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Timberland Investing in a Higher Interest Rate Environment

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Executive Summary

Long-term interest rates have risen with the yields of 10-year U.S. Treasury Notes – increasing by 223 basis points over the course of 2022 to reach just a quarter of a percentage point shy of 4 percent. This dramatic increase in bond rates has caused some investors to wonder whether it still makes sense to invest in real assets, like timberland.

Based on current capitalization rates, a strong argument can be made that timberland remains a competitive choice for investment. Based on a 30-year performance record from the NCREIF Timberland Property Index, timberland discount rates, as of late 2022, offer an estimated 4 to 5 percentage point premium return over long-dated U.S. Treasuries. We can draw that conclusion by knowing that timberland discount rates are closely tied to the capitalization rate (net operating income/net asset value) and those rates have maintained their historic spread with 10-year U.S. Treasury despite the rise in bond yields over the course of 2022.

It also can be argued that forest investments remain attractive during periods of higher interest rates because of timberland's (1) decline in annual return volatility; (2) low correlation with many other asset classes; and, (3) ability to serve as a hedge against inflation risk.

Introduction

In the effort to tamp down inflation pressures, the central banks of many of the world's leading economies have tightened monetary policies. As a result, interest rates have increased. In the United States alone, the Federal Funds Rate – the rate charged for overnight borrowing between banks – has risen from an effective rate of 0.07 percent at the start of 2022 to 4.33 percent by year's end (Figure 1), an increase of 426 basis points. In addition, long-term rates have risen alongside short-term rates – with yields on 10-year U.S. Treasury Notes climbing 223 basis points over the course of 2022 to reach just a quarter of a percentage point shy of 4 percent.

Such a dramatic increase in bond rates has caused some investors to ask whether it still makes sense to invest in real assets like timberland. As an illiquid asset that is usually held for a decade or longer, timberland should command a significant return premium over investment-grade bonds. However, if investment-grade bonds can generate a safe 4 or 5 percent yield, one may ask whether it is *worth the extra risk to invest in, or continue to hold, illiquid U.S. timberland that is only projected to generate a total, long-term return of 7 to 8 percent.* This paper addresses this question through a review of the relevant market data that is available today.

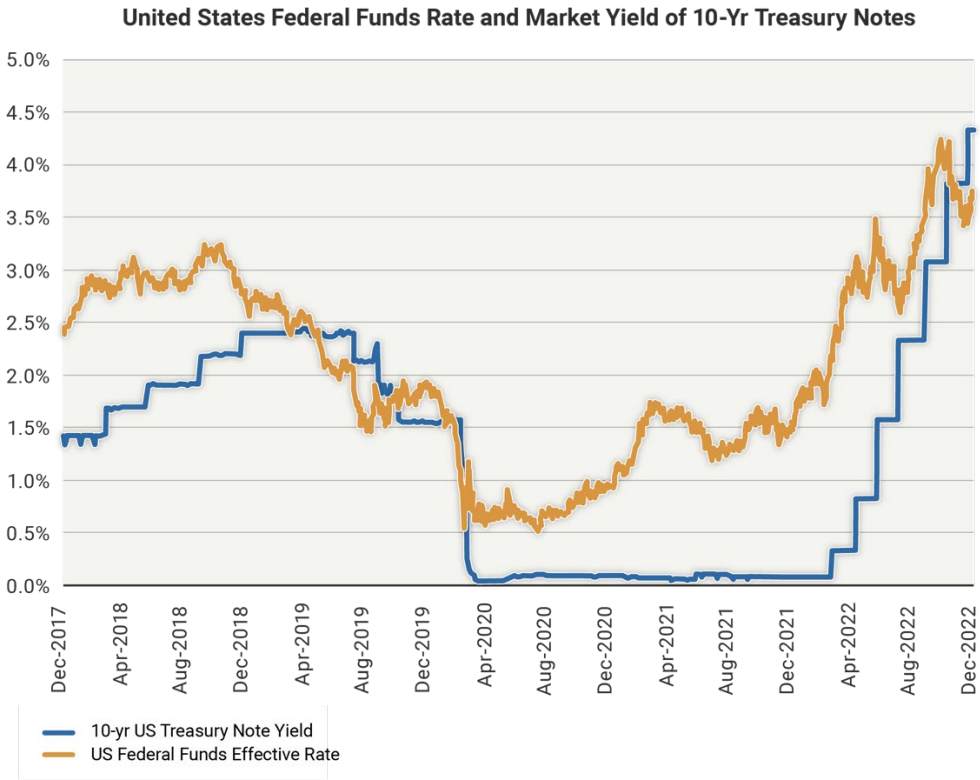

Figure 1. Source: U.S. Federal Reserve. Chart displays the Federal Funds effective rate and the market yield on U.S. Treasury securities at 10-year constant maturity, quoted on an investment basis.

Historic and Current Rate Spread of Timberland

In order to determine whether timberland still offers an attractive and competitive return in higher rate environments, we need to know how timberland has performed in the past during a variety of interest rates cycles. Investment theory tells us that risk-adjusted returns across asset classes balance out. According to theory, when certain investments offer superior risk-adjusted performance, investors will pour capital into those asset classes to take advantage of those exceptional returns. This, in turn, causes asset prices to rise and expected returns (i.e., the discount rate) to fall back in line with other asset classes. Likewise, investment markets that offer inferior risk-adjusted returns tend to see withdrawals of investor capital, whereupon the resulting lower prices lift returns to competitive levels.

However, the tendency towards equilibrium in risk-adjusted returns is a long-term effect. Corrections are never immediate. It takes time for capital markets and investor behavior to adjust, particularly in illiquid, real assets, such as real estate, farmland and, of course, timberland. In other words, discount rates for real assets can be sticky.

Given the slow adjustment period that characterizes the asset class, investors are wise to ask: *Is now a good time to invest in timberland, or would it be better to wait until its discount rate adjusts to the current higher rate environment?* We can get an answer to this question by looking at the historic spread of timberland rates to a reference interest rate. In the case of timberland investments in the United States, a good candidate for a reference rate is the yield from the 10-year U.S. Treasury Note. The investment horizon of many timberland holdings is around 10 years, which matches well with the duration of the 10-year U.S. government bonds.

Unlike bonds, however, timberland assets do not openly reveal their discount rates. Fortunately, we can infer the discount rate through the *capitalization rate* (also commonly referred to as the *cap rate*). Often used in commercial real estate investments and other types of income-focused real assets, the capitalization rate is defined as the ratio of net operating income to net asset value. That number expresses the potential pre-tax, unlevered return of

Explaining the Differences Between Cap Rates, Discount Rates and Realized Return

Capitalization rate measures potential return from income. The discount rate builds on that metric and adds in expected capital gains. For this reason, timberland discount rates exist at a premium to capitalization rates (see Figure 2).

Fortunately, we can infer discount rates from realized returns, as realized return (the returns investors get) should match the discount rate (the returns investors want) over time. That is because investors' expectations adjust based on actual performance. It is therefore possible to calculate the margin between timberland cap rates and discount rates by seeing how much more total returns deliver above the cap rate.

a property if it is purchased at the net asset value and held for its income. Understanding this, the capitalization rate and the discount rate are closely tied to each other, even if they are not equivalent. The key difference is that discount rates incorporate capital gains (see call out box), but capitalization rates do not. In the case of timberland, capital gains have added 4.86 percent in total return over the past 30 years (Figure 2). This indicates investors are demanding more than 400 basis points above timberland's capitalization rate to reach their target discount rate.

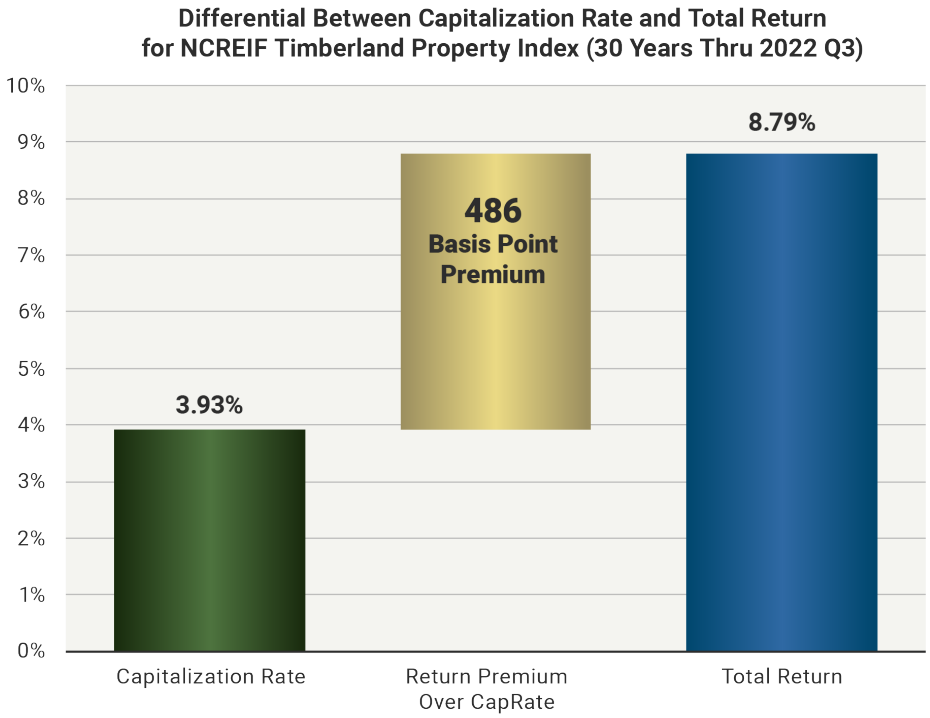

Figure 2. Values are reported as time-weighted averages of full-year (4-quarter) returns. Source: NCREIF.

With that understanding, see the chart in Figure 3. It shows the cap rate premium of U.S. timberland to the yields of the 10-year U.S. Treasury securities over the past 30 years through the third quarter of 2022. The timberland cap rate is tracked by the NCREIF Timberland Property Index over trailing four quarter periods. We use the rolling four-quarter measure to iron out the natural seasonality of timber income and remove any potential bias that is introduced through the once-a-year property appraisals that are required by the NCREIF Index.

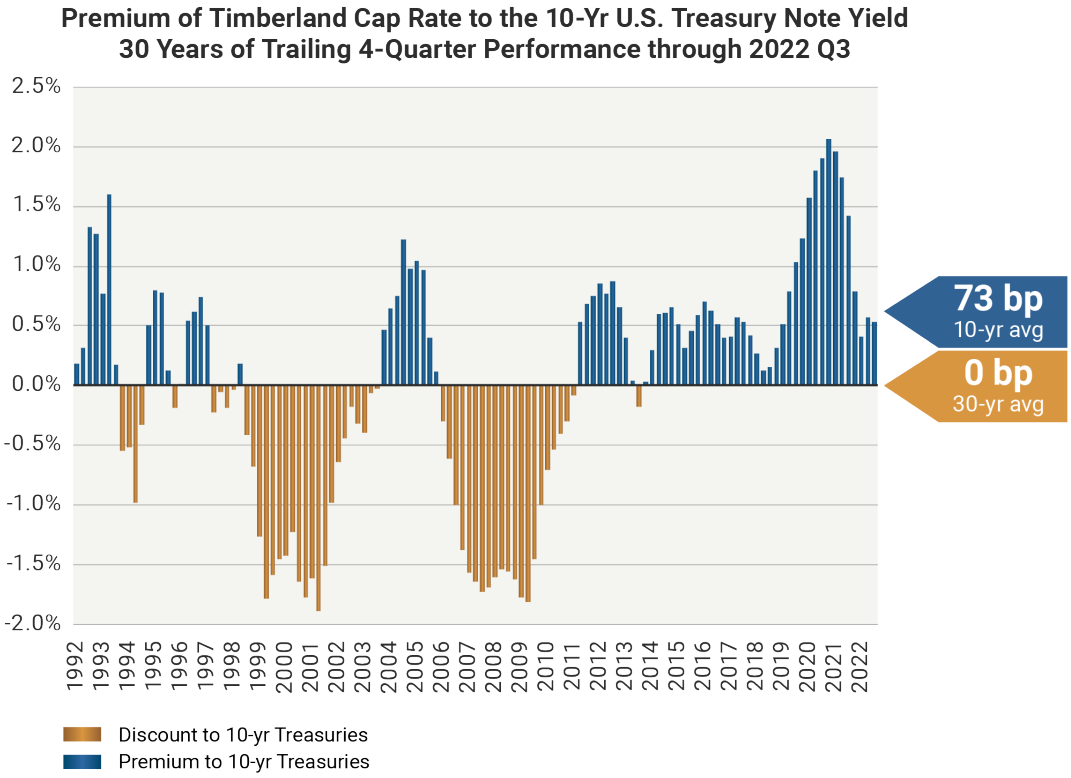

Figure 3. Sources: U.S. Federal Reserve, NCREIF. The cap rate is calculated by taking the net operating income (NOI) of all timberland assets tracked by the NCREIF Timberland Property Index and dividing it by their net asset value (NAV) at the start of the quarter.

Table 1. Rate spreads are calculated from trailing 4 quarter time-weighted effective yields of corporate bonds against matching timberland discount rates. The timberland discount rate is the NCREIF Timberland Property Index's trailing 4 quarter capitalization rate combined with the 486-basis point addition of capital gains to total return. A 25-year period is used because the ICE bond indices begin in 1996. Sources: ICE/Bank of America and NCREIF.

ICE Bank of America Corporate Bond Index	Historic Average Timberland Discount Rate Premium Over Bond Yields (25 Years)	Recent Timberland Discount Rate Premium Over Bond Yields (2022 Q3)
US Corporate AAA Bonds	428 bp	498 bp
US Corporate AA Bonds	423 bp	489 bp
US Corporate A Bonds	380 bp	469 bp
US Corporate BBB Bonds	305 bp	411 bp

As is shown in Figure 3, there have been extended periods where timberland cap rates carry premiums to 10-year Treasuries and periods where they carry a discount (see call out box on the right). However, over the 30-year span, the average premium of timberland cap rates against the 10-year Treasury is effectively zero (0) basis points. If we focus only on the last decade, then the average rate premium for timberland is 73 basis points. Knowing that investors expect a 400 to 500 basis point premium to cap rates, the results indicate that timberland discount rates still carry a premium of four percentage points or more to comparable U.S. Treasury bonds. Compared against investment-grade U.S. corporate bonds, the premium is three to four percentage points (see Table 1).

Two Timberland Rate Dips Explained

Notable in Figure 3 are two extended periods where timberland's capitalization rate held a significant discount to the prevailing long-term interest rate for AAA rated bonds.

The period of **1998-2002** was during a cycle when the U.S. Federal Reserve aggressively raised interest rates to cool down an overheated U.S. economy. These high rates eventually precipitated the 2001-2002 Dotcom Crash.

The second period of **2006-2011** was the result of the collapse of the U.S. housing bubble, which caused home construction to drop to one-fourth of its peak. During this period, timber income dropped, which caused cap rates for many timberland properties to fall well below prevailing interest rates.

This suggests that timberland investments still offer rates of return that are competitive amid higher interest rate environments.

Factors to Consider Amid a Narrowing Rate Spread for Timberland

While timberland investment rates arguably remain competitive against historic norms, some investors are concerned that the healthy rate premium enjoyed by timberland in 2020-2021 period fell dramatically over the course of 2022. If capitalization rates are a guide, the timberland interest rate spread has narrowed by more than 125 basis points from its 2021 Q3 peak. Furthermore, this spread could narrow further if the major world economies continue with their monetary tightening programs and push government bond rates higher.

Yet, despite the declining spreads, timberland offers three notable features that investors may find attractive and beneficial.

1. Lower Levels of Risk

Interestingly, timberland risk levels have declined over time. In the early years of the asset class in the 1990s, timberland returns were very volatile. However, as timberland markets became more liquid and timber markets grew increasingly competitive, extreme movements in return have declined. As seen in Figure 4, risk levels – as measured by the standard deviation of annual returns – have fallen by two-thirds over the past three decades.

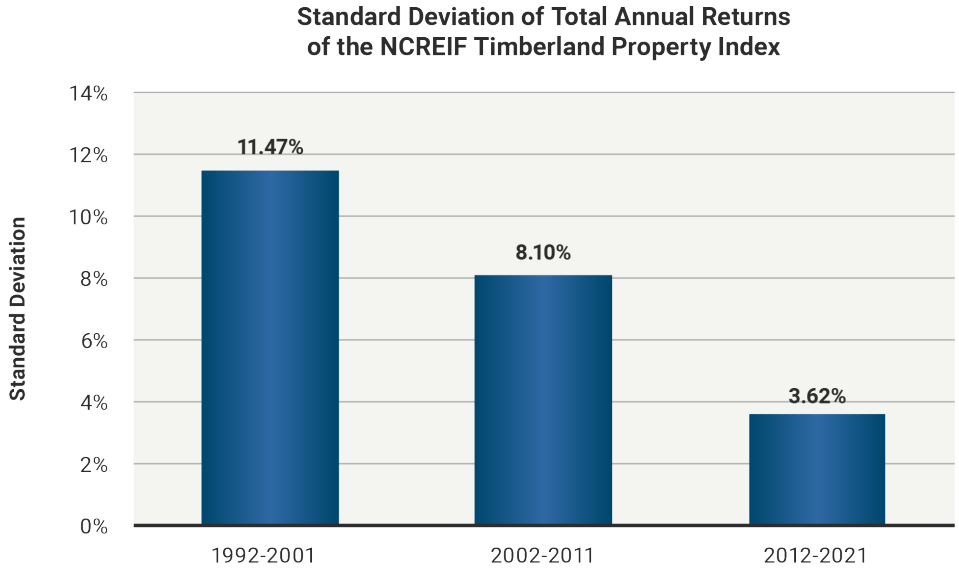

Figure 4. Source: NCREIF

Lower risk leads to lower risk premiums. Investors may therefore accept a lower discount rate to better reflect the higher consistency of returns that timberland offers.

2. Low Correlation to Other Asset Classes

Another important feature of timberland is its low correlation of returns against many other asset classes. This is due, in part, to the biological growth of trees, which adds value and helps generate return that is independent of the economy and markets.

Table 2. Statistical correlation of annual returns of the NCREIF Timberland Property Index against a selection of other benchmark indices. Sources Ibbotson, NCREIF.

Asset Class / Benchmark	Correlation with Timberland 30-yr Annual Returns (1992-2021)
Large Cap Stocks Standard & Poor's 500	0.081
Small Cap Stocks Russell 2000	0.085
Long-Term Corporate Bonds Citigroup Long-Term Corp. Bond Index	-0.093
Long-Term Government Bonds 1-Bond Portfolio, 20-Yr Maturity	0.097
Commercial Real Estate NCREIF National Property Index	0.078

The low correlation of forest assets creates opportunities to diversify a portfolio. Even if it cannot offer returns that can match hedge funds, private equity or other types of alternative investments, timberland's low correlation to other asset classes can be valuable in raising an entire portfolio's risk-adjusted performance.

3. Inflation Hedge

The third attractive characteristic that timberland offers is that it can serve as an inflation hedge. Amid the global market disruptions and large expansions of government spending, some investors wish to mitigate potential inflation risks in their portfolios. In this regard, timberland has a proven track record of serving as an inflation hedge. Over much of the 35-year history of the NCREIF Timberland Property Index, its performance has scaled positively with inflation (Figure 5). In contrast, we do not see this inflation hedging relationship with either commercial real estate (Figure 6) or publicly traded stocks (Figure 7).

With respect to fixed-income investments, inflation is the largest risk to the asset class. It is reasonable to expect that a timberland investment, however, would perform quite well in an inflationary environment. Inflation-averse investors may therefore seek to include timberland in their portfolios despite the narrowing spread between the asset class and bonds.

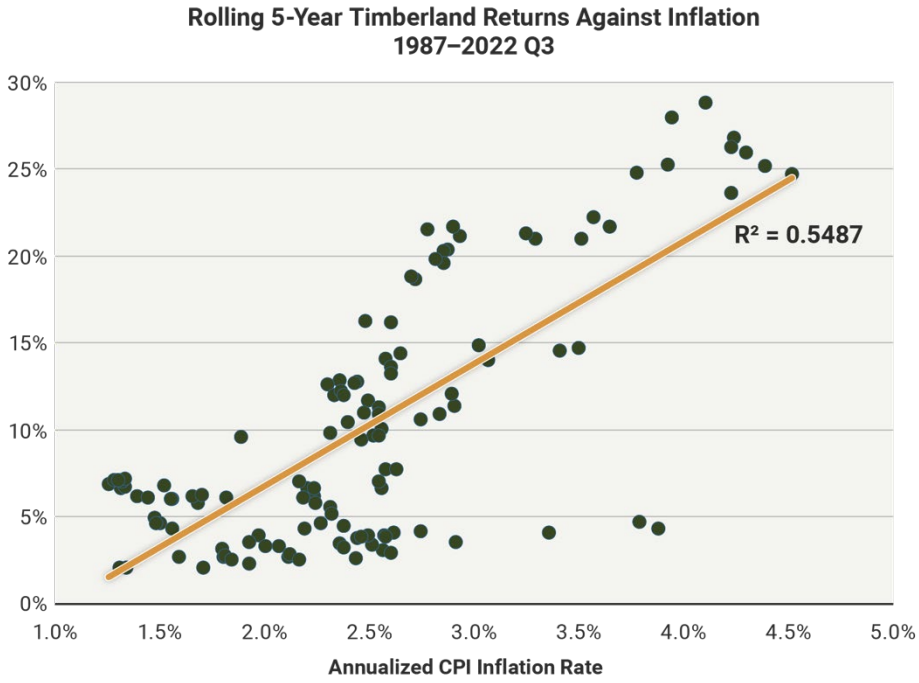

Figure 5. Sources: NCREIF Timberland Property Index (institutional timberland returns); U.S. Bureau of Labor Statistics (consumer price index, all urban consumers, all items).

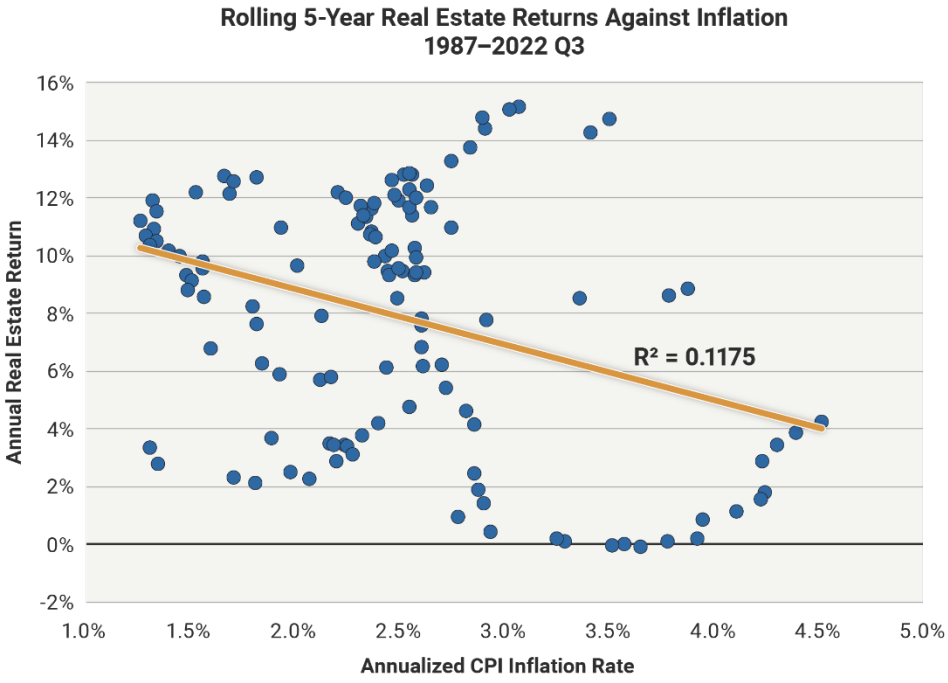

Figure 6. Sources: NCREIF National Property Index (institutional real estate returns); U.S. Bureau of Labor Statistics (consumer price index, all urban consumers, all items).

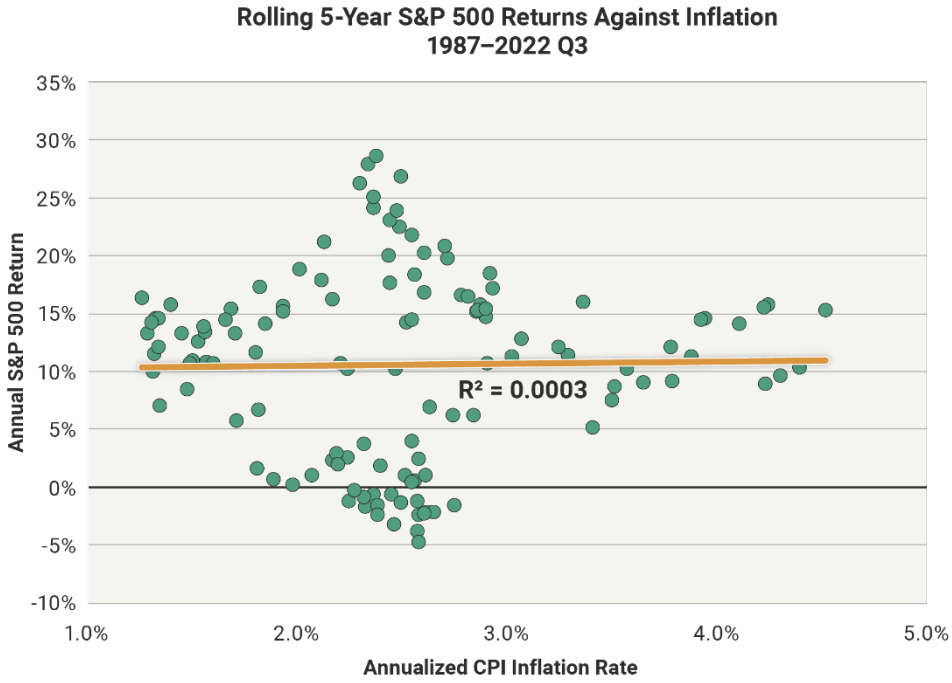

Figure 7. Sources: Standard & Poor's (large cap stocks, quarterly total return); U.S. Bureau of Labor Statistics (consumer price index, all urban consumers, all items).

Conclusions and Recommendations

In light of the significant rise in interest rates that was observed in 2022, investors are reconsidering their target allocations to alternative assets. This goes for timberland as well. If risk-free, long-term U.S. Treasury bonds now carry mid-single-digit yields, some investors may question whether it is worth taking on timberland's added illiquidity and risk to earn a possible 7 to 8 percent return. Based on current capitalization rates, we argue that timberland remains a competitive choice for investors. While there can be variability from quarter to quarter, discount rates are closely tied to the capitalization rate and the two will track each other's movements over time. Thus, when comparing timberland's cap rate spread with bond rates, the differential is well within historical norms. Based on 2022 Q3 data, timberland cap rates remain three-quarters of a percentage point above the 30-year average spread to 10-Year U.S. Treasuries. By extension, this suggests timberland discount rates continue to offer a premium of 400 basis point or more over long-term bonds of BBB rating or better, which is on par with (or is better than) than historic levels.

Furthermore, one could argue that timberland investments remain attractive during higher interest rate environments due to timberland's (1) decline in annual volatility of returns; (2) low correlation to many other asset classes; and, (3) its ability to hedge against inflation risks.

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