Forest Research Group

Forest Research Notes

Volume 4, Number 3

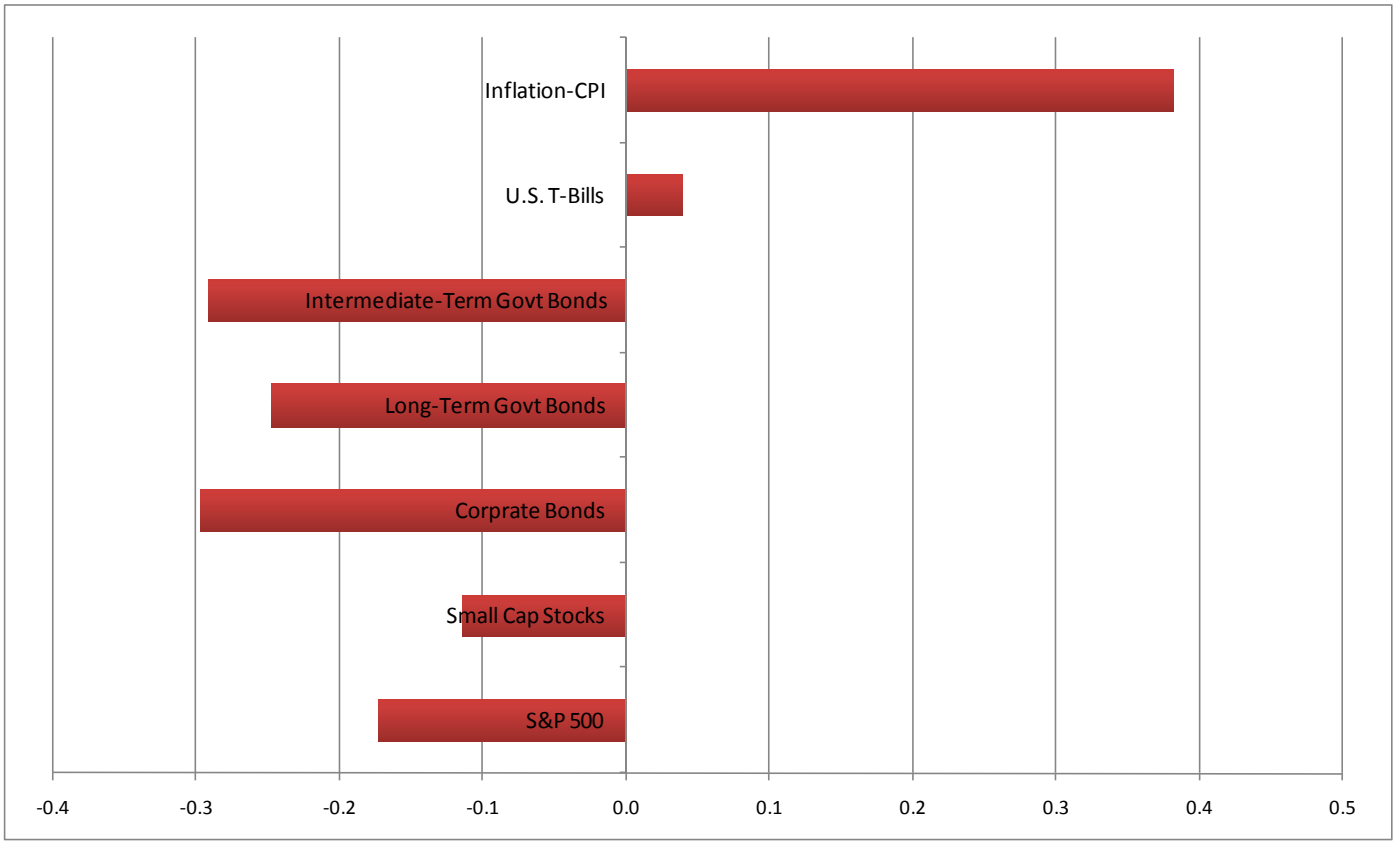
3rd Qtr, 2007

Inflation and Timberland Returns

We frequently say that people pay too much attention to correlation coefficients. (see, for example, "The Anti-Correlation Heresy", Forest Research Notes, Vol 1 No 4). That two data series are highly correlated does not mean that there is a cause and effect relationship. The correlation coefficient measures the change in direction (positive or negative) of each data series and that magnitude of those changes, but does not provide any information on the relationship between the two series.

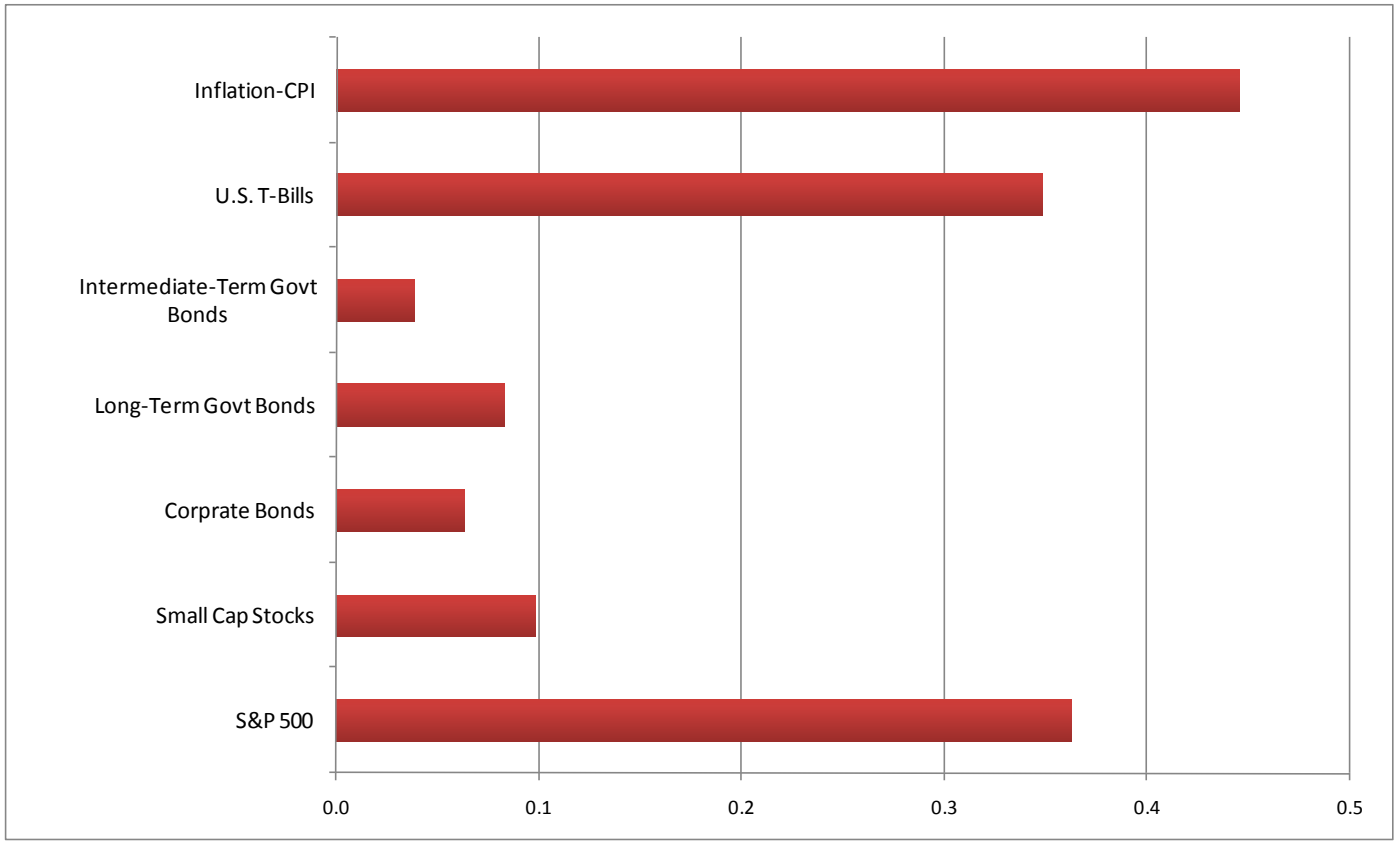
Timberland is often described as an inflation hedge and the correlation between the two is usually cited as proof. (In fact, the literature indicates that timberland is a hedge against *unexpected* levels of inflation.) The correlation coefficient for inflation and timberland returns is generally positive, and fairly strongly so. Figure 1 shows a typical correlation analysis. The timberland returns are calculated using the NCREIF Timberland Index for the period 1987-2006 and the Wilson Model (commonly known as the John Hancock Timber Index) for the period 1960-1986. The timberland/inflation correlation here is 0.39

Figure 1. Typical Correlation Analysis, 1960-2006



Source: Ibbotson Associates and NCREIF

Figure 2. Typical Correlation Analysis, 1987-2006



Source: Ibbotson Associates and NCREIF

Figure 2 shows the same type of analysis for the period 1987-2006. Note that, for this time period, all of the assets are positively correlated with timberland. The correlation between timberland and inflation increased slightly to 0.45.

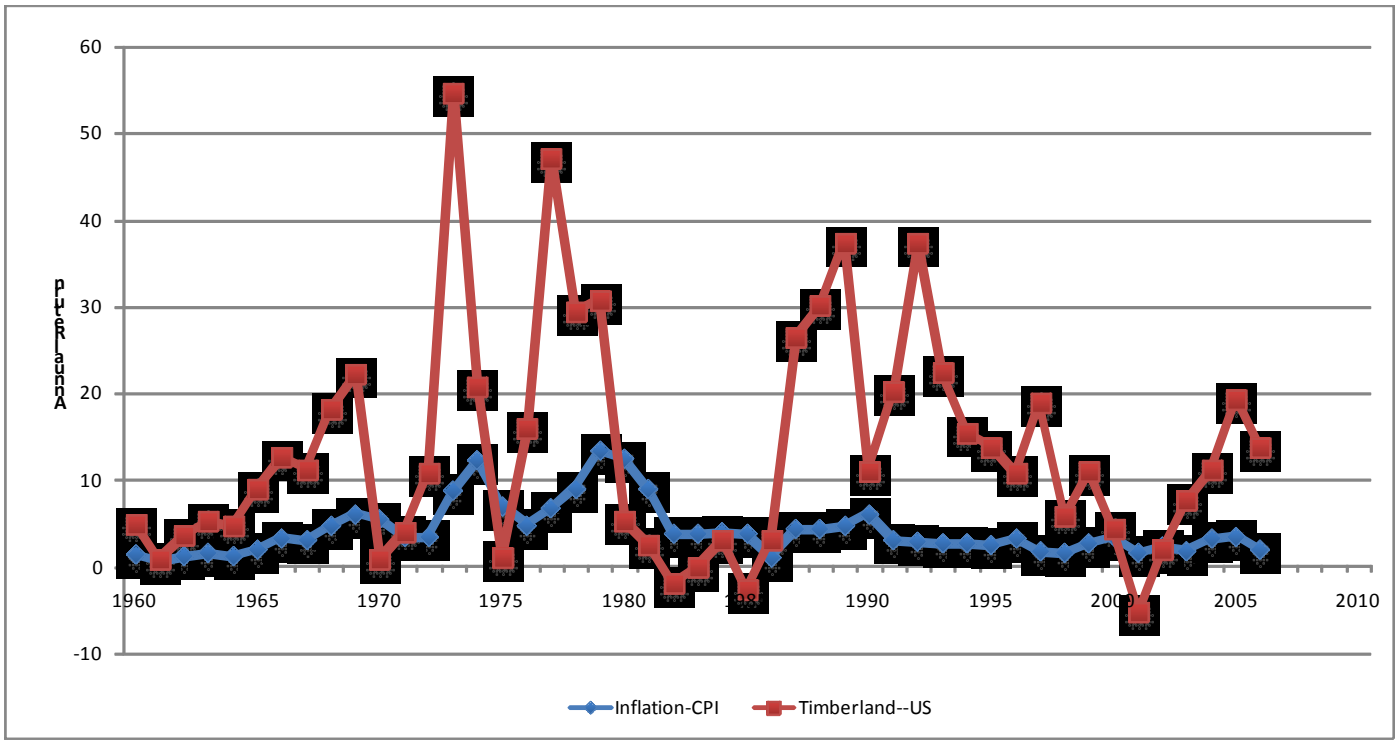
Inflation in the United States has been positive since 1960 and timberland returns have usually been positive (Figure 3). This does not necessarily indicate a cause and effect: since both series are generally positive, they are likely to be highly correlated simply because calculating a correlation coefficient from two positive data series would yield a positive correlation coefficient.

But is there a cause and effect here? Does high inflation cause robust timberland returns or do high timberland returns cause inflation? Does inflation drive up the price for trees (which would improve timberland returns)? Or do rising timber prices contribute to inflation?

Something more to consider…

Note in Figure 3 that timberland returns peak in 1973 and 1989, and inflation peaks in 1974 and 1990. Timberland returns hit lows in 1975 and 1985, and inflation hits lows in 1976 and 1986. While the relationship is not perfect (e.g., both series peak in 1969), it appears that inflation highs and lows closely follow timberland return highs and lows.

Figure 3. Inflation and Timberland Returns



Source: Ibbotson Associates and NCREIF

In Figure 4 the timberland returns are lagged a year. In this case, one year's timberland returns are paired with the following year's inflation rate. For example, timberland returns for 1960 are paired with the inflation rate for 1961 and timberland returns for 1994 are paired with the inflation rate for 1995. Most of the peaks and troughs are now aligned with each other. The correlation coefficient jumps from 0.39 (1960-2006) to 0.61 (1961-2006).

Why is this lagged relationship so strong? Is there a cause and effect *here*?

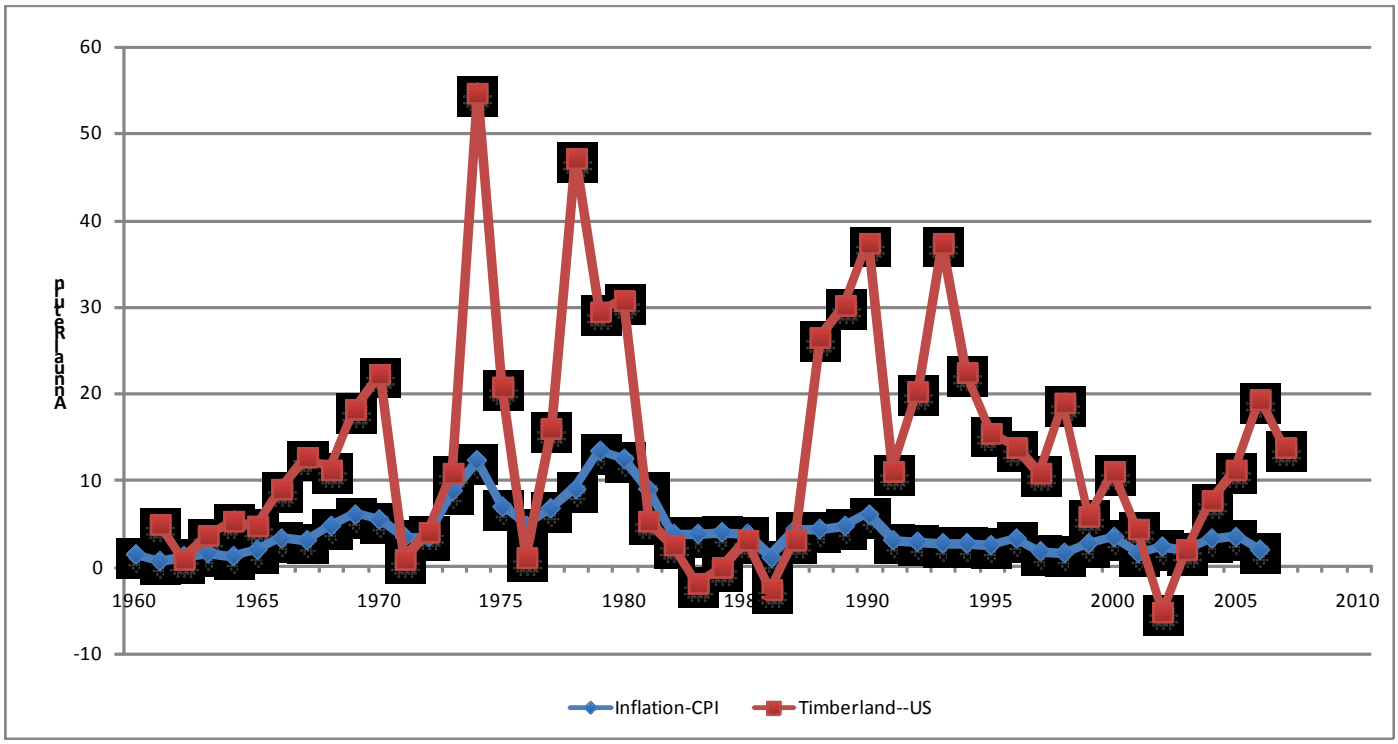
Timberland returns are highly influenced by timber prices. Higher timber prices contribute to higher timberland returns and appear to contribute to higher consumer prices in the following year. Higher timber prices are reflected in higher prices for lumber, housing and furniture. This is a case of rising commodity (timber) prices contributing to an increase in inflation. (We do not believe that timber prices alone are responsible for changes in consumer prices.)

This leads us to conclude that timberland returns are highly correlated with inflation because timber prices contribute to the inflation rate in the following year.

Summary

Timberland is often touted as an inflation hedge and our research supports this claim. Our analysis shows that US timberland returns appear to lead the US Consumer Price Index by a year and those returns are highly positively correlated with inflation. Timberland is an asset that will preserve capital in the face of rising consumer prices.

Figure 4. Inflation and Timberland Returns Lagged one Year



Source: Ibbotson Associates and NCREIF

Up-Coming Events

University of Georgia's Timberland Investment Conference

Munich, Germany
February 22, 2008
http://www.ugatimberlandinvestment.com/
I will be presenting information on bioenergy and its impact and potential impact on timberland investments.

Southern Forest Economics Workers (SOFEW)

Savannah, GA, USA
March 9-11, 2008
http://warnell.forestry.uga.edu/sofew/index.html
Sponsored by the University of Georgia this year, rub shoulders with the best and brightest forest economists in the Southeastern US, including up-and-coming grad students. This year's theme is "Forestland Ownership Change in the South: Implications for Management, Production, and Conservation", but other topics will be presented as well.

Yale School of Forestry & Environmental Studies' Executive Education in Forestry Program

New Haven, CT, USA
March 30 -April 4, 2008: Executives Learning About Forestry
April 13 - 18, 2008: Foresters Becoming Executives
http://research.yale.edu/gisf/exec_course.htm
I will be helping Lloyd Irland lead a discussion on timberland investment this year. Led by Yale faculty, other guest lecturers include:
Roger Sedjo, Resources for the Future
John Perez-Garcia, CINTRAFOR, University of Washington
V. Alaric Sample, Pinchot Institute for Conservation
Larry Wiseman, American Forest Foundation

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