Economic Outlook

2-months, 2-quarters, and 2-years perspective

Housing will lead an economic recovery: 15% of GDP

9 weeks of gains for mortgage purchase applications

New single-family home sales strong
Up 2% YTD in 2020 through May

Risk of a second wave of virus
Summer slump

Sharp mid-year decline, V-shape recovery for housing
We Need to Talk about Density...

Strong correlation between population density and virus-related deaths

\[ R^2 = 0.6791 \]

Trend excludes New York
GDP Growth – Sharp Recession

Rebound builds momentum during 2H20 but risks remain

Source: U.S. Bureau of Economic Analysis (BEA) and NAHB forecast.
Good/Bad News: 10% to 11% U-Rate Expected at 2020 End

Duration matters: research indicates spells of 6-months or longer affects consumption
Fed Funds Rate – Fed All In on Supporting Economy

Lender and buyer of last resort

Source: U.S. Board of Governors of the Federal Reserve System (FRB).

10-Year Treasury

Federal Funds – Top Rate

Source: U.S. Board of Governors of the Federal Reserve System (FRB).
Low interest rates thanks to aggressive Federal Reserve action

Source: Federal Reserve and Freddie Mac data and NAHB forecast.
Supply-Side Issues
Construction Sector Productivity

Home building/remodeling lost 450,000 jobs in April, gained half back in May


Building Material Prices Declined in May 2020

Year-to-Date Change (January – May)

Source: NAHB Analysis; U.S. Bureau of Labor Statistics (BLS)
Construction Outlook
Household Formation

Strong demand for home ownership going into 2020

Y/Y Change in Household Count, Thousands, NSA

Source: U.S. Census Bureau (BOC): Housing Vacancies & Homeownership
Confidence surged to 58 in June

Source: Census Bureau and NAHB/Wells Fargo HMI survey
Single-Family Starts

Upward revisions for the 2020 outlook but still a down year

<table>
<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>852,000</td>
<td>8%</td>
</tr>
<tr>
<td>2018</td>
<td>873,000</td>
<td>2%</td>
</tr>
<tr>
<td>2019</td>
<td>893,000</td>
<td>2%</td>
</tr>
<tr>
<td>2020</td>
<td>760,000</td>
<td>-15%</td>
</tr>
<tr>
<td>2021</td>
<td>893,000</td>
<td>17%</td>
</tr>
<tr>
<td>2022</td>
<td>1,005,000</td>
<td>13%</td>
</tr>
</tbody>
</table>

Trough to Current:
Mar 09 = 353,000
Apr 20 = 650,000
+84%

80% fall

Source: U.S. Census Bureau (BOC) and NAHB forecast

Flat conditions for Dayton 2020 May YTD
47% Single-Family Construction in Low Density Markets

These areas have outpaced higher density markets over the last four quarters
Single-Family Built-for-Rent Construction

A window of opportunity

Thousands, NSA

<table>
<thead>
<tr>
<th>Year</th>
<th>Share of Single-Family Built for Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>3.78%</td>
</tr>
<tr>
<td>2016</td>
<td>4.35%</td>
</tr>
<tr>
<td>2017</td>
<td>4.36%</td>
</tr>
<tr>
<td>2018</td>
<td>4.91%</td>
</tr>
<tr>
<td>2019</td>
<td>4.22%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC)
Typical New Home Size

End of declines ahead?

Source: U.S. Census Bureau (BOC)
Residential Remodeling

Remodeling will weather the crisis well due to ongoing needs for home improvement

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-2019 Avg</td>
<td>5%</td>
</tr>
<tr>
<td>2020&lt;sup&gt;f&lt;/sup&gt;</td>
<td>0%</td>
</tr>
<tr>
<td>2021&lt;sup&gt;f&lt;/sup&gt;</td>
<td>5%</td>
</tr>
<tr>
<td>2022&lt;sup&gt;f&lt;/sup&gt;</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC) and NAHB forecast

Note: In the analysis, 1-year moving average is used for adjusted data to smooth the trend
Share of Home Buyers Who Want a Home Office

Source: NAHB’s consumer preference study “What Home Buyers Really Want”.
Share of Home Buyers Who Want an Exercise Room

Source: NAHB’s consumer preference study “What Home Buyers Really Want”.

- 2003: 27%
- 2007: 33%
- 2012: 35%
- 2015: 34%
- 2018: 40%
Multifamily Housing Starts

Sharp decline and a return to trend

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<thead>
<tr>
<th>Year</th>
<th>Units</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>356,000</td>
<td>-9%</td>
</tr>
<tr>
<td>2018</td>
<td>376,000</td>
<td>6%</td>
</tr>
<tr>
<td>2019</td>
<td>403,000</td>
<td>7%</td>
</tr>
<tr>
<td>2020</td>
<td>319,000</td>
<td>-21%</td>
</tr>
<tr>
<td>2021</td>
<td>379,000</td>
<td>19%</td>
</tr>
<tr>
<td>2022</td>
<td>411,000</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau (BOC) and NAHB forecast
Thank you

Questions?
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eyeonhousing.org
housingeconomics.com
Recession Output Gap

Return to first quarter 2020 GDP total in second quarter 2021

Source: U.S. Bureau of Economic Analysis (BEA) and NAHB forecast.
Almost doubled but was leveling off before 2020 downturn

Share of Young Adults Living with Parents

Ages 18 to 24

Ages 25 to 34

Multifamily Buildings Completed By Units

Expect 50+ unit property share to decline

Source: U.S. Census Bureau (BOC).
Top 20 Markets for Employment Growth

YOY Growth Rate in Nonfarm Employment
(April 2020 vs April 2019)

Source: U.S. Census Bureau (BOC)
Share of Labor Force in Vulnerable Industries

Source: 2018 American Community Survey, PUMS, NAHB Estimates
Top 20 Markets for Single-Family Permits Growth

YTD Growth Rate in Single-family Permits (April 2020 vs April 2019)

Source: U.S. Census Bureau (BOC)
New NAHB Home Building Geography Index

8.6% of single-family construction takes place in Large Metro – Outlying County

Q1 2020
4-Quarter MA of YoY growth rate: 5.4%
Q1 YoY growth rate: 3.7%

Source: NAHB Analysis of Census data (Building Permits and ACS)