



## Correlation Update

### *Timberland is still not correlated with stocks—but the pendulum is swinging*

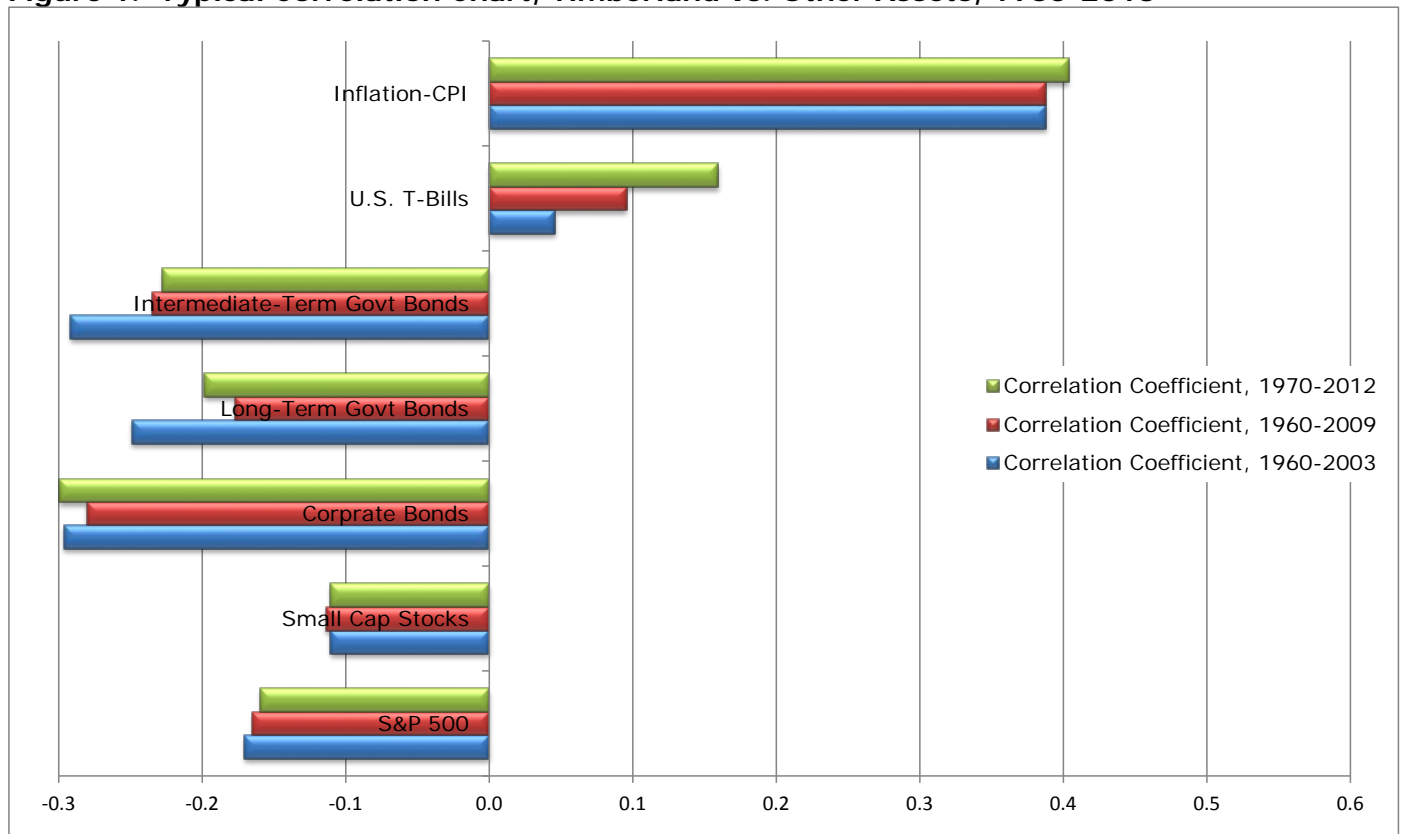
In *The Anti-Correlation Heresy* (Vol 1 No 4) and *The Anti-Correlation Heresy – Update* (Vol 6 No 4), we showed that timberland is not correlated with financial assets.

Most analyses use a long-term data series, and many of them show a negative correlation between most asset classes and timberland. Figure 1 shows a typical analysis of this type. It includes the returns through 2003 and 2009 that were available at the time the *Heresy* issues were published and updates

the analysis through 2013. The timberland returns are based on the US NCREIF Timberland Index since 1987 and uses theoretical returns calculated using a timberland return model developed by John Wilson, widely known as the John Hancock Timber Index.

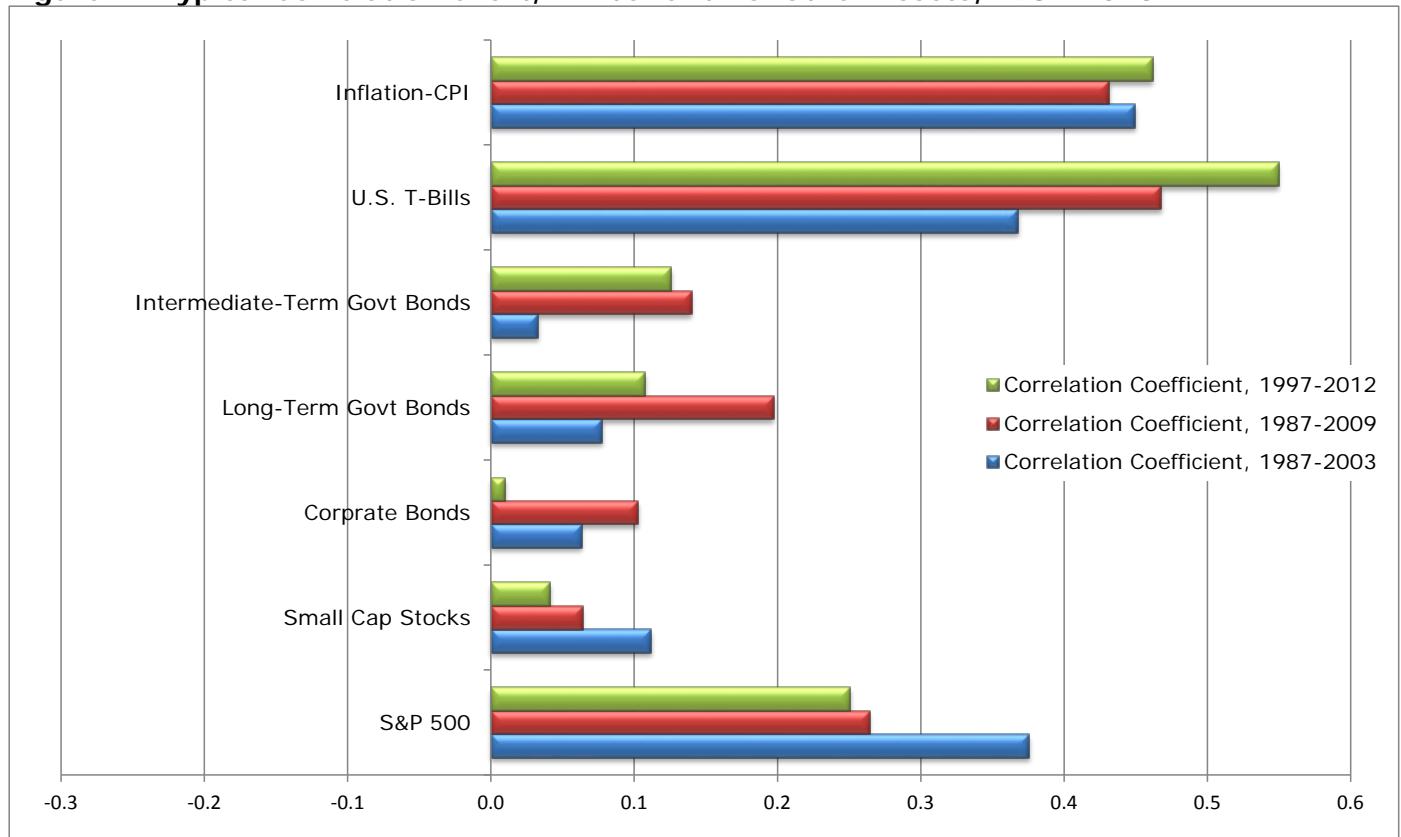
The conclusion that is often drawn from such a chart is that **timberland returns are negatively correlated with returns from stocks and bonds.**

**Figure 1. Typical Correlation Chart, Timberland vs. Other Assets, 1960-2013**



Sources: Morningstar, National Council of Real Estate Fiduciaries

Figure 2. Typical Correlation Chart, Timberland vs. Other Assets, 1987-2013



Sources: Ibbotson Associates, National Council of Real Estate Fiduciaries

However, the correlation shown in the chart is based on a particular analysis period, and a different time period can present a very different picture. For example, Figure 2 shows the same type of analysis for the periods 1987-2003 (the original analysis) and 1987-2009 (the update) and 1987-2013, which corresponds to the length of the NCREIF Timberland Index series.

Anyone looking at Figure 2 would conclude that timberland returns are *positively* correlated with returns from stocks and bonds.

So what is going on? **Timberland is neither positively nor negatively correlated with most other assets—it is simply not correlated at all.**

Any appearance of correlation between timberland and most other asset classes is largely a result of the time period chosen for the analysis. Figure 3 shows how the correlation coefficient between the S&P 500 and timberland has changed over time. The red bar shows the correlation for 1960-2013

(from Figure 1) and the dark green bar shows the correlation for 1987-2013 (from Figure 2).

While there are institutional investors that have held timberland investments since the early 1980s, there are many who have held timberland for shorter periods of time (5-10 years) and a number of funds that have liquidated after a decade or so. The blue bars show the correlation for individual 10-year periods: 1960-1969, 1961-1970, etc., showing what such short-term investors might have found over their investment period.

Investors for every 10-year period ending before 1989 would have found a negative correlation. Anyone investing between 1980 and 1990 would have found a very low correlation between the two assets. Anyone investing between 1992 and 2001 would have found a positive correlation over a ten year period. The correlation has been negative for the two most recent 10-year periods.

Figure 3. Correlation Between Stocks and Timberland Over 10-Year Periods

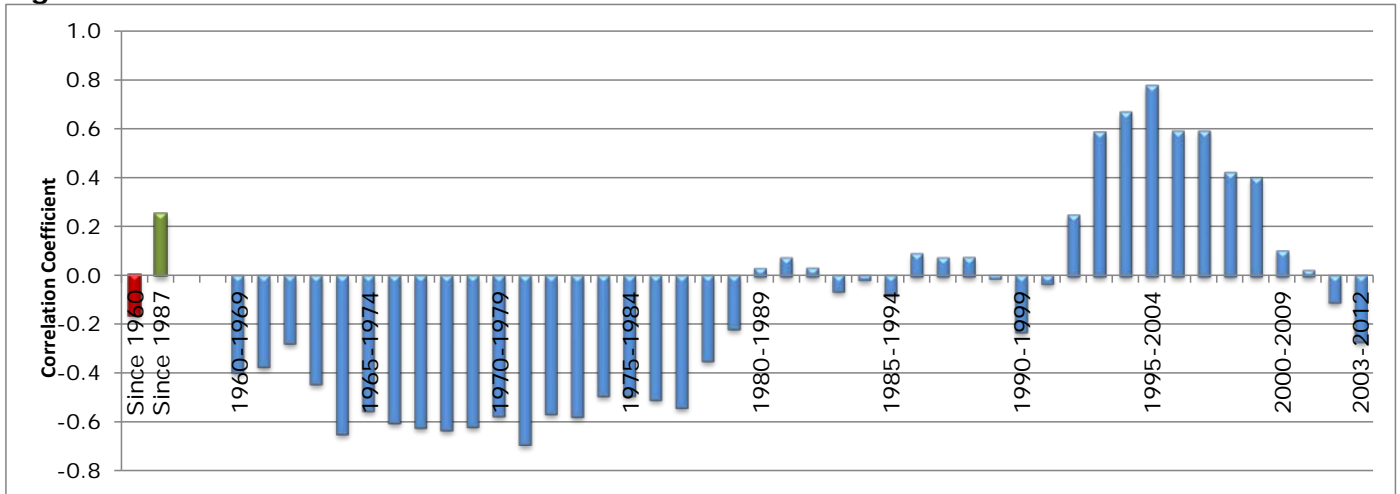


Figure 4. Correlation Between Corporate Bonds and Timberland Over 10-Year Periods

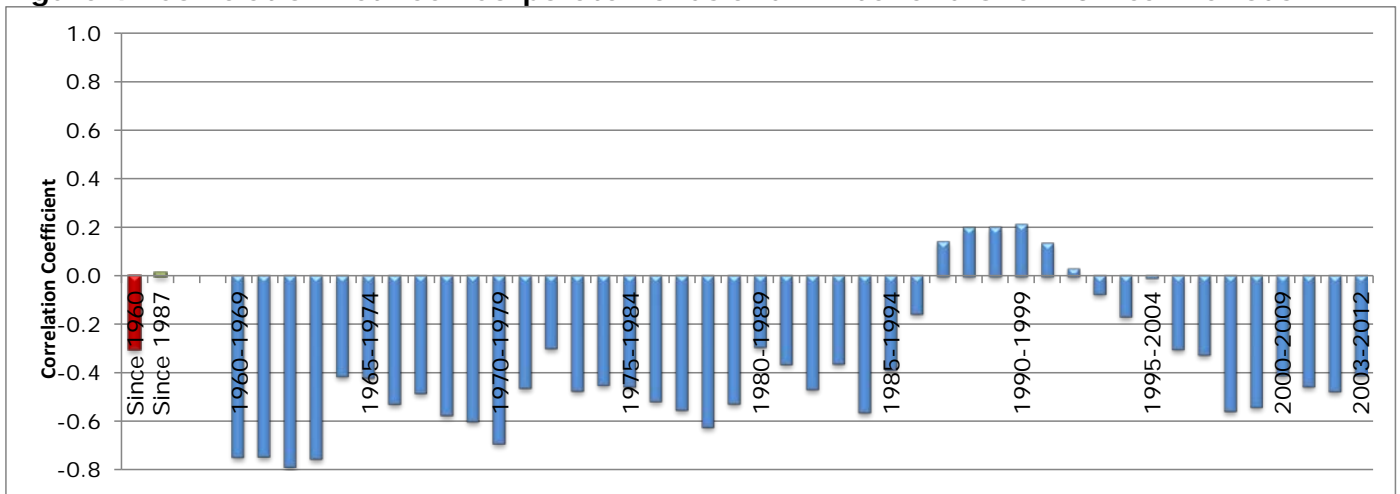


Figure 5. Correlation Between 20-Year Treasury Bonds and Timberland Over 10-Year Periods

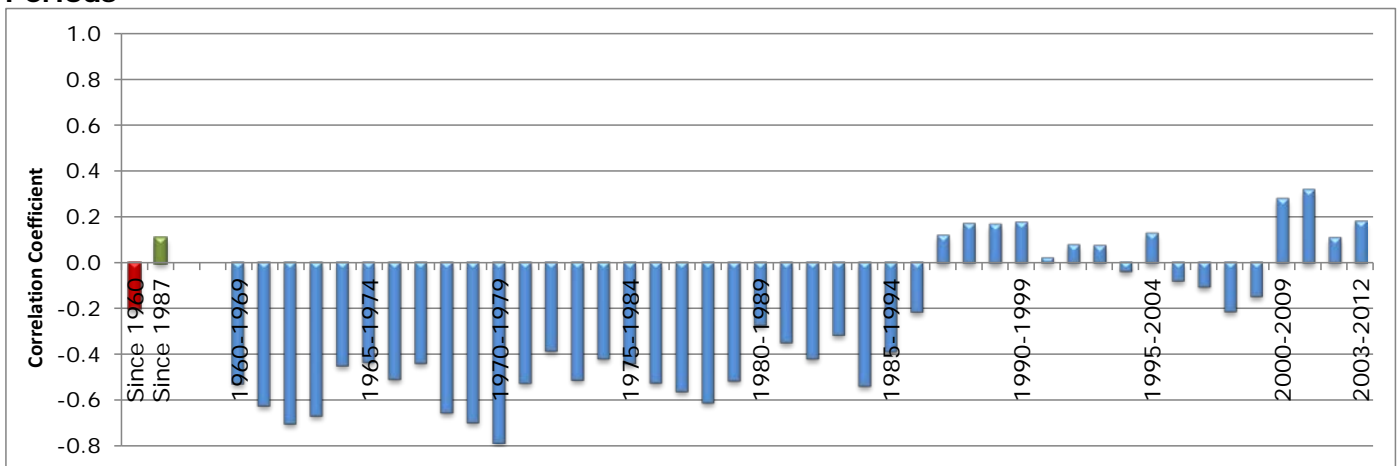
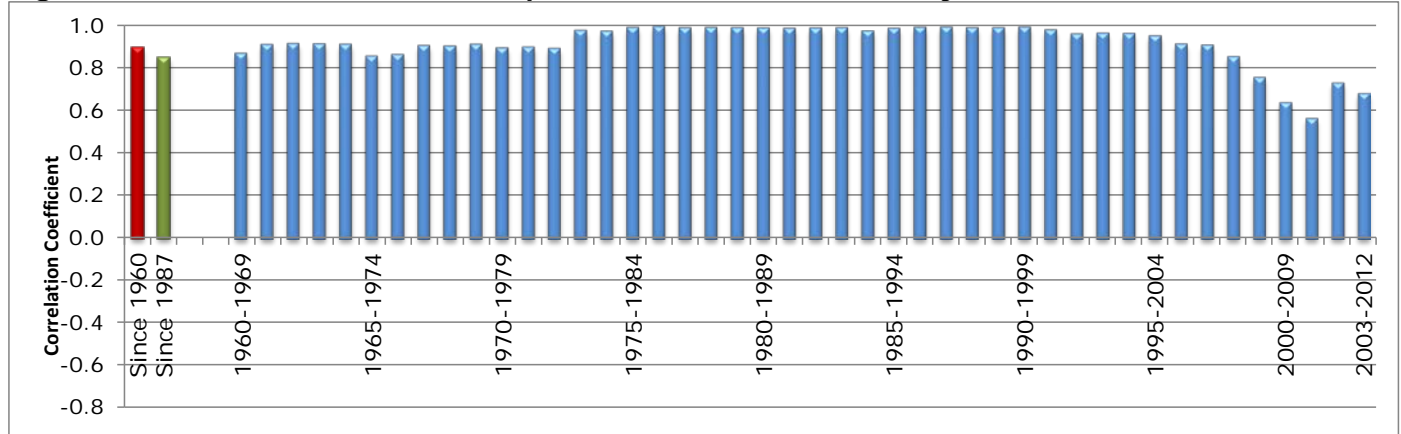


Figure 6. Correlation Between Corporate and 20-Year Treasury Bonds Over 10-Year Periods



There is a stronger case that timberland is negatively correlated with corporate bonds. Figure 4 shows that the two asset classes have been negatively correlated for most 10-year investment periods since 1960. Investors who put money into timberlands for any 10-year period between 1986 and 1994 would have found a poor correlation between the two, while investors since then would have found a negative correlation.

But, not all bonds are created equal. Figure 5 shows the correlation between timberland and 20-year treasury bonds. The correlations here are similar to those in Figure 4 through 1991, but then, when the correlation with the corporate bonds goes strongly negative, the correlation with the government bonds remains very weak.

How can timberland be negatively correlated with both bonds through the 1980s, but show different correlations after that? Figure 6 shows that the correlation between the two bonds themselves has declined sharply over the past 20 years.

**Summary**

The last two 10-year investment/analysis periods in Figure 2 (2002-2011 and 2003-2012) show negative correlation with stocks.

There are still no changes to our original conclusion and summary:

- Correlation coefficients are widely used in investment analysis.
- Sometimes the correlation coefficient is misinterpreted.
- Timberland is *not* negatively correlated with stocks (or most other asset classes).
- But timberland is *not* positively correlated with stocks, either.
- *Timberland is simply not correlated with stocks.*
- If you need an asset class that is always negatively correlated with stocks, timberland is not it.
- If you need an asset class that is not correlated with stocks, timberland may be it.

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