The Virginia Tech – U.S. Forest Service
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Housing Commentary: Section II

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Table of Contents

Slide 4: Federal Reserve Bank Indicators
Slide 20: Private Indicators
Slide 33: Lumber Shipments & Permits/Starts
Slide 40: Virginia Tech Disclaimer
Slide 41: U.S. Forest Service Disclaimer
Government and Private Indicators
“The GDPNow model forecast for real GDP growth (seasonally adjusted annual rate) in the fourth quarter of 2015 is 1.9 percent on December 16, unchanged from December 11. The forecast for fourth-quarter real residential investment growth increased from 6.7 percent to 8.0 percent after this morning’s housing starts report from the U.S. Census Bureau. The forecast for real business fixed investment growth ticked down from 3.5 percent to 3.2 percent following this morning's industrial production release from the Federal Reserve.” – The Federal Reserve Bank of Atlanta

Source: https://www.frbatlanta.org/cqer/research/gdpnow.aspx; 12/16/15
The Midwest Economy Index (MEI) moved up to −0.14 in October from −0.17 in September. The relative MEI increased to −0.23 in October from −0.34 in September. October’s value for the relative MEI indicates that Midwest economic growth was somewhat lower than what would typically be suggested by the growth rate of the national economy.” – Chicago Fed

“Manufacturing’s contribution to the MEI ticked down to −0.08 in October from −0.07… . …construction & mining sector’s MEI contribution MEI increased to −0.10 in October from −0.14… . The service sector’s contribution to the MEI decreased to −0.05 in October from a neutral reading…. . The contribution from consumer spending indicators to the MEI increased to +0.09 in October from +0.04… .”
Financial Conditions Little Changed in Week Ending November 27

“The NFCI edged up to −0.60 in the week ending December 11. The risk, credit and leverage sub-indexes increased slightly from the previous week, while the nonfinancial leverage subindex was unchanged.”

The Federal Reserve Bank of Chicago

“The ANFCI was unchanged from the previous week at −0.50. The current level of the ANFCI indicates that financial conditions in the latest week remained somewhat looser than what would typically be suggested by current economic conditions as captured by the three-month moving average of the Chicago Fed National Activity Index (CFNAI-MA3) and three-month total inflation according to the Price Index for Personal Consumption Expenditures (PCE).”

Source: https://www.chicagofed.org/publications/nfci/index; 12/16/15
Chicago Fed: National Activity Index

Index shows economic growth improved in October

“Led by improvements in employment- and production-related indicators, the Chicago Fed National Activity Index (CFNAI) rose to –0.04 in October from –0.29 in September. Two of the four broad categories of indicators that make up the index increased from September, but only one category made a positive contribution to the index in October.” – Federal Reserve Bank of Chicago

Source: www.chicagofed.org/publications/nfci/index; 11/23/15
Manufacturing and Services Price Pressures Diverge

“The strong dollar and renewed fall in energy prices have put further downward pressure on prices. TBOS questions on current finished goods prices indicate that manufacturing respondents faced price declines for the 10th consecutive month in October. While service sector prices continue to rise, the number of respondents indicating price decreases has picked up considerably since last year.”
The Federal Reserve Bank of Dallas
Outlook Dampened but Positive for 2015

“The Texas Leading Index (TLI) fell 0.2% in September on the heels of a sharp 1.4% decline in August. Appreciation in the Texas Trade-Weighted Value of the Dollar and weakness in the stocks of Texas-based companies have been the primary drivers of the TLI decline since July. The health of the U.S. economy has continued to contribute positively to the index, and a slight uptick in well permits mitigated some of the decline in September.

The Texas employment forecast is for 1.2% growth for 2015. The forecast for the rest of the year is for annualized growth of 0.8%, which is slightly weaker than the 1.3% rate thus far this year (Chart 6). This indicates that growth will likely fall back below the national rate in the fourth quarter.”

The Federal Reserve Bank of Dallas

“Texas factory activity was essentially flat in September, according to business executives responding to the Texas Manufacturing Outlook Survey. The company outlook index plunged to -10.3 in August but recovered somewhat this month, climbing to -5.2.”
Tenth District manufacturing activity declined moderately in December, reversing gains from the last several months, while producers’ expectations for future activity remained solid. Most price indexes continued to ease further.

The composite year-over-year index fell from -5 to -15, a six-year low, and the production, shipments, new orders, and order backlog indexes also decreased moderately. The employment index dropped from -8 to -14, and the capital expenditures index posted its lowest level since August 2010. Both inventory indexes decreased sharply from the previous month.”

The Federal Reserve Bank of Kansas City

Tenth District Manufacturing Activity Declined Moderately

“The month-over-month composite index was -9 in December, down from 1 in November and -1 in October. The decline came from both durable and nondurable goods factories, particularly for food and beverage, computer and electronic equipment, and machinery production. The weakest activity continues to be in energy-concentrated states. The majority of other month-over-month indexes also decreased. The production index fell from 3 to -8, and the shipments, new orders, and employment indexes dropped modestly. In contrast, the order backlog index improved somewhat from -17 to -2. The raw materials inventory fell from 3 to -16, and the finished goods inventory index also moved further into negative territory.” -- The Federal Reserve Bank of Kansas City
The November 2015 Empire State Manufacturing Survey indicates that business activity declined for a fourth consecutive month for New York manufacturers. The headline general business conditions index was little changed at -10.7. New orders and shipments also declined, although at a slower pace than last month. Price indexes suggested that input prices increased slightly, while selling prices were slightly lower. Labor market conditions continued to deteriorate, with survey indicators pointing to a decline in both employment levels and hours worked.

“Business activity declined for a fourth consecutive month for New York manufacturers, according to the November 2015 survey. Nineteen percent of respondents reported that conditions had improved over the month, while 29 percent reported that conditions had worsened. The new orders index climbed seven points, but at -11.8, it pointed to an ongoing decline in orders. Similarly, the shipments index climbed ten points to -4.1, signaling that shipments also declined. The unfilled orders index fell three points to -18.2.”
Empire State Manufacturing Survey
Optimism Remains Muted

“Indexes for the six-month outlook were little changed from last month, and suggested that optimism about future business conditions remained muted. The index for future business conditions was slightly lower at 20.3, and the indexes for future new orders and future shipments, while positive, also edged lower. Employment was expected to improve, with the index for expected number of employees climbing to 16.4 and the index for expected workweek rising to 5.5. The capital expenditures index was little changed at 12.7, and the technology spending index fell four points to 1.8.” – Federal Reserve Bank Of New York

Source: https://www.newyorkfed.org/medialibrary/media/survey/empire/empire2015/2015_11report.pdf; 11/15
The Federal Reserve Bank of Philadelphia

“Manufacturing conditions in the region weakened this month, according to firms responding to the December Manufacturing Business Outlook Survey. The indicator for general activity, which was slightly positive last month, fell into negative territory. The indexes for new orders and shipments were mixed. Firms reported slight increases in overall employment this month and an increase in average work hours compared with November. Manufactured goods prices, as well as input prices, declined this month. Nearly all of the survey’s future indicators showed notable weakening this month.”

Most Current Indicators Fall

“The diffusion index for current activity returned to negative territory this month, decreasing from 1.9 to -5.9. This is the third negative reading in the past four months. The index for current new orders remained negative and fell 6 points, to -9.5. However, firms reported higher shipments, as the current shipments index increased 6 points to a reading of 3.7. Firms reported a decline in unfilled orders, with the index falling from 2.4 to -17.7. The current inventories index increased 9 points to its first positive reading in four months.”

The Federal Reserve Bank of Philadelphia
Fourth Quarter 2015 Survey of Professional Forecasters

Forecasters Shave Their Growth Estimates for 2016 and 2017

“Growth in real GDP in 2016 and 2017 looks a little slower now than it did three months ago, according to 45 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The forecasters currently see growth in the annual-average level of real GDP at 2.6 percent in 2016 and 2.5 percent in 2017. These current estimates represent downward revisions to the outlook of three months ago, when the forecasters thought 2016 growth would be 2.8 percent and 2017 growth would be 2.6 percent. Notably, the forecasters have raised their growth estimates for 2018. They now see real GDP growing 2.8 percent in 2018, up from the previous estimate of 2.4 percent.”

<table>
<thead>
<tr>
<th>Quarterly data:</th>
<th>Real GDP (%)</th>
<th>Unemployment Rate (%)</th>
<th>Payrolls (000s/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Previous</td>
<td>New</td>
<td>Previous</td>
</tr>
<tr>
<td>2015:Q4</td>
<td>2.8</td>
<td>2.6</td>
<td>5.1</td>
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<td>2016:Q1</td>
<td>2.8</td>
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<tr>
<td>2016:Q2</td>
<td>2.8</td>
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<td>5.0</td>
</tr>
<tr>
<td>2016:Q3</td>
<td>2.7</td>
<td>2.9</td>
<td>4.9</td>
</tr>
<tr>
<td>2016:Q4</td>
<td>N.A.</td>
<td>2.4</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

Philadelphia Fed: GDPplus

Note: GDPplus is a measure of the quarter-over-quarter rate of growth of real GDP in annualized percentage points. Shaded bars are NBER recessions. The line plotted was constructed using the latest data available as of November 24, 2015.

Source: https://philadelphiafed.org/research-and-data/real-time-center/gdpplus; 11/24/15
The Federal Reserve Bank of Richmond

Business Conditions:

“The composite diffusion index from our manufacturing survey remained slightly negative in November at -3. The component indexes for shipments and new orders were also negative while the index for the number of employees was 0 for the month. According to the service sector survey, the index for revenues fell from 18 in October to -1 in November, with large declines in both the retail and non-retail revenues indexes. The index for employment in the overall service sector remained above zero in October due to a positive reading for non-retail firms; the index for retail firms turned slightly negative. Our survey measure of prices indicated some deceleration in retail price growth and a slight acceleration in non-retail service sector price growth. Manufacturers reported input price growth as virtually unchanged but indicated that finished goods price growth accelerated slightly.”

U.S. Economic Indicators

**Industrial Production Index**

“The Industrial Production Index (INDPRO) is an economic indicator that measures real output for all facilities located in the United States manufacturing, mining, and electric, and gas utilities (excluding those in U.S. territories).”

Month-over-month and year-over-year capacity utilization decreased -0.56% and -1.17%, respectively.

Source: https://research.stlouisfed.org/fred2/series/MCUMFN#; 12/16/15
Capacity Utilization

The manufacturing capacity utilization rate is a rate that measures the utilization of a country’s available manufacturing productive volume. It is a measure of potential output and actual output that can indicate slack in manufacturing and it provides a metric for potential output.

Month-over-month and year-over-year capacity utilization decreased 0.26% and increased 3.92%, respectively.

Source: https://research.stlouisfed.org/fred2/series/MCUMFN#; 11/13/15
Industrial Production: Durable manufacturing → Wood products

Month-over-month and year-over-year durable manufacturing of wood products increased 0.03% and 1.41%, respectively.

Source: Board of Governors of the Federal Reserve System (US)
research.stlouisfed.org
BuildFax Residential New Construction Index

“Residential new construction authorized by building permits in the United States in October were at a SAAR of 1,074,944. This is 19% below the revised September rate of 1,324,156 and is 4% below the revised October 2014 estimate of 1,123,352. BuildFax reports on total new residential projects, this is unlike the U.S. Census that reports total number of housing units.”

Regional Residential New Construction

“SAARs of residential new construction across the country in October 2015 are estimated as follows: Northeast, 67,161 (up 24% from September and up 48% from October 2014); South, 542,185 (down 29% from September and down 18% from October 2014); Midwest, 203,432 (10% down from September and 2% down from October 2014); West, 266,123 (down 2% from September and up 21% from October 2014).”
Private Indicators

BuildFax Residential Remodeling Index
“Residential remodels authorized by building permits in the United States in October were at a SAAR of 3,665,497. This is 3% below the revised September rate of 3,795,680 and is 5% above the revised October 2014 estimate of 3,499,295.”

Regional Residential Remodeling
“SAARs of residential remodeling across the country in October 2015 are estimated as follows: Northeast, 1,869,700 (down 4% from September and up 10% from October 2014); South, 1,529,270 (down 6% from September and up 5% from October 2014); Midwest, 411,375 (down 8% from September and down 18% from October 2014); West, 997,689 (up 3% from September and up 22% from October 2014).”

Private Indicators

National Indices for New Home Construction and Existing Home Remodeling (Seasonally adjusted)

|                      | 2009 vs. 2005 | Last 12 months vs. 2005 | Percent recovered | Year-on-year change
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Construction of New Homes</td>
<td>-68.5%</td>
<td>-57.0%</td>
<td>16.8%</td>
<td>18.7%</td>
</tr>
<tr>
<td>Remodeling of Existing Homes</td>
<td>-18.6%</td>
<td>2.8%</td>
<td>114.8%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

1 Column(3) is calculated as the greater of 0 or 1 - (Column (2) / Column (1)), and only in areas in which activity fell from 2005 to 2009.
2 Year-on-year change is calculated on a quarterly basis, i.e. the last 3 months vs. the same period last year.
3 Through the report, the term remodeling is used broadly to include home improvement, maintenance and repair.

Source: BuildZoom.

The BuildZoom and Urban Economics Lab Index: Second Quarter 2015

“Remodeling of existing homes has fully recovered since the housing bust, and is 2.8% above its 2005 level. In contrast, new home construction is recovering gradually and remains 57.0% below its 2005 level. However, year-over-year, residential new construction increased by 18.7%, while residential remodeling remained at the same level as a year ago.”

Source: www.buildzoom.com/blog/index2015q2; 10/17/15
Remodeling Spending Expected to Accelerate into 2016

“After several quarters of slackening growth, home improvement spending is projected to pick-up pace moving into next year, according to the Leading Indicator of Remodeling Activity released by the Remodeling Futures Program at the Joint Center for Housing Studies of Harvard University. The LIRA projects annual spending growth for home improvements will accelerate from 2.4% last quarter to 6.8% in the second quarter of 2016.

Home improvement spending continues to benefit from the last years’ upswing in housing market conditions, including new construction, price gains, and sales. Strengthening housing market conditions are encouraging owners to invest in more discretionary home improvements, such as kitchen and bath remodeling and room additions, in addition to the necessary replacements of worn components such as roofing and siding.

Although we expect remodeling activity to strengthen through the first half of 2016, further gains could be tempered. Current slowdowns in shipments of building materials and remodeling contractor employment trends, as well as restrictive consumer lending environments, are lowering remodeler sentiment and could keep spending gains in the mid-single digit range moving forward.” -- Abbe Will, Research Analyst, Joint Center for Housing Studies, Harvard University

Source: http://housingperspectives.blogspot.com/2015/10/remodeling-spending-expected-to.html; 10/15/15
Private Indicators

Leading Indicator of Remodeling Activity – Third Quarter 2015

Homeowner Improvements
Four-Quarter Moving Totals
Billions of $

Four-Quarter Moving Rate of Change

Notes: (e) – estimated; (p) – projected. Historical data from the second quarter 2014 onward is estimated using the LIRA.
Source: Joint Center for Housing Studies of Harvard University.

Source: http://housingperspectives.blogspot.com/2015/10/remodeling-spending-expected-to.html; 10/15/15
NAHB’s Remodeling Market Index (RMI) was 57 in the third quarter — two points down from the previous quarter, but the tenth straight quarter it has been above the key break-even point of 50. The RMI and all its components lie on a scale of 0 to 100, where an index number above 50 means more remodelers report that activity has improved (compared to the prior quarter) than report activity has deteriorated.

The overall RMI averages ratings of current remodeling activity with indicators of future remodeling activity. The current market conditions index declined three points to 56 this quarter. Among its components, major additions and alterations, the slowest-recovering component, fell to 52 from 57 in the previous quarter. The smaller remodeling projects and home maintenance and repair components of the RMI decreased four and two points to 57 and 58, respectively.

At 58, the RMI’s future market conditions index was unchanged from the previous quarter. Among its four components, backlog of jobs rose to 60 from 58 while calls for bids and appointments for proposals — at 57 and 58, respectively — each dropped three points from the previous quarter’s readings. The amount of work committed for the next three months held steady from the previous quarter at 55.”

-- Paul Emrath, Economist, National Association of Home Builders
Private Indicators

Remodeling Market Index (RMI)

Overall RMI

Source: http://eyeonhousing.org/2015/10/remodeling-market-index-over-50-for-ten-straight-quarters/; 10/22/15
Private Indicators

2Q's Remodeling Volume Surpassed Old Peak, Latest RRI Finds

“Remodeling and replacement activity nationwide grew 5.5% in the second quarter from the year-earlier period to produce its best showing since at least before the housing boom, according to Metrostudy reported with the release of its latest Residential Remodeling Index (RRI).

The index of economic indicators hit 100.8 for the April-to-June period, topping the high-water mark of 100 set in the first quarter of 2007. Metrostudy … previously had thought the RRI wouldn't reach 100 until this fall.

Growth through the first two quarters of 2015 is much stronger than what was observed in 2014, when the overall housing market had cooled,” Brad Hunter, Metrostudy's chief economist. “A big driver of recent remodeling activity has been solid job gains, but the industry stands to benefit even more over the next year from existing home sales hitting an eight-and-a-half year high at the end of second quarter. Stronger resales benefits remodeling activity, as recent homebuyers typically spend more on home improvements than other homeowners. Continued home price appreciation is also encouraging people to put money into their homes.

Metrostudy now forecasts year-over-year RRI growth of 5.9% in the third quarter, 5.5% in the fourth quarter, 4.8% in the first quarter of 2016 and 4% in the second quarter of next year. It also believes that the number of pro-worthy projects for all 2015 will total 11.1 million, a 6% gain from 2014.”

-- Craig Webb, Editor-in-Chief, Remodeling
Private Indicators

Residential Remodeling Index and Forecast as of July 2015

Source: Metrorday, July 2015 RRI Report

November Architecture Billings Index

Architecture Billings Index Hits another Bump

“As has been the case a few times already this year, the Architecture Billings Index (ABI) dipped in November. As a leading economic indicator of construction activity, the ABI reflects the approximate nine to twelve month lead time between architecture billings and construction spending. The American Institute of Architects (AIA) reported the November ABI score was 49.3, down from the mark of 53.1 in the previous month. This score reflects a decrease in design services (any score above 50 indicates an increase in billings). The new projects inquiry index was 58.6, up just a nudge from a reading of 58.5 the previous month.” -- Caroline Massie, Assistant Editor, AIA

“Business conditions at firms located in the Northeast remained soft in November, as they have for nearly the entire year. Billings also slipped modestly at firms located in the South, although they remained positive at firms located in the Sunbelt regions of the South and West. In addition, firms of all specializations reported billings growth in November, as firms with a residential specialization continue to recover from a seven-month period of softness earlier in the year (figures for sectors and regions are computed as three-month moving averages).” – Jennifer Riskus, Manager of Economic Research, AIA

“Since architecture firms continue to report that they are bringing in new projects, this volatility in billings doesn’t seem to reflect any underlying weakness in the construction sector. Rather, it could reflect the uncertainty of moving ahead with projects given the continued tightness in construction financing and the growing labor shortage problem gripping the entire design and construction industries.” -- Kermit Baker, Chief Economist, AIA
Private Indicators

**NATIONAL**
Architecture Firm Billings Continue to Show Strength in October
Graphs represent data from October 2014 – October 2015.

**REGIONAL**
Business Conditions Remain Depressed in Northeast, Soften in Midwest
Graphs represent data from November 2014 – November 2015 across the four regions.
50 represents the diffusion center. A score of 50 equals no change from the previous month. Above 50 shows increase, Below 50 shows decrease. 3-month moving average.

**SECTOR**
Firms of All Specializations Seeing Healthy Trends
Graph represents data from November 2014 – November 2015 across the three sectors.
50 represents the diffusion center. A score of 50 equals no change from the previous month. Above 50 shows increase, Below 50 shows decrease. 3-month moving average.

Source: http://www.aia.org/practicing/AIAB107763; 12/16/15
New Construction Starts in October Climb 13 Percent

“New construction starts in October advanced 13% to a seasonally adjusted annual rate of $591.1 billion, according to Dodge Data & Analytics. The increase follows the lackluster performance for construction starts during August and September, when activity fell to the lowest levels reported so far in 2015. Much of October’s gain for total construction was due to a sharp rebound by nonresidential building, with additional support coming from a moderate upturn for housing as the result of further strengthening by multifamily housing.

Nonresidential building in October jumped 32% to $200.7 billion (annual rate) after a weak September, returning activity to the level that was reported back in June following three months of decline. The commercial building categories as a group soared 49% in October, reflecting across-the-board gains.

For residential building, multifamily housing is still a target for investors while Millennials are lifting the demand for apartments. Residential building, at $260.3 billion (annual rate), grew 9% in October. Multifamily housing bounced back 42% after an unexpectedly subdued September, coming within 6% of its average pace during the first nine months of this year.” -- Robert Murray, Chief Economist, McGraw Hill Construction
Lumber and Wood Products

- Combined U.S. and Canadian carloads of lumber and wood products totaled 24,634 in November 2015, up 800 carloads (3.4%) over November 2014. It’s just the second increase in the past seven months.
- There’s a clear seasonality to lumber and wood carloads, with a peak during prime construction season.
- Year-to-date carloads were 311,264 in 2015 through November, up 2.5% (7,700 carloads) over the same period in 2014.

*Rail Time Indicators*, Copyright © 2015 by the Association of American Railroads
Lumber & Wood Shipments via Railroad vs. U.S. SF Housing Permits: 2015

Sources: Association of American Railroads, Rail Time Indicators report; 12/7/15 & U.S. DOC-Construction; 11/17/15
Lumber & Wood Shipments via Railroad vs. U.S. SF Housing Permits

LHS: Lumber shipments in thousands
RHS: SF Permits

Sources: Association of American Railroads, Rail Time Indicators report; 12/7/15 & U.S. DOC-Construction; 11/17/15
In this graph, January 2007 lumber shipments are contrasted with July 2007 permits. The purpose is to discover if lumber shipments correlate with future single-family building permits. Also, it is realized that trucking hauls lumber; however, to our knowledge comprehensive trucking data is not available.

Sources: Association of American Railroads, Rail Time Indicators report; 12/7/15 & U.S. DOC-Construction; 11/17/15
Lumber & Wood Shipments via Railroad vs. U.S. SF Housing Starts: 2015

LHS: Lumber shipments in thousands
RHS: SF Starts

Sources: Association of American Railroads, Rail Time Indicators report; 12/7/15 & U.S. DOC-Construction; 11/17/15
Lumber & Wood Shipments via Railroad vs. U.S. SF Housing Starts

Sources: Association of American Railroads, Rail Time Indicators report; 12/7/15 & U.S. DOC-Construction; 11/17/15
Lumber & Wood Shipments via Railroad vs. U.S. SF Housing Starts: Offset 6-months

LHS: Lumber shipments in thousands
RHS: SF Starts

Sources: Association of American Railroads, Rail Time Indicators report; 12/7/15 & U.S. DOC-Construction; 11/17/15
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