Income, Capital Expenditures and Distributable Cash for Timberland and Commercial Properties

Operating cash yields from investments in timberland and commercial real estate are muted to varying degrees and frequencies by capital expenditures. Historically, capital expenditures have reduced the operating cash yields available for distribution to owners of commercial properties to a much greater degree than those yields available to owners of timberland.

Capital expenditures – “cap ex” for short – are necessary for maintaining and increasing the value of both commercial and timberland properties. For commercial real estate, cap ex includes not only building upgrades, but also items such as mortgage-related adjustments and leasing commissions. For timberland properties, the establishment of timber plantations – site preparation, planting, and fertilization – makes up the majority of capital expenditures.

“Income” returns for real estate – NOI for commercial properties and operating EBITDDA for timberland properties – are typically reported gross of cap ex. As pointed out by Young et al., “To a large extent, the NCREIF income return formula leaves the impression that investors receive more income from real estate than is actually available.”

In short, capital expenditures must be deducted from net operating income (NOI) in the case of commercial real estate, or operating EBITDDA in the case of timberland, to obtain distributable cash yield.

Timberland vs. Commercial Property Capital Expenditures

Capital expenditures reduce the operating cash yield for commercial properties by a much larger amount than they reduce yields for timberland properties. Chart 1 plots annual NOI returns for commercial real estate properties against operating EBITDDA returns for timberland properties as reported by NCREIF (National Council of Real Estate Investment Fiduciaries). We examine data beginning in 1987, the inception year for the Timberland Property Index.

Over the past 16 years, capital expenditures for commercial real estate have

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been larger and more volatile than capital expenditures for timberland. Rates of expenditures on capital improvements for commercial real estate properties have ranged from 179 to 298 basis points each year. Consequently, the operating cash yield available for distribution to commercial property owners - 5.4 percent over the period - is meaningfully lower than the rate of return from net operating income, which has averaged 8.0 percent during the same period.

The operating EBITDDA return for the NCREIF Timberland Property Index over the period has been 6.8 percent. The cash yield - 6.1 percent - has been 70 basis points lower.

Since 1987, the annualized operating cash yield for timberland properties in the NCREIF database has actually been higher than the cash yield for commercial properties. This has not been the case in recent years, however, as EBITDDA returns for timberland have been trending downward. We discuss some possible reasons for this downward trend - including shifts over time in the regional mix of NCREIF timberland properties - in the First Quarter 2002 NCREIF Real Estate Performance Report.

More on Timberland Capital Expenditures

Rates of capital expenditures for timberland properties vary substantially across regions. Capital expenditures are typically highest in the U.S. South. Over the past five years, about 90 basis points have been expended annually to re-establish fast-growing pine plantations following clearcut timber harvests.

Capital expenditure rates have averaged only about 35 basis points on timberland properties in the U.S. Pacific Northwest over the same five-year period. Because timber stands in the Pacific Northwest are generally harvested at an older age than in the South, smaller proportions of Pacific Northwest timberland properties are harvested and planted each year. Also, the per-acre market value of timberland properties in the Pacific Northwest is relatively high.

Rates of capital expenditure over the past five years have averaged less than 10 basis points for NCREIF timberland properties in the U.S. Northeast. Timber in this region is typically grown in natural stands rather than in plantations. Consequently, capital expenditures to purchase, plant and tend seedlings are not required.

A quarterly time plot of capital expenditures for timberland in the South and Pacific Northwest over the last 16 years is shown in Chart 2. Casual observation reveals increasing expenditures and a seemingly seasonal pattern in the South, and decreasing expenditures and a similar seasonal pattern in the Pacific Northwest. A regression model for each region, including a time trend and three seasonal dummy variables, confirms this observation.

Larger expenditures regularly occur in the second quarter of the year in the Pacific Northwest, and in the first quarter of the year in the South. This makes intuitive sense, as planting (one of the largest contributors to capital costs) is most typically done during
Figure 7. U.S. Timberland Valuation Multiples in Private Property Markets

Trailing multiples to operating EBITDDA were relatively stable last quarter. Note that the inverse of these multiples represent annual rates of EBITDDA return – 2.9 percent in the South, 5.4 percent in the Northeast, and 6.7 percent in the Pacific Northwest.

Figure 8. Hancock Securitized Timberland Index

Our Index of public timber-focused companies moved up slightly from fourth quarter – with Timberwest and U.S. Timberlands share prices gaining the most over the first three months of the year. Share prices of Plum Creek, along with Rayonier and Deltic, moved downward last quarter. Crown Pacific has been de-listed on the NYSE and now appears on the Over-The-Counter Bulletin Board (OTCBB) under the symbol CRPP.

Figure 9. U.S. South Timberland Values in Public Equity and Private Property Markets

The gap between timberland values in private and public markets remained relatively wide last quarter as values fell in both markets.
Sawtimber prices fell in all regions last quarter. Prices for export grade sawtimber in the U.S. Pacific Northwest experienced the largest decline – down 13 percent from fourth quarter prices – ending the quarter at historically low levels. The continued deterioration in export prices in the Pacific Northwest has worked to narrow the historical gap between export and domestic prices.

Southern pine lumber prices ticked upward during the first quarter after three quarters of repeated declines. Prices for delivered southern pine sawlogs remained flat, however.

Both Douglas-fir and hem-fir lumber prices rose last quarter – hem-fir gaining back a quarter of its value lost over the past year. Sawlog prices did not rise in tandem with lumber prices, however, and in fact fell modestly.
Figure 4. Softwood Pulpwood Stumpage Prices
Softwood pulpwood stumpage prices remained at low levels last quarter. Weather-related shortages in some areas of the South pushed up prices slightly for southern pine. Delivered pulpwood prices in the Pacific Northwest continue to be below our estimate of average harvest and haul costs, resulting in a zero (or negative) stumpage value.

Figure 5. Market Pulp and U.S. Pulp Log Prices
First quarter market pulp prices remained at last quarter’s average despite rumors of price increases. Pulplog values fell in the Pacific Northwest, and rose slightly in the South.

Figure 6. U.S. Timberland Values in Private Property Markets
Private timberland values in the South and Pacific Northwest were down first quarter – while Northeast values rose slightly. Note that very few timberland properties in the NCREIF database are appraised during the first quarter of the year.
the wettest months of the year. Capital expenditures seem to be decreasing in the Pacific Northwest and increasing in the South. In the South, the upward trend in capital expenditures likely reflects an increase in silvicultural intensity. Practices such as mid-rotation fertilization are being applied to an increasing proportion of the land base. In the Pacific Northwest, the persistent increase in per-acre market values during the late 1980s and early 1990s (see Figure 6 on page 4) corresponds with the trend observed in capital expenditure rates.

**NOTES:**

Cover: Capital Expenditure seasonality was estimated by the equation:

\[
\text{CapEx}_i = \alpha + \beta_1 \text{Q1}_i + \beta_2 \text{Q2}_i + \beta_3 \text{Q3}_i + \beta_4 \text{Q4}_i + \mu
\]

where \(\text{Q}_i\) = time trend (1988Q1 = 0); \(\beta, \mu = \text{error term.}

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Note: Outliers present in 1987 Q1 and Q2 were omitted from both regions and 2002 Q4 Pacific Northwest NCREIF data was replaced with HTRG data. A negative cap ex. rate in the South (1994Q1) was adjusted by taking an average of 1993Q4 and 1994Q2.

1. We recognize the published arguments cautioning against performance evaluations based on period-by-period, weighted-average capital expenditures (the calculation methodology used by NCREIF) (Fisher 1995, Young 1996). This research suggests median expenditures are a better indicator of property performance and cumulative analysis is better than periodic assessments. For our purposes here, we simply compare timberland to commercial real estate – both calculated with NCREIF methodology and both using the same period-by-period assessment – any bias created by calculation methodology would likely be present in both sets of data.

Figure 1. The composite price for southern sawtimber is based on quarterly average Timber Mart-South published prices for pine sawtimber and chip-n-saw stumpage. Pacific Northwest prices are derived from quarterly average Log Lines published prices for whitewoods and Douglas-fir with internal analysis of logging costs for stumpage calculations. New Zealand export prices are based on New Zealand Ministry of Forestry quarterly average published prices for Radiata unpruned A, J and K sort export logs with internal analysis of logging costs for stumpage calculations. Northeast sawtimber prices are calculated from internal analysis.

Figure 2. Quarterly southern pine (eastside), kiln dried, 2x4 42 lumber price published by Random Lengths. Timber Mart-South published southern pine sawlog and chip-n-saw log prices converted to lumber scale using RISI historical lumber recovery rates as published in North American Lumber Forecast.

Figure 3. Quarterly Douglas-fir, green 2x4 lumber (Portland rate) and Hem-Fir (coast), kiln dried, 2x4 lumber prices published by Random Lengths. Douglas-fir and whitewood sawlog prices derived from Log Lines published prices for 42 and 40 sawlogs in various regions in the Pacific Northwest converted to lumber scale using RISI historical lumber recovery rates as published in North American Lumber Forecast.

Figure 4. Pulpwood composite prices are derived from quarterly average Timber Mart-South published prices for southern pine pulpwood stumpage. Log Lines published whitewood and Douglas-fir pulp logs with internal analysis of logging costs for the Pacific Northwest, and HTRG analysis of Spruce/Fir pulpwood in the Northeast.

Figure 5. Quarterly NBSK pulp prices derived from daily list prices reported by Pulplex. Southern pine pulp log prices published by Timber Mart-South. Pacific Northwest Douglas-fir pulp log prices published by Log Lines. Pulp log prices expressed in multiples of 10 to accommodate market pulp pricing scale.

Figure 6. Regional NCREIF timberland market value per-acre is derived by dividing the total regional market value at quarter end by the number of acres reported in that region. Market values for Northeast timberland were re-estimated for the period 1998Q4 through 1999Q3 to adjust for what we believe to be an anomalous property included in the NCREIF database during those quarters.

Figure 7. EBITDDA multiples are calculated using NCREIF timberland value per acre at quarter end divided by a trailing four-quarter average NCREIF net income per acre.

Figure 8. The Hancock Seucitized Timberland Index (HSTI) uses a base-weighted aggregate methodology similar to that used to construct the S&P 500 to calculate a market capitalization-weighted value for seven publicly traded timber-intensive forest products companies. Base weights were re-adjudicated for the emergence of new companies at the beginning of each year. Dividends are not reinvested. The companies included in the HSTI have no investment relationship with the Hancock Timber Resource Group.

Figure 9. Public equity derived from our Timberland Enterprise Value per acre is calculated from the NCREIF database. TEV is a quarterly estimate based on total enterprise value (total market equity + book value debt) divided by the number of acres reported in that region. Dividends are not reinvested. The companies included in the HSTI have no investment relationship with the Hancock Timber Resource Group.

References to expected investment performance in this newsletter are based on historical information and are based on management’s projections. Potential for profit as well as for loss exists.

**Literature Cited**

