

Timberland and Inflation

Timberland Provided a Hedge Against An Uncertain Inflation Outlook

Maintaining the purchasing power of invested capital is a paramount consideration when structuring an investment portfolio. Private-equity timberland in the United States has historically been a good hedge against domestic inflation. A number of different factors converge to produce this attribute of timberland. Stumpage (or harvested timber) is a commodity that like many other commodities tends to hedge inflation. Private-equity timberland market participants tend to value transactions and existing properties in such a way that may also contribute to timberland's inflation hedging ability. Public-equity timberland investment vehicles have not historically shown the same robust inflation hedging attributes.

Actual, Expected, and Unexpected Inflation

It is useful to make a distinction between actual, expected, and unexpected inflation. It is impossible for investors to know the future trajectory of actual inflation rates. Economists and analysts will generally form inflation expectations when making economic and investment decisions. For example, an investor may forecast that inflation will average 2.0% during the term of their investment. Actual inflation frequently turns out to be different than what investors expected at the time they made an investment. The difference between what was expected and what actually happened is unexpected inflation. For this investor, if actual inflation averaged 3.5% over the life of the investment when he or she exits, unexpected inflation averaged 1.5%. Investors should be concerned with how their portfolio and its investments perform relative to unexpected inflation, and choose asset classes that help protect their portfolio against unexpected inflation.

About Campbell Global

Campbell Global brings more than three decades of experience and leadership to sustainable timberland and natural resource investment management. As a full-service firm, we acquire and manage timberland for investors, while seeking to provide the highest quality service and expert management. Known for expertise and integrity, we seek to deliver superior investment performance by focusing on unique acquisition opportunities, client objectives, and disciplined management.

Authors



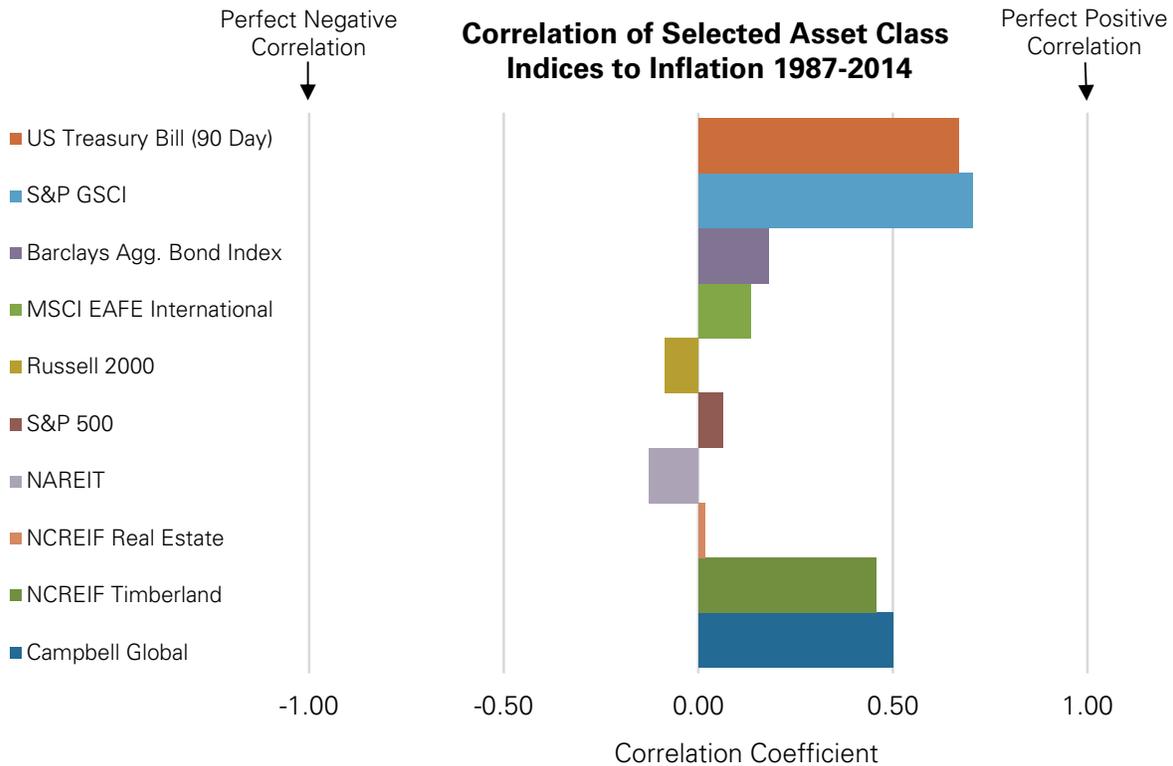
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Academic research that has explored the link between private-equity timberland and unexpected inflation, utilizing a variety of statistical methods, has corroborated an inflation-hedging effect¹. Utilizing a regression model, Wan et al, (2013 vs. 2012) tested both private and public-equity timberland returns against a modified CAPM model, which incorporated both expected and unexpected inflation. They identified a statistically significant relationship between private-equity timberland returns and expected and unexpected inflation over the long-run. Such a relationship was not found in public-equity timberland. This is in contrast to traditional asset classes such as publicly traded equities and bonds, which generally do not perform well during inflationary events².

Timberland’s Historical Performance vs. Actual Inflation

Running a simple correlation between actual inflation, as defined by the CPI-U price level measure and various asset class indices highlight the performance of private-equity timberland returns as an inflation hedge over the past three decades. This simple measure suggests that timberland returns³ provide inflation hedging results that are comparable with Treasury Bills and Commodities.

Figure 1 - Correlation Between Various Asset Classes and Inflation

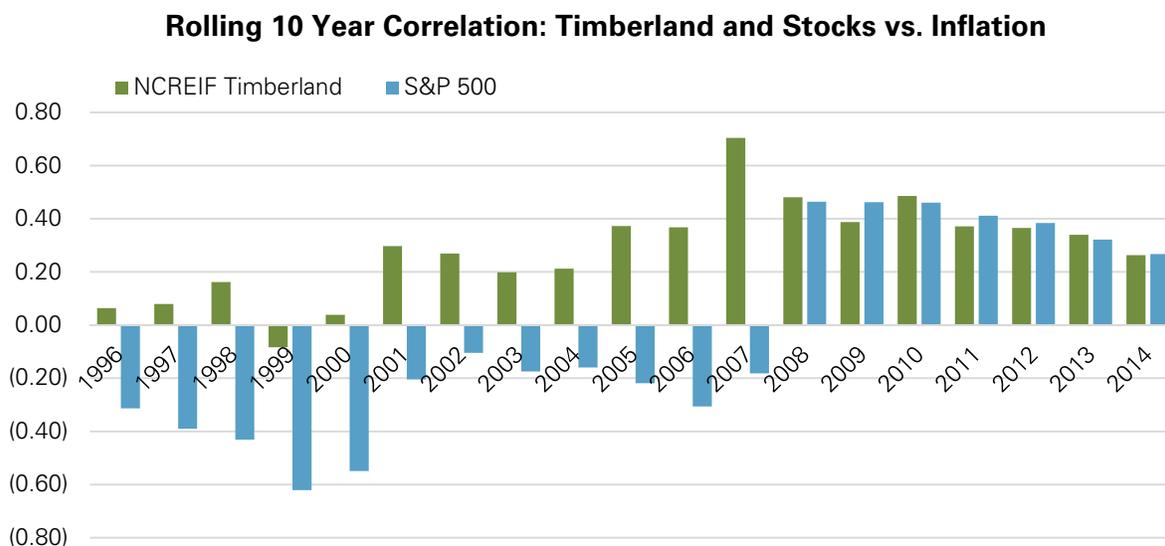


¹ Wan, Y; Mei, B; Clutter, M; and Siry, J. 2013. Assessing the inflation hedging ability of timberland assets in the United States. Forest Science 59(1):93-104.

² <http://www.thehedgefundjournal.com/sites/default/files/unexpected-inflation-hedging.pdf>

³ We utilized the NCREIF Timberland Property Index as our measure of private-equity timberland returns. This index has data from 1987 forward, submitted by timberland investment managers. The data covers actual operating timberland properties, which are valued utilizing third party appraisals or actual sale results when a property is sold.

Figure 2 - Rolling 10 Year Correlation: Timberland and Stocks vs. Inflation



Timberland returns have multiple return drivers. The primary return driver for timberland is biological growth of the forest, which would not be expected to correlate with inflation or any other macroeconomic variable. However, other return drivers would be expected to contribute to timberland's inflation hedging characteristics.

Biology and Forest Management

A significant portion of the return from timberland comes from biological growth, which is independent of macroeconomic factors including inflation. At times prices may not be high enough to justify harvesting, but timber can be stored within the forest and allowed to grow until more favorable price conditions return. If multiple timberland owners pursue this strategy, timber prices will again be driven upward by managers withholding harvest. If timber prices do not keep up with economy-wide price level increases, the withholding of supply by timberland owners may help drive timber prices higher, in-line with price level increases seen in the wider economy.

Researchers have estimated the contribution of biological growth to timberland returns. Mei, et al (2013) have demonstrated that the contribution can vary depending on the period under consideration⁴. They estimate that greater than 61% of an individual timber stand's return can be attributed to biological growth. Given that biological growth is such a significant driver of timberland investment returns, its lack of correlation with changes in unexpected inflation and other economic variables mutes the impact that such variables can have on timberland investment returns.

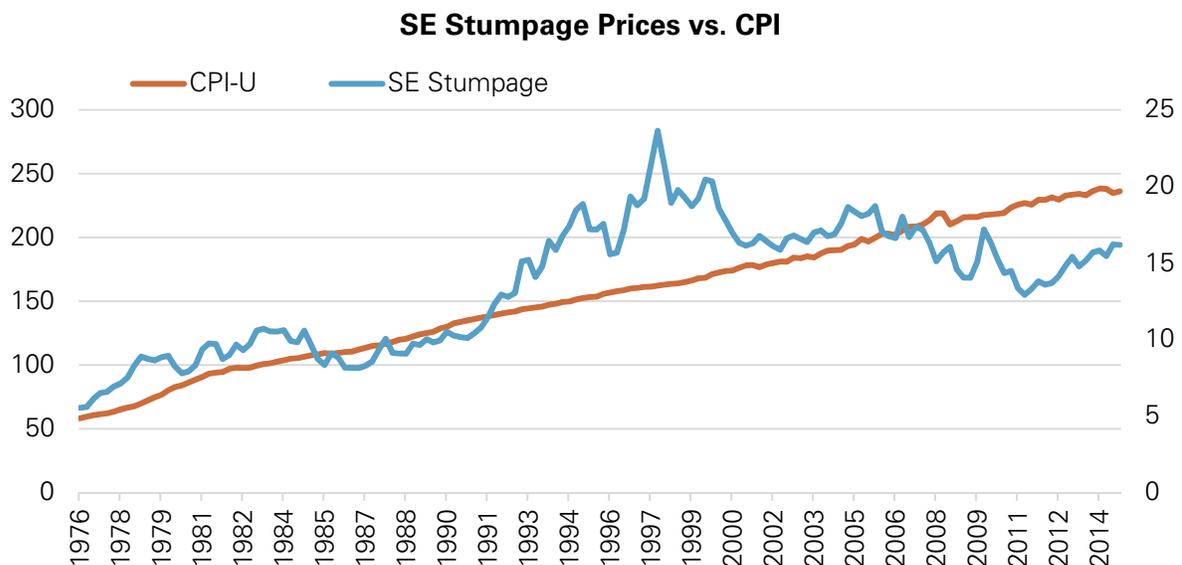
⁴ Mei, Bin; Clutter, Michael L.; Harris, Thomas G. 2013. Timberland Return Drivers and Timberland Returns and Risks: A Simulation Approach. Southern Journal of Applied Forestry 37(1):18-25.

Commodities and Inflation

Commodities have a widely cited relationship between their prices and inflation⁵. When the demand for goods increases, commodities that serve as basic inputs for manufactured goods come under upward pressure. Timber is one of these commodities and also responds to these forces. If wood product markets are robust during inflationary periods, we would expect timber to be a good hedge against unexpected inflation.

The two primary timber producing regions in the US are in the Southeast and Pacific Northwest. In both Figure 3⁶ and Figure 4⁷, we can see that stumpage and log prices generally track inflation quite well, but can be buffeted by supply shocks and demand shocks such as reduced U.S. Federal Government harvests in the 1990s and the global financial crisis and related housing crash of the late 2000s. If we assume a typical institutional investment period of 10 years, the correlations figures are 0.30 and 0.26 respectively. A diversified portfolio, with a 50% portfolio weight assigned to each region would yield a correlation coefficient of 0.29.

Figure 3 - SE Stumpage Prices vs. CPI

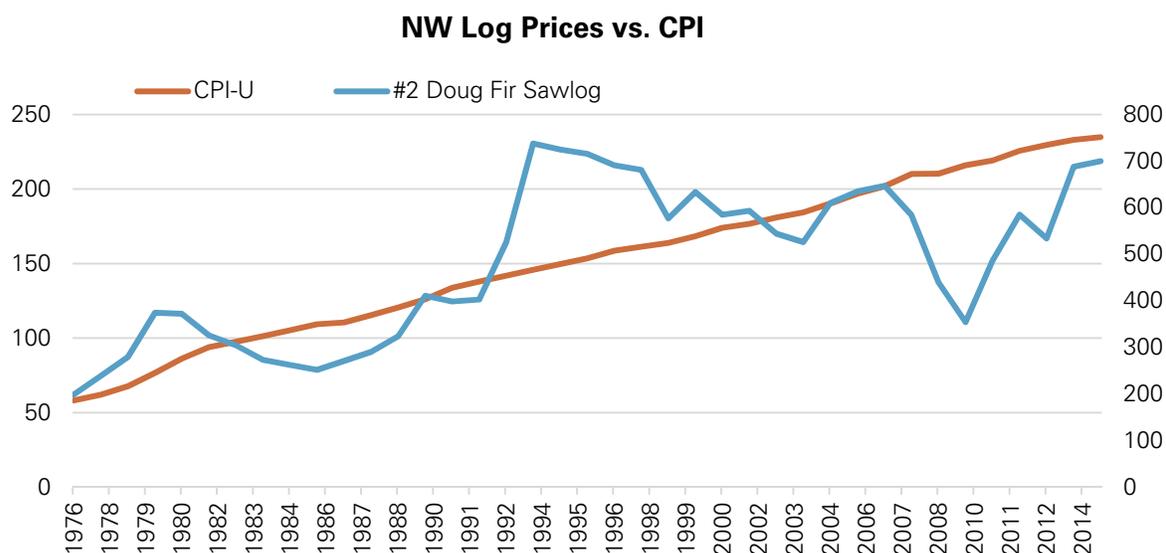


⁵ <https://www.credit-suisse.com/media/am/docs/us/asset-management/wp-commodities-inflation-deflation-en.pdf>

⁶ SE stumpage prices were obtained by weighting the Southeast average Timber Mart-South prices based on a product mix that is 50% pine pulpwood, 25% pine sawtimber, 18% pine chip-n-saw, 5% hardwood pulpwood, and 2% hardwood sawtimber for periods after 1980. For periods prior to 1980, pine chip-n-saw data was not available, so we allocated 9% additional volume to both pine sawtimber and pine pulpwood. Prices are net of logging and haul costs.

⁷ We utilized #2 Douglas Fir Sawlog prices as a proxy for prices in the US Pacific Northwest, utilizing data from RISI, Loglines, and CG research. Prices are gross of logging and haul costs.

Figure 4 - NW Delivered Log Prices vs. CPI



Market Structure and Pricing Mechanisms

The means through which participants in private-equity timberland markets price timberland transactions may also lead to a positive correlation with both expected and unexpected inflation. Both appraisals and acquisition analysis rely heavily upon the income approach to valuation⁸. The income approach utilizes discounted cash flow models to discount projected future income by a chosen pre-inflation discount rate.

When valuing timberland, market participants tend to employ *real* discounted cash flow (DCF) models, as opposed to nominal models. This means that market participants generally do not place an emphasis on expected inflation when setting their discount rate and projecting an income stream. Expected income is usually derived by utilizing a price forecast that assumes that timber prices achieve a long-run real trend price. It is unlikely that unexpected inflation events would change market participant views about the long-run real price trajectory of timber. This provides a level of stability to asset pricing in private-equity timberland markets. This contrasts with public timberland REITs that are more likely to be priced on a dividend yield basis and have significant exposure to daily movements in public equity markets. Furthermore, the perception that timberland is a good inflation hedge is more likely to generate investor demand for timberland during periods of unexpected inflation that would lower real discount rates, supporting value and returns.

⁸ Timberland tracts are fairly heterogeneous, with varying age class distributions, site quality, access to markets, etc. Transactions are also fairly infrequent, especially for larger tracts. This makes utilizing the market comparison approach fairly difficult and subjective. Timber has a growth period that spans decades. This makes the cost approach problematic. This leaves the income approach as the primary mechanism for pricing timberland.

Conclusion

Correlation analysis and more rigorous statistical analysis that has been performed in academic settings support private-equity timberland's ability to hedge inflation, including unexpected inflation. Driving this result are stumpage price characteristics, forest management practices, and the market structure of private-equity timberland.

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About the Author

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