spike of inflation in the same decade.

The most recent inflationary cycle began during the COVID-19 pandemic. This was both supply-side and demand-side driven. Global supply chains and production were disrupted by pandemic lockdowns and restrictions. However, demand increased as the U.S. government injected an extraordinary level of stimulus and relief funds to businesses and households. In a three-year period from 2020 through 2022, expenditures by the U.S. federal government totaled \$27 trillion, a \$9 trillion or near 50% jump from the spending three years prior to the pandemic (2017-2019). This new spending could not be absorbed by the U.S. economy without causing prices to climb.

Looking back at these periods of high inflation, we observe that surges in the price level came from many different sources. More importantly, these causes of inflation are difficult to anticipate or predict. Inflation oftentimes is caused by an external shock, such as a global pandemic. Changes in geopolitics or government policy such as taxes, tariffs, and wars can also lead to a surge in prices. It is inflation’s high level of uncertainty and potential harmful portfolio impact that makes it such an important risk for investors to consider and take steps to mitigate.



FUTURE RISK FACTORS

Inflation risks have arguably heightened, not diminished, when looking today at the U.S. economic environment and the proposed policies of the new administration. Consider the following:

Stricter Immigration Enforcement:

The current administration has adopted a policy of strong enforcement against undocumented immigrants, including restricted entry across the border and increased deportations. The crackdown against illegal immigration could tighten labor markets, sending wages higher. Several important industries rely heavily on immigrant labor, including construction, agriculture, hospitality, food service, and meat processing. A labor shortage in those sectors could quickly transmit higher prices to other, connected parts of the economy.

Large Government Deficits:

The deficit of the U.S. federal government is already at elevated levels of 120% of GDP as of third quarter of 2024. Absent any changes in spending, the deficit will expand further. According to the Committee for a Responsible Federal Budget, a non-partisan, non-profit organization, the federal deficit could widen by an addition \$7.5 trillion over the next decade if many of the proposed policies of the Trump Administration come to pass.¹ Deficits, if not controlled, can spur inflation rates higher. (See call out box, “Are Large Deficits Inflationary?”)

Tariffs and Trade Restrictions:

The current administration wishes to impose a program of trade barriers and tariffs with the goal of promoting domestic manufacturing and encouraging trading partners to address other U.S. goals such as illegal drug and immigration border control. The potential resulting trade war could drive cost-push inflation, akin to the oil supply shocks of the 1970s.

Geopolitical Events:

Geopolitical tensions have only increased in recent years and are likely to remain high. Recent events include the Houthi rebel attacks on maritime shipping in the Red Sea, the Russian invasion of Ukraine, and the Israeli-Palestinian conflict. A future geopolitical event can cause higher inflation if it disrupts the trade of key components or commodities. For instance, if China were to attack or blockade Taiwan, it would cut off the leading source of advanced semiconductors. Computer chips are crucial for many industries including aviation, manufacturing, data processing, and automotive.

As evidenced by history, inflation cannot be forecasted with accuracy. Price surges can come from anywhere. When it hits, inflation can have measurable negative effects on an investor's portfolio.

As evidenced by history, inflation cannot be forecasted with accuracy. Price surges can come from anywhere.

Are Large Deficits Inflationary?

Heavy government deficits do not necessarily result in higher inflation. As a case in point, Japan faced disinflation (very low inflation) and even deflation (reverse inflation) during the “Lost Decades” of the 1990s and 2000s despite racking up one of the heaviest debt levels among the fully industrialized nations.

Nevertheless, large government deficits can result in higher inflation if (1) the deficit is the result of a surge in government spending that outpaces the ability of the economy to absorb it (such as the U.S. government response during the COVID-19 pandemic); or (2) the government cannot fully cover their spending with revenue from taxes or the issuance of new bonds. This can occur when the government is politically limited in raising taxes and cannot sustain the interest payments of its existing debt. Deficits that are not covered by bonds must rely on increasing the supply of money into the economy (i.e., “printing money”), which results in faster rates of inflation.

¹ Richard Rubin, Wall Street Journal. “Trump’s Plan Boosts Budget Deficits by \$7.5 Trillion, Double Harris’s Proposal.” (October 7, 2024)



Portfolio Harm of Unforeseen Long-Term Inflation

Inflation is not inherently bad. When it is predictable and stays within a narrow band, businesses and individuals can plan for it. What is harmful is when inflation is volatile and unpredictable. Unexpected surges in inflation hurt savers (like investors, lessors and creditors) but benefit borrowers (like lessees and debtors). Investors are threatened by inflation because an investor's future liabilities, obligations and payouts will likely scale with inflation, but their portfolio's income and asset values may not.

Not all forms of inflation risk, however, are equal. When developing strategies to hedge against inflation, investors should focus on long-term inflation risks, not short-term. There can be a fair amount of month-to-month, quarter-to-quarter, or even year-to-year variability with inflation rates. Short-term inflation matters less when an investor's portfolio goals extend to a decade or longer. What is relevant is a sustained erosion of purchasing power when inflation unexpectedly stays elevated over the long-run — at least three years (see call out box, "Inflation Hedge for the Long-Run").

Inflation Hedge for the Long-Run

When evaluating an asset's potential to perform well in a high-inflation environment, it is best to view it over a long duration, such as three to 10 years. Short-term metrics for inflation hedging such as monthly, quarterly or annual correlation values carry little utility. That is because many good inflation hedges, like timberland, react with a lag against rising prices. Wood products have long supply chains where price signals take time to feed back to the resource level. Short-run correlation statistics often miss that lag effect and underrepresent an inflation hedge's true value to a long-term investor.



Adding Inflation Hedges to a Portfolio

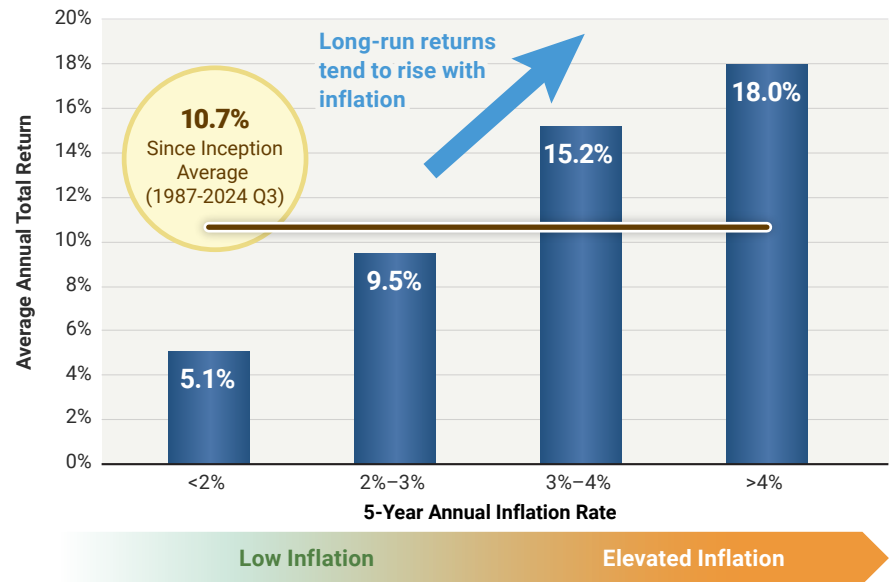
Investors have a variety of strategies to help insulate their portfolios against unwanted erosion of purchasing power. An investor, for example, can acquire derivatives that pay out when interest rates rise. Since interest rates often rise in response to higher inflation, this can serve as a type of inflation hedge. Another strategy is to buy bonds that scale their coupon payments and principle to a price index such as the CPI. A classic example is U.S. Treasury Inflation-Protected Securities (TIPS). A third option, which we will discuss in depth, is to invest in assets that have a known history for tracking inflation.

INFLATION POSITIVE, NEUTRAL AND NEGATIVE ASSETS

Many assets that were believed to be good inflation hedges actually are not. Despite being touted as one, gold is a poor inflation hedge (see Figure 3). Neither are stocks or commercial real estate investments good hedges. In contrast, timberland is among one of the few proven hedges. Since inception, U.S. timberland investments, averaged a 10.7% return as measured by the National Council of Real Estate Fiduciaries' (NCREIF) Timberland Property Index (see Figure 2). What is more interesting is that those returns tend to scale up with rising inflation rates. When 5-year inflation rates reached 3% to 4%, timberland returns exceeded its baseline average. Inflation above 4% can push timberland returns even higher.

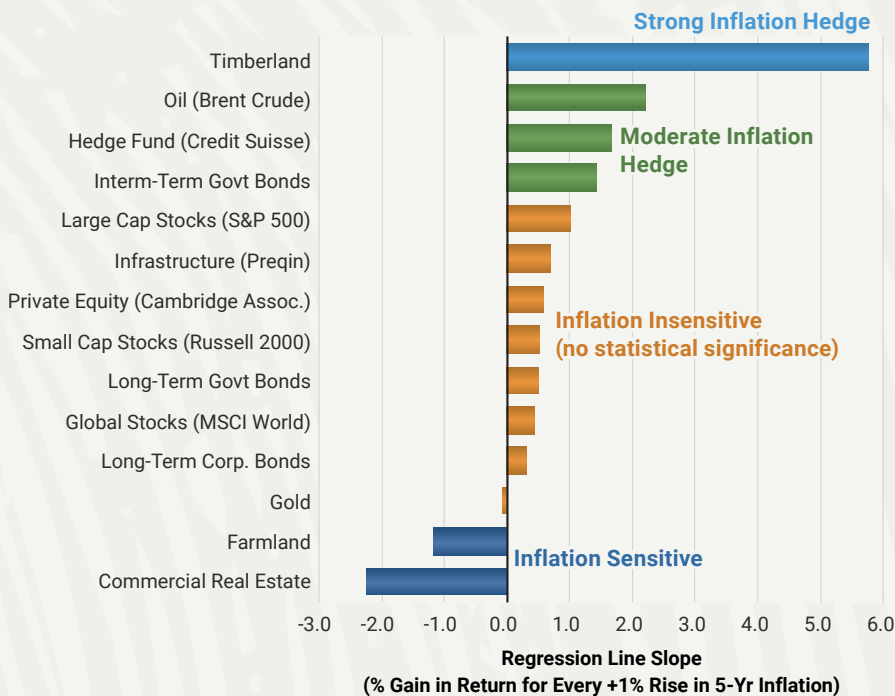


Figure 2: Average Performance of Timberland Across Different Inflation Environments Over 5-Year Periods (1987-2024 Q3)



Sources: NCREIF (Timberland Property Index), U.S. Bureau of Labor Statistics (Consumer Price Index)

Figure 3: Association of Asset Class Returns with 5-Year U.S. CPI Inflation, Based on Slope of Linear Regression between Return and Inflation



Sources: Standard & Poor's, Ibbotson, Cambridge Associates, NCREIF (Returns), U.S. Bureau of Labor Statistics (Consumer Price Index)

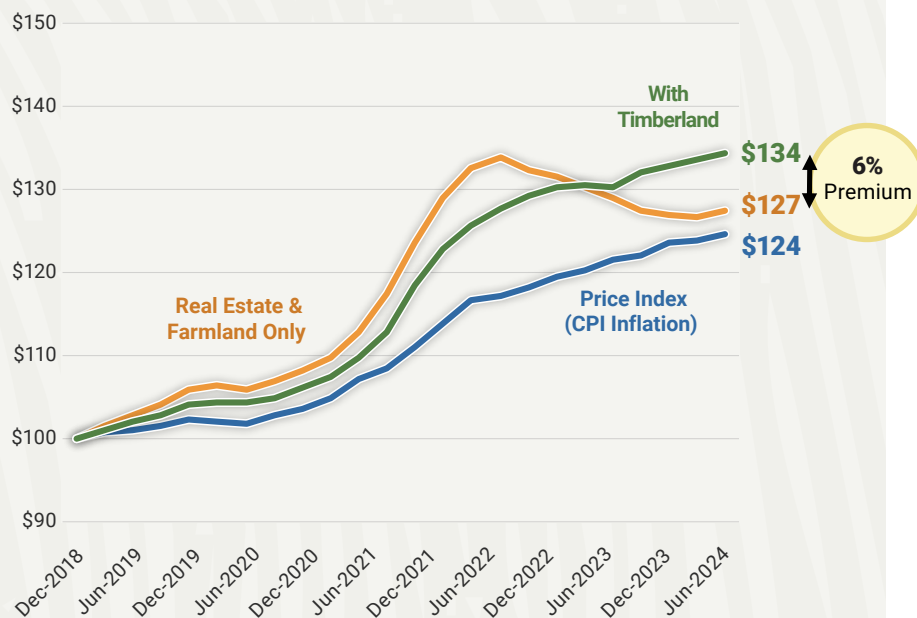
In addition, timber largely is a domestic market, i.e., it is less exposed to intense global competition. Harvested logs are large and bulky; it is therefore uneconomical to ship them long distances. Log markets, therefore, are commonly tied to the nearby mills in local wood markets, which then primarily feed into domestic markets. This contrasts to the markets for other commodities like oil, wheat, coffee, or copper where prices are set on a global level and are affected by global supply and demand factors, which is why such commodities have a mixed record tracking domestic inflation.

INFLATION HEDGING SURVEY OF ASSETS CLASSES

Timberland is an asset class whose return reacts positively to inflation. If we broaden our survey across more asset classes, we observe that positive inflation hedging is a relatively rare feature (see Figure 3). The majority of asset classes are unresponsive to inflation. Only four can act as a moderate to strong inflation hedge. Along with timberland, crude oil,



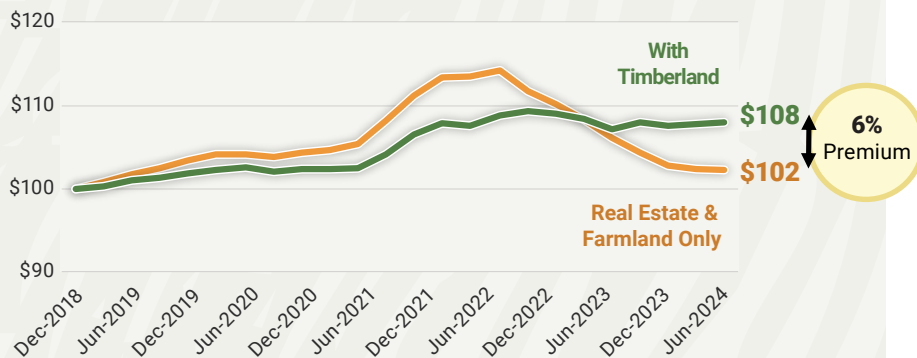
Figure 4: Result of \$100 Invested in Each of Two Real Assets Portfolios on 12-31-2019



Note: Real estate & farmland portfolio has a 2:1 starting allocation. The real estate, farmland & timberland portfolio has a 1:1:1 starting allocation. There is no portfolio rebalancing. Performance of each asset class tracks that of their respective NCREIF benchmarks. All cash distributions from income and capital gains are reinvested into their respective asset class.

Sources: NCREIF (returns), U.S. Bureau of Labor Statistics (inflation)

Figure 5: Result of \$100 Invested in Each of Two Real Assets Portfolios on 12-31-2019 and adjusted for Inflation



Note: Conditions are the same as Figure 4 except that dollar values are adjusted for the effects of inflation using the U.S. Consumer Price Index. That means the purchasing power of each dollar of both portfolios remain constant.

Sources: NCREIF (returns), U.S. Bureau of Labor Statistics (inflation)

hedge funds² and intermediate-term government bonds³ have historically tracked rising price levels. On the other end of the scale, agriculture and real estate react negatively to inflation.

This suggests that care should be given when selecting an asset allocation strategy that offers inflation protection.

INFLATION HEDGING WITH TIMBERLAND IN A REAL ASSETS PORTFOLIO

The best way to gauge the value of investing in an inflation hedge is to test it against a real-world event. A good recent example is the global COVID-19 pandemic of 2020 that set off the most recent inflationary cycle. The test is to compare a real assets portfolio with and without an inflation hedge — which in this case will be timberland. The base case is to have a \$100 portfolio with two thirds invested in commercial real estate investment (66.7%) and one third invested in agricultural investments (33.3%) at the end of 2018, a year before the global outbreak of the COVID-19 virus. Returns both in income and realized capital gains get reinvested back into the same asset class. The test-case portfolio adds timberland to serve as an inflation hedge. The allocation is spread evenly with real estate, farmland and timberland each receiving a one-third (33.3%) starting allocation.

We note that the recent inflation cycle created from the COVID-19 pandemic caused a significant loss of purchasing power in the United States as well as many parts of the world. A \$100 basket of goods in the U.S. in December 2018 would cost \$124 in September 2024.

² Represented by the Credit Suisse Hedge Fund Index

³ Represented by the Bloomberg US 5-10 Year Treasury Bond Index



Table 1: Real (Inflation Adjusted) Performance of Two Real Asset Portfolios One With Timberland, One Without Timberland Since 1991

Real Assets Portfolio	Average Real Return (Inflation Adjusted)	Standard Deviation	Sharpe Ratio
No Timberland 2:1 ratio of real estate farmland	6.04%	6.60%	0.92
With Timberland 1:1:1 ratio of real estate farmland timberland	6.54%	5.21%	1.26

Note: Performance metrics are calculated from full, calendar-year returns from the NCREIF Property Index (real estate), NCREIF Farmland Index, and the NCREIF Timberland Property Index. Portfolio allocations are constant each year. Returns are adjusted for inflation as measured by the U.S. Consumer Price Index. The time period begins in 1991, the inception of the farmland index – the youngest of the three real assets indices featured. The Sharpe Ratio calculation assumes a risk-free return of 90-day U.S. Treasury Bills after adjusting for the effects of inflation, which is -0.04% between 1991 and 2023.

As shown in Figure 4, a real assets portfolio of only real estate and farmland would have earned an investor \$127 for every \$100 invested at the start of 2019. While returns initially rose at the initial surge of inflation, performance retreated in 2022 and 2023 as high rates of inflation caused the Federal Reserve to quickly raise interest rates — thereby hurting valuations for many real estate and farmland investments. In comparison, adding timberland would have provided \$134 over the same period, a 6% premium over the baseline portfolio. Returns for this hedged portfolio stayed consistently ahead of inflation.

Figure 5 takes the same scenario but strips out the effects of inflation. From that perspective, a real assets portfolio of only real estate and farmland provided the investor just 2% more purchasing power between 2019 and 2024 Q3. Adding timberland with a 33.3% allocation adds an additional 6% in total purchasing power, a meaningful gain.

The value of timberland as an inflation hedge extends beyond the recent pandemic. In fact, its value extends back to the 1990's, when timberland and farmland emerged as an accepted asset class among institutional investors. Table 1 shows that since 1991, a real assets portfolio with a one-third allocation to timberland, on average, provided 50 basis points greater *real*⁴ (inflation-adjusted) returns than one that held only real estate and agricultural investments that returned 6.04%. Alongside a competitive portfolio return, timberland also offered lower risk, as evidenced by a higher Sharpe Ratio.⁵ We see no reason why timberland's value as inflation hedge should change in the future. 🌲

Summary and Recommendations

Periods of elevated inflation can harm investors in two ways. First, they are often difficult to anticipate. Second, fast-rising prices can create a hazard that the portfolio would fall short of an investor's future cash flow needs. To reduce such threats an investor can add proven inflation hedges to their portfolios. Timberland is one tested form of hedging. Since 1987, timberland returns generally responded positively with inflation over the long term (e.g., 5-year periods).

⁴ When used for returns, the term "real" reflects the inflation adjustment to keep the purchasing power steady. A 10% real return, for illustration, means you can buy 10% more of the same basket of goods.

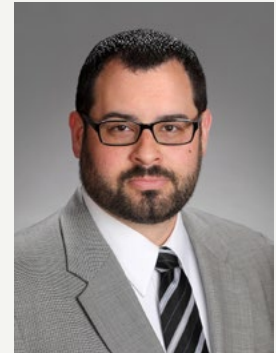
⁵ The Sharpe Ratio is a convenient quantitative measure of reward relative to the borne risk of an investment strategy. It is calculated as (average return – risk free return) / (standard deviation of returns).



Driving Sustainable Returns

How Business Intelligence and Decision Support Systems Transform Forestry Investment

By Ryan Belcher, Senior Manager of Business Intelligence



Passion for the future of sustainable forestry

Forestry is a personal passion for me. I grew up in a rural area of southern West Virginia and often played outside in the nearby woods. As a result, I have always felt a connection to the forest through fond childhood memories. As my career has progressed from an Accounting Manager to head of TIR's Business Intelligence group, I have dovetailed those feelings of nostalgia with an understanding of how forest investment can serve to deliver both financial value as well as sustainable environmental benefits. These days I often find myself sharing insights about forestry in everyday

conversations with friends and family. I drive my family nuts pointing out pine plantations and explaining forestry concepts any time we are in or driving through a forest.

People, process, and technology: a core philosophy

Every member of TIR is encouraged to take initiative and contribute to our overarching mission. This collaborative, team-first culture has allowed us to innovate and respond to changing market dynamics. Equally important is our dedication to rigorous process optimization. We invest a lot of thought in developing processes that guide efficient workflow.

Business Intelligence is the group within TIR that is charged with linking our people, process and our technology investments by building customized tools that we use to distill raw data into actionable insights — whether it is realizing gain through land sales, monitoring timber inventories, or analyzing environmental metrics. The processes ensure that we are capturing the necessary data, organizing it well, and making compelling information readily available to support decision-making and reporting.

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offer is needed promptly. How do you respond? In the past, you would have to contact an analyst in the home office to perform TIR's standard analysis to determine your response. This request for analysis might come on the heels of ten other such requests. How do you make a fact-based decision while also honoring the timeline of the deal?

At TIR we've provided our Investment Foresters the ability to execute this analysis right on their phones.

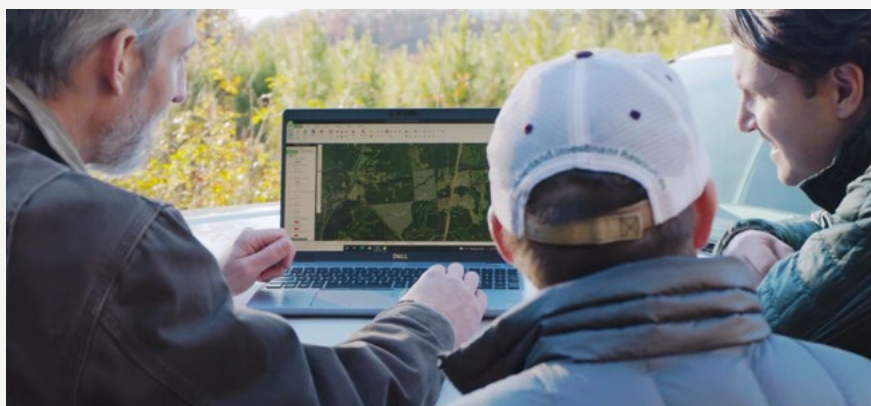
The people behind business intelligence at TIR — where passion meets performance

The Business Intelligence team was constructed based on the knowledge, skills, and experience of the team members who have occupied different roles at TIR. We take great pride in this level of technological sophistication because we have built a system where information is immediately accessible, facilitating operational and investment decisions based on dynamic data and inputs.

Leveraging our information system for enhanced decision-making

In the world of forestry investment, where market fluctuations, regulatory change, and environmental factors intersect, having the ability to quickly respond with informed decisions is invaluable. Our information system integrates vast datasets — from timber prices and carbon sequestration metrics to geospatial data including satellite imagery. The business intelligence software draws from this integration to reveal views of each asset's performance and potential, ensuring that every decision, whether made in the boardroom or out in the forest, is data driven.

So what does this look like in the real world? Imagine you are an investment forester out in the woods in your vehicle. You receive a phone call from a local real estate broker informing you they've received an offer of \$4,000/acre for an area you listed for sale. There is a catch. It is a 1031 exchange that must be closed within a limited timeframe, so response to the



Here at TIR we've provided our Investment Foresters the ability to execute this analysis right on their phones. Imagine having the following screen and its underlying information available in your pocket. You can quickly and easily enter the offer price, estimate of transaction expenses, and see the gain over our current valuation, then determine whether to counteroffer or inform our real estate team of the offer. This positions TIR to confidently respond to emerging opportunities — a key component of our investment strategy.

The TIR investment forester can provide an indication of our interest in the transaction with a couple of minutes of receiving the offer.

The common bond within our team is a shared viewpoint on how to adapt and evolve processes and technology to understand what drives investment results and adapt to emerging areas such as machine learning, artificial intelligence, and alternative sources of timberland revenue generation.

As we look ahead, our commitment is straightforward: to drive value for our investors while acting as responsible stewards of our natural resources. The future of forestry investment lies in the seamless integration of cutting-edge technology with time-tested environmental principles. At TIR, we are proud to lead that charge, ensuring that our forests — and our investments — thrive for generations to come. 



Unlocking New Revenue Streams

Investing in Wetland Mitigation Banks

As infrastructure development surges, water mitigation banking has emerged as an increasingly attractive investment opportunity. This market-driven approach allows developers to offset the environmental impacts of their projects — particularly on wetlands — by purchasing credits derived from restored or preserved wetland areas.

“Given the rising demand we are seeing for these credits and the limited supply of wetland ecosystems available, investors have the potential to both achieve significant financial returns and contribute meaningfully to ecosystem restoration,” said Chris Mathis, Managing Partner and Chief Investment Officer at TIR. “These credits deliver a tangible ecological benefit, such as improving water quality, restoring habitat, or reducing flood risks.”

Mathis’ role is critical in translating complex regulatory frameworks into actionable investment strategies that yield robust returns while promoting sustainability. “Mitigation banking is about finding the right pockets of opportunity where we can align our clients’ interests with environmental gains,” Mathis notes.

“Given the rising demand we are seeing for these credits and the limited supply of wetland ecosystems available, investors have the potential to both achieve significant financial returns and contribute meaningfully to ecosystem restoration.”

— Chris Mathis, TIR Managing Partner and Chief Investment Officer

Credits must cover mitigation work that goes above and beyond simple restoration

Water mitigation banks operate within a highly regulated framework overseen by the U.S. Army Corps of Engineers. Developers are required by law to offset the ecological damage caused by their projects, especially when wetlands are affected. This ensures that credits purchased by developers truly reflect positive environmental outcomes. Credits must cover mitigation work that goes above and beyond simple restoration, and the ratio of land developed to land preserved means an acre of development must be offset by 1.3 acres of mitigation.

Investment funds and organizations are seizing the moment and committing tens or even hundreds of millions of dollars to the natural capital features of timberland assets. The carbon sequestration potential of forests and their capacity to help address climate change are the most well-known natural capital opportunities. However, increasing amounts

of this capital are being invested in some of the other environmental and social attributes of working forests — specifically, their capacity to enhance biodiversity, protect watersheds, provide clean air, and stimulate rural economic development and job creation.



Leveraging years of experience in forestry, timberland investments and natural capital solutions, TIR has strategically positioned itself to tackle regional development challenges while simultaneously addressing environmental degradation. TIR's broader strategy is to integrate financial innovation with environmental stewardship.

Synergies between water mitigation banks and sustainable forestry

When combined with water mitigation banks, sustainable forestry practices provide even more ecological benefits. Forests play a key role in regulating water quality and stabilizing ecosystems, which aligns directly with the goals of wetland mitigation banking. Forests provide drinking water to more than 150 million people in the U.S. Sustainable forestry practices help to protect watersheds, which are the areas that feed into wetlands, while also improving water quality by filtering contaminants and reducing erosion. Forests help stabilize soil, which reduces runoff and prevents sedimentation in wetlands and rivers.

As the demand for wetland mitigation credits grows, the integration of sustainable forestry into mitigation banking projects will play a significant role in boosting their ecological and financial outcomes. Through this synergy, forests contribute directly to the restoration of wetlands, improving water quality and enhancing habitat.

Success stories across the country

While the Southeast is a major focus for water mitigation banking, across the U.S., numerous water mitigation banks and sustainable forestry projects have yielded financial and environmental benefits. Wetland restoration projects on the Gulf Coast have generated high-value credits while improving water quality and providing vital habitat for wildlife. In the Pacific Northwest, 12 water mitigation banks have gone through state certification.

These success stories demonstrate the potential for water mitigation to drive both financial returns and environmental restoration. As the market for these sectors grows, investors are finding new opportunities to make impactful investments in sustainable, nature-based solutions through sustainable forestry.

“By combining these two sectors, investors can create diversified portfolios that provide both short-term returns and long-term stability. Wetland mitigation credits provide compelling private equity type returns, while traditional forestry investments provide inflation hedging characteristics and generate ongoing income through timber harvesting, they can also provide other natural capital revenue streams such as carbon credits,” said Tom Johnson, Managing Partner, Client Relations and Corporate Development at TIR.

As the demand for wetland mitigation credits grows, the integration of sustainable forestry into mitigation banking projects will play a significant role in boosting their ecological and financial outcomes.





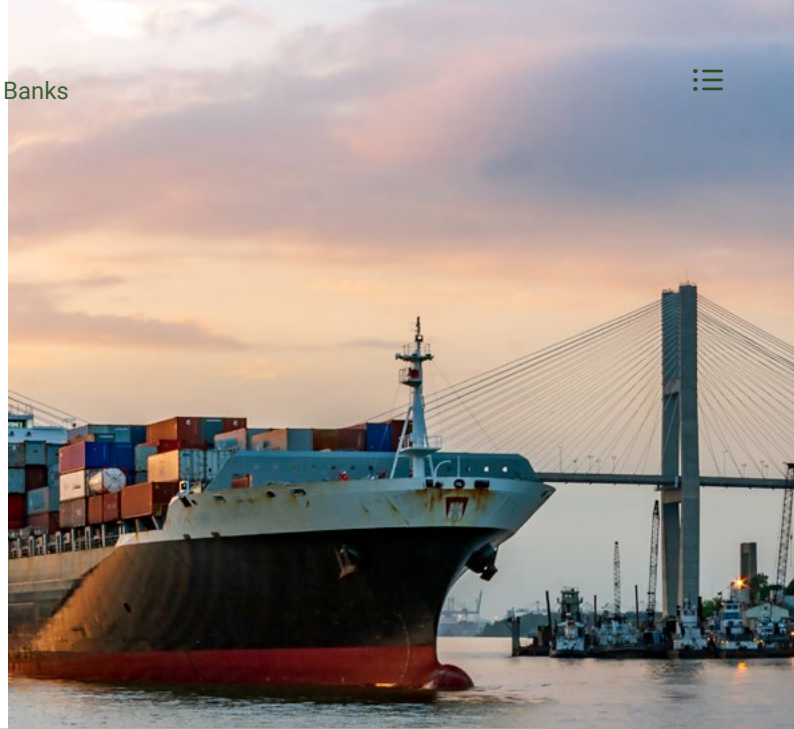
U.S. Southeast setting the pace for natural capital investment

TIR is working with Corblu Ecology Group to offset infrastructure development in Savannah by establishing two wetland mitigation banks covering more than 2,000 acres in Georgia. Collaborating with restoration specialists is crucial to maximizing returns. These experts understand the nuances of restoration projects and can help guide the development of mitigation banks and forestry initiatives.

The Savannah project is driven by several key regional infrastructure developments. The Port of Savannah is expanding to accommodate global shipping needs. A major automobile manufacturing plant is being built, and highways and bridges are being upgraded. As infrastructure improvements pave the way for a growing economy, mitigating the associated environmental impacts becomes paramount.

These opportunities are emblematic of the growing role of water mitigation banking in the U.S. Southeast, which accounts for nearly two-thirds of U.S. housing starts and significant industrial reshoring efforts.

The region's rapid development offers long-term opportunities for projects that blend natural capital investments with sustainable economic growth. This strategic focus positions TIR not only as a leader in sustainable forestry and environmental restoration but also as a key player in the region's broader economic development.



As infrastructure improvements pave the way for a growing economy, mitigating the associated environmental impacts becomes paramount.

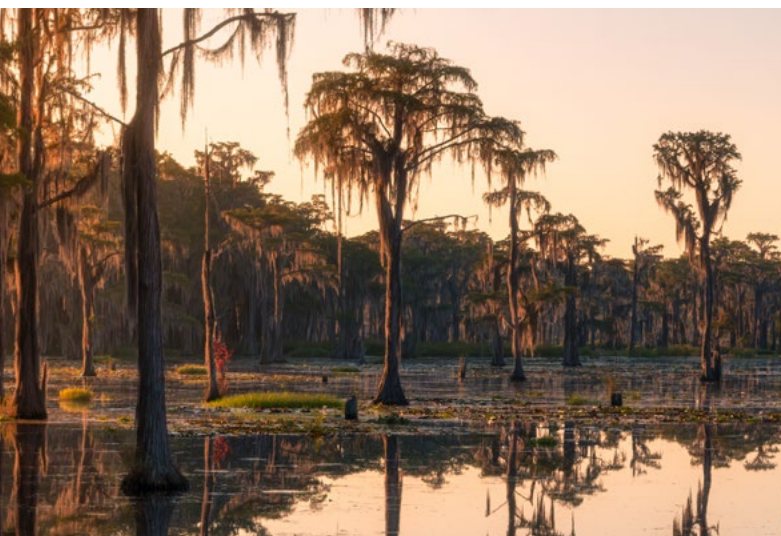


Strategic investment considerations

Investing in wetland mitigation banks and sustainable forestry requires a strategic approach. Managers should conduct thorough due diligence, ensuring they understand the regulatory frameworks that govern these assets. It is also important to partner with experts in environmental law, asset management, and ecosystem restoration.

“We know the timberland asset space, and our relationships with local forest managers means we can unlock the value of specific forests for investors. This deep understanding allows us to see the potential for wetland mitigation banks to earn returns in line with more traditional private equity plays,” Johnson said.

The future of natural capital investment is bright, with sustainability concerns driving demand for mitigation credits and responsible natural asset management. New technologies and methods for monitoring and managing ecosystems will further boost these markets, creating new opportunities for investors. By investing in nature today, investors can ensure both financial rewards and environmental benefits for the future. 🌳





TIR Organizational News

TIR continued to grow in 2024 with two new staff members, one joining the Finance and Accounting team and one joining the Investment Analysis team.



Sarah Gass, CPA
ACCOUNTING MANAGER, CLIENT REPORTING

Sarah oversees client reporting and accounting. Her responsibilities include portfolio accounting and reporting, preparing quarterly and annual reports, addressing client and consultant requests, coordinating with external auditors and tax professionals, and training and supervising the firm's team of staff accountants. Sarah also works closely with third-party lenders on behalf of TIR's investors.



Crew Mayne
INVESTMENT ANALYST

Crew supports TIR's investment analysis and acquisition process. His primary focus is on asset valuation and decision-making support as well as on property and transaction-level analysis.



TIMBERLAND INVESTMENT RESOURCES^{LLP}

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