North American Timber Outlook: The Supply Overhang

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Presentation Outline

• Sawtimber
  1. Price Forecast Highlights
  2. Supply Risk Assessment

• Pulpwood
  1. Price Forecast Highlights
  2. Supply Risk Assessment
US Timber Outlook Through 2018

• Sawtimber and pulpwood prices are expected to increase
  ▪ Sustained economic growth
  ▪ Further recovery in US housing
  ▪ Strong growth in mill output
  ▪ Improving profitability for lumber and plywood
  ▪ Canadian mountain pine beetle
Gains in PNW Prices Prove Difficult to Maintain

Delivered Sawtimber Prices Compared

- West Coast
- Whitewood
- Southern Pine (Delivered)
- Southern Pine (Stumpage)

* Assumes 7.5 tons per MBF Scribner for southern prices*. 

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Future Increases in Sawlog Prices Will Be Restrained

- Timber inventory is not a constraint to North American production
  - Expanding growing stock inventories
  - Weak Canadian dollar will unleash Eastern Canada

- US South
  - Harvest demand will not fully recover
  - Harvesting capacity concerns are fading
  - No super surge in log exports from the South expected

- US West
  - Sawtimber diverted back into domestic markets
  - US West now a high-cost region for softwood lumber
  - Declining share of US markets
Sawtimber Will See Some Revival

Southern Pine Stumpage
US Dollars per Ton

Douglas-fir Delivered Logs
US Dollars per MBF

Sawtimber Will See Some Revival
Softwood Sawtimber Demand is Unlikely to Fully Recover

Billion Board Feet
US Sawtimber Supply/Demand Snapshot
South and West Combined, BBF Int’l ¼-inch

Operable Inventory

Harvest Demand

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Age-Class Dynamics Will Change the Supply Potential

SYP Managed Forests Five-Year Age Classes
Million Acres, 2016

Matures in next five years!

Becoming overmature
Harvest Ready Timber Keeps Ahead of Demand

**US SOUTH PINE SUPPLY (Cumulative for 2016-2020)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acreage Stand Age 26-30 Years</td>
<td>3.0</td>
</tr>
<tr>
<td>Acreage Maturing within 5 years</td>
<td>6.1</td>
</tr>
<tr>
<td>Roundwood Yield at Final Harvest Total</td>
<td>97 Tons per Acre</td>
</tr>
<tr>
<td></td>
<td>880 Million Tons</td>
</tr>
</tbody>
</table>

**Roundwood from Other Sources**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinnings</td>
<td>225</td>
</tr>
<tr>
<td>Natural Stands</td>
<td>325</td>
</tr>
<tr>
<td>Total</td>
<td>550 Million Tons</td>
</tr>
</tbody>
</table>

**Roundwood from All Sources**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1430 Million Tons</td>
</tr>
<tr>
<td>Per Year</td>
<td>286 Million Tons</td>
</tr>
</tbody>
</table>

**Note:** Data includes all wood fiber sourced from forests

(1) RISI estimate of area available for commercial production

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**2016-2020 Averages**

- **Annual Supply:**
  - 350 Million Tons

- **Annual Demand:**
  - 73% utilization
  - 286 Million Tons

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Potential for Global Sawlog Production to Increase

Softwood Sawlog Production, Million Cubic Meters per Year

**North America**

**Western Europe**

**Russia**

**New Zealand**

Source: RISI Global Wood Fiber Database.
Global Softwood Sawlog Prices are the Lowest in 30 Years

Note: Global average price calculated as weighted average of all softwood sawlog production and delivered prices. Real prices calculated using the US producer price deflator.
US South Sawtimber Supply Curve with Forecast

- **Real Stumpage Price (2015$/Ton)**
- **Stumpage Removals (Million GST)**

- **2008 to 2015**
- **2000 to 2007**
- **Support**
- **Resistance**
- **Forecast (2016-2018)**
Pulpwood Prices: Renewed Harvest Demand and New Supply Dynamics
US South Pulpwood Prices Are Ratcheting Up

Note: 2016 average of first and second quarter
US South Hardwood Stumpage Has Broken From Trend

Sawtimber, US Dollars per MBF

Pulpwood, US Dollars per Ton


$4 $5 $6 $7 $8 $9 $10 $11 $12 $13

$120 $140 $160 $180 $200 $220 $240 $260 $280 $300
US South Log Price Spreads: A Return to the 1980s

Ratio: Delivered Sawtimber over Pulpwood
Pulpwood Prices Feel the Pressure of Escalating Demand

- Harvests will surpass record levels
  - Factors in expanding chip production
  - OSB output recovers within next two years
  - Wood pellet capacity start-ups

- Supplies expand, but at a slow rate
  - Boost from come-along wood
  - Declining areas available for thinning
  - Contracting hardwood resource
US South Pulpwood Prices
Dollars per Ton

**Stumpage**

- **Hardwood**
- **Softwood**

**Harvest and Delivery Costs**

- **Softwood**
US South Pine Pulpwood Production

[Bar chart showing the production of Bioenergy, OSB, and Pulp from 2005 to 2018]
Age-Class Area Dynamics Subtract from Thinnings

SYP Managed Forests Five-Year Age Classes
Million Acres, 2016

Now nearly thinned out?
SYP Pulpwood Thinning Supplies Are Unlikely to Be Sustained
A 27% Decline in Hardwood Demand Was Not Enough to Stabilize Hardwood Inventories
US Delivered Pulpwood by Region

Softwood

- $55
- $50
- $45
- $40
- $35
- $30
- $25
- $20

Hardwood

- $55
- $50
- $45
- $40
- $35
- $30
- $25
- $20

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We Never Expected the West Coast Chip Rally to Be Maintained

US West Coast Chip Export Prices

US Dollars per Bone Dry Ton

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Timber Take Home Points

• Wood costs are rising
• Timber inventory is not a constraint to North American softwood lumber production
• Pulpwood prices maintain gains achieved since 2011
• Downside risk to the timber price forecast
Recently Released Timber Products

Southern Pulpwood Study
www.risi.com/uspulpwood

World Wood Fiber and Forest Product Database
February 2016

North American Timber Forecast
www.risi.com/timber5year