Are We Out Of the Woods Yet: What Are The Main Issues Facing Our Industry and Economy in 2015 and Beyond?

Maine Forest Products Council
September 8th, 2014
Key Topics

- **Housing Markets**
  - Likely to disappoint in 2015
  - The longer the time horizon the better we feel

- **China**
  - To understand where China is headed, we must look at why their lumber imports surged.
  - The era of tremendous growth is over

- **Lumber Demand Will Surge**
  - Where will supply come from?

- **Canadian Dollar Will Remain Weak**
  - Purchasing Power Parity
  - Little pressure on oil prices
It Hasn't Been Easy for Borrowers With a Credit Score Below 700 to Get a Mortgage
New Home Sales Are Consistent with Fewer Than One Million Starts

<table>
<thead>
<tr>
<th>New Single-Family Home Sales</th>
<th>425*</th>
<th>558**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner Build Share</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Single-Family Starts Needed to Replenish Sales</td>
<td>616</td>
<td>804</td>
</tr>
<tr>
<td>Not All Starts Completed</td>
<td>98.5%</td>
<td>98.5%</td>
</tr>
<tr>
<td>Single-Family Starts Needed to Replenish Sales</td>
<td>625</td>
<td>816</td>
</tr>
<tr>
<td>Single-Family Share</td>
<td>68%</td>
<td>68%</td>
</tr>
<tr>
<td>Total Housing Starts Needed to Keep Inventories Flat</td>
<td>920</td>
<td>1,200</td>
</tr>
</tbody>
</table>

* Average of the last 6 months  
** Number Needed to Average 1.1M starts
New Single-Family Home Sales Are Not Trending In The Right Direction

Thousands

www.getfea.com
Builders Are Facing Shortages of Labor and Buildable Lots

Percent of Builders Reporting Problems

Source: NAHB HMI Survey, Jan 2014
There Is Light At The End Of The Tunnel: Housing Markets Are Set To Improve
Housing Starts are Near Depression Levels

[Graph showing housing starts over time with a peak around the 1970s and a recent dip.]
Real GDP Growth Will Pick Up in 2015
US Home Equity Now Exceeds Its Long-Term Trend

Source: Federal Reserve Flow of Funds data

Trend line for 1980-2014Q1

Owner's Equity in Household Real Estate - Net Worth in Bil $
Payroll Employment Breaking Out of 2011-2013 Range

Monthly Change in Payroll Employment

Average 2011-2013
US Has Substantial Pent-Up Demand for Durable Goods

Average Age of US Cars and Light Trucks

Source: Polk
The Federal Budget Deficit Picture Has Improved Markedly

Government Revenues and Outlays as Percent of GDP

Outlays

Revenues

Dotted Lines are 1972-2012 Averages

Source: Congressional Budget

www.getfea.com
Rise in Mortgage Rates and 10-Year Government Bond Yields Halted
Recent Rate Increases in Historical Context

10-Year Gov't Bond Yields

30-Year Mortgage Rates
Housing Will Remain Affordable Despite Higher Mortgage Rates and Home Prices

A value of 100 means that a family with the median income has exactly enough income to qualify for a mortgage on a median-priced home. An index above 100 signifies that a family earning the median income has more than enough income to qualify for a mortgage loan on a median-priced home, assuming a 20 percent down payment.

*Assumes mortgage rate gradually increase to 5% by end of 2015, income growth averages 2.3% and home price increase at a 5.5% annual rate.

Source: NAR, FEA
Lending Standards Eased in Third Quarter
(Net Percentage of Domestic Respondents Tightening Standards for Prime Mortgage Loans)

Source: Federal Reserve Senior Loan Officers Survey
Purchase Share of Mortgage Lending Will Increase As Interest Rates Rise

Sources: Mortgage Bankers Association, Federal Reserve
New Home Inventories Are Near Rock Bottom

Million Units

- Completed
- Under Construction
- Not Started
- Total

www.getfea.com
Housing Starts Will Improve But Remain Well Below Trend In 2015

Average Housing Starts 1959-2000

 Millions of Units

www.getfea.com
Long Run, Housing Starts Will Be Strong
Cumulative Over-/Under-Building of Conventional US Homes

Forecast

www.getfea.com
# Underlying Demand for Housing

**FEA Base Case**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Net Households Formations</strong></td>
<td>1.26</td>
<td>1.14</td>
<td>1.20</td>
<td>1.15</td>
<td>1.33</td>
</tr>
<tr>
<td><strong>Removals</strong></td>
<td>.27</td>
<td>.32</td>
<td>.30</td>
<td>.30</td>
<td>.32</td>
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<tr>
<td><strong>Second Homes</strong></td>
<td>.15</td>
<td>.06</td>
<td>.07</td>
<td>.05</td>
<td>.06</td>
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<tr>
<td><strong>Frictional</strong></td>
<td>.09</td>
<td>.09</td>
<td>.08</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td><strong>Other Mobile Home</strong></td>
<td>.02</td>
<td>.02</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td><strong>Total Demand</strong></td>
<td>1.78</td>
<td>1.63</td>
<td>1.68</td>
<td><strong>1.59</strong></td>
<td>1.80</td>
</tr>
</tbody>
</table>

About 100K of these are mobile homes.
When Will Markets Return To “Normal”: Household Formations
US Household Formation Are Well Below Trend

Average of Household Formation and Change in Occupied Housing

Average 1980-2007
No Household Formations Among Younger Population

Growth in Population vs. Households 2007 to 2012

- 16-24 age group
- 25-29 age group
- 30-34 age group

Population vs. Household Growth

www.getfea.com
The Employment-to-Population Rate for 25-34 Age Explains Low Headship Rate for Young Adults

[Graph showing employment rates for different age groups from 2001 to 2014.]
Payroll Employment Breaking Out of 2011-2013 Range

Monthly Change in Payroll Employment

Average 2011-2013
The Key 25-34 Age Cohort Will Soon Pass Its Previous Peak

Source: US Census, Reference Projection
US Population By Age

Peak Age Group: 23 Year Olds

Million

0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

80 85 90 95 100
When Will Markets Return To “Normal”: The Housing Inventory Correction
Vacant Inventory Is Trending Lower

This gap is one estimate of overhang of existing homes.

*Assumes 12.5% Vacancy Rate
The Shadow Inventory Is Correcting Rapidly

US Mortgage Foreclosures

Percent

Mortgage Payments Past Due 90+ Days: United States (SA, %)
Mortgage Foreclosure Inventory: United States (EOP, NSA, %)
Mortgage Foreclosures Started: United States (SA, %)

www.getfea.com
Inventory of Current Plus Expected Foreclosures is Concentrated in Several States

Source: Mortgage Bankers' Association NDS

- Florida, 292,430
- California, 96,777
- New York, 129,894
- New Jersey, 107,542
- Illinois, 85,870
- Rest of US, 753,249

Total* = 1,465,762

*This sample covers 88% of US mortgages

www.getfea.com
Mortgage Foreclosures in “Trouble States” Have Plunged

Percentage

- Mortgage Foreclosures Started: California (NSA, %)
- Mortgage Foreclosures Started: Arizona (NSA, %)
- Mortgage Foreclosures Started: Florida (NSA, %)

Q1-1996 to Q3-2013

www.getfea.com
Inventory Correction Will Be Mostly Completed by 2015 Under Base Case Forecast

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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</thead>
<tbody>
<tr>
<td>HH Formations</td>
<td>525</td>
<td>950</td>
<td>1150</td>
<td>725</td>
<td>1150</td>
<td>1250</td>
</tr>
<tr>
<td>Plus: Removals</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Plus: New Home Inventory Change</td>
<td>-100</td>
<td>-35</td>
<td>0</td>
<td>35</td>
<td>50</td>
<td>75</td>
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<tr>
<td>Equals: Housing Demand</td>
<td>725</td>
<td>1215</td>
<td>1450</td>
<td>1060</td>
<td>1500</td>
<td>1625</td>
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<tr>
<td>Less: Housing Starts</td>
<td>590</td>
<td>610</td>
<td>780</td>
<td>930</td>
<td>990</td>
<td>1200</td>
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<tr>
<td>Equals: Change in Existing Home Inventory</td>
<td>-135</td>
<td>-605</td>
<td>-670</td>
<td>-130</td>
<td>-510</td>
<td>-425</td>
</tr>
<tr>
<td>Year-End Excess</td>
<td>2400</td>
<td>1795</td>
<td>1125</td>
<td>995</td>
<td>485</td>
<td>60</td>
</tr>
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</table>
FEA Housing Starts Forecast

Average Housing Starts 1959-2000

Millions of Units

- Single Family
- Multifamily
The Single-Family Share of Housing Will Remain Below its 30-Year Average

Share of Single-Family Housing Starts

30-Year Average Share = 76.3%

www.getfea.com
Improvement Expenditures Will Not Return to Pre-Bubble Trend Until 2016

Billions of 2005 USD

Trend from 1993 to 2002
US Home Equity Now Exceeds Its Long-Term Trend

Owner's Equity in Household Real Estate - Net Worth in Bil $

Source: Federal Reserve Flow of Funds data

www.getfea.com
Existing Home Sales Are Trending Up
What Does This Mean For North American Producers?
North American Domestic Consumption Will Surge

![Bar chart showing BBF consumption in US and Canada from 2000 to 2020. The chart indicates a surge in consumption over the years, with a notable increase from 2015 onwards. The data points show a steady rise in BBF consumption in both countries, with Canada generally having a lower consumption rate compared to the US.]
China
North American Saw Tremendous Growth In Lumber Exports To China

![Chart showing growth in lumber exports from Canada and US to China from 2000 to 2013. The chart indicates an increase in exports over the years, with a significant rise in 2013.]

www.getfea.com
China Imports of Softwood Logs

25,000 m³

Russian Export Tariffs Raised to 25%

Source: Chinese Customs, US Census, NZ MPI, Statistics Canada

www.getfea.com
Inventory of Available Live and Dead Lodgepole Pine, by Years Since Attack, 1999-2020

Source: FEA estimates

www.getfea.com
Chinese Demand For Imported Lumber

<table>
<thead>
<tr>
<th>Year</th>
<th>MMCM</th>
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<tbody>
<tr>
<td>2006</td>
<td>1.5</td>
</tr>
<tr>
<td>2007</td>
<td>2.0</td>
</tr>
<tr>
<td>2008</td>
<td>3.0</td>
</tr>
<tr>
<td>2009</td>
<td>4.0</td>
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<td>2010</td>
<td>6.0</td>
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<td>2011</td>
<td>8.0</td>
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<tr>
<td>2012</td>
<td>10.0</td>
</tr>
<tr>
<td>2013</td>
<td>14.0</td>
</tr>
<tr>
<td>2014</td>
<td>16.0</td>
</tr>
</tbody>
</table>

- **Canada**: navy blue
- **Russia**: yellow
- **US**: red
- **Chile**: green
- **NZ**: dark blue
- **Other**: grey

YTD (Year To Date)
China growth below 8%,
Some think going below 7%
China Housing Starts are Key Driver of Lumber and Log Exports

Commodity Housing Starts*

![Bar Chart showing housing starts from 2005 to 2014, with peak in 2011 and significant increase compared to previous years.]

*Source: Straszheim Economics

www.getfea.com
China Home Price Bubble Far Exceeds Those In North America and Europe

Home Price To Income Ratio

- Edmonton
- Calgary
- New York
- Toronto
- San Francisco
- Vancouver
- London
- Paris
- Shanghai
- Beijing

Source: www.getfea.com
### The Era of Tremendous Growth in Exports Is Over

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports</th>
<th>Imports</th>
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<tr>
<td>00</td>
<td>4.0</td>
<td>1.0</td>
</tr>
<tr>
<td>01</td>
<td>3.0</td>
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</tr>
<tr>
<td>20</td>
<td>3.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Consumption Will Grow by 17 BBF over the Current Cycle. How Will Demand Be Met?

- Dom Production: 15.8
- Imports: 1.4
- Lower Exports: 1.3
Where Will The Lumber Production Come From?

Fiber Supply Will Determine That.
Inventory of Available Live and Dead Lodgepole Pine, by Years Since Attack, 1999-2020

Million M³

Source: FEA estimates

www.getfea.com
Quebec and Ontario’s AAC Will Fall Further

Quebec
Ontario

www.getfea.com
Quebec Will Lose More Capacity: Bill 57

- Bill 57 went into effect in 2013

- New Ecosystem Based Forest Management
  - Longer Rotations $\Rightarrow$ 11.5% decline in AAC (initial estimates)

- None of the following matters to total supply but could effect individual mills:
  - 70% remaining timber (current AAC-11.5%) will be sold at auction
  - Individual mills could lose some supply, but other mills would pick it up
Quebec Will Lose Capacity: North For All

- Still in initial stages of the plan to be implemented in 2016

- Initial plan: 50% of timber North of the 49th parallel put into “protected” area
  - 53% of province’s timber is North of the 49th parallel

- Of the 50% 12% (in other words 6% of the total supply) will go into “traditional” protected areas (no harvest)

- The other 38% will go into “new” protected areas. In these you can’t do anything “permanent”. Forestry is allowed.

- Bottom line: likely 6%+ more coming out with Plan Nord

www.getfea.com
A Significant Volume of Deferred Harvests Is Accumulating in All US Regions

BBF, Int’l ¼”

- Estimated Deferred Harvests
- Average Drain, 2000-05

- Coast: 8%
- Inland: 23%
- South: 33%
The US West Will See Significant Growth
US South Production Will Exceed Its Previous Peaks
As Will Other US and Canadian Production
Putting It All Together, Operating Rates Will Soar In 2016-18
Longer Run, Operating Rates Will Tighten
Canadian Dollar Will Remain Weak
The Canadian Dollar Tracks Oil Prices

USD per CAD

2012 USD per Barrel

www.getfea.com
The EIA Has Lowered its Oil Price Projections by About 10%
US Motorists are Driving Less Despite Improving Economy
Lower Oil Prices Mean a Weaker Canadian Dollar

<table>
<thead>
<tr>
<th>Year</th>
<th>2012 USD per Barrel</th>
<th>2012 USD per CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>$1.10</td>
<td>$0.60</td>
</tr>
<tr>
<td>75</td>
<td>$1.00</td>
<td>$0.70</td>
</tr>
<tr>
<td>80</td>
<td>$0.90</td>
<td>$0.75</td>
</tr>
<tr>
<td>85</td>
<td>$0.80</td>
<td>$0.80</td>
</tr>
<tr>
<td>90</td>
<td>$0.70</td>
<td>$0.85</td>
</tr>
<tr>
<td>95</td>
<td>$0.60</td>
<td>$0.90</td>
</tr>
</tbody>
</table>

IMF’s Purchasing-Power-Parity
Take Home Points

• Housing markets are likely to be on the low end in 2015, but they will exceed expectations longer run.

• Domestic consumption will increase significantly over the next five years.

• Net exports must fall to meet higher consumption.
  • Total Chinese demand is a big risk
  • Chinese demand for North American lumber will fall

• US and non-British Columbia/Quebec/Ontario production will increase significantly to meet higher domestic consumption.
Thank you!

Questions:
Paul Jannke
978 496 6336
pjannke@getfea.com