Coping with Economic Uncertainty: Challenges and Opportunities Facing Architecture Firms in 2020 and Beyond

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AIA Component Relations
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Current economic cycle is at record (post WWII) duration; concerns growing over direction of broader economy

Duration of economic cycle in months

- 2009-present: 124 months
- 1991-2001: 120 months
- 1982-1990: 92 months
- 2001-2007: 73 months
- Average (post-WWII): 60 months
- 1975-1980: 58 months
- 1970-1973: 36 months
- 1980-1981: 12 months

Source: National Bureau of Economic Research
General economic indicators point to slower growth compared to a year ago

<table>
<thead>
<tr>
<th></th>
<th>2019 – Q3</th>
<th>2018 – Q3</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (annual growth rate)</td>
<td>1.9%</td>
<td>3.5%</td>
<td>-1.6 pp</td>
</tr>
<tr>
<td>Payroll gains (annual rate)</td>
<td>1.9 million</td>
<td>2.3 million</td>
<td>-0.4 million</td>
</tr>
<tr>
<td>Business confidence (index: 50+ = positive)</td>
<td>34</td>
<td>63</td>
<td>-29 points</td>
</tr>
<tr>
<td>Consumer sentiment (index: Q1 1966=100)</td>
<td>93.8</td>
<td>98.1</td>
<td>-4.3 points</td>
</tr>
<tr>
<td>Stock market (DJIA)</td>
<td>26,700</td>
<td>25,600</td>
<td>+1,100 points</td>
</tr>
<tr>
<td>ISM Purchasing Manager’s Index (50+ = positive)</td>
<td>49.4</td>
<td>59.6</td>
<td>-10.2 points</td>
</tr>
</tbody>
</table>

Sources: Bureau of Economic Analysis; Bureau of Labor Statistics; Conference Board; University of Michigan; Dow Jones; Institute of Supply Management.
While consumer confidence remains generally healthy, business confidence is falling.

Consumer sentiment Q1-1966=100; Business confidence 50+ = positive

Source: University of Michigan Consumer Sentiment Index; Conference Board CEO Business Confidence Index
Institutional categories account for over half the spending on nonresidential buildings

Share of U.S. nonresidential building construction spending, 2009-2018

2009-2018 average = $420.2 billion

Institutional = $225.6B (53.7%)
YTD 2019 construction spending figures show no growth overall, and emerging declines in some key building categories

Billions of $, NSA, Jan-Sep totals

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2018</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Nonresidential Building Construction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$396.0</td>
<td>$397.3</td>
<td>-0.3%</td>
</tr>
<tr>
<td><strong>Commercial/ Industrial</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial/ Industrial</td>
<td>$200.8</td>
<td>$203.8</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Lodging</td>
<td>$25.5</td>
<td>$23.4</td>
<td>8.7%</td>
</tr>
<tr>
<td>Office</td>
<td>$58.8</td>
<td>$55.3</td>
<td>6.4%</td>
</tr>
<tr>
<td>Commercial (retail &amp; other)</td>
<td>$62.6</td>
<td>$72.6</td>
<td>-13.8%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>$53.9</td>
<td>$52.5</td>
<td>2.7%</td>
</tr>
<tr>
<td><strong>Institutional</strong></td>
<td></td>
<td></td>
<td>0.9%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>$32.9</td>
<td>$31.9</td>
<td>3.3%</td>
</tr>
<tr>
<td>Education</td>
<td>$74.3</td>
<td>$75.5</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Religious</td>
<td>$2.1</td>
<td>$2.5</td>
<td>-13.0%</td>
</tr>
<tr>
<td>Public Safety</td>
<td>$7.4</td>
<td>$7.0</td>
<td>5.8%</td>
</tr>
<tr>
<td>Amusement &amp; Recreation</td>
<td>$21.0</td>
<td>$20.8</td>
<td>0.8%</td>
</tr>
<tr>
<td>Transportation</td>
<td>$40.5</td>
<td>$37.9</td>
<td>6.9%</td>
</tr>
<tr>
<td>Communication</td>
<td>$17.1</td>
<td>$18.0</td>
<td>-5.1%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, Value of Construction Put in Place, Nov., 2019
Since 1980, nonresidential building construction has averaged 1.3 billion square feet per year

Source: Dodge Data and Analytics
Work on existing facilities has been a growing share of design activity

Renovations, rehabilitations, additions, and historic preservation as percent of firm building design billings

Source: AIA Firm Survey Report, various years.
Natural disaster losses nationally have dramatically increased recently

Notes: Dollar values are adjusted for inflation using the CPI-U for all items. Natural disaster costs include only natural disasters that generate over $1 billion in damages after adjusting for inflation.
Sources: JCHS tabulations of HUD, American Housing Surveys and National Oceanic and Atmospheric Administration data.
Renovation spending increases in years following losses from natural disasters

Notes: Dollar values are adjusted for inflation using the CPI-U for all items. Natural disaster costs include only natural disasters that generate over $1 billion in damages after adjusting for inflation.
Sources: JCHS tabulations of US Housing and Urban Development, American Housing Surveys and National Oceanic and Atmospheric Administration data.
Issues affecting the design and construction outlook

- Housing still in catch-up mode.
- Labor shortages remain, both for design and construction (but for different reasons).
- Design activity has hit a soft spot, reflecting general nervousness over outlook.
Housing starts have been increasing in recent years

Annual housing starts (000's)

Source: U. S. Department of Commerce
A tale of two markets: single-family construction depressed, but multifamily has exceeded pre-downturn levels

Housing Units Started (Thousands)

Notes: Values are quarterly, seasonally adjusted annual rates.
Sources: US Census Bureau, New Residential Construction.
Mortgage rates have reversed direction, falling more than 100 basis points over the past year

Source: FHLMC 30-year fixed-rate mortgages.
However, this past decade has seen historically low levels of homebuilding.

Source: US Department of Commerce.
Nationally, house prices have fully recovered from the housing crash.

Notes: Index includes single family attached and detached structures. Data accessed on 10/16/19.

Source: CoreLogic, National House Price Index (HPI).
However, prices typically have been rising faster than incomes, pushing up house price-to-income ratios in most large metro areas.
Metros with house price declines in Q-3 concentrated along Pacific Coast and Industrial Midwest

Percent change in median sales price of existing single family homes, 2019:Q3(e) vs. 2019:Q2 for top 50 metros

Notes: Data are for 50 largest metros by population as measured in the 2017 American Community Survey. Home prices are quarterly and annual averages of the median sales prices of existing single-family homes. 2019:Q3 is estimated using July and August data only.
Source: JCHS tabulations of CoreLogic, Inc. (Moody’s Analytics Calculated).
Emerging housing policy priorities

• Concerns: 60% of population view housing affordability as a serious problem in their community.*
  Virtually all presidential candidates have put forward housing plans or proposals.

• Goals: Produce more affordable housing.
  Preserve existing affordable units.
  Reduce homelessness.

• Strategies: Reform restrictive zoning policies/land-use regulations.
  Increase direct federal assistance to housing/tax credit programs.
  Enact rent control regulations.
  Housing stabilization funds; provide assist. to households facing housing instability.
  Enforce fair housing provisions.

Issues affecting the design and construction outlook

- Housing still in catch-up mode.
- Labor shortages remain, both for design and construction (but for different reasons).
- Design activity has hit a soft spot, reflecting general nervousness over outlook.
Number of architecture positions at U.S. firms has been slowly recovering after steep decline during recession

Estimated number of architecture positions at U.S. architecture firms, in 000s

Source: U.S. Department of Labor payroll survey, with AIA estimates that architecture positions account for 60% of overall staff positions at firms. Estimates do not include architecture staff at firms with no payroll positions.
Volatility in the change in the number of architecture positions reflects the underlying cyclicality in the industry

Source: U.S. Department of Labor payroll survey, with AIA estimates that architecture positions account for 60% of overall staff positions at firms.
Professional architecture degrees awarded annually in the U.S. have levelled off at about 6,000

Number of professional architecture degrees awarded by accredited programs

Source: National Architectural Accrediting Board
However, a growing share of professional architecture graduates are not U.S. residents, and ultimately may not practice domestically.

Share of degrees awarded by accredited programs to nonresident aliens

![Graph showing the share of degrees awarded to nonresident aliens from 2009 to 2018. The share increases over time, starting at 7.0% in 2009 and reaching 20.3% in 2018.]

Source: National Architectural Accrediting Board
Workers in the construction trades are disproportionately foreign born, male, have less than a college education, and are aging.

Notes: The construction trades labor force includes workers with construction management and trades occupations within the construction industry. Data include workers housed in non-group quarters that are either employed or unemployed but available for and seeking work. Source: JCHS tabulations of US Census Bureau, American Community Surveys.
Attracting workers into the industry: construction not a popular career path for young adults

Career plans by industry, 18-25 year-olds

- Medical, 16%
- Other, 29%
- Business, 12%
- Construction, 3%
- IT, 9%
- Engineering, 7%
- Teaching, 6%
- Science, 6%
- Marketing, 4%
- Law, 4%
- Media, 4%

Issues affecting the design and construction outlook

- Housing still in catch-up mode.
- Labor shortages remain, both for design and construction (but for different reasons).
- Design activity has hit a soft spot, reflecting general nervousness over outlook.
So far in 2019, architecture billings trends continue to disappoint

Diffusion index: 50 = no change from previous month, seasonally adjusted

Source: AIA Architecture Billings Index
New work coming into architecture firms has also become more volatile recently

Diffusion index: 50 = no change from previous month, seasonally adjusted

Source: AIA Architecture Billings Index
And backlogs at architecture firms remain elevated, but dipped in Q-3

Project backlog, months, averages across all firms

Source: AIA Architecture Billings Index
By design specialization, all major sectors softening so far this year

Building sector ABI scores

Source: The American Institute of Architects ABI survey.
So far this year, firms in South reporting healthy conditions, while those in Northeast seeing declines.
Over half of firms reporting uncertain construction costs or concern about economy have affected current projects this year

Impact of economic/cost concerns on any projects at firm (% of firms)

- Significantly delayed/put on hold: 42.3%
- Significantly redesigned/scaled back: 32.9%
- Cancelled: 14.8%
- Any of these: 53.8%

Among impacted firms, scaled back, delayed, and cancelled projects total over 15% of project volumes on average this year.

Share of project workload by dollar volume impacted by economic concerns this year:

- Less than 5%, 9.7%
- 5% to 9.9%, 37.2%
- 10% to 24.9%, 32.6%
- 25% or more, 20.5%

Average overall share of project revenue affected = 16.3%

Source: AIA work-on-the-boards survey, October, 2019.
Insufficient budget/rising construction costs most common reason for scaled back, delayed, and cancelled projects

Reasons that projects have been negatively impacted (% of firms, multiple responses allowed)

- Insufficient budget: 75.5%
- Client nervousness: 47.1%
- Financing problems: 29.3%
- Tariff or trade concerns: 18.8%
- Other: 7.7%

Architecture firms estimate modest revenue growth on average this year, with a lot of variation in performance

Average estimated net revenue growth for 2019, % of firms

- Significantly down (10%+), 11%
- Down somewhat (5-10%), 15%
- About the same (+/- 5%), 29%
- Up somewhat (5-10%), 21%
- Up a lot (10-25%), 18%
- Major increase (25%+), 6%

Average net revenue growth = 3.4%

For 2020, architecture firms projecting hardly any revenue gains

Average estimated net revenue growth for 2020, % of firms

- About the same (+/- 5%): 37%
- Up somewhat (5-10%): 26%
- Down somewhat (5-10%): 15%
- Significantly down (10%+): 10%
- Major increase (25%+): 1%
- Up a lot (10-25%): 11%

Average net revenue growth = 1.3%

Commercial market fundamentals remain relatively positive; vacancy rates below long-term trends, but as are rent increases.

<table>
<thead>
<tr>
<th></th>
<th>20-year average</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
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<tbody>
<tr>
<td><strong>Apartments</strong></td>
<td></td>
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<tr>
<td>Vacancy rates</td>
<td>5.2%</td>
<td>4.6%</td>
<td>4.8%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Rental rate changes</td>
<td>2.4%</td>
<td>2.6%</td>
<td>2.3%</td>
<td>2.2%</td>
</tr>
<tr>
<td><strong>Office</strong></td>
<td></td>
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<tr>
<td>Vacancy rates</td>
<td>13.9%</td>
<td>12.5%</td>
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<tr>
<td><strong>Retail</strong></td>
<td></td>
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<tr>
<td>Availability rates</td>
<td>9.7%</td>
<td>9.1%</td>
<td>9.2%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Rental rate changes</td>
<td>1.3%</td>
<td>1.5%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Hotel</strong></td>
<td></td>
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<tr>
<td>Occupancy rates</td>
<td>61.9%</td>
<td>66.2%</td>
<td>65.9%</td>
<td>65.7%</td>
</tr>
<tr>
<td>RevPAR change</td>
<td>3.0%</td>
<td>2.5%</td>
<td>2.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td><strong>Industrial/Warehouse</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Availability rates</td>
<td>10.2%</td>
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Sources: Forecasts from ULI/EY Real Estate Consensus Forecast, April 2019; source data from: CBRE (apartments, office, retail, industrial/warehouse); Smith Travel Research (hotel).
Overall nonresidential building activity projected to remain relatively healthy this year, and then slow in 2020

Billions $ / % change - construction spending on nonresidential buildings

Source: AIA Consensus Construction Forecast Panel, June 2019