The Future of the Workplace and Other Real Estate Stories
Remarks by Mary Ludgin, PhD
Marquette University Real Estate Conference
September 2019
The Global Economy is Slowing Amid Rising Geopolitical Tensions
Real Estate Performance Has Plateaued

NPI AND ODCE TOTAL RETURNS VS. REAL GDP GROWTH
US 1990-2019 (Q2)

One-Year Total Returns

GDP Growth
NPI Total Returns
ODCE Total Returns

Shaded areas denote recessionary periods
Source: US Bureau of Economic Analysis; National Council of Real Estate Investment Fiduciaries; Heitman Research

US Outlook
Transaction Volume Slowing Modestly

ALL PROPERTY TYPE TRANSACTION VOLUME AND TOP QUARTILE CAP RATES
US 2002-2019 (Q2)

Total transaction volume in H1 2019 was 3.6% below 2018’s H1 total.

Source: Real Capital Analytics, Heitman Research
Cap Rate Compression Reaching Its Limits

TOP QUARTILE CAP RATES BY PROPERTY TYPE US 2002-2019 Q2

Source: Real Capital Analytics; Heitman Research
Keep an Eye on Supply: Pace of Deliveries Accelerating in Longest-Ever Expansion

COMPLETIONS AS A PERCENT OF STOCK
US PRIMARY PROPERTY SECTORS

20-Year Average: 1.22%

RETAIL COMPLETIONS

<table>
<thead>
<tr>
<th>Year</th>
<th>Million SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>80</td>
</tr>
<tr>
<td>2018</td>
<td>60</td>
</tr>
<tr>
<td>2019Q2</td>
<td>40</td>
</tr>
<tr>
<td>5 Yr Avg</td>
<td>60</td>
</tr>
<tr>
<td>20 Yr Avg</td>
<td>50</td>
</tr>
</tbody>
</table>

INDUSTRIAL COMPLETIONS

<table>
<thead>
<tr>
<th>Year</th>
<th>Million SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>250</td>
</tr>
<tr>
<td>2018</td>
<td>180</td>
</tr>
<tr>
<td>2019Q2</td>
<td>120</td>
</tr>
<tr>
<td>5 Yr Avg</td>
<td>150</td>
</tr>
<tr>
<td>20 Yr Avg</td>
<td>100</td>
</tr>
</tbody>
</table>

OFFICE COMPLETIONS

<table>
<thead>
<tr>
<th>Year</th>
<th>Million SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>80</td>
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<td>50</td>
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<tr>
<td>20 Yr Avg</td>
<td>40</td>
</tr>
</tbody>
</table>

APARTMENT COMPLETIONS

<table>
<thead>
<tr>
<th>Year</th>
<th>Thousand Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>300</td>
</tr>
<tr>
<td>2018</td>
<td>200</td>
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<td>20 Yr Avg</td>
<td>100</td>
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</table>
NOI Growth: Reversal on the Leader Board

SAME-STORE NOI TRENDS BY PROPERTY TYPE
US NCREIF PROPERTIES 2000-2019 (Q2)

Year-Over-Year % Change

Source: NCREIF; Heitman Research

Long-Term Average NOI Growth
- Apartments: 3.6%
- Retail: 3.1%
- Office: 2.4%
- Industrial: 2.3%
Historical Patterns Being Upended, Creating Risk and Opportunity

This rarely works anymore

CBD office looks solid but looks can deceive

No granite or marble but MOBs offer rock-solid cash flows

A victim of success but poised for solid performance
Apartment Fundamentals Healthy After a Pullback in Supply

MULTIFAMILY COMPLETIONS, NET ABSORPTION AND OCCUPANCY
US 2001-2019 YEARS ENDING Q2

Source: Axiometrics, Heitman Research

US Outlook
Industrial Supply Overtakes Demand for First Time Since 2011, but Vacancy Remains Low

INDUSTRIAL COMPLETIONS, NET ABSORPTION, AND VACANCY
US 2001-2019 (YEARS ENDING Q2)

Vacancy Rate(%)

Source: CoStar, Heitman Research
Evolution in Shopping Patterns Has Widened Gap Between Winners and Losers

Retail Vacancy Rate
Top 50 Markets 2006-2019 (Q2)

- Overall Vacancy (L)
- Centers with less than 20% vacancy (L)
- Centers with over 20% vacancy (R)

Source: CoStar, Heitman Research

US Outlook
Don’t Count Out Physical Retail: The Online-Only Model Doesn’t Work

**Online customer acquisition costs are increasing**

30% increase in cost-per-click on Facebook in 2018  
- Merkle¹

5x increase in the number of advertisers on Facebook from 2013 to 2017  
- Business of Fashion²

**Online advertising is the new rent**

"... it’s cheaper to open a brick and mortar store than to acquire new customers online."

- Shilpa Shah, Cuyana Co-Founder³

¹ “Measuring the Store of the Future” by Doug Stephens, June 2019
² “For Direct-to-Consumer Brands, Scaling Isn’t Easy” by Chantel Fernandez, Business of Fashion, Nov 14, 2017
³ “7 Things Retailers Just Said About The Future Of The Store” by Nish Baid, Forbes, June 26, 2018
National Office Statistics Show Weak Recovery; Individual Market Stories Vary Widely

OFFICE COMPLETIONS, NET ABSORPTION, AND OCCUPANCY
US 2001-2018 (YEARS ENDING Q2)

Source: CoStar; Heitman Research
CBD Office Markets Generally Healthier

OFFICE VACANCY BY MARKET (Q2 2019)

- Austin
- Boston
- San Francisco
- Seattle
- Charlotte
- New York
- Orlando
- San Jose
- Chicago
- Atlanta
- Denver
- Milwaukee
- Washington
- Phoenix
- Houston
- Dallas-Fort Worth

Source: CoStar, Heitman Research
Tech-Centric, Coastal Metros See Highest Rent Gains This Cycle

10-YEAR RENT GROWTH PER ANNUM
SELECT MARKETS (JULY 2009-2019)

<table>
<thead>
<tr>
<th>City</th>
<th>Rent Growth Per Annum (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco</td>
<td>10.0%</td>
</tr>
<tr>
<td>Silicon Valley</td>
<td>7.7%</td>
</tr>
<tr>
<td>Boston Metro</td>
<td>7.5%</td>
</tr>
<tr>
<td>Seattle Metro</td>
<td>5.1%</td>
</tr>
<tr>
<td>Austin Metro</td>
<td>4.6%</td>
</tr>
<tr>
<td>San Diego Metro</td>
<td>4.5%</td>
</tr>
<tr>
<td>Los Angeles Metro</td>
<td>4.5%</td>
</tr>
<tr>
<td>New York City</td>
<td>4.2%</td>
</tr>
<tr>
<td>Portland Metro</td>
<td>4.0%</td>
</tr>
<tr>
<td>United States</td>
<td>3.4%</td>
</tr>
<tr>
<td>DFW Metro</td>
<td>3.0%</td>
</tr>
<tr>
<td>Phoenix Metro</td>
<td>2.9%</td>
</tr>
<tr>
<td>DC Metro</td>
<td>2.9%</td>
</tr>
<tr>
<td>Denver Metro</td>
<td>2.9%</td>
</tr>
<tr>
<td>Orange County</td>
<td>1.8%</td>
</tr>
<tr>
<td>Chicago Metro</td>
<td>0.7%</td>
</tr>
<tr>
<td>Houston Metro</td>
<td>-0.4%</td>
</tr>
</tbody>
</table>

Source: CoStar; Heitman Research
Construction volumes have not boomed like cycles prior and were thought to have already peaked in 2016. However, plentiful new starts have led to the highest construction volumes as a percentage of stock (1.87%) so far this cycle. While still 19% below last cycle’s peaks as a percentage of stock, and below both of the previous peaks in terms of absolute square footage, the uptick so late in an economic cycle should give owners of older office buildings pause, particularly as new office buildings remain in high demand.
Major Structural Shifts At Work, Affecting the Amount and Location of Office Demand

Disruption/Evolution

Economics
Technology
Demographics
This Cycle Characterised by High Degree of Secular/Structural Change

**Retail**
- experience
- shifting retailer formats
- online threat
- e-commerce growth
- click & collect
- last-mile
- 3D printing

**Office**
- open-plan
- AI & automation
- co-working
- hot-desking
- smaller households

**Industrial**
- supply chain reconfig

**Living Sectors**
- return to the city
- growth of key cities
- "Generation Rent"
- student mobility
- ageing population
The Demographic Backdrop: Millennials Are the Largest Cohort in the Workforce

NUMBER OF WORKERS BY GENERATION IN US LABOR FORCE

Source: Pew Research Center, Heitman Research
Where Will Millennials Want to Live?

Homeownership Rates by Age Cohort

Source: U.S. Census Bureau; Heitman Research

US Outlook 20
Where Will Millennials Want to Work? Not Here
CBDs Have the Edge, But Not the Only Option
The Rise of Dense, Suburban, Mixed-Use Districts

But lively, walkable mixed-use districts are thriving

Legacy West - Plano, Texas

Avalon - Alpharetta, Georgia

Oak Park, Illinois

Tysons Corner, VA
What’s Inside the Office is Changing As Well

Activity-based design

Co-working space

Amped up amenities
What Will Become of Office Parks?

US Outlook
Some Things Remain The Same, Though Delivered A Little Differently