The Impact of Novel Coronavirus (COVID-19) on the US Real Estate Market

April 1, 2020

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Summary: US real estate investment context
We are positioned well to act on our long-term convictions

- Pre-COVID short-term expectations: Continued growth of jobs and rents, albeit at a moderating pace
  - Now: Additional employment erosion; tenants to increasingly seek rent relief or not pay rent
- Pre-COVID capital markets: Selective but active equity capital; ample debt and healthy debt coverage
  - Now: Activity has stalled in the midst of price discovery; credit spreads have widened considerably
- Pre-COVID strategy: Defensive against cyclical headwinds; offensive toward long-term convictions
  - Now: Our pre-COVID posture has positioned us well for the current crisis
- COVID-19 has reinforced Invesco Real Estate’s convictions regarding long-term tailwinds:
  - Expect technology trends to reinforce better relative performance for the industrial sector and offices located in innovation hubs.
  - Expect demographic trends to drive strong demand in the life sciences sector and medical offices catering to high-acuity tenants.
  - Expect financial market disruption to reinforce demand for rental housing, even as millennials approach ages traditionally associated with much higher home ownership.

In short, we intend to be mindful of short-term headwinds as we act on our long-term convictions. Pricing scrutiny is heightened, thus we are maintaining our investment disciplines. Our investment posture is to remain alert to opportunities that could be caused by market dislocation, such as being able to access assets that usually would not be available, and to recapitalize assets where risk and pricing are misaligned.

Source: Invesco Real Estate as of 1 April 2020.
Pandemic: COVID-19 in the US
US case growth now far exceeds what China has experienced

- As of 29 March 2020, 140,886 cases had been reported in the US, far surpassing China’s count of 82,122 cases.
- Daily growth in US cases has continued to escalate, with the past couple of days at or near 20,000.
- Signs of US cases reaching a point of levelling off are not apparent at this time.

Source: Johns Hopkins University through 29 March 2020.
Transactions: Weekly real estate sales 2018-20 in the US
Expect transaction volume in 2020 to curtail more sharply

Sources: Invesco Real Estate based on data from Real Capital Analytics as of 29 March 2020.
Note: Deals $10m and greater; all major property types excluding development sites
Pricing: High-yield corporate bond spreads for the US
Sharp spread spike reflects liquidity concerns for higher-risk credit

Source: Invesco Real Estate, utilizing data from the Federal Reserve Bank of St. Louis and ICE Data Indices, LLC as of 26 March 2020.
### Sectors: Potential impacts in the US (1)

**Expect broader sector outperformance for industrial and apartments**

<table>
<thead>
<tr>
<th>Overall market</th>
<th>Shorter-term</th>
<th>Longer-term</th>
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</thead>
</table>
|                | - Expect 2020 to experience material declines in tenant demand and investment transaction volumes.  
|                | - Parties with liquidity needs could bring quality assets to market that ordinarily would not be offered. | - Expect accumulated debt to keep interest rates low plus reduce economic growth and rent growth.  
|                | | - Expect winners and losers to become more accentuated. |
| **Industrial** | **Shorter-term** | **Longer-term** |
|                | - Most leasing has paused, the major exception being Amazon.  
|                | - Seaport and airport activity has declined sharply.  
|                | - Inland distribution is being affected by a simultaneous pullback in demand and a rise in supply.  
|                | - End-of-supply chain infill warehouse has performed comparatively well. | - Expect tenant demand to grow across the breadth of the supply chain. |
| **Apartment** | **Shorter-term** | **Longer-term** |
|                | - Expect drop in new leases, higher retention rates, and increased concessions.  
|                | - Expect many tenants to seek rent relief, which is being mandated by some municipalities.  
|                | - Short-term leases make for sharp revenue declines and sharp revenue recovery.  
|                | - The pause on short-term construction and lengthening of delivery timelines is the one silver lining. | - Flattening of 20’s population plus millennials approaching 40’s imply a renter demand slowdown.  
|                | | - But expect financial dislocation to mitigate these aging trends to some degree. |

Source: Invesco Real Estate, 1 April 2020.
### Sectors: Potential impacts in the US (2)
Expect bifurcated sector performance for office, retail, and healthcare

Source: Invesco Real Estate, 1 April 2020. *FAANGS is an acronym that refers to: Facebook, Amazon, Apple, Netflix, Google, and Salesforce.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Shorter-term</th>
<th>Longer-term</th>
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<tbody>
<tr>
<td><strong>Office</strong></td>
<td>Leasing has paused broadly, except for select activity among the FAANGS.*</td>
<td>Expect demand growth at innovation hubs to continue to substantially outdistance other locations.</td>
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<td></td>
<td>Tech should weather the storm relatively well as work-from-home and media streaming spikes.</td>
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<td>Financial services is mixed: Expect relatively stable homebuying and volatile stock market activity.</td>
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<td>Oil and gas tenants face substantial downturn.</td>
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<tr>
<td><strong>Retail</strong></td>
<td>Traffic at grocery stores, wholesale warehouses, and drug stores has spiked.</td>
<td>Expect COVID-19 to accelerate the shift toward e-commerce and challenges for storefront retail.</td>
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<td>Most other segments are highly vulnerable to store closures, whether temporary or permanent.</td>
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<td><strong>Healthcare</strong></td>
<td>After the initial shock of COVID-19, life science tenant demand could increase short-term.</td>
<td>Life science already was drafting off structural tailwinds, and COVID-19 could accelerate growth.</td>
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<td>Care providers in medical offices are delaying non-essential procedures; in-office traffic is down.</td>
<td>Expect medical office demand to rise as hospitals continue to send one-day procedures off-campus.</td>
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<td>Senior housing facilities are largely in lockdown with concerns over spread of the virus.</td>
<td>Seniors housing may have to increase risk mitigation measures, which could raise costs.</td>
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</tbody>
</table>
Within one week, initial unemployment insurance claims rose from a near 50-year low of 281,000 to an all-time high of 3.8 million.
Economy: Potential shapes of economic recovery in the US
The shape of the US economic recovery is still to be determined

Three potential shapes of a US economic recovery:

- **V-Shaped**
  - Recovery starts mid-2020
  - The halting of economic activity provokes a sharp negative disruption to the US economy.
  - Confirmed cases peak in Q2-2020.
  - Economic shutdown thereafter is selective rather than broad.
  - Pent-up demand drives a sharp recovery.

- **U-Shaped**
  - Recovery starts late-2020
  - The halting of economic activity provokes a sharp negative disruption to the US economy.
  - Confirmed cases do not peak until Q3-2020.
  - Thus, lockdown is lengthened and recovery is delayed.
  - Pent-up demand begins to drive a sharp recovery later in 2020.

- **U-Shifted**
  - Long-term growth is impaired
  - Confirmed cases grow through the summer and into the fall.
  - The longer the virus goes uncontained, the more severe are the costs to governments, businesses, and households.
  - The virus is eventually contained, but in the meantime:
    - Savings decline, growth rates fall short of previous norms, and the economy does not reach previous peak levels for several years.

Source: Invesco Real Estate as of 1 April 2020.
Support: Massive government response in the US
Will “The Bridge of Policy” be long enough and strong enough?

The crisis

The Chasm of Lockdown
and The Bridge of Policy

The other side

Fiscal Policy:
- Direct payments to households
- Bailouts and loans for businesses
- Increasing unemployment insurance
- Increasing healthcare funding
- Aid for small businesses

Monetary Policy:
- Moved Fed funds rate to 0%-0.25%
- Removal of purchase limits on US Treasuries, Agency MBS, and CMBS
- Creation/re-introduction/extension of several new lending facilities
- Reopening/extension of USD swap lines
- Removal of reserve requirements

Source: Invesco Real Estate as of 1 April 2020.
Scenarios: Stress testing office market vacancy in the US
Vacancy outlook holds up better than GFC if absorption is flat

Under two scenarios of flattened absorption projections compared to pre-COVID expectations, year-end 2021 vacancy rates for most markets are projected to remain below post-GFC peaks.

- Supply in the next couple years was already set to be lower than historic levels. The impact of COVID-19 may delay progress on current construction projects. New projects could face tougher underwriting scrutiny.

- Most of the new supply is being built in innovation hubs where the lion’s share of demand has been trending.

Office vacancy rates (%)

<table>
<thead>
<tr>
<th>City</th>
<th>Post-GFC Peak</th>
<th>End 2019</th>
<th>Test 1 as of end 2021</th>
<th>Test 2 as of end 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
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<td>Dallas</td>
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<td>Los Angeles</td>
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<td>New York</td>
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<td>San Francisco</td>
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<td>Seattle</td>
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<td>Washington, DC</td>
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Scenario 1 illustrates weak demand through H1 2020 with gradual pick up from H2 2020.
Scenario 2 assumes a longer period to recovery.

Test 1: 2020 net absorption = 0 square feet; 2021 net absorption = Pre-COVID forecast
Test 2: 2020 net absorption = 0; 2021 net absorption = ½ of pre-COVID forecast
### Strategy: Current considerations in the US

**Be mindful of short-term strain as we act on long-term convictions**

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<tr>
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<tbody>
<tr>
<td><strong>Invest with conviction</strong></td>
<td><strong>Invest mindful of short-term volatility</strong></td>
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<tr>
<td>- Infill warehouse</td>
<td>- Warehouse in markets with large ports and large populations</td>
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<tr>
<td>- Apartments in low-supply locations</td>
<td>- Self-storage in low-supply locations</td>
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<tr>
<td>- Innovation hub office</td>
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<td>- Life science office in top markets/locations</td>
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<tr>
<td>- Select medical office with high-acuity tenants</td>
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<tr>
<td><strong>Invest on favorable basis</strong></td>
<td><strong>Cautious or avoid</strong></td>
</tr>
<tr>
<td>- Apartments in high-supply locations with strong long-term demand</td>
<td>- Undifferentiated office in non-innovation hubs</td>
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<tr>
<td>- New warehouses in peripheral, exurb locations</td>
<td>- Power centers</td>
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<tr>
<td>- Self-storage in high-supply locations with dense populations or strong outlook for growth</td>
<td>- Malls</td>
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<tr>
<td>- Peer-dominant grocery-anchored centers in high-density locations</td>
<td>- Medical office with low-acuity tenants</td>
</tr>
<tr>
<td></td>
<td>- Self-storage in high-supply, low-density locations</td>
</tr>
</tbody>
</table>

Source: Invesco Real Estate, 1 April 2020.
Risk warnings

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