Hardwood Manufacturers Association

A Bend in the Road

Dr. Alan Beaulieu
President
### Preliminary 2017 Forecast Results

If you heard ITR around two years ago...

<table>
<thead>
<tr>
<th></th>
<th>Duration</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>US GDP (Dec)</td>
<td>24</td>
<td>99.7%</td>
</tr>
<tr>
<td>US Ind. Prod. (Dec)</td>
<td>24</td>
<td>96.8%</td>
</tr>
<tr>
<td>Europe Ind. Prod. (data through Nov)</td>
<td>27</td>
<td>99.4%</td>
</tr>
<tr>
<td>Canada Ind. Prod. (data through Nov)</td>
<td>24</td>
<td>95.9%</td>
</tr>
<tr>
<td>China Ind. Prod. (Dec)</td>
<td>30</td>
<td>97.8%</td>
</tr>
<tr>
<td>Retail Sales (Dec)</td>
<td>25</td>
<td>98.0%</td>
</tr>
<tr>
<td>Housing (Dec)</td>
<td>27</td>
<td>97.2%</td>
</tr>
<tr>
<td>Employment (Dec)</td>
<td>23</td>
<td>99.6%</td>
</tr>
</tbody>
</table>

*ITR Economics provides the best economic intelligence to reduce risk and drive practical and profitable business decisions.*
Net Migration Between States, July 2016-July 2017

Net loss
-157,992
-25,000
0
Net gain
+25,000
+202,510

Does not include immigration into the US

Source: Census Bureau
State Population Growth Rates

Percent Change from Population Estimates 2010 to 2017

Source: Census Bureau
First in Forecasts Since 1948

US Industrial Production Index

US Industrial Production Index
12-Month Moving Average

- Annual Trend: 105.7
- Phase: B
- Year-over-Year: 2.5%

Year-over-Year Growth Rate
12/12 Rate-of-Change

- 2018: 1.1%
- 2019: -1.2%
- 2020: 3.3%

Source: FRB
US Real Gross Domestic Product

Sep '15 Forecast
Aug '17 Forecast
GDP - 3MMA

Source: BEA
INDUSTRY ANALYSIS
<table>
<thead>
<tr>
<th>Raw</th>
<th>3MMT</th>
<th>3/12</th>
<th>12MMT</th>
<th>12/12</th>
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<tbody>
<tr>
<td>Apr-16</td>
<td>1.4</td>
<td></td>
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<tr>
<td>May-16</td>
<td>1.5</td>
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<tr>
<td>Jun-16</td>
<td>1.5</td>
<td></td>
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</tr>
<tr>
<td>Jul-16</td>
<td>1.4</td>
<td></td>
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</tr>
<tr>
<td>Aug-16</td>
<td>1.5</td>
<td></td>
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</tr>
<tr>
<td>Sep-16</td>
<td>1.3</td>
<td></td>
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</tr>
<tr>
<td>Oct-16</td>
<td>1.3</td>
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<tr>
<td>Nov-16</td>
<td>1.6</td>
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<tr>
<td>Dec-16</td>
<td>1.6</td>
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<td></td>
</tr>
<tr>
<td>Jan-17</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb-17</td>
<td>1.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar-17</td>
<td>1.6</td>
<td></td>
<td>18.0</td>
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</tr>
<tr>
<td>Apr-17</td>
<td>1.7</td>
<td></td>
<td>18.2</td>
<td>18.0</td>
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<tr>
<td>May-17</td>
<td>1.7</td>
<td></td>
<td>18.4</td>
<td></td>
</tr>
<tr>
<td>Jun-17</td>
<td>1.7</td>
<td>5.1</td>
<td>15.9%</td>
<td>18.6</td>
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<tr>
<td>Jul-17</td>
<td>1.6</td>
<td>5.0</td>
<td>13.6%</td>
<td>18.8</td>
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<td>Aug-17</td>
<td>1.7</td>
<td>5.0</td>
<td>13.6%</td>
<td>19.0</td>
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<tr>
<td>Sep-17</td>
<td>1.5</td>
<td>4.8</td>
<td>14.3%</td>
<td>19.2</td>
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<td>Oct-17</td>
<td>1.5</td>
<td>4.7</td>
<td>14.6%</td>
<td>19.4</td>
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<tr>
<td>Nov-17</td>
<td>1.9</td>
<td>4.9</td>
<td>16.7%</td>
<td>19.7</td>
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<tr>
<td>Dec-17</td>
<td>1.7</td>
<td>5.1</td>
<td>13.3%</td>
<td>19.8</td>
</tr>
<tr>
<td>Jan-18</td>
<td>1.7</td>
<td>5.3</td>
<td>12.8%</td>
<td>20.0</td>
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<tr>
<td>Feb-18</td>
<td>1.9</td>
<td>5.3</td>
<td>10.4%</td>
<td>20.2</td>
</tr>
<tr>
<td>Mar-18</td>
<td>1.7</td>
<td>5.3</td>
<td>12.7%</td>
<td>20.3</td>
</tr>
</tbody>
</table>

**3/12 Rate-of-Change**

\[
\frac{March\ 2017\ 3MMT}{March\ 2016\ 3MMT} \times 100 - 100
\]

\[
= \frac{5.3}{4.8} \times 100 - 100 = 10.4\%
\]

**12/12 Rate-of-Change**

\[
\frac{March\ 2017\ 12MMT}{March\ 2016\ 12MMT} \times 100 - 100
\]

\[
= \frac{20.3}{18.0} \times 100 - 100 = 12.7\%
\]
US Sawmills & Wood Preservation Production Index

[SERIES NAME] 3.8%

12MMA highest in 10 yrs
Slower rate of rise through the rest of 2018
Downward pressure in 1H19

2012 = 100
Source: FRB

First in Forecasts Since 1948

ITR Economics
US Hardwood Lumber Producer Price Index

[SERIES NAME] 0.5%

[SERIES NAME] 3MMA May ‘17 low
Slightly STM 5.5%
Soonest-normal 3MMA peak Nov ‘18

1982 =100
Source: CEIC
US Hardwood Lumber Producer Price Index to US Total Industrial Production Index

Source: BLS, FRB

12/12 Rates-of-Change

0.2%
Ongoing Concerns

- China
- NAFTA, Mexico, and International Trade
- North Korea
- Global Leading Indicators are weakening
- US Debt
- Health Care No real change in sight re: budget crisis
US Federal Government Current Tax Receipts to Consumption Expenditures to Current Transfer Payments to Federal Government Interest Payments

<table>
<thead>
<tr>
<th>Year</th>
<th>Current Tax Receipts</th>
<th>Consumption Expenditures</th>
<th>Current Transfer Payments</th>
<th>Interest Payments</th>
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<tbody>
<tr>
<td>1948</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>1952</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>1956</td>
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<tr>
<td>1960</td>
<td>$0</td>
<td>$0</td>
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<td>1964</td>
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<tr>
<td>1968</td>
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<td>$0</td>
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<tr>
<td>1972</td>
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<td>1976</td>
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<tr>
<td>1980</td>
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<td>1984</td>
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<td>1988</td>
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<td>1992</td>
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<td>2000</td>
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<td>2004</td>
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<tr>
<td>2012</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>2016</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>2020</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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</tbody>
</table>

Source: BEA

Billions of Dollars
Percent of Total US Tax Receipts by Source to Real Gross Domestic Product

Will the tax reform generate additional cash? 35%, 21%, and 18.4%
Businesses in America already cash rich
Immediate expensing? A Help. Inducement to invest more than they need and/or can implement?
Pulling in from the future?
8 yrs to pay the tax on repatriated funds. No big influx of cash to the Treasury. Apple $4.5b/year.
On business investment, roughly two-thirds of respondents to our national survey...indicated that the reform wouldn't affect their capital expenditures at all. Just **15 percent** said they would increase their capital spending by **10 percent** or more, and those responses came mostly from smaller firms.

~ Raphael Bostic
Atlanta Federal Reserve Chair
Rotary Club of Atlanta
January 8, 2018
US/Global Recovery – Good Days Ahead

- Consumers are in great shape
- Interest Rates remain favorable
- Employment rising, as are wages
- Banks are lending
- Retail Sales at a record high level
- Abundance of energy
- Exports are 6.2% ahead of last year and rising
US Trade in Goods with World: Exports to Trade Weighted Exchange Rate Index

Sources: Census Bureau, FRED

12/12 Rates-of-Change

Exchanges

Exports

Exchange Rate

-2.1%

6.1%
US Total Manufacturing Production Index

NAFTA –
Tariffs: Steel 25%  Aluminum 10%, Russia, Japan, Taiwan, India, China
Remain globally competitive?
shift production to downstream products?

Trade War? $60B in tariffs on China

Aluminum:
US      - 4.2% A 6.7% B 12MMA up off May ‘17 62-yr low
China  0.2% C - 8.1% D 12MMA down 3.3% off July ‘17 record high

The national security angle seems to have been a means to accomplish the desired end since the Secretary of Defense and the Secretary of State both disagreed with that assessment. The probable reasoning for going this route is because there is a provision at the WTO that makes it VERY difficult for them to rule against something because of the national security claim. The WTO really has no option except to not stand in the way if other countries chose to retaliate). March ITR Trends Report

First in Forecasts Since 1948

Source: FRB

2012 = 100, Raw Data
Steel Scrap Prices are up 7.6% on the LME through the first seven business days of March. The tariffs of 2002 suggest additional price rise is probable. Steel futures prices rose an annual average 27.3% in 2002, 27.1% in 2003, and 65.1% in 2004 before leveling off and edging downward 4.2%
US Steel Mill Employment

Steel Jobs: aprox 169k jobs highest since 1992

Source: BLS
North America Robotics New Orders (units) to US Total Manufacturing Job Openings

Sources: Robotic Industries Association, BLS

Robotics New Orders

Robotics - 12MMA

Job Openings - 12MMA

Openings

First in Forecasts Since 1948

ITR Economics
Ease of Doing Business

NZ 1
Singapore 2
Denmark 3
Korea 4
Hong Kong 5
US 6
UK 8
Germany 21
Japan 35
Russia 36
China 75
India 100
Brazil 125

Source: The World Bank
LEADING INDICATORS
US Industrial Production to ITR Leading Indicator™

Reported in *ITR Trends Report – ITR Advisor*

Sources: FRB, ITR Economics

As seen in

USIP – 12/12 Indicator - Monthly

First in Forecasts Since 1948

ITR Economics
US Hardwood Lumber Producer Price Index to ITR Leading Indicator

Rates-of-Change

Sources: BLS, ITR Economics
US Industrial Production to US Total Industry Capacity Utilization Rate

Source: FRB
Figure: US Hardwood Lumber Producer Price Index to US Total Industry Utilization Rate

**Rates-of-Change**

- 0.2%
- 3.0%

**Sources:** BLS, FRB

**First in Forecasts Since 1948**
US Stock Prices Index to US Purchasing Managers Index

1/12 Rates-of-Change

Sources: WSJ, Institute for Supply Management
Cyclically Adjusted Price Earnings (CAPE) Ratio
January 1900 – December 2017

Source: Robert Shiller – Yale University
Analysis prepared by: Baird Family Wealth Group 1/4/18
First in Forecasts Since 1948

US Hardwood Lumber Producer Price Index to Wilshire Total Market Cap

Sawmills

Hardwood 12/12
Wilshire 3/12

Rates-of-Change
Sources: BLS, Yahoo Finance
US Nondefense Capital Goods New Orders w/o Aircraft

A positive impact from the tax law will show up here

4Q 3MMT rise steeper than the last 4 yrs, the Dec rise was the mildest since 2008

$781.1

12MMT rise to 1Q19
2018 1.3%
US Nondefense Capital Goods New Orders (excl. Aircraft) to US Machinery Manufacturing Capacity Utilization

Rates-of-Change

Sources: Census Bureau, FRB

First in Forecasts Since 1948

New Orders

Utilization Rate
US Total Retail Sales

Source: Census Bureau

First in Forecasts Since 1948
US Total Retail Sales to US Personal Savings as a Percentage of Disposable Income

Sources: Census Bureau, BEA

Sales - 12/12
Sales Forecast - 12/12
Index - 12MMA

12/12 Rates-of-Change

First in Forecasts Since 1948

Sources: Census Bureau, BEA
US Single Unit Housing Series

As seen in Trends Report

Normal 3MMT seasonal decline but steeper than y-3
Projected Sep ‘18 12MMT high
2018 4.1%

0.858

Millions of Units
Source: Census Bureau
US Sawmills & Wood Preservation Production Index to US Single-Unit Housing Starts

Sources: FRB, US Census Bureau

12/12 Rates-of-Change

[SERIES NAME]

4.2%
First in Forecasts Since 1948

US Hardwood Lumber Producer Price Index to US Single-Unit Housing Starts

Sources: BLS, US Census Bureau

12/12 Rates of Change

0.2%
9.2%

Hardwood
Housing

Hardwood
Housing

'00 '02 '04 '06 '08 '10 '12 '14 '16 '18 '20 '22 '24

ITR Economics

First in Forecasts Since 1948

Sources: BLS, US Census Bureau
# US Single-Family Housing Construction Starts

<table>
<thead>
<tr>
<th>Region</th>
<th>12/12</th>
<th>Phase</th>
<th>Annual Trend (bils)</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>4.2%</td>
<td>B</td>
<td>$62.3</td>
<td>Up</td>
</tr>
<tr>
<td>South</td>
<td>6.6%</td>
<td>C</td>
<td>$129.4</td>
<td>Down</td>
</tr>
<tr>
<td>Midwest</td>
<td>7.2%</td>
<td>C</td>
<td>$454.3</td>
<td>Up</td>
</tr>
<tr>
<td>West</td>
<td>15.7%</td>
<td>B</td>
<td>$207.7</td>
<td>Up</td>
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## US Multi-Family Housing Construction Starts

<table>
<thead>
<tr>
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<th>Phase</th>
<th>Annual Trend (bils)</th>
<th>Direction</th>
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</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>-9.8%</td>
<td>A</td>
<td>11.2%</td>
<td>49.5</td>
</tr>
<tr>
<td>South</td>
<td>-26.1%</td>
<td>D</td>
<td>-48.0%</td>
<td>47.3</td>
</tr>
<tr>
<td>Midwest</td>
<td>-14.2%</td>
<td>D</td>
<td>1.6%</td>
<td>144.6</td>
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<tr>
<td>West</td>
<td>4.5%</td>
<td>B</td>
<td>14.0%</td>
<td>115.2</td>
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</table>
I Can’t Adult Today.

Please Don’t Make Me Adult.
First in Forecasts Since 1948

US Consumer Price Index to US Producer Price Index

1/12 Rate-of-Change

Source: BLS
Source: FRB

Yield on 10 Year Treasury Note
OUR NEIGHBOR
Canada Purchasing Managers Index

First in Forecasts Since 1948

Source: Markit Economics

Index
Canada Industrial Production

- Retail Sales: 6.9% Bc, Highest 12/12 in 19 yrs
- Wages: 1.2% Bc, Record high $966.06
- Employment: 1.9% B, Record high 18.4 million
- Mfg: 3.2% B, 3.8% C, 12MMA 9 years
- Oil/Gas: 6.3% C, 2.9% C, 12MMA record high
- Mining: 8.8% B, 5.4% C, 12MMA record high
- Wholesale: 6.9% B, 9.4% B, Record high 3/12 & 12MMA

Source: Statistics Canada

Billions of chained 2007 Canadian Dollars

First in Forecasts Since 1948

Note: '00 '02 '04 '06 '08 '10 '12 '14 '16 '18 '20
Canada Sawmills and Wood Preservation

Source: Statistics Canada

Billions of 2007 Chained Canadian Dollars

More downward pressure through the near term

More downward pressure through the near term

First in Forecasts Since 1948

ITR ECONOMICS

Billions of 2007 Chained Canadian Dollars

Source: Statistics Canada
Email updates@itreconomics.com with the subject line

HMA – ALAN IS COOL!