Brookfield

Brookfield Timberlands Management LP

Brookfield Second Quarter 2012 Global Timberlands Research Report

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Second Quarter 2012 Research Report

It has been six very long years since the collapse of U.S. housing began in late 2006 - who among us envisioned total U.S. housing starts averaging below 700,000 over a five year period? Finally, a reasonably confident near consensus appears to be concluding that a housing recovery is underway, with many suggesting that risks to their forecasts are on the upside. While the consensus forecast is somewhat of a moving target, it appears a reasonable collection of estimates is now projecting 780,000 housing starts for 2012 with 925,000 in 2013, 1.15 million in 2014 and 1.42 million in 2015. While most of our readers likely have good access to commentary on housing starts, we would offer the following observations to demonstrate that we share this consensus view of a meaningful housing recovery through the 2013 – 2015 period.

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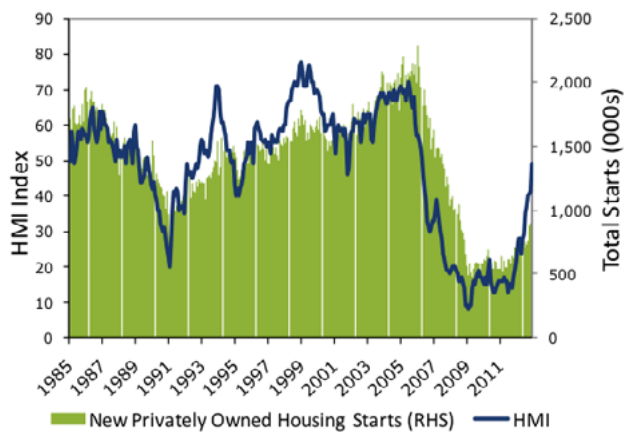
Brookfield Asset Management Inc. ("Brookfield") is a global asset manager focused on property, renewable power, infrastructure and timberland assets with over $150 billion of assets under management. Brookfield Timberlands Management LP, a wholly owned subsidiary of Brookfield, has 2.6 million acres or over $4.0 billion of timberlands under management in North and South America.

Please see the important information on Page 5.

NAHB / Wells Fargo Housing Market Index ("HMI"). We view the HMI, a measure of builder confidence in present and future housing demand, as the single best indicator of future housing starts. While its volatility is almost double that of housing starts, this measure has explained over 80 percent of the variance in housing starts over the past 25 years with the HMI leading housing markets by approximately eight months (Figure 1). The HMI has been rapidly rising since April - almost doubling over this period.

Figure 1: Housing Market Index vs. Total Housing Starts

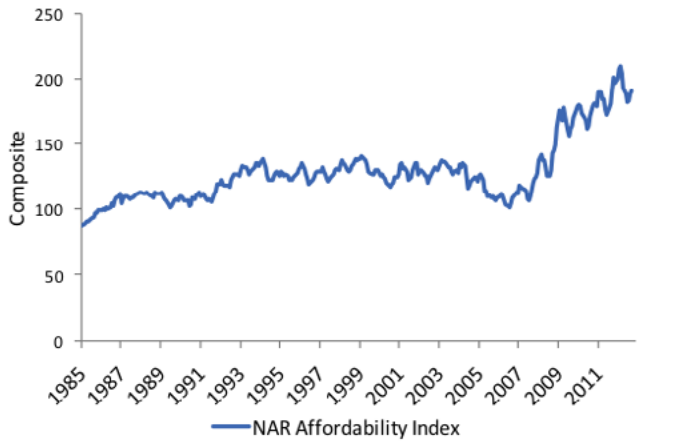


Source: National Assoc. of Homebuilders, U.S. Census Bureau.

Affordability. Affordability, a funtion of household income, mortgage interest rates and home pricing, continues to be at record highs (Figure 2), owing to the fall in home prices and historically low interest rates, with a 30-year fixed mortgage recently hitting a record low of 3.31%. New homeowners would now pay an average of 13% of their monthly gross income on mortgage payments versus an historical average of approximately 20%. While affordability alone is not enough to turn around the housing market, it is a critical facilitator once sentiment becomes more positive. We would note that owning a home is now significantly less expensive than renting a home in most large metropolitan areas.

Pricing. U.S. home prices hit bottom in the first quarter of 2012, ending an almost six year decline which, according to the S&P/Case-Schiller Index, took home prices down an average of 35% from the third quarter 2006 peak. As of September 2012 prices have now

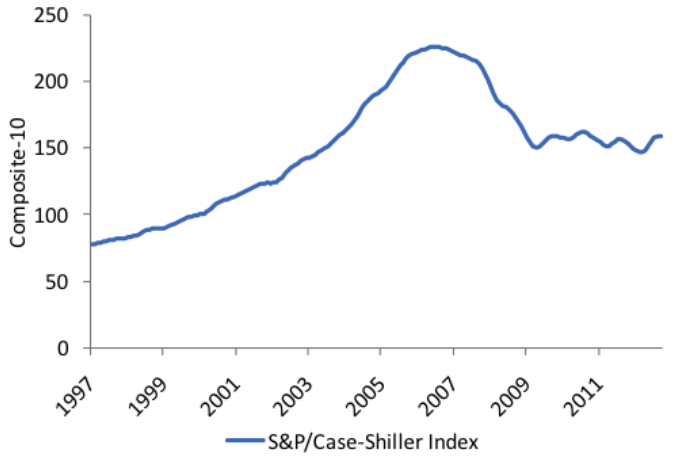
Figure 2: NAR Affordability Index



Source: National Assoc. of Realtors.

increased 9% from the first quarter 2012 and 3% year-over-year, as shown in Figure 3. Prices are up from the first quarter 2012 in all 20 cities in the S&P/Case-Schiller Index and up in all but two cities year-over-year, with prices in Phoenix increasing by over 20%. These increases are critical as a trigger for improving buyer confidence and releasing pent-up demand, while also giving mortgage underwriters greater confidence in the value of their collateral.

Figure 3: S&P/Case-Schiller Index



Source: S&P/Case-Schiller.

Inventory of Homes. Home inventories (new and existing homes, condition of the existing stock, rate of sales, and excess inventory of existing homes) have

fallen dramatically over the past five years, with the inventory of new homes at historical lows while the existing inventory of homes for sale has corrected to typical levels. Combining the number of sales each month to the inventory of homes available for sale provides a measure of the pace of sales, shown in Figure 4. As you can see, the pace of sales has improved dramatically from its peak in 2008 and 2010, though it does remain above long-term historical norms. The most elusive inventory figure to measure is the excess inventory of existing homes, which is the number of homes expected to come to market due to lender foreclosure. Forest Economic Advisors' ("FEA") analysis of this excess inventory of existing homes using loan-derived estimates and vacancy data suggests that the excess inventory of existing homes is approximately 1.5 million. To reduce this inventory of existing homes it is necessary that demand for housing (household formation + removals + inventory -building of new homes) exceeds supply (housing starts). FEA estimates that by 2015, this 1.5 million overhang will be absorbed with risks to their forecast being tilted toward a quicker pace of absorption as their projected rates of household formation are viewed to be conservative.

We also note that markets can be expected to continue to tighten up as this inventory declines toward normalized levels.

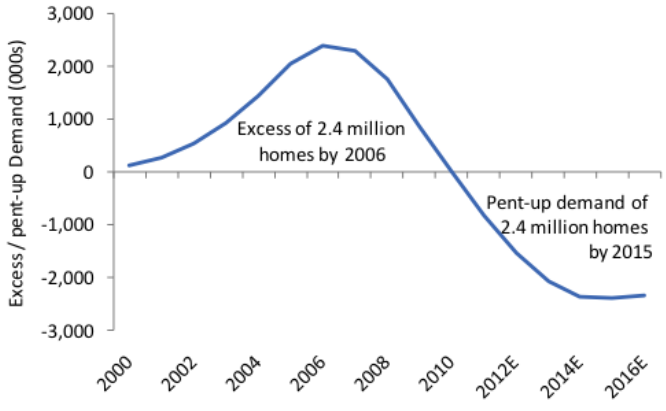
Pent up/Spent up Demand for Housing. By all estimates, the spent-up demand of the bubble era is behind us, and we have been in an environment where pent up demand is building. Household formations (e.g., adult children leaving parents' households, singles leaving shared housing arrangements, etc.) is the largest component of demand for additions to the housing stock. Since 1965, the number of households in the U.S. has grown at an average annual rate of 1.5%, adding an average of roughly 1.3 million new households per year, according to the Census Bureau's Housing Vacancy Survey (NAHB 2011). Considering changes in demographics and a growing population, economists broadly believe that the underlying demand going forward will be in the 1.4 to 1.5 million starts range. As a result, each year that total starts have remained under this 1.4-1.5 start level creates additional pent up demand. Assuming underlying demand of 1.45 million starts, one can conclude that 2.4 million excess homes were built between 2000-2006, as shown in Figure 5. However, low levels of starts since that time have led to increasing levels of pent-up demand bringing inventories of excess homes into balance in late 2010 with pent-up demand expected to reach approximately 2.4 million homes by 2015. This implies that the recovery of the housing market may come more quickly, as the economic recovery makes progress and pent-up demand turns into realized demand, absorbing vacant units in the existing stock and adding pressure for the construction of new units.

Encouraging Signals, but… While these measures, and many others, are encouraging in regard to future

Figure 4: Months of Supply

Source: National Association of Realtors, Census Bureau.

Figure 5: Pent up Demand for Housing



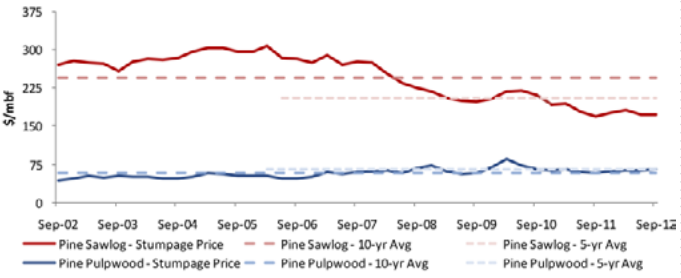
Source: National Assoc. of Homebuilders.

housing–related wood products demand, there continues to be many risks to this forecast. In the interest of brevity, we will simply point out that a short list of these risks include:

- Uncertainties in the broader U.S. economy, including pace of GDP and wage growth, and outcomes related to resolution of the "Fiscal Cliff" (e.g. future tax deductibility of mortgage interest).
- Lending standards will not be as lax as they were during the housing bubble, and the exposure of the MBS and CLO risk mitigation fallacy will remain for a long time, limiting the availability of mortgages, and constraining housing starts.
- A larger proportion of multi-family units in the mix of starts, which use a quarter of the amount of wood products compared to a single family start, can be expected to dampen demand for sawlogs. In addition, as multi-family unit starts increase, their supply will increase, which should reduce rents, and make renting more affordable relative to buying a home, undermining single family starts.
- Availability of labor across the spectrum (logging, trucking, sawmills, home construction, etc.) is expected to constrain many elements of a recovery in housing starts and building product production. In addition, immigration laws are tougher today than they were six years ago, while the attractiveness of the U.S. as an immigrant destination has declined considerably, further slowing the recovery in housing starts, while also increasing the cost of housing construction.
- The high cost of college tuition and increasing student debt. This largely impacts first-time home buyers, a very important component of new and existing home demand.

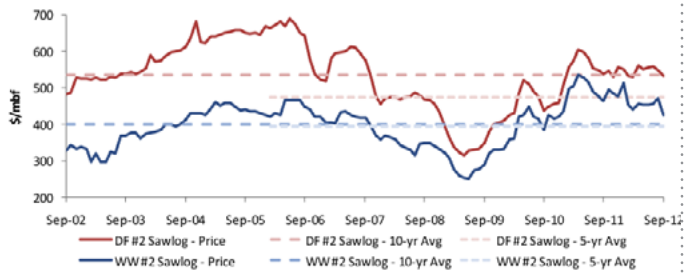
How Does this Impact Timberland Prices? The majority of income in timberlands is not from pulpwood, but from sawtimber sales. Historically, wood used in new housing starts has consumed 40-45% of softwood lumber. During the down-turn, this percentage of lumber used in housing has been closer to 25-30%. Thus, the demand for sawtimber has been reduced, impacting sawlog demand and price. In turn, as the demand for building products improves, so will the demand for sawtimber. This should increase stumpage prices for sawtimber, which are currently near 30-year lows in the U.S. South, shown in Figure 6. In the U.S. PNW, log prices have been supported by increased log exports from the U.S. PNW to Asia and exports of logs and lumber from British Columbia to Asia, which has reduced shipments into the U.S., together offsetting the impact of lower domestic demand, shown in Figure 7.

Figure 6: U.S. South Historical Stumpage Log Pricing



Source: Timber Mart-South and Brookfield internal research.

Figure 7: U.S. Pacific Northwest Historical Delivered Log Pricing

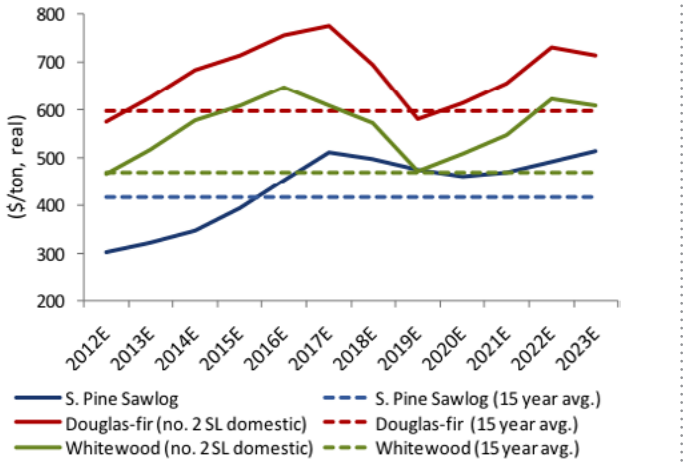


Source: Log Lines (RISI) and Brookfield internal research.

We do not expect timberland values to be meaningfully positively impacted by improving timber prices as we believe most timberland buyers have been underwriting reasonable price recovery expectations into their discounted cash flow valuation models. However, increased certainty of achieving these prices and the prospect of significant increases in near-term cash yields are expected to increase investor enthusiasm in the timberlands asset class and attract additional capital, leading to upward pressure on timberland valuations. We would propose that a typical 10-year price forecast used in most buyers' underwriting has

pricing assumptions much like the pricing offered in Figure 8.

Figure 8: 10-year Delivered Log Price Forecast



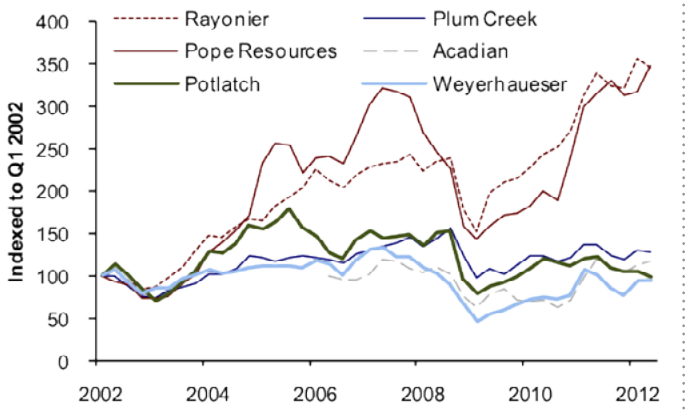
Source: RISI/Loglines, Timber Mart-South, Brookfield internal research.

Price recovery in logs to historic averages is expected to vary by region, owing to different levels of surplus sawtimber inventories and market dynamics. As noted above, the majority of income in timberlands is not from pulpwood, but from sawtimber sales. Current surplus sawtimber inventories vary by region, where a full year's surplus could easily take five years of strong markets to bring supply and demand into balance. These inventory surpluses are smallest in the U.S. PNW, with FEA estimating this "deferred harvest" inventory surplus to be 7.6 BBF in the U.S. PNW (Westside) vs. 28 BBF in the U.S. South. Given the fact that sawtimber prices in the U.S. PNW have already recovered to near-trend levels, we would expect this region to continue to experience greater profit margins than the U.S. South in both absolute and relative measures.

The timing as well as the magnitude of price recovery impacts timberland values in several areas. The present value of timberlands with a surplus of mature inventory is more sensitive to delays in sawtimber price recovery than timberlands more heavily weighted to immature age classes. A simple analysis examining the impact of a three year delay in the price recovery forecast for southern pine sawtimber resulted in a 3.1% decline in the value of a timberlands with a normal age class distribution, a 6.7% decline in the value of a timberlands with a mature age class distribution, and had no impact on the value of a timberlands with an immature age class distribution. As we demonstrated in our third quarter 2011 Brookfield Timberlands Research Report, investors should understand the implications of investing in timberlands with differing age and harvest profiles in examining their exposure to near- to medium-term market cycles.

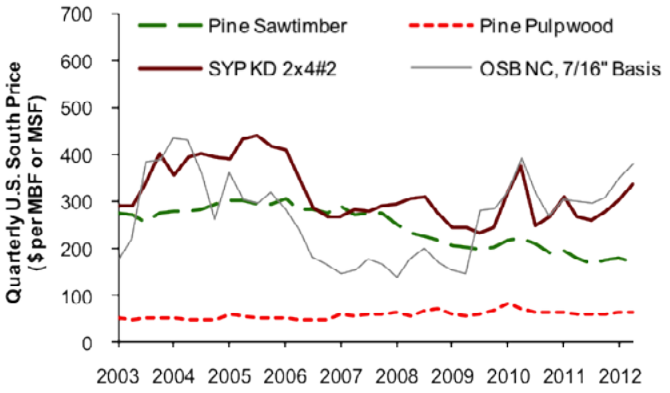
Key Timberland Metrics

Figure 9: Publicly Traded Timberland Company Trading Performance



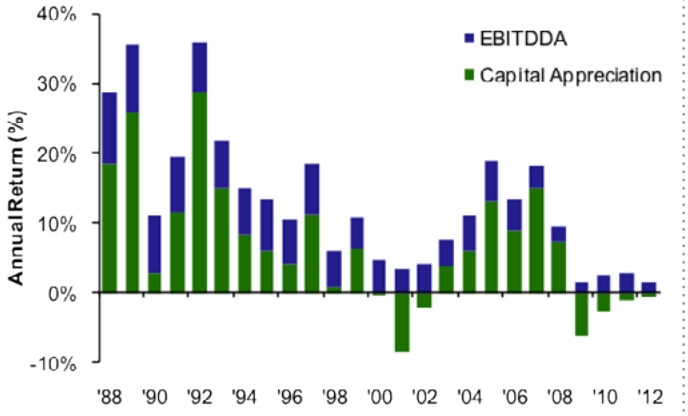
Source: Bloomberg and Brookfield internal research.

Figure 12: Quarterly Average Prices for U.S. South Sawlogs, Pulpwood, Lumber, and OSB



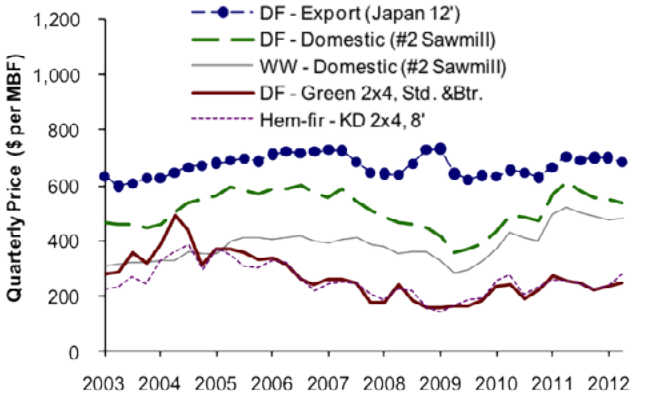
Source: Timber Mart-South and Forestweb.

Figure 10: Annual Returns for Private U.S. Timberlands



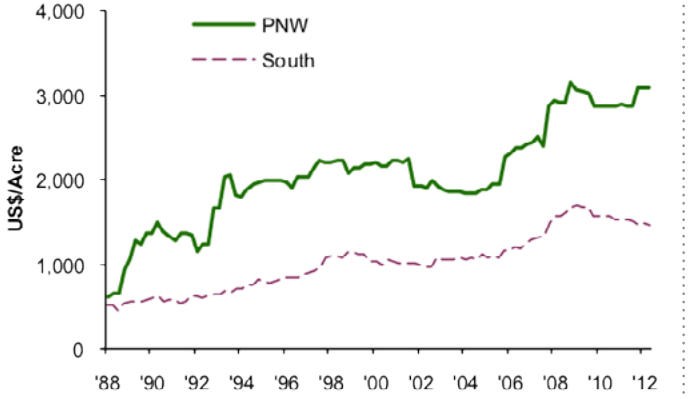
Source: NCREIF Timberlands Index.

Figure 13: Quarterly Average Prices for PNW Sawlogs and Lumber



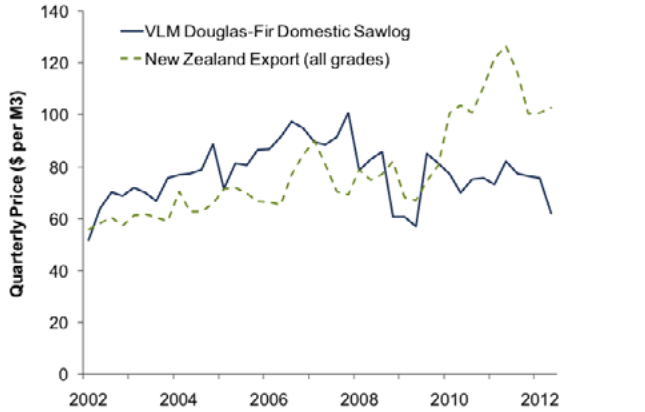
Source: LogLines and Forestweb.

Figure 11: Quarterly U.S. Timberland Values ($ per Acre)



Source: NCREIF Timberland Index.

Figure 14: Global Sawlog Prices



Source: B.C. Ministry of Forest and Range, NZ Ministry of Agriculture.

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