Economy Slowing, the Fed Slows, Housing Plateaus

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Chief Economist
Fannie Mae

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Macroeconomic Overview
Current Expansion is Long but Comparatively Weak

1 = Level at Recession Trough

Cumulative Change in Real GDP By Business Cycle

Source: Bureau of Economic Analysis, Fannie Mae Economic & Strategic Research February 2019 Forecast
Unemployment Rate Near 50-Year Low But Slower Job Growth This Cycle

Source: Bureau of Labor Statistics
Not All Regions of the Country Have Recovered at the Same Pace

Share of Metro Areas That HaveRecovered to Previous Pre-Recession Peak Employment

Source: Bureau of Labor Statistics
Geographic Distribution of Job Growth

Source: Bureau of Labor Statistics
Region Has Generally Lagged Nation In Employment Growth

Source: Bureau of Labor Statistics

Year-Over-Year Payroll Employment Growth

Payroll Employment Change From Pre-Recession Peak

Source: Bureau of Labor Statistics

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Wage Growth Has Picked Up But Inflation Still Lags

Y/Y % Change in Hourly Wages and PCE Inflation

Source: Bureau of Labor Statistics, Bureau of Economic Analysis
Auto Sales Have Likely Peaked

Source: Bureau of Economic Analysis
Consumer Attitudes on Purchasing Big Ticket Items Remains Positive

Net Share of Respondents Saying It is a Good Time to Buy Large Household Goods
Non-Financial Corporate Sector Highly Leveraged by Historical Standards

Nonfinancial Corporate Debt as a Percent of GDP

US: Nonfinancial Corporations Debt Outstanding as a % of SAAR GDP (%) (Left)

Source: Federal Reserve, Bureau of Economic Analysis
Stock Market Volatility Reemerges as a Risk to Continued Expansion

S&P 500 Index January 2017 - Present

- Feb-18: Increased inflation expectations and higher rates leads to worst stock decline in 2 years
- Nov-18: Oil Prices Decline on Global Growth Worries
- Dec-18: Government Shutdown Begins
- Oct-18: Chinese Stocks Decline
- Jul-18: US Introduces First Phase of Tariffs on Chinese Goods
- Apr-18: 10-Year Breaches 3% for first time since 2014
- Dec-17: Tax Bill Passes
- Dec-18: Jobs Report Shows 250K jobs added and 3.1% annual wage growth

Source: Bloomberg
Government Spending Contribution to Growth Slowing

Y/Y Percent Change in Government Spending By Year

Notes: Includes both direct spending and transfer payments, state and local spending for '17 and '18 are estimates.

Source: Congressional Budget Office, Census Bureau, Governmentspending.com
Interest Rates and Fed Policy
Interest Rates Projected to Remain Steady

Fed Funds, Treasury, and Fixed Rate Mortgage Rates

Source: Fed Reserve, FHLMC, ESR February Macro and Housing Forecast
Aggregate Major Global Central Bank Balance Sheets Shrinking

Change in G4 Central Bank Balance Sheets and Bond Yields

*B4 includes Federal Reserve, European Central Bank, Bank of Japan, and Bank of England

Source: Bloomberg
Ten-Year Treasury Yield Higher Than Most Industrial Nations’ Equivalent

Ten-Year Bond Yields of Major Industrialized Nations (Quarterly Average, %)

Ten-Year Bond Yields as of 2-21-18

<table>
<thead>
<tr>
<th>Country</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2.05%</td>
</tr>
<tr>
<td>Canada</td>
<td>1.91%</td>
</tr>
<tr>
<td>France</td>
<td>0.54%</td>
</tr>
<tr>
<td>Germany</td>
<td>0.12%</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.05%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>-0.34%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.23%</td>
</tr>
<tr>
<td>United States</td>
<td>2.69%</td>
</tr>
</tbody>
</table>

Source: Official Sources via Haver Analytics, Bloomberg
Headline Inflation Decelerates As Core Inflation Remains Steady

Y/Y % Change in Headline and Core CPI

Source: Bureau of Labor Statistics
Acceleration in US Debt Issuance Will Coincide With Negative Net Fed Treasuries Purchases

Annual Net US Government Debt Issuance and Net Fed Treasury Purchases ($Billions)

Source: Congressional Budget Office, Federal Reserve
### 2018 Economic Outlook – Slight Uptick In Economic Growth

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP Annual Growth (Q4-over-Q4)</td>
<td>2.5%</td>
<td>3.1%</td>
<td>2.2%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Unemployment Rate (Year-end)</td>
<td>4.4%</td>
<td>3.9%</td>
<td>3.7%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Core CPI (Year-end, % Year-over-Year)</td>
<td>1.7%</td>
<td>2.2%</td>
<td>2.1%</td>
<td>2.0%</td>
</tr>
<tr>
<td>10-Year Treasury Bond Yield (Annual Average)</td>
<td>2.3%</td>
<td>2.9%</td>
<td>2.7%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Source: Fannie Mae Economic & Strategic Research February 2019 Forecast
Homeownership Rate Continuing to Recover

Source: Census Bureau
Younger Age Cohorts Are Driving Gains in Homeownership Rate

Change in Homeownership Rate: 2017Q3-2018Q3 (percentage points)

Source: Census Bureau
**Months’ Supply of New Homes for Sale Diverging from Existing Homes Measure**

Months’ Supply Measures of New and Existing Home for Sale

![Graph showing the months' supply of new and existing homes for sale from 2000 to 2018](source)

- **Existing Homes** (blue line)
- **New Homes** (red line)

Source: National Association of REALTORS®, Census Bureau
Inventory of Existing Homes for Sale Remains Near Historic Low; New Homes For Sale Rising

New and Existing Homes For Sale as a Percent of Households (NSA)

Source: Census Bureau, National Association of REALTORS®
Slowing Housing Activity Was More Pronounced in Metro Areas With More Expensive Housing Relative to Incomes

Median Metro Area Level Change in Sales and Listings by Ratio of Sales Price to Family Income

- Median Change in Total Annual Sales from 2017 to 2018
- Median Change in Average Monthly Listings from 2017 to 2018

Source: Census Bureau, RedBell, Moody's
Weaker Supply Response to Rising Home Prices in Recent Years

Source: FHFA House Price Index, United States (NSA, Q1-80=100)
New Home Sales Still Below Historical Share

Ratio of New Home Sales to Total Home Sales

Excluding Condo/Co-Ops
Including Condo/Co-Ops

Source: Census Bureau, National Association of REALTORS®
Differences in Measures of Homeowner Mobility

Share of Individuals in Owner-Occupied Housing Who Moved Over Previous Year

Source: Census Bureau
House Prices Relative To Incomes Higher Than Historical Norm, Especially for One-Earner Households

Median Single-Family House Price to Median HH Income by Number of Earners

- All
- One Earner
- Two Earners

Source: Census Bureau, National Association of REALTORS®
Younger Home Buyers Remain Comparatively Cautious
Home Prices Relative to Incomes More Modest in the Region

Median Existing SF Home Sales Price to Median Family Income

Chicago Metropolitan Statistical Area
Milwaukee Metropolitan Statistical Area
United States

Median Existing Home Sales Price
Median Family Income

United States 3.5
Milwaukee, WI 3.1
Chicago, IL-IN-WI 3.0
Madison, WI 3.0
Minneapolis-St. Paul, MN-WI 2.7
Racine, WI 2.4
Mankato-North Mankato, MN 2.3
St. Cloud, MN 2.3
Green Bay, WI 2.3
La Crosse-Onalaska, WI-MN 2.2
Janesville-Beloit, WI 2.1
Appleton, WI 2.1
Sheboygan, WI 2.0
Rochester, MN 2.0
Kankakee, IL 2.0
Duluth, MN-WI 2.0
Eau Claire, WI 2.0
Fond du Lac, WI 1.9
Rockford, IL 1.8
Champaign-Urbana, IL 1.8
Oshkosh-Neenah, WI 1.8
Bloomington, IL 1.8
Carbondale-Marion, IL 1.7

Source: Census Bureau, National Association of REALTORS®
## Housing and Mortgage Market Outlook

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Housing Starts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>1.203 million</td>
<td>1.260 million</td>
<td>1.262 million</td>
<td>1.288 million</td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>2.7%</td>
<td>4.7%</td>
<td>0.2%</td>
<td>2.1%</td>
</tr>
<tr>
<td><strong>New Single-Family Home Sales</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>613 thousand</td>
<td>629 thousand</td>
<td>639 thousand</td>
<td>661 thousand</td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>9.3%</td>
<td>2.5%</td>
<td>1.6%</td>
<td>3.5%</td>
</tr>
<tr>
<td><strong>Total Existing Home Sales</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>5.510 million</td>
<td>5.340 million</td>
<td>5.344 million</td>
<td>5.455 million</td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>1.1%</td>
<td>-3.1%</td>
<td>0.1%</td>
<td>2.1%</td>
</tr>
<tr>
<td><strong>FHFA Purchase-Only Index (Annual Percent Change Q4/Q4)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>6.9%</td>
<td>5.5%</td>
<td>4.2%</td>
<td>2.8%</td>
</tr>
<tr>
<td><strong>Purchase Mortgage Originations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>$1,177 billion</td>
<td>$1,147 billion</td>
<td>$1,181 billion</td>
<td>$1,246 billion</td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>11.9%</td>
<td>-2.5%</td>
<td>3.0%</td>
<td>5.5%</td>
</tr>
<tr>
<td><strong>Refinance Mortgage Originations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>$650 billion</td>
<td>$461 billion</td>
<td>$431 billion</td>
<td>$411 billion</td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>-35.0%</td>
<td>-29.1%</td>
<td>-6.5%</td>
<td>-4.6%</td>
</tr>
<tr>
<td><strong>30-Year Fixed-Rate Mortgage (Annual Average)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>4.0%</td>
<td>4.5%</td>
<td>4.4%</td>
<td>4.4%</td>
</tr>
<tr>
<td><strong>10-Year Treasury (Annual Average)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(Percent Change Year-Over-Year)</em></td>
<td>2.3%</td>
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<td>2.7%</td>
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Source: Fannie Mae Economic & Strategic Research February 2019 Forecast
Speaker Biography

Douglas G. Duncan is Fannie Mae's senior vice president and chief economist. He is responsible for providing all forecasts and analyses on the economy, housing, and mortgage markets for Fannie Mae. Duncan also oversees corporate strategy and is responsible for strategic research regarding external factors and their potential impact on the company and the housing industry. He serves as a voting member of the Fannie Mae Finance Committee.

Under his leadership, Fannie Mae’s Economic and Strategic Research Group won the NABE Outlook Award, presented annually for the most accurate GDP and Treasury note yield forecasts, in both 2015 and 2016 – the first recipient in the award's history to capture the honor two years in a row. In addition, the Group was awarded Pulsenomics best home price forecast.

Named one of Bloomberg / BusinessWeek's 50 Most Powerful People in Real Estate, Duncan is Fannie Mae's source for information and analyses on the external business and economic environment, the implications of changes in economic environment to the company's strategy and execution, and forecasting for housing activity, demographics, overall economic activity, and mortgage market activity.

Prior to joining Fannie Mae, Duncan was Senior Vice President and Chief Economist at the Mortgage Bankers Association. His experience also includes service as a LEGIS Fellow and staff member with the Committee on Banking, Finance, and Urban Affairs for Congressman Bill McCollum in the U.S. House of Representatives, and work on the Financial Institutions Project at the U.S. Department of Agriculture.

Duncan received his Ph. D. in Agricultural Economics from Texas A&M University and his B.S. and M.S. in Agricultural Economics from North Dakota State University.
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