Affordable Housing Forum
Dr. Robert Dietz

Chief Economist
National Association of Home Builders
GDP Growth

Stronger growth expected post-tax reform

Source: U.S. Bureau of Economic Analysis (BEA) and NAHB forecast.

Annual Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT avg ('58-'07)</td>
<td>3.4%</td>
</tr>
<tr>
<td>2016</td>
<td>1.5%</td>
</tr>
<tr>
<td>2017</td>
<td>2.3%</td>
</tr>
<tr>
<td>2018'f</td>
<td>2.9%</td>
</tr>
<tr>
<td>2019'f</td>
<td>2.7%</td>
</tr>
<tr>
<td>2020'f</td>
<td>1.8%</td>
</tr>
</tbody>
</table>
Expansion is Aging

Current expansion is 108 months old – second longest

Trough to Peak, Months

Labor Force Participation Rate

Improving labor force participation key to future growth


Tight Labor Market

How low can unemployment go?

Source: U.S. Bureau of Labor Statistics (BLS) and NAHB forecast.
Cumulative Change in Employment by Age Group

Mind the Gen-X gap

Rising Producer Prices

Target Federal Funds Rate
Fed will continue to raise rates

Source: Federal Reserve data and NAHB forecast.
Rates will rise due to Fed policy and tight labor markets

Source: Federal Reserve and Freddie Mac data and NAHB forecast.
Housing Demand and Affordability
Rising Population Entering Housing Demand Years: 2017

- **Gen Z:** Born After 1997
- **Millennials:** Born 1981-1997
- **Gen X:** Born 1965-1980
- **Baby Boomers:** Born 1946-1964
- **Silent Generation:** Born 1928-1945
- **Greatest Generation:** Born Before 1928

Average (Avg) = 4.3

Headship rates increase from 15% to 45%
A shift in debt away from mortgages

Source: U.S. Board of Governors of the Federal Reserve System (FRB).
Rise in student and auto loans

Source: Federal Reserve Bank of New York.
Existing Home Sales

Low inventory

Source: National Association of Realtors (NAR).
S&P/Case-Shiller National US Home Price Index

Prices growing faster than income

Source: S&P Dow Jones Indices LLC; CoreLogic, Inc. and NAHB forecast.
Housing Affordability – NAHB/Wells Fargo HOI

Affordability declining

Source: NAHB/Wells Fargo Housing Opportunity Index.
Simulating Future Affordability Conditions

HOI declines due to higher rates and costs/prices despite rising incomes

Source: NAHB/Wells Fargo Housing Opportunity Index.
Supply-Side Headwinds
Since January 2017, Random Lengths Framing Composite Price Index up 63%

**Labor**

*Elevated count of unfilled construction jobs*

![Graph showing the job openings rate for construction over time, with a 12-month moving average. The graph highlights periods of higher unemployment. Source: U.S. Bureau of Labor Statistics (BLS).]

Aging Labor Force for Construction

Median Age of Construction Workers By State
2015

Number under state name = median age of construction labor - median age of total labor force
Source: 2015 1-year American Community Survey
Construction Sector Productivity

Lagging overall economy

Index, 1993 = 1

Construction Worker Productivity
Overall Worker Productivity
Lots

Housing Starts (Area) and Low/Very Low Lot Supply (bars)
Lending – AD&C Access

Year-over-Year Growth Rates

1-4 unit Residential Construction Loans

Millions

$200,000
$180,000
$160,000
$140,000
$120,000
$100,000
$80,000
$60,000
$40,000
$20,000
$-

07 08 09 10 11 12 13 14 15 16 17 18
Regulatory Costs Rising – Up 29% Over Last 5 Years

Total effect of building codes, land use, environmental and other rules

Regulatory Costs as a Share of Home Price

<table>
<thead>
<tr>
<th></th>
<th>During Construction</th>
<th>During Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Quartile</td>
<td>14.0%*</td>
<td>4.0%</td>
</tr>
<tr>
<td></td>
<td>7.9%</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>24.3%</td>
<td>14.6%</td>
</tr>
<tr>
<td></td>
<td>9.7%</td>
<td></td>
</tr>
<tr>
<td>Upper Quartile</td>
<td>30.3%*</td>
<td>12.7%</td>
</tr>
<tr>
<td></td>
<td>18.8%</td>
<td></td>
</tr>
</tbody>
</table>

* For quartiles, construction and development costs do not sum to the total.
Source: NAHB/Wells Fargo HMI survey, assumptions described in the Appendix.
Regulations - 32% of Multifamily Development Costs

New NAHB-NMHC research

Note: * For quartiles, all types of costs do not sum to the total.
Source: NAHB/Wells Fargo HMI survey.

Government Regulations as a Share of Multifamily Development Costs

<table>
<thead>
<tr>
<th>Cost increase</th>
<th>Lower Quartile</th>
<th>Average</th>
<th>Upper Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes to building codes over the past 10 years</td>
<td>21.7%*</td>
<td>7.0%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Development requirements that go beyond the ordinary</td>
<td>5.2%</td>
<td>5.9%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Fees charged when building construction is authorized</td>
<td>5.3%</td>
<td>4.2%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Cost of applying for zoning approval</td>
<td>2.3%</td>
<td>4.8%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Other (non-refundable) fees charged when site work begins</td>
<td>7.3%</td>
<td>3.9%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Cost of complying with OSHA requirements</td>
<td>2.3%</td>
<td>4.0%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Others</td>
<td>2.3%</td>
<td>4.2%</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Costs as a percentage of total development costs:
- Lower Quartile: 21.7%*
- Average: 32.1%
- Upper Quartile: 42.6%*
Forecasts
Household Formation
Demand for home ownership strengthening

Source: U.S. Census Bureau (BOC): Housing Vacancies & Homeownership.
Homeownership Rate

Source: U.S. Census Bureau (BOC): Housing Vacancies & Homeownership.
Nearly two-decade high for builder confidence

Source: Census Bureau and NAHB/Wells Fargo HMI survey.
Single-Family Starts
Modest growth ahead

Thousands of units, SAAR

2000-2003: 1,343,000 “Normal”
2015: 713,000
2016: 785,000 10%
2017: 852,000 9%
2018: 910,000 7%
2019: 959,000 5%
2020: 1,003,000 5%

80% fall

Trough to Current:
Mar 09 = 353,000
Apr 18 = 894,000
+153%

2018Q1: 66% of “Normal”
2020Q4: 76% of “Normal”

Source: Census Bureau and NAHB forecast.
National average single family starts bottomed out at 27% in early 2009 and reached 66% of normal in 2018Q1.
Home Prices of New and Existing Homes

Wide gap since 2012

- New Homes
- Existing Homes

Median Sales Price

Difference

1990-2008 Avg: $20,000

1980s to 2010s price comparison chart showing the gap between new and existing homes since 2012.
Typical New Home Size

Decline after market shift

Square Feet

SF Starts: Median Floor Area
SF Starts: Median 1 Year MA

National Association of Home Builders
Multifamily Housing Starts
Leveling off

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-2003</td>
<td>331,000</td>
<td>“Normal”</td>
</tr>
<tr>
<td>2015</td>
<td>394,000</td>
<td>0%</td>
</tr>
<tr>
<td>2016</td>
<td>393,000</td>
<td>0%</td>
</tr>
<tr>
<td>2017</td>
<td>356,000</td>
<td>-9%</td>
</tr>
<tr>
<td>2018</td>
<td>377,000</td>
<td>6%</td>
</tr>
<tr>
<td>2019</td>
<td>354,000</td>
<td>-6%</td>
</tr>
<tr>
<td>2020</td>
<td>351,000</td>
<td>-1%</td>
</tr>
</tbody>
</table>

Source: Census Bureau and NAHB forecast

Trough to Current:
- 4th Q 09 = 82,000
- 1st Q 18 = 427,000
- 76% fall

2018Q1: 129% of “Normal”
2020Q4: 105% of “Normal”

Avg = 344,000

Thousands of units, SAAR

National Association of Home Builders
Multifamily Housing Starts – Trough and Current

National average multifamily starts bottomed out at 25% in late 2009 and were 129% of normal in 2018Q1.

Source: Census Bureau.
Residential Remodeling

Strong market conditions

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>11%</td>
</tr>
<tr>
<td>2017</td>
<td>17%</td>
</tr>
<tr>
<td>2018'</td>
<td>7%</td>
</tr>
<tr>
<td>2019'</td>
<td>8%</td>
</tr>
<tr>
<td>2020'</td>
<td>6%</td>
</tr>
</tbody>
</table>

Source: Census Bureau and NAHB forecast.
The Age of the Housing Stock

Typical home is almost 40 years old

- 100% of homes are 5 years old or less
- 32% are 45 years old or more

Comparison between 2005 and 2015:

- 38% of homes were 45 years old or more in 2005, compared to 3% in 2015.
Thank you

Questions?
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Affordable Housing Forum