Forest Research Group

Forest Research Notes

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Correlation Update—The Heresy Continues

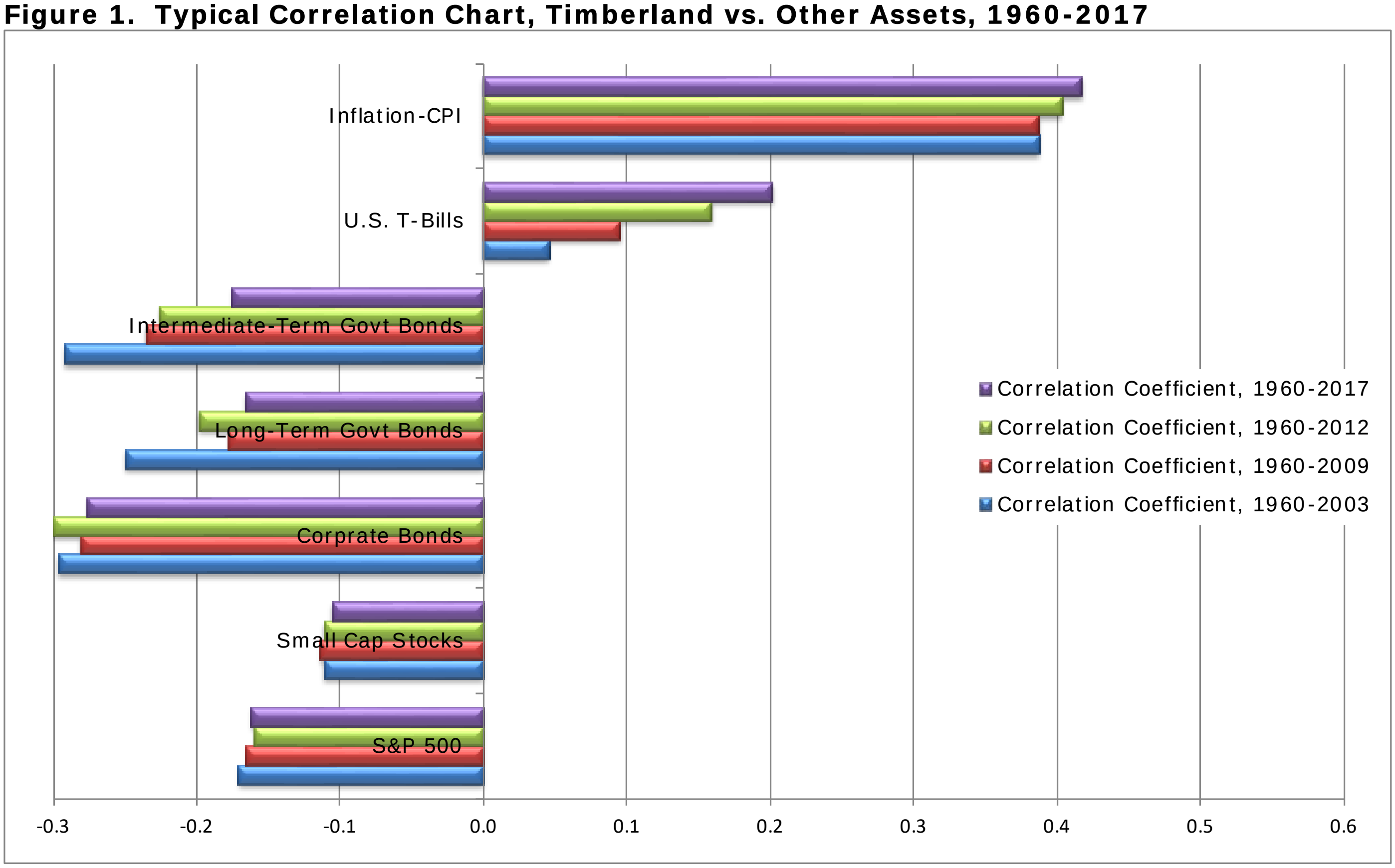
Beginning with *The Anti-Correlation Heresy* (Vol 1 No 4) in 2004, we have been showing that timberland is not correlated with financial assets. The story hasn't changed.

Most analyses use a long-term data series, and many of them show a negative correlation between most financial asset classes and timberland. Figure 1 shows a typical analysis of this type. It includes the returns through 2003, 2009 and 2012 that were available at the time the *Heresy* issues were published and updates the analysis through 2017. 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**.

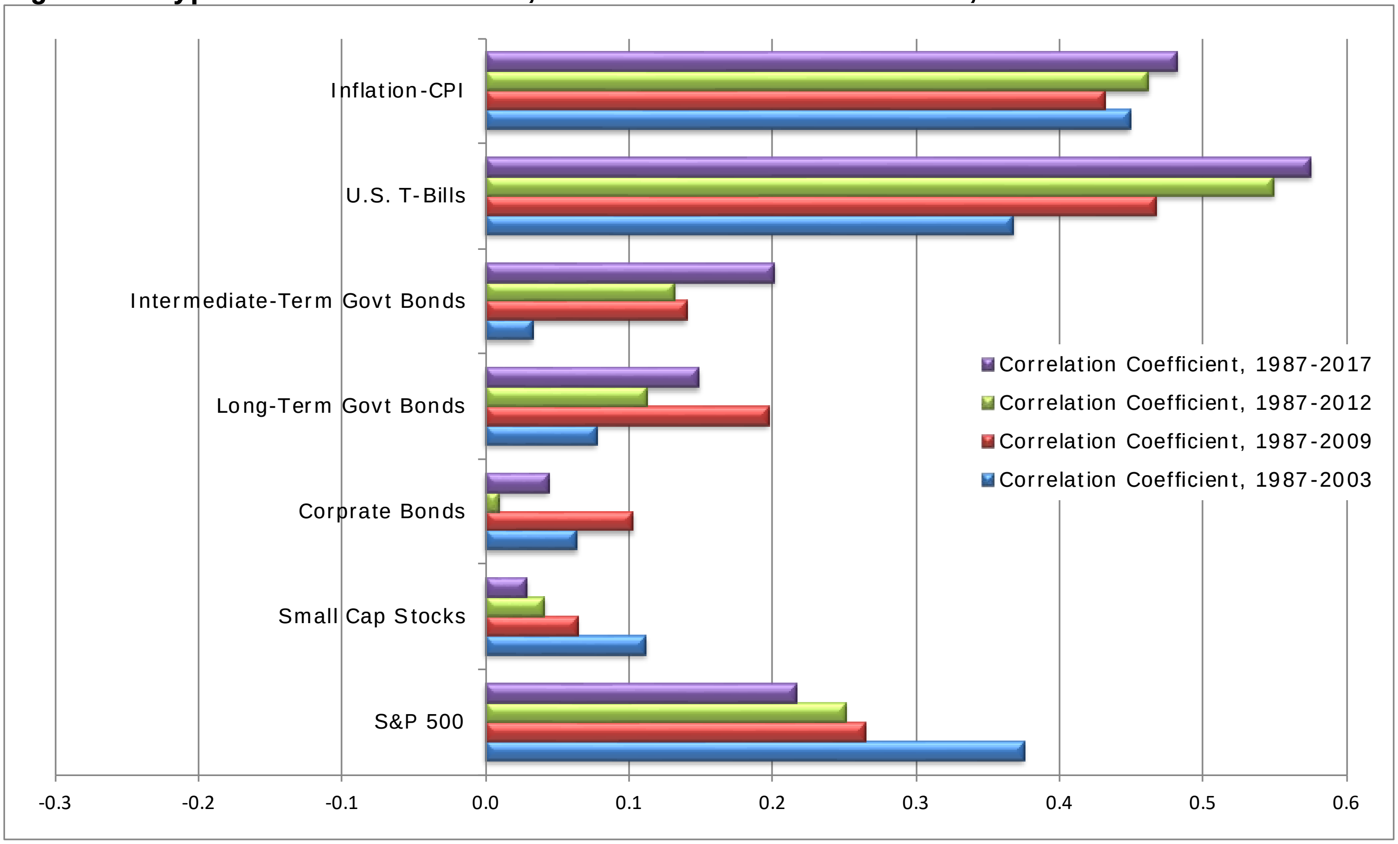
Note that, while the correlations with large- and small-cap stocks have been fairly steady for each analysis period, the correlations with various bonds have been more variable.

Figure 1. Typical Correlation Chart, Timberland vs. Other Assets, 1960-2017



Sources: Ibbotson, National Council of Real Estate Fiduciaries

Figure 2. Typical Correlation Chart, Timberland vs. Other Assets, 1987-2017



Sources: Ibbotson, National Council of Real Estate Fiduciaries

However, the correlations shown in the chart are based on a particular analysis period, and a different time period can present a very different picture. Figure 2 shows the same type of analysis for the periods 1987-2003 (the original analysis), 1987-2009 and 1987-2013 (the updates), and 1987-2017, which corresponds to the length of the NCREIF Timberland Index series.

Note that the correlations between timberland and the two stock groups has been declining over time, while the correlations between timberland and t-bills and intermediate-term government bonds has been increasing.

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

So, what is going on? We conclude that **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 has been 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 1960-2017 (from Figure 1) and the dark green bar shows the correlation for 1987-2017 (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.

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

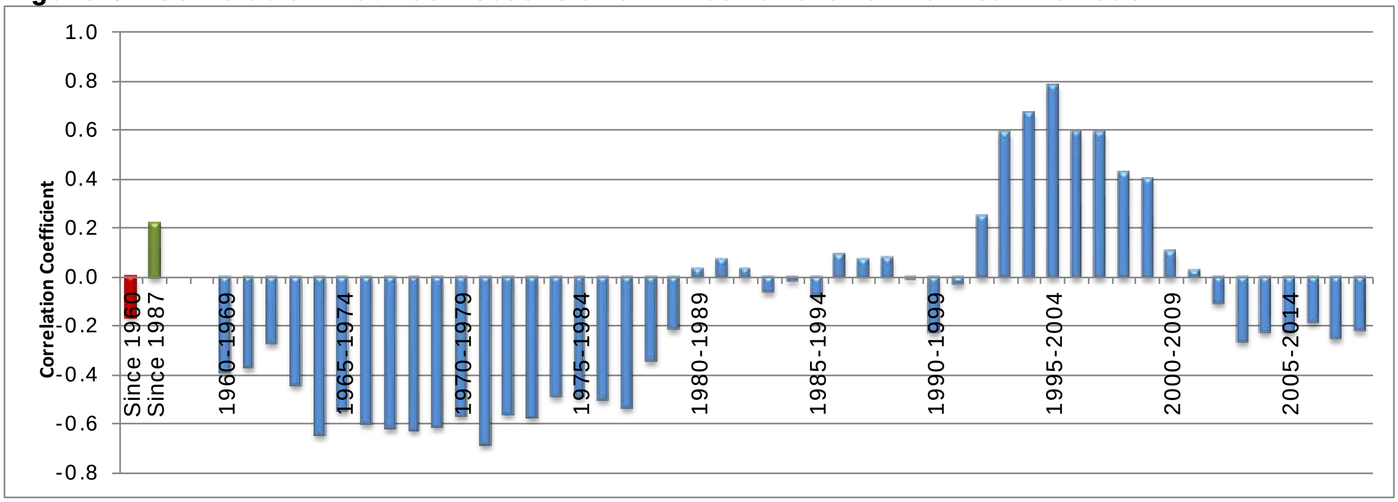


Figure 4. Correlation Between Corporate Bonds and Timberland Over 10-Year Periods

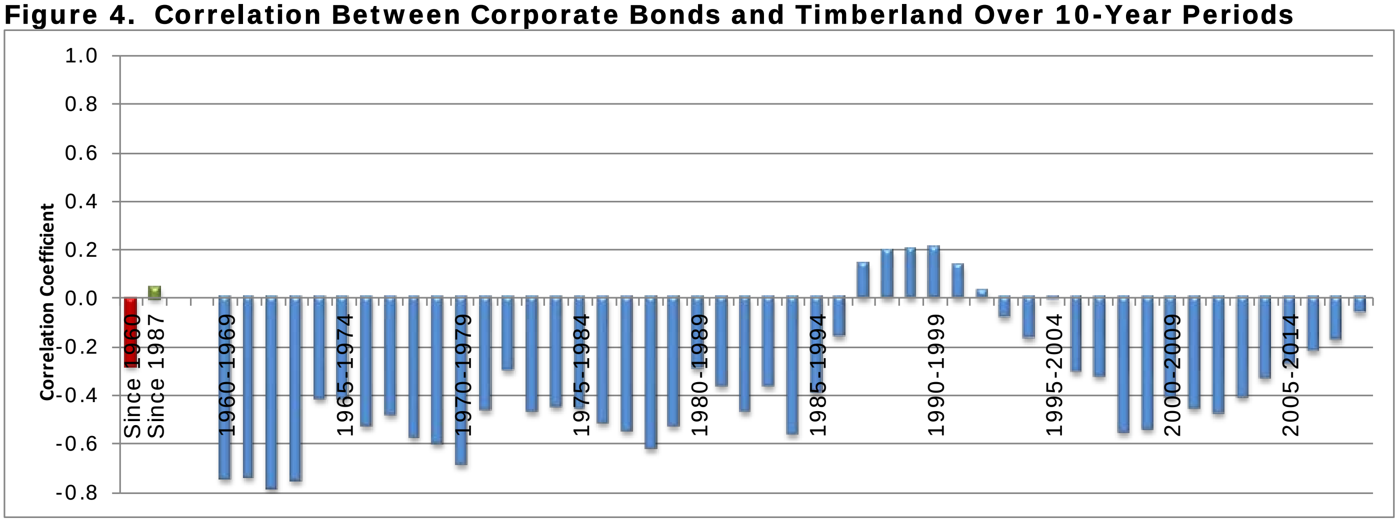
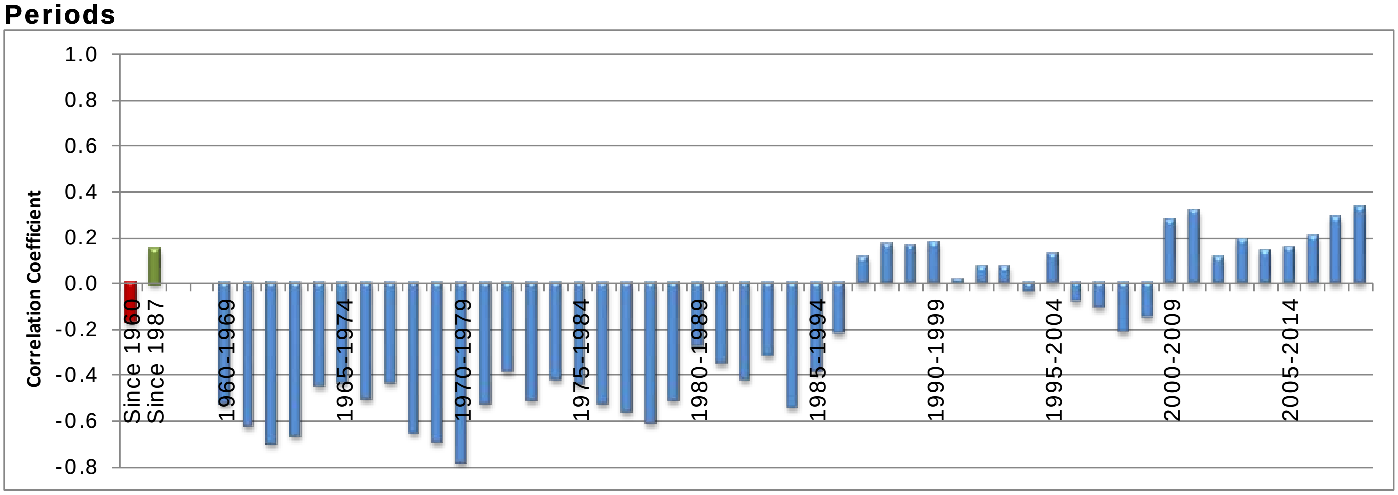


Figure 5. Correlation Between 20-Year Treasury Bonds and Timberland Over 10-Year Periods



Nelson Region, South Island, New Zealand

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. Investors since 2002 would have seen negative correlations between large-cap stocks and timberland.

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 42 of the 49 10-year investment periods since 1960. Investors who put money into timberlands for any 10-year period between 1986 and 1995 would have found a poor correlation between the two, while investors since then would have found a negative correlation—though that negative correlation has been getting steadily weaker.

Figure 5 shows the 10-year investment period correlations between timberland and 20-year treasury bonds. Readers are invited to make their own interpretation, but it look o us like the correlation was strongly negative through the mid-1980s, then weakly correlated (positive and negative) through the 1999-2008 period, then generally weakly positively correlated since then.

Summary

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 might be it.

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