The views expressed here are my own and do not necessarily reflect the views of the Federal Reserve Bank of Atlanta or the Federal Reserve System.
Current market dynamics
Disruption in the CRE space
CRE financing environment
Current Market Dynamics
ECONOMIC EXPANSIONS

Source: National Bureau of Economic Research, Risk Analysis Unit/Federal Reserve Bank of Atlanta

Average = 62 months

Average = 96 months

*Present as of September 2017
NATIONAL EMPLOYMENT GAINS

Source: Bureau of Labor Statistics
### U.S. Employment Gains by Sector

#### Year-Ago Difference (000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2,272</td>
<td>2,415</td>
<td>1,540</td>
<td>-757</td>
<td>-5,940</td>
<td>-947</td>
<td>1,588</td>
<td>2,230</td>
<td>2,209</td>
<td>2,558</td>
<td>2,876</td>
<td>2,492</td>
<td>2,097</td>
<td>7,848</td>
<td>$53,610</td>
<td>1.3%</td>
</tr>
<tr>
<td>Nat. Resources</td>
<td>37</td>
<td>56</td>
<td>40</td>
<td>43</td>
<td>-73</td>
<td>11</td>
<td>83</td>
<td>60</td>
<td>15</td>
<td>28</td>
<td>-78</td>
<td>-136</td>
<td>58</td>
<td>-7</td>
<td>$56,110</td>
<td>-4.0%</td>
</tr>
<tr>
<td>Construction</td>
<td>360</td>
<td>355</td>
<td>40</td>
<td>43</td>
<td>-1,146</td>
<td>-498</td>
<td>15</td>
<td>112</td>
<td>210</td>
<td>295</td>
<td>310</td>
<td>250</td>
<td>206</td>
<td>-980</td>
<td>$58,640</td>
<td>2.9%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-89</td>
<td>-71</td>
<td>-276</td>
<td>-1,559</td>
<td>-319</td>
<td>198</td>
<td>200</td>
<td>93</td>
<td>165</td>
<td>151</td>
<td>12</td>
<td>142</td>
<td>1,807</td>
<td>-1,807</td>
<td>$64,860</td>
<td>0.9%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>101</td>
<td>140</td>
<td>111</td>
<td>-72</td>
<td>-356</td>
<td>-134</td>
<td>91</td>
<td>123</td>
<td>66</td>
<td>81</td>
<td>41</td>
<td>12</td>
<td>68</td>
<td>-38</td>
<td>$73,710</td>
<td>0.5%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>221</td>
<td>74</td>
<td>167</td>
<td>-237</td>
<td>-761</td>
<td>-82</td>
<td>227</td>
<td>173</td>
<td>238</td>
<td>279</td>
<td>247</td>
<td>216</td>
<td>-29</td>
<td>467</td>
<td>$30,300</td>
<td>1.9%</td>
</tr>
<tr>
<td>Transp. &amp; Utilities</td>
<td>103</td>
<td>103</td>
<td>76</td>
<td>-27</td>
<td>-271</td>
<td>-53</td>
<td>111</td>
<td>114</td>
<td>81</td>
<td>162</td>
<td>215</td>
<td>118</td>
<td>61</td>
<td>527</td>
<td>$50,440</td>
<td>1.0%</td>
</tr>
<tr>
<td>Information</td>
<td>-57</td>
<td>-23</td>
<td>-6</td>
<td>-48</td>
<td>-180</td>
<td>-96</td>
<td>-34</td>
<td>2</td>
<td>30</td>
<td>20</td>
<td>24</td>
<td>23</td>
<td>-69</td>
<td>-266</td>
<td>$98,470</td>
<td>3.5%</td>
</tr>
<tr>
<td>Finance</td>
<td>92</td>
<td>170</td>
<td>-18</td>
<td>-142</td>
<td>-368</td>
<td>-143</td>
<td>2</td>
<td>87</td>
<td>103</td>
<td>91</td>
<td>147</td>
<td>161</td>
<td>151</td>
<td>-82</td>
<td>$88,820</td>
<td>1.0%</td>
</tr>
<tr>
<td>Professional Services</td>
<td>559</td>
<td>612</td>
<td>376</td>
<td>-207</td>
<td>-1,157</td>
<td>149</td>
<td>604</td>
<td>600</td>
<td>583</td>
<td>548</td>
<td>571</td>
<td>503</td>
<td>607</td>
<td>2,570</td>
<td>$69,960</td>
<td>1.0%</td>
</tr>
<tr>
<td>Educ. &amp; Health</td>
<td>446</td>
<td>478</td>
<td>522</td>
<td>552</td>
<td>402</td>
<td>345</td>
<td>343</td>
<td>451</td>
<td>317</td>
<td>353</td>
<td>591</td>
<td>587</td>
<td>477</td>
<td>4,462</td>
<td>$48,060</td>
<td>1.4%</td>
</tr>
<tr>
<td>Leisure &amp; Hospitality</td>
<td>323</td>
<td>294</td>
<td>317</td>
<td>10</td>
<td>-359</td>
<td>-29</td>
<td>304</td>
<td>416</td>
<td>486</td>
<td>442</td>
<td>464</td>
<td>460</td>
<td>333</td>
<td>2,510</td>
<td>$22,430</td>
<td>2.8%</td>
</tr>
<tr>
<td>Other Services</td>
<td>-15</td>
<td>43</td>
<td>56</td>
<td>21</td>
<td>-149</td>
<td>-36</td>
<td>30</td>
<td>70</td>
<td>53</td>
<td>84</td>
<td>55</td>
<td>63</td>
<td>92</td>
<td>247</td>
<td>$35,920</td>
<td>2.3%</td>
</tr>
<tr>
<td>Government</td>
<td>183</td>
<td>170</td>
<td>244</td>
<td>291</td>
<td>45</td>
<td>-65</td>
<td>-404</td>
<td>-166</td>
<td>-68</td>
<td>29</td>
<td>147</td>
<td>194</td>
<td>2</td>
<td>249</td>
<td>$54,220</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

**Source:** Bureau of Labor Statistics; Risk Analysis Unit/Federal Reserve Bank of Atlanta
U.S. UNEMPLOYMENT RATES
AS OF AUGUST 2017

Source: Bureau of Labor Statistics, STL FRB FRED, Risk Analysis Unit/Federal Reserve Bank of Atlanta
CRE VACANCY RATES

Data through 2Q 2017
Source: AXIOMetrics, CBRE-EA, Risk Analysis Unit/Federal Reserve Bank of Atlanta
U.S. COMPLETIONS AS A SHARE OF EXISTING CRE STOCK

*YTD2017Q2 data; last two quarters forecasted

Source: SupplyTrack, Risk Analysis Unit/Federal Reserve Bank of Atlanta
ANALYZING THE CRE MARKET CYCLE

Phase 2 - Expansion
- Declining vacancy
- New construction

Phase 3 - Mature
- Increasing vacancy
- New construction

Phase 1 - Recovery
- Declining vacancy
- No new construction

Phase 4 - Downturn
- Declining vacancy
- More completions

Demand/supply Equilibrium Point
- Rent growth positive but declining
- Rent growth below π & negative

Long-Term Occupancy
- Rents rise rapidly toward new construction levels
- High rent growth in a tight market
- Rent growth < 0%
- Rent growth below π

Source: Mueller/Black Creek Group; Risk Analysis Unit/Federal Reserve Bank of Atlanta
ANALYZING THE CRE MARKET CYCLE

Phase 1 - Recovery
- ↓ vacancy
- No new construction
- Rent growth < 0% < π

Phase 2 - Expansion
- ↓ vacancy
- New construction
- ↑ Δ Rent growth

Phase 3 - Mature
- ↑ vacancy
- New construction
- ↓ Δ Rent growth

Phase 4 - Downturn
- ↓ vacancy
- More completions
- Rent growth < π; < 0%

Long-Term Occupancy

Retail
Office
Warehouse
Hotels
Apartments
Disruption in the CRE Space
Moving from tradition
Creativity is key = repurposing
Technology
- Efficiency
- Mood retailing
- Experience-based
RETAIL SQUARE FEET PER CAPITA

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Retail Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>24</td>
</tr>
<tr>
<td>Canada</td>
<td>15</td>
</tr>
<tr>
<td>Australia</td>
<td>10</td>
</tr>
<tr>
<td>Norway</td>
<td>8</td>
</tr>
<tr>
<td>Netherlands</td>
<td>6</td>
</tr>
<tr>
<td>New Zealand</td>
<td>5</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5</td>
</tr>
<tr>
<td>Japan</td>
<td>4</td>
</tr>
<tr>
<td>Germany</td>
<td>3</td>
</tr>
<tr>
<td>China</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: ICSC, CBRE-EA, Various
TECHNOLOGICAL DISRUPTORS

Current

Source: Amazon, Google, Dailydigi.com, various
ON THE ROAD: UBER, LYFT, AND SELF-DRIVING CARS

Source: Google Images, Various
<table>
<thead>
<tr>
<th>City</th>
<th>Hotel Price</th>
<th>Airbnb Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin</td>
<td>$160</td>
<td>$286</td>
</tr>
<tr>
<td>Boston</td>
<td>$213</td>
<td>$181</td>
</tr>
<tr>
<td>Chicago</td>
<td>$179</td>
<td>$150</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>$175</td>
<td>$170</td>
</tr>
<tr>
<td>Nashville</td>
<td>$178</td>
<td>$201</td>
</tr>
<tr>
<td>New Orleans</td>
<td>$191</td>
<td>$201</td>
</tr>
<tr>
<td>New York City</td>
<td>$245</td>
<td>$164</td>
</tr>
<tr>
<td>Portland</td>
<td>$149</td>
<td>$118</td>
</tr>
<tr>
<td>San Diego</td>
<td>$152</td>
<td>$214</td>
</tr>
<tr>
<td>San Francisco</td>
<td>$217</td>
<td>$221</td>
</tr>
<tr>
<td>Seattle</td>
<td>$195</td>
<td>$145</td>
</tr>
</tbody>
</table>

Source: Busbud.com
A rendering of a room in the Marriott Moxy hotel in Times Square, set to open this summer. Rooms in the hotel are 183 square feet, creating a space challenge in keeping with living in the Big Apple.

-Marriott Hotel

CRE Financing Environment
FUNDING FOR TOTAL CRE MORTGAGES

Source: Z.1 Financial Accounts of the United States/U.S. Board of Governors of the Federal Reserve System (FRB); Risk Analysis Unit calculations
CMBS ISSUANCE

Source: Securities Industry and Financial Markets Association (SIFMA); Risk Analysis Unit/FRB Atlanta
DEPOSITORY INSTITUTIONS’ SHARE OF COMMERCIAL MORTGAGES

Source: Z.1 Financial Accounts of the United States/U.S. Board of Governors of the Federal Reserve System (FRB); Risk Analysis Unit calculations
BANK SENTIMENT
Senior Loan Officer Opinion Survey Results, 2Q 2017

Underwriting

Net Percent of Respondents Tightening

Loan Demand

Net Percentage Reporting Increased Demand for New Loans

Source: Senior Loan Officer Survey/Federal Reserve; Risk Analysis Unit/FRB Atlanta
LENDING SOURCE MARKET SHARE

CRE Loans

Source: Real Capital Analytics / FRB Atlanta Risk Analysis Unit
BANK CRE EXPOSURES

CRE Concentration\(^1\) by Bank Size

\(^1\) C&I + Non-owner CRE + Multifamily

Source: Bank Call Reports
COMMERCIAL BANK CRE GUIDELINE EXPOSURES

Source: Bank Call Reports; Risk Analysis Unit/Federal Reserve Bank of Atlanta
POTENTIALLY TROUBLED CRE BANK LOANS
September 2017 (sized by relative loan amounts)

Note: Includes loans > $2.5 million

Source: Real Capital Analytics; Risk Analysis Unit
POTENTIALLY TROUBLED CRE BANK LOANS

September 2017 (sized by relative loan amounts)

Note: Includes loans > $2.5 million

Source: Real Capital Analytics; Risk Analysis Unit
POTENTIALLY TROUBLED CRE BANK LOANS
September 2017 (sized by relative loan amounts)

Note: Includes loans > $2.5 million

Source: Real Capital Analytics; Risk Analysis Unit
CAP RATE SPREADS
As of 2Q 2017

Source: CoStar Portfolio Strategy
TAKEAWAYS

• National economic conditions continue to indicate modest growth which should continue to propel most CRE dynamics.

• Job growth conditions in some local markets are not as robust as those at the national level and may create a headwind for CRE.

• Conditions in the luxury apartment, limited-service hotel and retail appears to indicate enhanced risk in each sector.

• Heightened apartment completion rates and retailer bankruptcies continue to add risk to each sector.

• CRE exposure at Community and Regional Banks has generally increased since 2012.

• CRE Cap Rates remain an area of added risk. Especially, transactions that utilize 1031 Tax-Free Exchanges.
Thank you!

The views expressed here are my own and do not necessarily reflect the views of the Federal Reserve Bank of Atlanta or the Federal Reserve System.