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Hancock Timberland Investor

Rising Interest Rates and Timberland Returns: What are the Risks?

Over the past year, U.S. interest rates have moved higher, with the Federal Reserve steadily ratcheting up the Fed Fund rate. More recently, interest rates for longer-term Treasury bonds have also moved higher, responding to stronger domestic and global economic growth and expectations of increasing inflationary pressures. Over the next 18 months, the strong fundamentals currently characterizing the U.S. economy should be sufficient to offset any potential negative impacts of rising interest rates on timberland markets. In the medium-term, timberland should be well positioned to weather a cyclical economic down-turn resulting from further increases in interest rates.

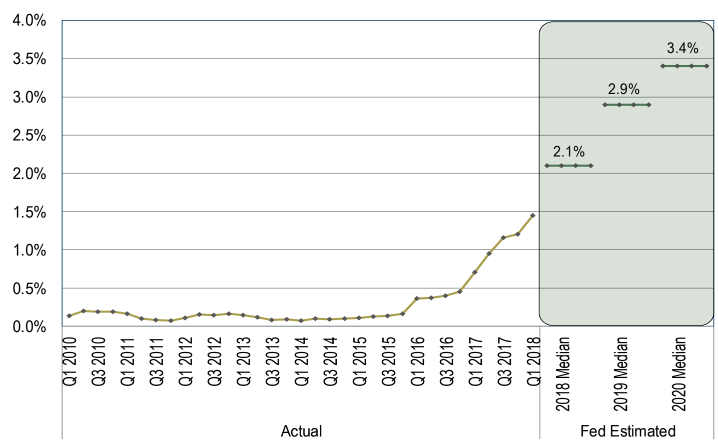
Over the past two years, the interest rate for the benchmark ten-year treasury moved up from 1.79 percent on 4/1/2016 to 2.97 percent on 4/23/2018, and by the end of April had traded above 3.0 percent. This current run-up in the ten-year treasury rate is the longest sustained increase in interest rates since the period June 2003 - June 2007, when 10 year treasuries gained 2.0 percent prior to the GFC.

> The 2014 HNRG study[2] found no quantifiable impacts on timberland returns related to rising nominal interest rates, and this conclusion remained valid after updating for the period 2014-2017

The general consensus is that interest rates will continue to trend higher over the next few years. The Federal Reserve at its March 2018 meeting projected that the Fed Fund rate will move up from its current level of 1.5 percent to an average of 2.1 percent in 2018, 2.9 percent in 2019 and 3.4 percent in 2020 (*Figure 1. Interest Rates Projected to Rise*). The Fed's forecast signals their intentions to raise short-term rates by almost 200 basis points over the next two and half years, and maps the shift to a tighter monetary policy in the U.S.[1]

Interest Rates Projected to Rise

Chart 1: Average Fed Interest Rate and Projections



Source: Federal Reserve March 2018
https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20180321.pdf

To evaluate whether this upward movement in interest rates poses a significant threat to timberland returns, HNRG updated an historical analysis conducted in 2014, *Timberland Returns in an Environment of Rising Interest Rates*[2] 2014 Q2, Hancock Timberland Investor. The original study found no quantifiable impacts on timberland returns related to rising nominal interest rates, and this conclusion remained valid after updating the analysis for the period 2014-2017. However, both the

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[1]Board of Governors of the Federal Reserve System

[2]Available on the Hancock Timber Resource Group website, www.htrg.com/research-cat/archive, 2014 Q2, Hancock Timberland Investor

Negative Impacts of Rising Real Interest Rates

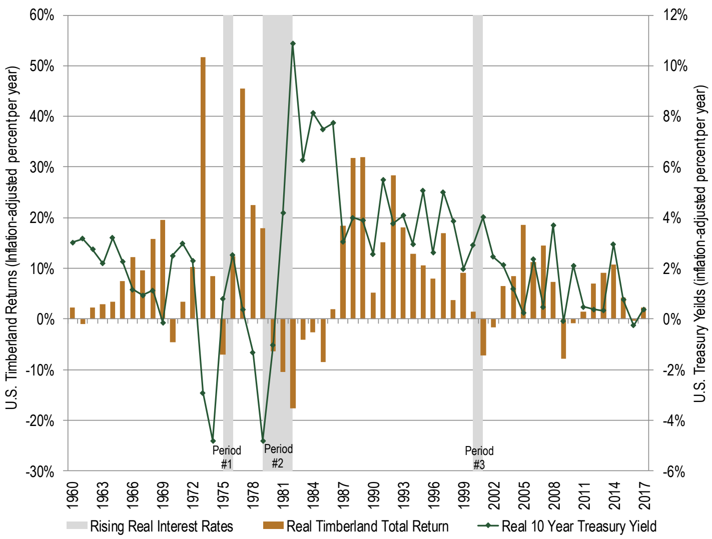
Table 1: Periods of Real Interest Rate Rises and Average Timberland Returns

Periods of Rising Interest Rates	Increase in 10 Yr. Treasury Yield	Average Timberland Total Return
1975 -1976	7.34	2.60
1980 -1982	15.69	-11.54
2000 - 2001	2.04	-2.84

Sources: Macrobond, NCREIF Q1 2018, HNRG, St. Louis FRED
Note: Hancock Timber Resource Group is a participating member in the NCREIF Timberland Property Index. The Index requires participating managers to report all eligible properties to the Index. Usage of this data is not an offer to buy or sell properties.

Inflation-adjusted Timberland Returns Respond to Persistent Rises in Real Interest Rates

Chart 2: U.S. Inflation-adjusted 10 year Treasury Yields and Timberland Returns



Sources: NCREIF Q12018, Macrobond, HNRG, St. Louis FRED

original and updated analysis show that sustained increases in real (inflation-adjusted) interest rates were associated with occurrences of negative timberland returns.

Since 1960, three periods of rising real interest rates that were sustained for a minimum period of two years has occurred: 1975-76, 1980-82, and 2000-01 (*Table 1, Regional Timberland Performance Mixed*). All three of these periods of sustained increases in inflation-adjusted interest rates coincided with the occurrence of negative annual timberland returns (1975, 1980-82 and 2001), and each of these three periods overlapped with officially designated economic recessions (*Chart 2, Inflation-adjusted Timberland Returns Respond to Persistent Rises in Real Interest Rates*).

Interest rates over the past year did rise a bit faster than inflation and if the anticipated increases in interest rates continue to outpace inflation over the next year, the increase in real interest rates meet the minimum duration criteria - set in our previous study - of two consecutive years of real interest rate increases, therefore, raising the specter of a possible set-back in real total returns for timberland. However, the increase in real interest rates that we experienced in 2017 was very modest (just 0.64 percent).

> Sustained increases in inflation-adjusted interest rates have coincided with negative annual timberland returns and recessionary periods

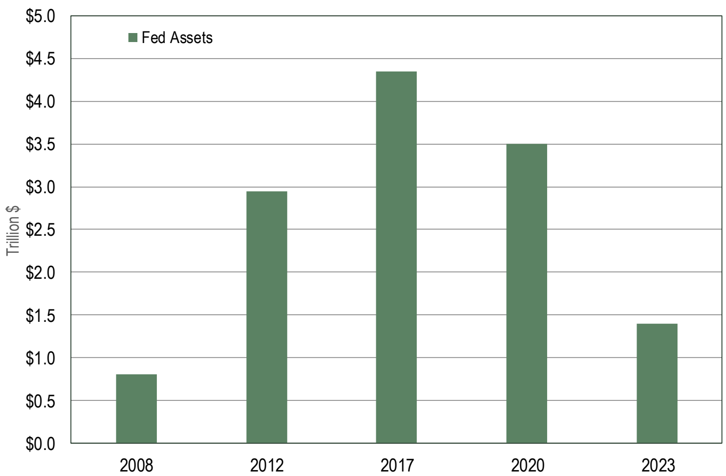
To date, the Fed has increased the Fed Fund rate five times starting in Dec. 2015, in what is largely a proactive approach, anticipating the time lags necessary for higher interest rates to exert a moderating impact on an overheating economy or accelerating inflation. The U.S. economy continues to experience just moderate growth in real GDP (2.3 percent is the first estimate of the 2018:Q1) and modest gains in inflation (2.2 percent in 2018:Q1 year-over-year).[3] So far, the move to a "normalization" of credit conditions has been at a measured pace. After over a year of Fed tightening, the inflation-adjusted fed fund rate in the first quarter of 2018 averaged a still modest 0.56 percent, well below the average of 1.79 percent over the twenty years (1987 – 2007) prior to the GFC.[4]

(Continued on page 3)

[3]Bureau of Economic Advisors and Board of Governors of the Federal Reserve System April 30, 2018 [4]Board of Governors of the Federal Reserve System April 30, 2018

Unwinding Quantitative Easing Could Push Interest Rates Higher

Chart 3: Federal Reserve Balance Sheet with Projections



Source: Forest Economic Advisors, April 2018 Spotlight

There is a strong possibility that the Fed's targeted rate increases for 2018-2019 could be largely offset by a corresponding pick-up in inflation, resulting from: rising commodity prices linked to stronger global growth; more restricted international trade; the U.S. approaching, if not already at, full employment; and a U.S. economy boosted by the combination of tax cuts and expanded fiscal spending. A return to annual inflation of 2 percent or better in a healthy U.S. economy is closer to the historical norm than the extremely low inflation rates that have characterized the post-GFC era.

> We believe timberland markets are in better shape to weather the next downturn in the economy than they were in the last recession

Looking out over the next year and a half, interest rates rising at or slightly faster than the rate of overall inflation are not likely to have much of an impact on timber values and timberland returns, given the context of an actively growing economy, rising wages, and strengthening residential construction activity. In 2018-2019, the positive economic fundamentals in the U.S. and abroad

should be sufficient to offset any negative effects, such as a moderation of housing demand due to higher mortgage rates, of higher interest rates on timber values and timberland returns.

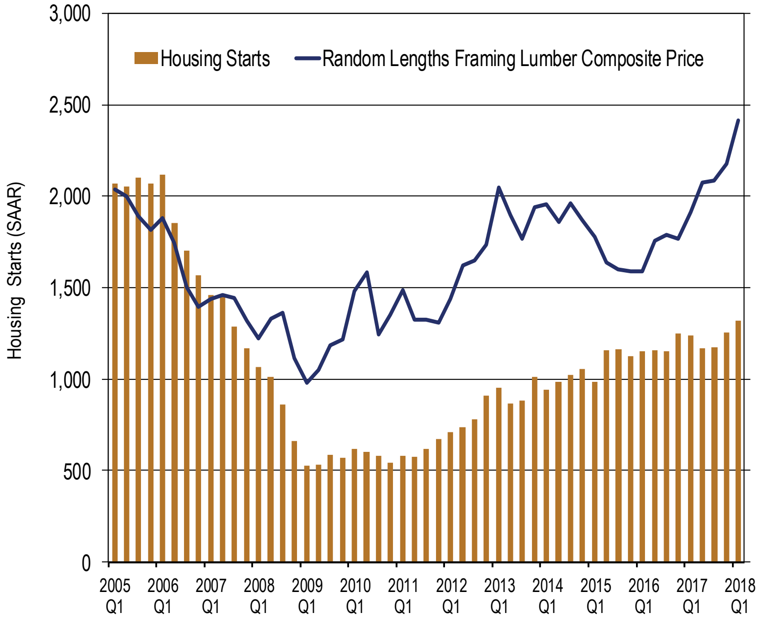
As we head beyond 2019, upward pressures on interest rates could persist, driven by: the deteriorating outlook for the federal budget deficit which will require an expanded sale of Treasury bonds; and the Federal Reserve's plan to reverse its quantitative easing program and reduce their inventory of Treasury bonds and Mortgage Backed Securities, boosting the supply of fixed -income assets (Chart 3. Unwinding Quantitative Easing Could Push Interest Rates Higher).

An over-supplied bond market will require higher rates to clear, and could push interest rates to levels that will negatively impact the overall economy and housing markets. In this scenario, rising interest rates could be the trigger of an economic correction bringing a close to the extended period of economic growth that has generally prevailed since 2009.

Although a cyclical dip in economic growth triggered by a jump in interest rates would likely impose a temporary chill on residential construction, timber and timberland markets should be in much better shape to weather the next downturn in the economy than they were in the last recession. In the years leading up to the GFC, U.S. housing was significantly over-built, and home owners were seriously over-leveraged, while at this late stage in the current recovery, housing markets are still under-supplied (low inventories of homes for sale and low vacancy rates) and household balance sheets are healthy. In addition, coming out of the next cyclical downturn, housing markets should be poised to benefit from any actions by the Fed to ease monetary policy and stimulate the economy. Housing could once again take on its more traditional role as one of the key sectors leading the economy out of the next recession.

Lumber Prices Set New Record Highs

Figure 1: Quarterly U.S. Housing Starts (1,000 units) and U.S. Softwood Lumber Composite Price (USD per MBF)

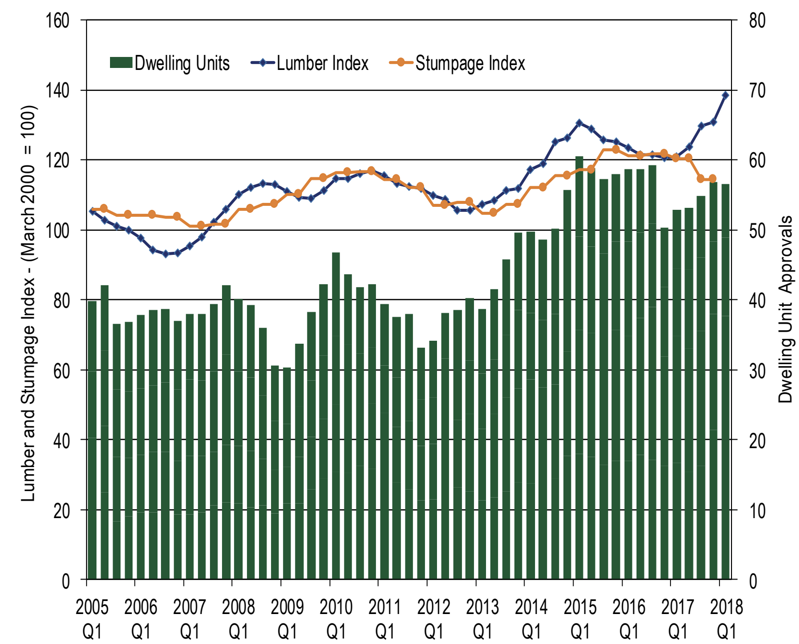


Sources: Random Lengths Lumber Report March 2018, U.S. Census Bureau March 2018

U.S. total housing starts in the first quarter of 2018 increased 4.9 percent over the previous quarter, reaching 1.32 million units (S.A.A.R) a level not seen since the second quarter of 2007. Softwood lumber prices continued to climb in the first quarter—increasing 11 percent over fourth quarter and 24 percent over first quarter of last year. Lumber prices are being supported by healthy single-family construction activity; reduced production at sawmills in the Pacific Northwest due to severe fires in the U.S. West and hurricanes in the U.S. South in the second half of last year; duties on shipments of Canadian softwood lumber to the U.S., and transportation disruptions on Canadian railroads.

Australia Lumber Prices Move Up Sharply

Figure 2: Australian Softwood Lumber Prices, Timber Prices, and Dwelling Unit Approvals

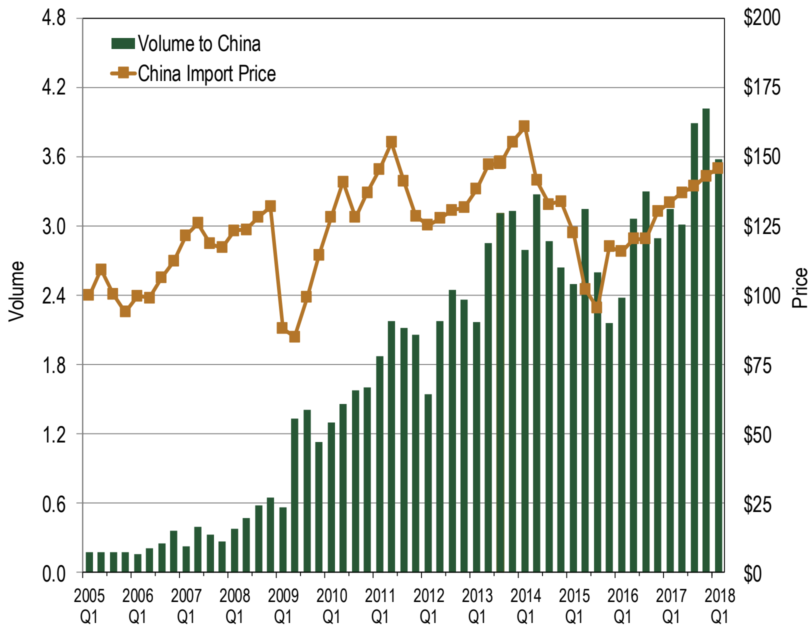


Sources: Australia Bureau of Statistics March 2018, KPMG December 2017 and Indufor Timber Market Survey March 2018

First quarter dwelling approvals in Australia (a key indicator of residential construction activity) fell slightly, 0.4 percent, from fourth quarter 2017, yet up 6.5 percent from the low point of first quarter a year ago. Structural lumber prices moved higher first quarter, up 6 percent from last quarter and 14.5 percent from first quarter a year ago. Australia sawlog prices, reported biannually, were last reported for the six months ending December. When released again in June, we expect sawlog prices will show an increase from December to June 2018, following lumber prices higher.

New Zealand Imports Dip Lower, Log Prices Move Higher

Figure 3: Quarterly New Zealand Softwood Log Export Volume to China (million m^3) and Price in China (USD per m^3 CIF)

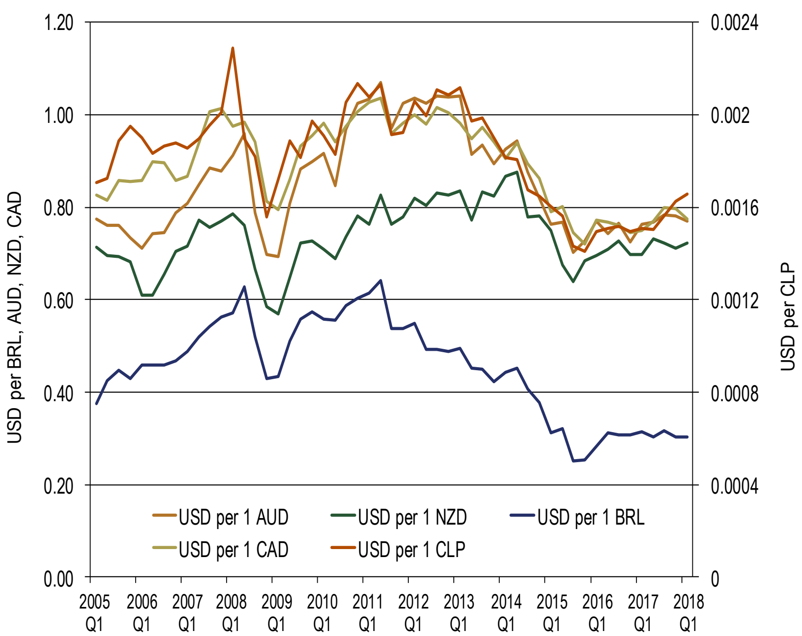


Source: International Wood Markets Inc. March 2018

New Zealand log exports to China fell first quarter to 3.6 million m3, a 11 percent or 480 thousand m3 decrease from fourth quarter export volumes. Despite the first quarter decrease, log imports into China remain near historic high levels. Prices for New Zealand logs to China first quarter continued to rise, up 1.9 percent to $US147/m3 cif, the sixteenth consecutive rise in the radiata pine China import prices.

U.S. Dollar Mixed

Figure 4: Quarterly Exchange Rates Between USD and Commodity Currencies

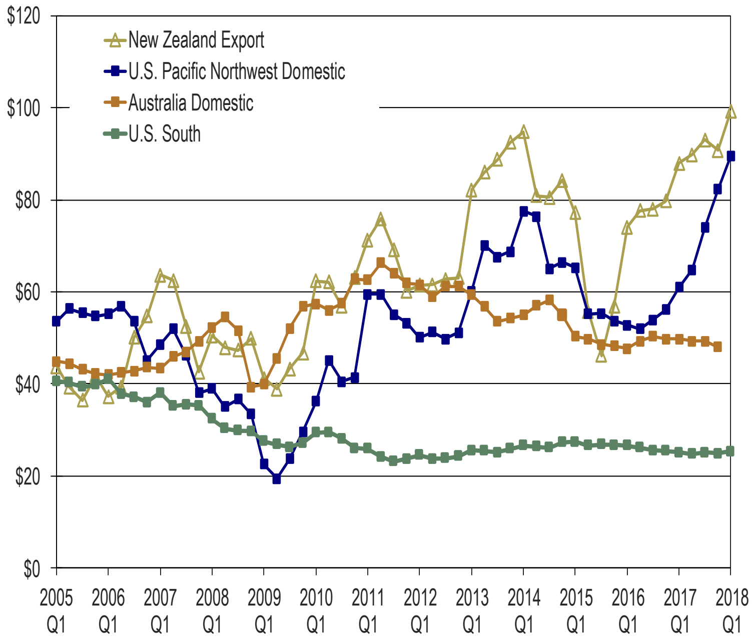


Source: Macrobond March 2018

Exchange rate movements in the first quarter were relatively modest. Compared to the fourth quarter, the U.S. dollar lost ground with the New Zealand dollar (2 percent loss), the Chilean Peso 2 percent loss), and the Brazilian real (0.2 percent loss). Rising GDP growth supported the currencies of New Zealand, Chile and Brazil. The U.S. dollar appreciated against the Canadian dollar by 3 percent and against the Australian dollar by 2 percent. The announcement of U.S. tariffs on imports of steel and aluminum contributed to the depreciation of the Australian and Canadian currency.

U.S. Pacific Northwest and New Zealand Sawlog Prices Soar

Figure 5: Regional Softwood Sawtimber Stumpage Prices (USD per m3)

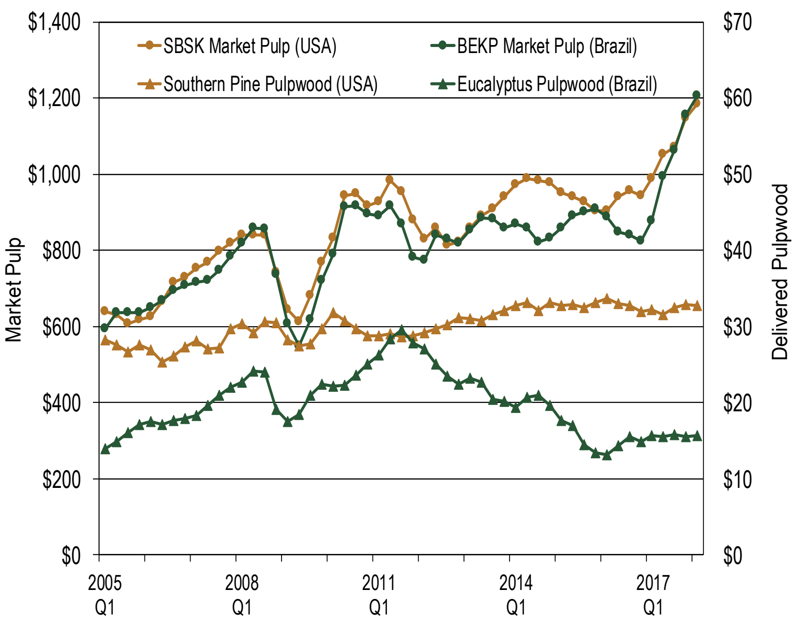


Sources: Log Lines March 2018, Timber Mart-South March 2018, NZMPI and Agrifax March 2018 and KPMG December 2017

Softwood sawtimber USD prices in the Pacific Northwest and in New Zealand increased substantially first quarter, both increasing 9 percent over fourth quarter. Year over year changes reflect a 47 percent price increase in Pacific Northwest stumpage prices. New Zealand stumpage prices rose 13 percent over first quarter prices a year ago. Softwood stumpage prices in the U.S. South fell first quarter, down 1.5 percent from fourth quarter, and 5 percent down from prices first quarter last year. Australia stumpage prices, reported biannually, and last reported in December, are expected to show some improvement for the second half of 2018, supported by the rise in Australia structural lumber prices.

Market Pulp Prices Gain Momentum While Pulpwood Prices Languish

Figure 6: Quarterly Prices for Market Pulp and Delivered Pulpwood (USD per metric ton)

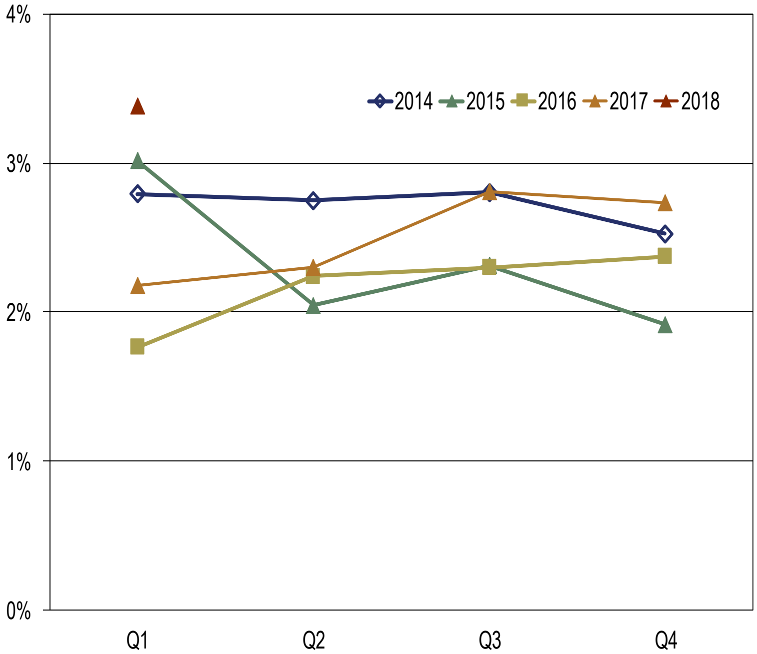


Sources: Hawkins Wright March 2018, Timber Mart-South March 2018 and STCP February 2018

Prices for Bleached Eucalyptus Kraft Pulp (BEKP) and Southern Bleached Softwood Kraft (SBSK) both moved higher in the first quarter, with BEKP up 4.3 percent compared to the previous quarter and SBSK up 3.3 percent. Strong demand from China is supporting higher prices Pine pulpwood delivered prices in the U.S. South fell slightly (-0.1 percent) compared to the prior quarter, facing competition from the growing availability of manufacturing residuals from expanding production at the region's lumber mills. Eucalyptus delivered pulpwood prices in Brazil rose slightly (0.5 percent) in the first quarter.

Cash Yields Hit Highest First Quarter Level in Five Years

Figure 7: U.S. Timberland Annualized Operating Cash Yields (percent per year)

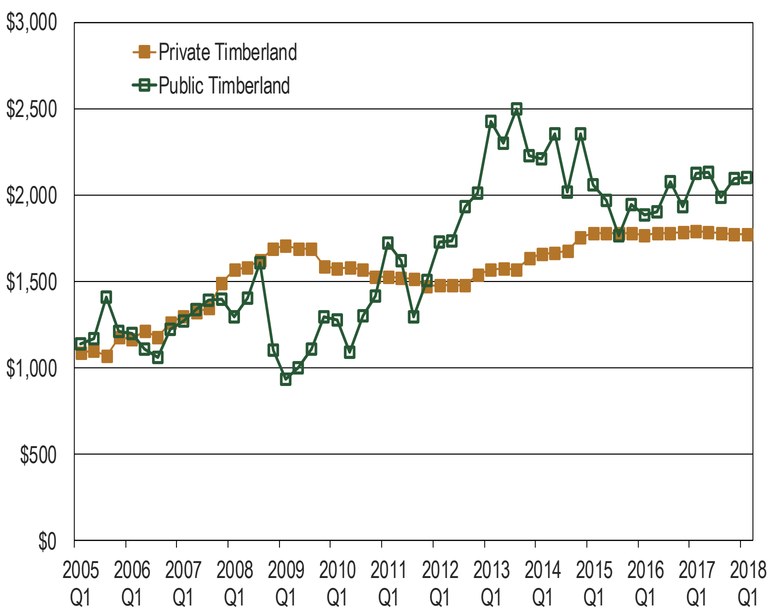


Sources: NCREIF March 2018, HTRG

U.S. cash yields from timberland operations in the first quarter of 2018 were 3.4 percent annualized, which is the highest first quarter cash yield generated over the past five years. Strong cash yields are reflecting the strong pricing in the Western U.S. and the strong demand for sawlogs at U.S. sawmills and wood panel mills.

Timberland Values Hold Steady

Figure 8: Quarterly U.S. South Timberland Values (USD per acre)



Sources: NCREIF March 2018, HTRG

In the first quarter of 2018, the value of privately-held timberland in the U.S. South fell slightly, falling to an average of $1,773 per acre, a $1 per acre (0.1 percent) decrease from last quarter, and a $16 per acre (0.9 percent) decrease from the year prior. Public timberland values, measured by the Timberland Enterprise per Southern Equivalent Acre (TEV/SEA), increased 0.3 percent, from $2,095 to $2,102 per acre. Year over year, the TEV/SEA fell by 1.2 percent. The relatively muted changes in quarterly public values hide substantial day-to-day volatility brought on by strong wood product prices in early 2018. Weyerhaeuser, which represents the majority of the Public Timberland Index, saw substantial appreciation in January of 2018, which becomes muted in the March measure of the TEV/SEA Index.

Notes Timberland Market Indicators

Figure 1: The source for the U.S. Housing Starts is U.S. Bureau of Census. The Housing Starts data includes Single-family and Multi-family starts. Random Lengths Lumber Report is used for lumber prices.

Figure 2: Quarterly Australian Dwelling Unit Approvals is published by the Australian Bureau of Statistics. The Lumber Index is published by Indufor Timber Market Survey using Softwood Structural lumber prices (Blended Price - 60 percent MGP 10 90x35x4800, 40 percent MGP 10 70x35x4800). Log Price Index is calculated using the (APLPI) Radiata Pine Domestic Stumpage prices. The log price is an average of Intermediate and Medium sawlog prices

Figure 3. Quarterly New Zealand softwood log export volume to China and China Import prices are published by International Wood Markets Group Inc.

Figure 4. Monthly average Exchange Rates are from Macrobond.

Figure 5: Quarterly Softwood Sawtimber Stumpage Prices for the U.S. Pacific Northwest is reported in Loglines published by RISI. The weighted index is made up of 50 percent Domestic Douglas-fir (47 percent #2 and 53 percent #3 Sawmill sorts) and 50 percent Whitewoods (47 percent #2 and 53 percent #3 Sawmill sorts). U.S. South prices are published by Timber Mart-South (60 percent Southern Pine Sawtimber and 40 percent Chip-n-Saw). Australian domestic prices are calculated using the KPMG Australian Pine Log Price Index (APLPI) Radiata Pine Domestic Stumpage prices. The log price is an average of Intermediate and Medium sawlog prices converted to USD/m3. New Zealand radiata pine export log prices are a blend of Agri-Fax A and K log sort prices and A,K and J log prices published by New Zealand Ministry of Primary Industries converted to USD.

Figure 6. Quarterly Market Pulp prices are published by Hawkins Wright. U.S. Southern Pine Pulpwood prices are published by Timber Mart-South. Brazil Eucalyptus Pulpwood prices are published by STCP Engenharia de Projetos Ltda.

Figure 7. Annualized Operating Cash Yields are published by National Council of Real Estate Investment Fiduciaries (NCREIF). Yields are calculated using 60 percent U.S. South and 40 percent U.S. West.

Figure 8. Public equity values are derived from our Timberland Enterprise Value per Southern Equivalent Acre (TEV/SEA) calculation for five timber-intensive publicly traded companies as compared to southern timberland values per acre calculated from the NCREIF database. TEV is a quarterly estimate based on total enterprise value (total market equity + book value debt) less estimated value of processing facilities, other non-timber assets and non-enterprise working capital. SEA uses regional NCREIF $/acre values to translate a company's timberland holdings in various regions to the area of southern timberland that would have an equivalent market value.

Disclosures

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