



# CWCapital Markets Update

## First Quarter 2019

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- **Economy:** Continued positive employment and economic trends, but deficits growing at historic rates. Are trade war tariffs intended to fund the shortfall?
- Cyclical highs in property prices, volatility, and negative fundamentals
- Feature – Leverage versus Employment Fundamentals
- Three trends we are watching

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In this issue of the CWCapital Markets Update, we focus on the fundamentals and trends affecting national commercial real estate debt markets. Our feature reviews correlation between leverage and market fundamentals. We synthesize and present information gathered from various industry research, public resources, and our own research.

## THE ECONOMY

- **The April jobs report** noted that the economy continues to grow with 263,000 jobs created. Employment in the professional and business services category again led with 535,000 jobs created over the past year, leading both healthcare (404,000), and manufacturing (264,000) with retail continuing to decline as a source of jobs.
- **The unemployment rate** declined to 3.6%, the lowest level since 1969. The participation rate declined slightly to 62.8%. Average hourly earnings rose 3.2% year over year. As of year-end 2018, El Centro CA, Yuma AZ, and Ocean City NJ have reported the highest unemployment with all three over 10%.
- **The 10-year US Treasury** yield at 2.40% has tightened 28bps this year. Much of the tightening was related to overall concerns about global trade agreements, or the lack thereof, geopolitical issues, and other uncertainty. The 2/10 spread is 20bps, slightly higher than year-end, but continuing in its long-term flattening trend. Bloomberg news reports that the US posted a \$544bn budget deficit for the first 5 months in February, the largest ever on record. Corporate and individual income taxes decline, as tariff revenue increased. Unless tariffs permanently make up the shortfall in taxes, we remain concerned about long term debt levels, rising rates and real estate price weakness on the horizon.

## PROPERTY MARKETS

- **Effective rent growth** – National average shows a 3.10% one-year growth rate, in line with the 5-year average. Multi-family rents grew 4.5% for the year, while retail growth continues to lag at 1.63%, continuing to slow.
- **Vacancy rates** – For the trailing 1-yr period, vacancy rates increased for all property types, (10 to 110bp). Although deliveries grew in all categories (except retail) over 2017's pace, absorption for all asset classes was less than 1.0x. This is the first time that all categories were negative in the past 15 years. We expect continued vacancy increases across all categories as heavy construction pipelines in multi-family and warehouse property types are delivered.
- **National property prices** for multi-family increased by 5.6% on a rolling 3-year basis, while retail properties have lost value per unit nearly every month for the past 2 years.

## DEBT CAPITAL MARKETS

- **Credit spreads** generally tighten in Q1 with CMBS BBB- coming in approximately 100bps. YTD19 CMBS conduit issuance of \$10.8bn is off last year's levels by over 17%, continuing the long-term decline in issuance. Competing products such as FHLMC (\$16bn), SASB (\$10bn), CRE-CLO (\$5bn), and balance sheet lenders continue to take market share.
- **CMBS risk retention pricing** – Horizontal subordinates in the 14% area, L-shaped subordinates in the 16-17% area.
- **Conduit delinquency rates** dropped to 1.76% this month, reflecting continued improvement.

## THREE TRENDS WE ARE WATCHING

- **Cyclical highs in property prices** – all property types experiencing price volatility at national level. Negative absorption and heavy delivery pipelines. Multifamily and industrial building on a very robust pace. Over-levered properties finding their way into rated securitizations.
- **Rising Interest Rates** – absent panic flights to quality, we believe the growing deficit, tax policy, trade tensions and tariffs may balloon deficits, spike rates, impact values.
- **CMBS Conduit deal size** – smaller deal sizes (now \$830mm, a decline of over 8% vs 2018) may reflect both market share issues as well as less willingness for banks to hold loans on their books in current market.

## FEATURE – Leverage versus Fundamentals

This quarter, we feature a look at the correlation between leverage and market fundamentals. Most commercial real estate investors will agree that the economy and jobs are probably first among many important factors influence the success of any property. From a lending point of view, we would therefore expect loans to be more conservatively underwritten in areas of high unemployment and volatility, along with more aggressive lending in areas of stability and low unemployment.

To test our theory, we gathered the past 4 years of employment information from for the top 388 Metropolitan Statistical Areas (MSAs) in the US, as well as information on over 4,600 CMBS conduit loans originated and securitized between 2017 and 2018. We rank the MSAs by most recent unemployment and volatility, match loans to each MSA, and then calculate the average debt yield for each bucket. In a simplistic way, in regard to employment fundamentals, this analysis could help investors identify both over and under leveraged properties.

**Table 1**

| Unemp Rate        | Props        | Average Debt Yield at Origination |             |              |              |              |              |              |             |
|-------------------|--------------|-----------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|-------------|
|                   |              | MF                                | MH          | OF           | RT           | HT           | IN           | SS           | OT          |
| <=3               | 815          | 9.41                              | 9.98        | 9.37         | 10.55        | 14.67        | 10.70        | 10.98        | 10.55       |
| 4                 | 2,696        | 8.68                              | 10.38       | 9.87         | 9.67         | 14.20        | 10.31        | 9.37         | 9.51        |
| 5                 | 818          | 10.17                             | 10.35       | 9.60         | 9.95         | 13.91        | 10.97        | 10.02        | 9.09        |
| 6                 | 85           | 10.36                             | <b>8.22</b> | 11.81        | <b>11.22</b> | 14.63        | 11.82        | 10.61        | 11.22       |
| >6                | 57           | 10.74                             | 10.24       | 10.65        | 9.83         | 14.92        | 10.54        | 9.61         | 8.27        |
| No MSA            | 192          | 10.74                             | 9.60        | 9.66         | 9.95         | 15.28        | 13.50        | 9.92         | 10.34       |
| <b>Total / Av</b> | <b>4,663</b> | <b>10.02</b>                      | <b>9.80</b> | <b>10.16</b> | <b>10.20</b> | <b>14.60</b> | <b>11.31</b> | <b>10.09</b> | <b>9.83</b> |

Table 1 provides the categorized information and allows for a few observations:

- Multi-family housing follows a generally smooth and predictable pattern with low debt yields in MSAs with strong employment and less leverage in those with weaker economic conditions.
- Office properties follow a similar pattern.
- Hotel and Industrial property both appear to have consistent leverage regardless of MSA employment and economic condition.
- Higher than average debt yields in strong MSAs could also be a function of local overbuilding.
- Outliers identified in Manufactured Housing and Retail, with debt yields both higher and lower than expected.

While many factors influence lending decisions, we believe this simple process of comparing local fundamentals to leverage highlights loans which may require additional underwriting and analysis.



## FEATURE – Leverage versus Fundamentals

**MSAs with unemployment at 2x national average vs CMBS loans made**

| Metropolitan area       | State | Unemployment |          |          |          | 2017-2018<br>CMBS Loans |
|-------------------------|-------|--------------|----------|----------|----------|-------------------------|
|                         |       | 12/01/15     | 12/01/16 | 12/01/17 | 12/01/18 |                         |
| El Centro, CA           | CA    | 24.10        | 23.60    | 17.00    | 17.30    | 2                       |
| Yuma, AZ                | AZ    | 21.70        | 18.80    | 14.40    | 15.40    | 8                       |
| Ocean City, NJ          | NJ    | 11.10        | 9.80     | 12.20    | 10.00    | 0                       |
| Visalia-Porterville, CA | CA    | 11.50        | 11.20    | 10.20    | 9.60     | 3                       |
| Yakima, WA              | WA    | 8.10         | 7.50     | 8.10     | 8.30     | 0                       |
| Hanford-Corcoran, CA    | CA    | 10.50        | 10.00    | 8.40     | 8.20     | 0                       |
| Merced, CA              | CA    | 11.40        | 10.60    | 8.80     | 8.20     | 2                       |
| Salinas, CA             | CA    | 8.10         | 7.70     | 8.50     | 8.10     | 2                       |
| Bakersfield, CA         | CA    | 10.20        | 10.40    | 8.40     | 7.60     | 8                       |
| Fresno, CA              | CA    | 10.20        | 9.50     | 8.10     | 7.50     | 4                       |
| Yuba City, CA           | CA    | 10.20        | 9.40     | 7.70     | 7.50     | 1                       |
| Madera, CA              | CA    | 10.50        | 9.20     | 7.50     | 7.10     | 1                       |

## SELECTED MARKET DATA – Economic and Real Estate Fundamentals and Trends

|                                | 2009   | 2014    | 2016    | 2017    | 2018    | Q1-19   | 1yr    | 5yr    | 10yr   |
|--------------------------------|--------|---------|---------|---------|---------|---------|--------|--------|--------|
| <b>Economic</b>                |        |         |         |         |         |         |        |        |        |
| UNEMP                          | 9.90   | 5.60    | 4.70    | 4.10    | 3.90    | 3.80    | -0.30% | -2.90% | -4.90% |
| PART                           | 64.60  | 62.70   | 62.70   | 62.70   | 63.10   | 63.00   | 0.10%  | -0.20% | -2.60% |
| GDP                            | 14,567 | 17,616  | 18,869  | 19,831  | 20,865  | 21,063  | 5.10%  | 4.80%  | 4.64%  |
| CPI-TTM                        | 2.28%  | -0.05%  | 1.91%   | 2.09%   | 1.40%   | 1.65%   | -0.37% | 0.32%  | 2.64%  |
| UST IMPL INF                   | 2.37%  | 1.68%   | 1.95%   | 1.96%   | 1.71%   | 1.88%   | -0.17% | -0.25% | 0.60%  |
| <b>Interest Rate</b>           |        |         |         |         |         |         |        |        |        |
| 1M LIBOR                       | 0.32%  | 0.17%   | 0.77%   | 1.56%   | 2.50%   | 2.49%   | 0.61%  | 2.34%  | 1.51%  |
| Eff Fed Funds                  | 0.12%  | 0.12%   | 0.50%   | 1.31%   | 2.40%   | 2.41%   | 0.74%  | 2.35%  | 2.23%  |
| Prime                          | 3.25%  | 3.25%   | 3.75%   | 4.50%   | 5.50%   | 5.50%   | 0.75%  | 2.25%  | 2.25%  |
| UST2                           | 1.14%  | 0.67%   | 1.20%   | 1.89%   | 2.49%   | 2.26%   | -0.01% | 1.82%  | 1.45%  |
| UST10                          | 3.85%  | 2.17%   | 2.45%   | 2.40%   | 2.69%   | 2.41%   | -0.33% | -0.32% | -0.30% |
| 2/10 Spread                    | 2.71%  | 1.50%   | 1.25%   | 0.51%   | 0.20%   | 0.14%   | -0.33% | -2.15% | -1.76% |
| Real10                         | 1.48%  | 0.49%   | 0.50%   | 0.44%   | 0.98%   | 0.53%   | -0.16% | -0.07% | -0.90% |
| <b>Vacancy (REIS)</b>          |        |         |         |         |         |         |        |        |        |
| Multi                          | 8.00%  | 4.20%   | 4.20%   | 4.50%   | 4.80%   | 4.80%   | 0.10%  | 0.70%  | -3.20% |
| Retail                         | 10.60% | 10.20%  | 9.90%   | 10.00%  | 10.20%  | 10.20%  | 0.00%  | -0.20% | -0.40% |
| Office                         | 17.00% | 16.70%  | 15.80%  | 16.40%  | 16.70%  | 16.60%  | 0.10%  | -0.30% | -0.40% |
| Industrial                     | n/a    | 11.20%  | 10.30%  | 8.90%   | 10.20%  | 10.20%  | 1.10%  | -1.30% | n/a    |
| Hotel                          |        |         |         |         |         |         |        |        |        |
| <b>Rents (REIS Effective)</b>  |        |         |         |         |         |         |        |        |        |
| Multi                          | 964    | 1,124   | 1,252   | 1,305   | 1,356   | 1,380   | 4.47%  | 5.25%  | 4.32%  |
| Retail                         | 16.75  | 17.16   | 17.89   | 18.24   | 18.53   | 18.65   | 1.63%  | 2.07%  | 1.13%  |
| Office                         | 22.43  | 24.19   | 25.93   | 26.43   | 27.04   | 27.26   | 2.29%  | 3.04%  | 2.15%  |
| Industrial                     | n/a    | 4.46    | 4.66    | 4.96    | 5.08    | 5.19    | 4.01%  | 3.75%  | n/a    |
| Hotel                          |        |         |         |         |         |         |        |        |        |
| <b>National \$PSF (RCA)</b>    |        |         |         |         |         |         |        |        |        |
| Multi                          | 81,953 | 132,159 | 152,206 | 153,656 | 168,075 | 162,052 | 9.86%  | 9.86%  | 9.96%  |
| Retail                         | 144    | 198     | 200     | 177     | 171     | 217     | 12.28% | 1.48%  | 4.58%  |
| Office                         | 152    | 223     | 235     | 241     | 268     | 272     | 2.96%  | 4.71%  | 1.53%  |
| Industrial                     | 47     | 69      | 78      | 79      | 88      | 88      | 1.85%  | 7.52%  | 3.85%  |
| Hotel                          | 59,012 | 134,398 | 153,841 | 143,596 | 146,341 | 165,036 | 14.34% | 4.58%  | 7.74%  |
| <b>National Cap Rate (RCA)</b> |        |         |         |         |         |         |        |        |        |
| MF                             | 6.84%  | 6.05%   | 5.70%   | 5.62%   | 5.53%   | 5.47%   | -0.14% | -0.75% | -1.17% |
| Ret                            | 7.96%  | 6.63%   | 6.52%   | 6.60%   | 6.51%   | 6.56%   | 0.03%  | -0.24% | -0.67% |
| Office                         | 8.75%  | 6.75%   | 6.59%   | 6.73%   | 6.57%   | 6.78%   | 0.20%  | -0.10% | -0.92% |
| Ind                            | 8.37%  | 6.99%   | 6.80%   | 6.74%   | 6.48%   | 6.41%   | 0.03%  | -0.81% | -1.49% |
| Hotel                          | 9.55%  | 8.14%   | 8.50%   | 8.51%   | 8.39%   | 8.23%   | -0.31% | 0.01%  | -0.71% |
| <b>Risk Premium</b>            |        |         |         |         |         |         |        |        |        |
| MF                             | 2.99%  | 3.88%   | 3.25%   | 3.22%   | 2.85%   | 3.06%   | 0.19%  | -0.43% | -0.87% |
| Ret                            | 4.11%  | 4.46%   | 4.07%   | 4.20%   | 3.83%   | 4.15%   | 0.36%  | 0.08%  | -0.36% |
| Office                         | 4.90%  | 4.58%   | 4.14%   | 4.33%   | 3.89%   | 4.37%   | 0.53%  | 0.23%  | -0.62% |
| Ind                            | 4.52%  | 4.82%   | 4.35%   | 4.34%   | 3.80%   | 4.00%   | 0.36%  | -0.49% | -1.18% |
| Hotel                          | 5.70%  | 5.97%   | 6.05%   | 6.11%   | 5.71%   | 5.82%   | 0.02%  | 0.33%  | -0.40% |

# CRE FUNDAMENTALS – Property Price, Vacancy, and Rent Growth Trends

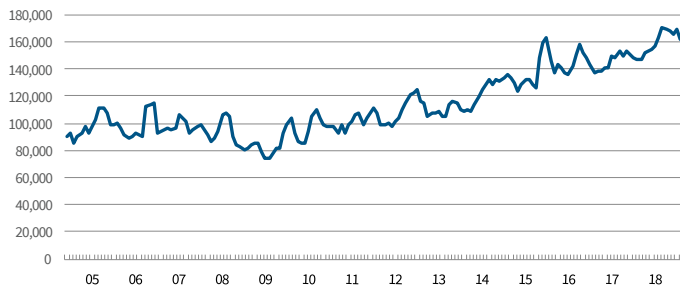
| Year End | National Average \$price / unit |        |           |       |      |
|----------|---------------------------------|--------|-----------|-------|------|
|          | MF                              | Retail | Hotel     | Ofc   | Ind  |
| 2005     | 90,527.7                        | 154.4  | 108,200.0 | 169.5 | 63.0 |
| 2006     | 107,027.7                       | 158.3  | 133,060.5 | 197.5 | 62.1 |
| 2007     | 113,416.2                       | 174.3  | 136,504.5 | 232.4 | 66.7 |
| 2008     | 95,251.4                        | 168.9  | 117,311.2 | 255.0 | 68.6 |
| 2009     | 84,671.0                        | 181.3  | 89,940.8  | 199.7 | 63.1 |
| 2010     | 81,953.2                        | 144.0  | 59,012.2  | 151.5 | 47.3 |
| 2011     | 99,502.6                        | 152.1  | 138,350.5 | 222.2 | 51.3 |
| 2012     | 103,329.8                       | 174.8  | 98,186.8  | 213.3 | 60.1 |
| 2013     | 120,788.9                       | 228.0  | 121,202.3 | 225.8 | 62.1 |
| 2014     | 115,918.7                       | 178.3  | 129,720.0 | 230.7 | 64.8 |
| 2015     | 132,159.3                       | 198.4  | 134,397.7 | 222.6 | 69.3 |
| 2016     | 148,228.2                       | 212.7  | 138,162.4 | 239.0 | 72.7 |
| 2017     | 152,206.0                       | 199.6  | 153,841.0 | 234.9 | 77.7 |
| 2018     | 153,656.0                       | 177.4  | 143,596.4 | 241.0 | 79.5 |
| 2019Q1   | 168,075.2                       | 171.4  | 146,340.9 | 268.0 | 88.0 |
| 2019Q1   | 162,051.9                       | 217.4  | 165,035.9 | 272.4 | 87.6 |

| Year End | Vacancy Trend |        |       |       |       |
|----------|---------------|--------|-------|-------|-------|
|          | MF            | Retail | Hotel | Ofc   | Ind   |
| 2005     | 5.70          | 6.80   | -     | 14.70 | -     |
| 2006     | 5.80          | 7.10   | -     | 13.40 | -     |
| 2007     | 5.70          | 7.50   | -     | 12.60 | -     |
| 2008     | 6.70          | 8.90   | -     | 14.50 | -     |
| 2009     | 8.00          | 10.60  | -     | 17.00 | -     |
| 2010     | 6.60          | 11.00  | -     | 17.60 | 14.00 |
| 2011     | 5.30          | 11.00  | -     | 17.40 | 13.20 |
| 2012     | 4.60          | 10.70  | -     | 17.10 | 12.10 |
| 2013     | 4.30          | 10.40  | -     | 16.90 | 11.60 |
| 2014     | 4.20          | 10.20  | -     | 16.70 | 11.20 |
| 2015     | 4.40          | 10.00  | -     | 16.20 | 10.60 |
| 2016     | 4.20          | 9.90   | -     | 15.80 | 10.30 |
| 2017     | 4.50          | 10.00  | -     | 16.40 | 8.90  |
| 2018     | 4.80          | 10.20  | -     | 16.70 | 9.40  |
| 2019Q1   | 4.80          | 10.20  | -     | 16.60 | 9.40  |

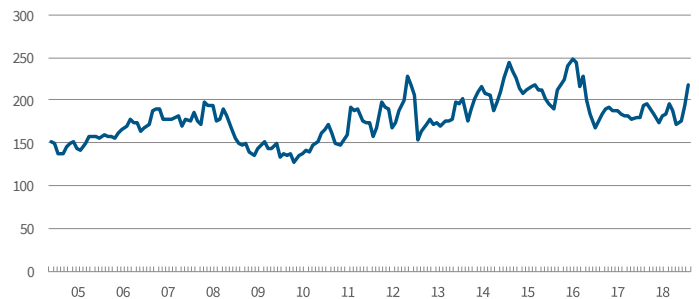
|             |           |        |           |        |        |
|-------------|-----------|--------|-----------|--------|--------|
| Peak        | 170,070.0 | 248.1  | 201,238.3 | 298.5  | 95.4   |
| Trough      | 73,804.9  | 128.0  | 59,012.2  | 132.0  | 44.7   |
| Fall fr '06 | 34.93%    | 26.55% | 56.77%    | 43.20% | 33.07% |
| Peak Date   | Oct-18    | Aug-16 | Apr-15    | Aug-08 | Sep-18 |
| Trough Date | Sep-09    | Jun-10 | Dec-09    | Mar-10 | Apr-10 |
| Curr vs '06 | 35.5%     | 1.8%   | 5.2%      | 3.7%   | 19.1%  |
| Curr vs Pk  | -9.7%     | -28.5% | -28.6%    | -19.3% | -16.7% |
| Curr vs Tr  | 108.2%    | 38.5%  | 143.3%    | 82.6%  | 77.9%  |
| 5yr GR      | 7.7%      | -0.8%  | 2.4%      | 3.0%   | 6.3%   |
| 10yr GR     | 7.1%      | -0.6%  | 5.0%      | 3.0%   | 3.4%   |
| Volatility  | 11.3%     | 13.8%  | 29.7%     | 17.0%  | 10.4%  |

| Year End | Rent Growth Trend |        |       |        |        |
|----------|-------------------|--------|-------|--------|--------|
|          | MF                | Retail | Hotel | Ofc    | Ind    |
| 2005     | 2.89              | 3.23   | -     | 3.19   | -      |
| 2006     | 4.38              | 3.37   | -     | 8.93   | -      |
| 2007     | 4.73              | 2.39   | -     | 10.54  | -      |
| 2008     | 1.95              | (1.02) | -     | 0.24   | -      |
| 2009     | (2.92)            | (3.68) | -     | (8.86) | -      |
| 2010     | 2.39              | (1.43) | -     | (1.52) | -      |
| 2011     | 2.43              | (0.06) | -     | 2.04   | (0.48) |
| 2012     | 3.86              | 0.48   | -     | 1.95   | 1.91   |
| 2013     | 3.33              | 1.51   | -     | 2.22   | 1.64   |
| 2014     | 3.69              | 1.96   | -     | 3.02   | 2.76   |
| 2015     | 5.16              | 2.21   | -     | 3.18   | 2.02   |
| 2016     | 5.83              | 2.00   | -     | 3.84   | 2.42   |
| 2017     | 4.23              | 1.96   | -     | 1.93   | 6.44   |
| 2018     | 5.21              | 1.81   | -     | 2.65   | 4.03   |
| 2019Q1   | 4.47              | 1.63   | -     | 2.29   | 4.01   |

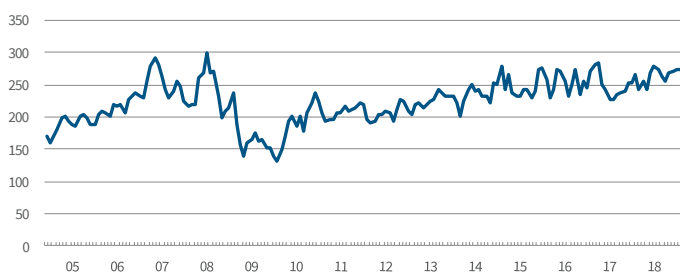
### Multifamily



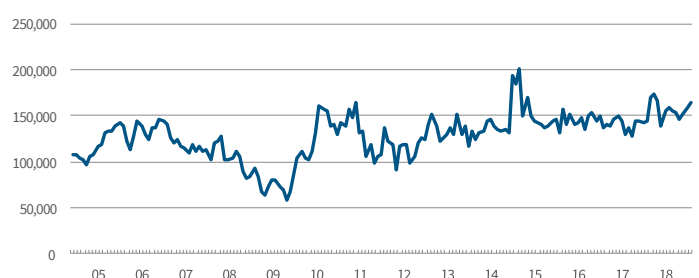
### Retail



### Office



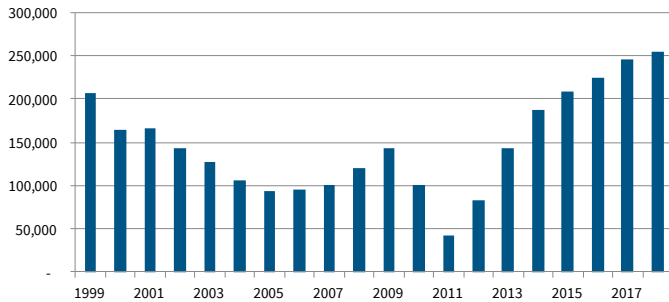
### Hotel



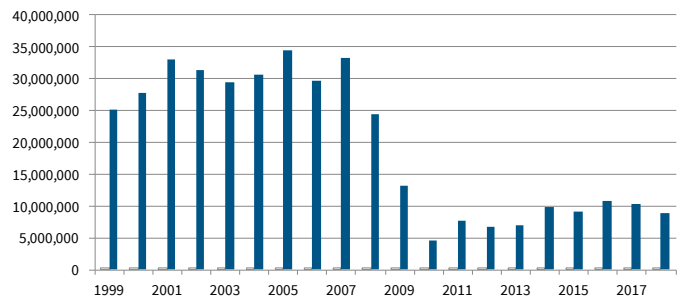
# CRE FUNDAMENTALS – Commercial Property Deliveries and Absorption

| Year | Deliveries |            |             |             | Net Absorption |        |        |  | Notes   |
|------|------------|------------|-------------|-------------|----------------|--------|--------|--|---|
|      | Multi      | Retail     | Office      | Ind / Whse  | Multi          | Retail | Office | Ind / Whse   |   |
| 1999 | 206,040    | 25,126,000 | 120,280,000 | -           |                |        |        |  | Multifamily - Record deliveries. <ul style="list-style-type: none"> <li>Continues to grow at all-time highs</li> <li>Net absorption approx 0.87x, and</li> <li>less than 1.0x for past 5 years</li> </ul> |
| 2000 | 164,674    | 27,727,000 | 111,061,000 | -           | 1.34x          | 1.42x  | (1.02) |  |   |
| 2001 | 166,124    | 33,013,000 | 134,904,000 | -           | 0.12x          | 0.59x  | (0.28) |  |   |
| 2002 | 143,957    | 31,369,000 | 81,422,000  | -           | (0.04)         | 0.87x  | (0.15) |  |   |
| 2003 | 127,591    | 29,416,000 | 41,016,000  | -           | 0.35x          | 0.97x  | 0.99x  | Retail deliveries decline significantly. <ul style="list-style-type: none"> <li>Past 5 years at 9-10mm sqft</li> <li>Net absorption almost zero</li> </ul>   |   |
| 2004 | 106,144    | 30,596,000 | 35,475,000  | -           | 0.48x          | 1.06x  | 1.91x  |  |   |
| 2005 | 93,699     | 34,438,000 | 39,792,000  | -           | 0.35x          | 1.03x  | 1.43x  | Office - deliveries highest in past 10 years. <ul style="list-style-type: none"> <li>Net absorption &lt;1.0x for 4 years</li> <li>Slow, steady 2% rent growth</li> </ul>                                 |   |
| 2006 | 95,205     | 29,627,000 | 49,879,000  | -           | (0.03)         | 0.75x  | 1.08x  |  |   |
| 2007 | 100,630    | 33,254,000 | 59,902,000  | -           | 0.99x          | 0.71x  | (0.69) |  |   |
| 2008 | 119,630    | 24,545,000 | 65,450,000  | -           | 0.10x          | (0.27) | (1.18) | Industrial and Whse near LY record of 32%. <ul style="list-style-type: none"> <li>Record high deliveries</li> <li>Second strongest rent growth at 4%</li> <li>Net absorption falls below 1.0x</li> </ul> |   |
| 2009 | 143,130    | 13,142,000 | 50,548,000  | -           | 0.02x          | (1.64) | (0.42) |  |   |
| 2010 | 101,268    | 4,499,000  | 23,375,000  | 10,017,000  | 2.27x          | (0.71) | 0.71x  | (3.51)   |   |
| 2011 | 42,606     | 7,625,000  | 15,440,000  | 13,388,000  | 4.03x          | 0.83x  | 1.01x  | 4.83x  |   |
| 2012 | 82,679     | 6,778,000  | 12,443,000  | 22,585,000  | 1.67x          | 1.67x  | 1.86x  | 3.82x  |   |
| 2013 | 143,227    | 6,883,000  | 25,959,000  | 38,740,000  | 1.14x          | 1.84x  | 1.08x  | 1.73x  |   |
| 2014 | 188,125    | 9,776,000  | 28,287,000  | 76,678,000  | 0.95x          | 1.36x  | 1.36x  | 1.27x  |   |
| 2015 | 209,409    | 9,088,000  | 36,642,000  | 78,848,000  | 0.96x          | 1.36x  | 0.79x  | 1.46x  |   |
| 2016 | 223,840    | 10,815,000 | 36,659,000  | 95,459,000  | 0.96x          | 1.07x  | 0.63x  | 1.42x  |   |
| 2017 | 246,140    | 10,318,000 | 39,048,000  | 137,428,000 | 0.76x          | 0.68x  | 0.74x  | 1.15x  |   |
| 2018 | 254,733    | 8,986,000  | 47,426,000  | 140,190,000 | 0.87x          | 0.14x  | 0.53x  | 0.73x  |   |

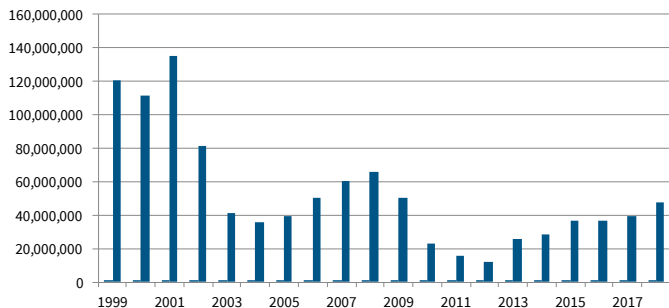
### Multifamily



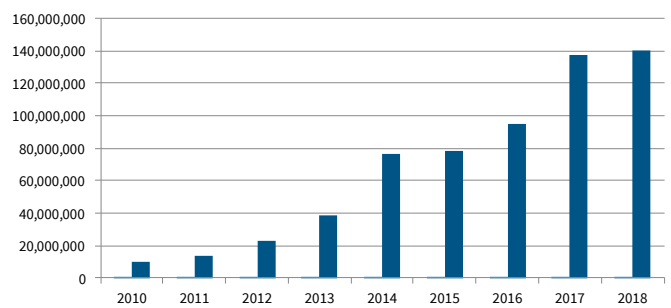
### Retail



### Office



### Industrial/Warehouse



## SECURITIZED MARKETS – 2019 Conduit and SASB Issuance

| Type | SERIES  | Pricing          | AMOUNT   | SERVICER | SPSERV      | B-PIECE        | #PROP             | #LOAN | RR Type | RR Yld |       |  |
|------|---------|------------------|----------|----------|-------------|----------------|-------------------|-------|---------|--------|-------|--|
| CMBS | Conduit | RCMT 2019-5      | 01/28/19 | 399.21   | KeyBank     | KeyBank        | Ready Capital     | 127   | 95      | HRZ    | -     |  |
|      |         | BMARK 2019-B9    | 02/01/19 | 883.52   | Wells Fargo | LNR Partners   | Prime / LNR       | 88    | 50      | VERT   | -     |  |
|      |         | BANK 2019-BNK16  | 02/01/19 | 974.84   | Wells Fargo | KeyBank        | Prime / Ellington | 115   | 69      | VERT   | -     |  |
|      |         | GSMS 2019-GC38   | 02/13/19 | 756.44   | Wells Fargo | Midland        | KKR               | 53    | 36      | HRZ    | 13.84 |  |
|      |         | JPMCC 2019-COR4  | 02/15/19 | 774.09   | Midland     | Midland        | LoanCore          | 56    | 38      | HRZ    | 13.50 |  |
|      |         | WFCM 2019-C49    | 02/21/19 | 774.23   | Wells Fargo | Midland        | KKR               | 71    | 64      | HRZ    | 15.15 |  |
|      |         | CSAIL 2019-C15   | 02/28/19 | 829.25   | Midland     | Midland        | 3650 REIT         | 83    | 36      | HRZ    | 14.50 |  |
|      |         | MSC 2019-L2      | 03/01/19 | 934.87   | Midland     | Rialto Capital | Rialto Capital    | 68    | 50      | L      | 16.75 |  |
|      |         | BANK 2019-BNK17  | 03/21/19 | 833.03   | Wells Fargo | Midland        | Ellington / Prime | 239   | 49      | VERT   | -     |  |
|      |         | BMARK 2019-B10   | 03/21/19 | 1,256.00 | KeyBank     | LNR Partners   | Eightfold         | 98    | 46      | VERT   | -     |  |
|      |         | UBSCM 2019-C16   | 03/27/19 | 682.67   | Midland     | Midland        | KKR               | 488   | 54      | HRZ    | 14.00 |  |
|      |         | CF 2019-CF1      | 04/17/19 | 757.97   | KeyBank     | LNR Partners   | LNR Partners      | 60    | 37      | L      | 20.34 |  |
|      |         | WFCM 2019-C50    | 04/29/19 | 937.97   | Wells Fargo | Rialto Capital | Rialto Capital    | 346   | 64      | VERT   | -     |  |
|      |         | <b>10,794.08</b> |          |          |             |                |                   |       |         |        |       |  |

| Type | SERIES | Pricing             | AMOUNT   | SELLER   | SPSERV                      | Risk Retention | Asset              | RR Type                         | RR Yld |       |  |
|------|--------|---------------------|----------|----------|-----------------------------|----------------|--------------------|---------------------------------|--------|-------|--|
| CMBS | SASB   | CGCMT 2019-SMRT     | 01/10/19 | 644.10   | Kroenke, StorageMart        | Midland        | Oaktree            | 101 Storage Marts               | HRZ    | 4.76  |  |
|      |        | NYT 2019-NYT        | 01/11/19 | 515.00   | Brookfield                  | Trimont        | DB, BOA, BARCL     | NY Times Building               | VERT   | -     |  |
|      |        | CAMB 2019-LIFE      | 01/25/19 | 1,170.00 | Brookfield                  | Trimont        | DB, BOA            | 8 Life Sci Ofc, Cambridge       | VERT   | -     |  |
|      |        | SGCMS 2019-787E     | 02/01/19 | 187.50   | Georgetown / Ackman         | Aegon          | SocGen             | 787 Eleventh Ave                | VERT   | -     |  |
|      |        | WBHT 2019-WBM       | 02/04/19 | 336.50   | Atrium Holding              | CWCAM          | Oaktree            | Waikiki Beach Hotel             | HRZ    | L+588 |  |
|      |        | CSMC 2019-SKLZ      | 02/04/19 | 335.00   | Rubin Schron                | KeyBank        | Apollo Real Estate | 322 Health/Rehab Ctrs           | HRZ    | L+700 |  |
|      |        | CFK 2019-FAX        | 02/13/19 | 82.00    | Hampshire Properties        | KeyBank        | Keybank            | 3 Multifamily - Fairfax Va      | VERT   | -     |  |
|      |        | BBCMS 2019-CLP      | 02/14/19 | 290.40   | Blackstone                  | Trimont        | Barclays           | 112 Calif Logistics / Ind       | VERT   | -     |  |
|      |        | MTRO 2019-TECH      | 02/14/19 | 200.00   | Brookfield                  | Trimont        | BB, DB, Citi       | One MetroTech Brooklyn          | VERT   | -     |  |
|      |        | CGCMT 2019-SST2     | 02/21/19 | 180.00   | SmartStop Asset Mgt         | KeyBank        | CREFI, Keybank     | 29 Self Storage                 | VERT   | -     |  |
|      |        | ILPT 2019-SURF      | 03/01/19 | 390.00   | Industrial Logistics        | Rialto Capital | Prima Capital      | 186 Honolulu Grnd Lease         | HRZ    | 5.75  |  |
|      |        | BCORE 2019-CORE     | 03/01/19 | 402.80   | Brookfield                  | Trimont        | CREFI, BOA, DB, BB | 7 office - NY, Balt, Pit, Phila | VERT   | -     |  |
|      |        | CALI 2019-101C      | 03/07/19 | 515.00   | GIC, Hong Kong, Hines       | Midland        | CPPIB Canada       | 101 California St. San Fran     | HRZ    | 6.25  |  |
|      |        | CCST 2019-CHL2      | 03/15/19 | 530.00   | Cloverleaf Cold Stg         | KeyBank        | Goldman            | 18 dairy / cold stg whse        | VERT   | -     |  |
|      |        | MSC 2019-AGLN       | 03/20/19 | 321.00   | El-Ad Group                 | KeyBank        | Morgan Stanley     | 42 industrial / office          | VERT   | -     |  |
|      |        | RETL 2019-RVP       | 03/21/19 | 900.00   | Retail Value Inc.           | KeyBank        | WAMCO              | 36 mall (PR), power ctr         | HRZ    | L+850 |  |
|      |        | NCMS 2019-NEMA      | 03/22/19 | 199.00   | Crescent Heights            | KeyBank        | Natixis            | NEMA San Francisco - Apts       | VERT   | -     |  |
|      |        | BAMLL 2019-AHT      | 03/29/19 | 240.00   | Ashford Hospitality         | KeyBank        | BOA                | Renaissance Nashville           | VERT   | -     |  |
|      |        | DBGS 2019-1735      | 04/03/19 | 311.38   | Silverstein, Arden, Migdal  | Situs          | DB, Goldman        | 1735 Market - Phila             | VERT   | -     |  |
|      |        | NCMS 2019-LVL       | 04/12/19 | 206.00   | Douglaston, AIG, MacFarlane | KeyBank        | Natixis            | 2 North 6th PL Brooklyn         | VERT   | -     |  |
|      |        | JPMCC 2019-ICON     | 04/15/19 | 144.70   | Icon Realty                 | Situs          | Shelter Growth     | 36 NYC Multifamily/Mixed        | HRZ    | 12.00 |  |
|      |        | NOHT 2019-HNLA      | 04/17/19 | 325.00   | AllianceBernstein, Berger   | Trimont        | Shelter Growth     | Hyatt Regency New Orleans       | HRZ    | L+935 |  |
|      |        | MSC 2019-BPR        | 04/24/19 | 310.53   | Brookfield                  | KeyBank        | Morgan Stanley     | 3 Malls - VaBeach, NM, Fla      | VERT   | -     |  |
|      |        | JPMCC 2019-ICON UES | 04/29/19 | 65.70    | Icon Realty                 | CWCAM          | JPMorgan           | 19 NYC Multifamily              | VERT   | -     |  |
|      |        | BX 2019-IMC         | 05/02/19 | 1,150.00 | Blackstone, Fireside        | LNR Partners   | Oaktree            | 16 showroom properties          | HRZ    | L+650 |  |
|      |        | <b>9,951.60</b>     |          |          |                             |                |                    |                                 |        |       |  |

| Subordinate Buyer | Conduit          | SASB            | Total            | Special Servicers | Conduit          | SASB            | Total            | Type    | Balance          | Deals     |
|-------------------|------------------|-----------------|------------------|-------------------|------------------|-----------------|------------------|---------|------------------|-----------|
| KKR               | 2,213.35         | -               | 2,213.35         | Midland           | 4,649.71         | 1,159.10        | 5,808.81         |         |                  |           |
| Rialto Capital    | 1,872.84         | -               | 1,872.84         | Keybank           | 1,374.05         | 3,303.53        | 4,677.58         |         |                  |           |
| Eightfold         | 1,256.00         | -               | 1,256.00         | LNR Partners      | 2,897.48         | 1,150.00        | 4,047.48         | Conduit |                  |           |
| Ellington / Prime | 833.03           | -               | 833.03           | Trimont           | -                | 2,903.20        | 2,903.20         | VERT    | 4,885.35         | 5         |
| Prime / LNR       | 883.52           | -               | 883.52           | Rialto Capital    | 1,872.84         | 390.00          | 2,262.84         | HRZ     | 4,215.90         | 6         |
| Prime / Ellington | 974.84           | -               | 974.84           | CWCAM             | -                | 402.20          | 402.20           | L       | 1,692.84         | 2         |
| 3650 REIT         | 829.25           | -               | 829.25           | Situs             | -                | 456.08          | 456.08           |         | <b>10,794.08</b> | <b>13</b> |
| Ready Capital     | 399.21           | -               | 399.21           | Aegon             | -                | 187.50          | 187.50           |         |                  |           |
| LoanCore          | 774.09           | -               | 774.09           |                   |                  |                 |                  |         |                  |           |
| LNR Partners      | 757.97           | -               | 757.97           |                   |                  |                 |                  |         |                  |           |
| RR Holders>       | -                | 9,951.60        | 9,951.60         |                   |                  |                 |                  | SASB    |                  |           |
|                   |                  |                 |                  |                   |                  |                 |                  | VERT    | 5,211.30         | 16        |
|                   |                  |                 |                  |                   |                  |                 |                  | HRZ     | 4,740.30         | 9         |
|                   |                  |                 |                  |                   |                  |                 |                  | L       | -                | -         |
|                   |                  |                 |                  |                   |                  |                 |                  |         | <b>9,951.60</b>  | <b>25</b> |
| <b>Total</b>      | <b>10,794.08</b> | <b>9,951.60</b> | <b>20,745.69</b> |                   | <b>10,794.08</b> | <b>9,951.60</b> | <b>20,745.69</b> |         | <b>20,745.69</b> |           |



## SECURITIZED MARKETS – 2019 FHLMC Issuance

| Type             | SERIES           | Pricing        | AMOUNT    | SERVICER         | SPSERV       | B-PIECE           | #PROP       | #LOAN |    |
|------------------|------------------|----------------|-----------|------------------|--------------|-------------------|-------------|-------|----|
| <b>FREMF</b>     | <b>10-Year</b>   | FREMF 2019-K87 | 01/23/19  | 1,298.34         | Wells Fargo  | Wells Fargo       | Bridge      | 65    | 65 |
|                  |                  | FREMF 2019-K88 | 03/01/19  | 1,444.26         | Midland      | CWCAM             | Morgan Prop | 64    | 64 |
|                  |                  | FREMF 2019-K89 | 03/12/19  | 1,488.68         | Wells Fargo  | Wells Fargo       | NYMT        | 61    | 61 |
| <b>15-Year</b>   | FREMF 2019-K1510 | 02/20/19       | 814.10    | Wells Fargo      | Wells Fargo  | NYMT              | 45          | 45    |    |
| <b>Floater</b>   | FREMF 2019-KF57  | 02/06/19       | 1,122.64  | KeyBank          | CWCAM        | Kayne Anderson    | 42          | 42    |    |
|                  | FREMF 2019-KF58  | 02/20/19       | 1,088.32  | Midland          | CWCAM        | Kayne Anderson    | 41          | 41    |    |
|                  | FREMF 2019-KF59  | 03/06/19       | 930.56    | KeyBank          | CWCAM        | Blackstone        | 40          | 40    |    |
| <b>Jr Lien</b>   | FREMF 2017-KJ19  | 03/15/18       | 290.98    | Freddie Mac      | Wells Fargo  | Waterton          | 60          | 60    |    |
|                  | FREMF 2018-KJ20  | 08/01/18       | 314.79    | Freddie Mac      | Midland      | Related Cos.      | 58          | 58    |    |
|                  | FREMF 2018-KJ21  | 09/07/18       | 310.81    | Freddie Mac      | KeyBank      | Harbor            | 69          | 76    |    |
|                  | FREMF 2018-KJ22  | 11/08/18       | 446.94    | Freddie Mac      | CWCAM        | Kayne Anderson    | 84          | 86    |    |
|                  | FREMF 2018-KJ23  | 12/07/18       | 202.40    | Freddie Mac      | Wells Fargo  | Berkshire Group   | 31          | 31    |    |
| <b>Small Bal</b> | FRESB 2019-SB58  | 01/10/19       | 622.47    | Freddie Mac      | KeyBank      | Tilden Park       | 238         | 238   |    |
|                  | FRESB 2019-SB59  | 02/13/19       | 625.27    | Freddie Mac      | LNR Partners | Axonon Capital    | 244         | 244   |    |
|                  | FRESB 2019-SB60  | 03/14/19       | 624.67    | Freddie Mac      | Situs        | Sabal Financial   | 226         | 226   |    |
| <b>Wkforce</b>   | FREMF 2018-KW04  | 03/23/18       | 631.50    | Midland          | KeyBank      | NexPoint Advisors | 44          | 42    |    |
|                  | FREMF 2018-KW05  | 06/05/18       | 637.67    | Midland          | Wells Fargo  | Bridge            | 51          | 38    |    |
|                  | FREMF 2018-KW06  | 08/01/18       | 666.04    | Midland          | Wells Fargo  | Morgan Prop       | 45          | 45    |    |
|                  | FREMF 2018-KW07  | 11/13/18       | 682.70    | Wells Fargo      | Wells Fargo  | Morgan Prop       | 36          | 36    |    |
| <b>SASB</b>      | FREMF 2019-KBF3  | 01/23/19       | 745.86    | Wells Fargo      | Wells Fargo  | Bridge            | 23          | 23    |    |
| <b>Large</b>     | FREMF 2019-KL04  | 01/17/19       | 702.38    | Wells Fargo      | Keybank      | Connor / Ares     | 22          | 22    |    |
| <b>Prepay</b>    | FREMF 2019-KC03  | 01/24/19       | 774.50    | KeyBank          | KeyBank      | RREEF America     | 24          | 24    |    |
|                  |                  |                | <b>22</b> | <b>16,465.85</b> |              |                   |             |       |    |

| Subordinate Buyer | Deals     | Deal Balance     |
|-------------------|-----------|------------------|
| Morgan Prop       | 3         | 2,792.99         |
| Bridge            | 3         | 2,681.87         |
| Kayne Anderson    | 3         | 2,657.89         |
| NYMT              | 2         | 2,302.77         |
| Blackstone        | 1         | 930.56           |
| RREEF America     | 1         | 774.50           |
| Connor / Ares     | 1         | 702.38           |
| NexPoint Advisors | 1         | 631.50           |
| Axonon Capital    | 1         | 625.27           |
| Sabal Financial   | 1         | 624.67           |
| Tilden Park       | 1         | 622.47           |
| Related Cos.      | 1         | 314.79           |
| Harbor            | 1         | 310.81           |
| Waterton          | 1         | 290.98           |
| Berkshire Group   | 1         | 202.40           |
| <b>Total</b>      | <b>22</b> | <b>16,465.85</b> |

| Spec Svc     | Deals     | Deal Balance     |
|--------------|-----------|------------------|
| Wells Fargo  | 9         | 6,826.75         |
| KeyBank      | 5         | 3,041.66         |
| CWCAM        | 5         | 5,032.71         |
| Situs        | 1         | 624.67           |
| LNR Partners | 1         | 625.27           |
| <b>Total</b> | <b>22</b> | <b>16,465.85</b> |

## SECURITIZED MARKETS – CLO Issuance

| Year                       | ISSUER                               | SERIES    | DATE     | AMOUNT           | SELLER               | SERVICER        | COLMGR               |
|----------------------------|--------------------------------------|-----------|----------|------------------|----------------------|-----------------|----------------------|
| 2018                       | VMC Finance LLC                      | 2018-FL1  | 01/26/18 | 368.09           | Varde Partners       | Trimont         | Varde Partners       |
| 2018                       | TPG Real Estate Finance              | 2018-FL1  | 02/05/18 | 932.38           | TPG                  | Wells Fargo     | TPG                  |
| 2018                       | Bridge Debt Strategies               | 2018-FL1  | 02/13/18 | 510.23           | Bridge               | Wells Fargo     | Bridge               |
| 2018                       | AREIT Trust                          | 2018-CRE1 | 02/14/18 | 480.38           | Silverpeak           | Wells Fargo     | Silverpeak           |
| 2018                       | Bancorp Commercial Mortgage Trust    | 2018-CRE3 | 03/13/18 | 304.27           | Bancorp Bank         | Wells Fargo     | Bancorp Bank         |
| 2018                       | BSPRT Ltd.                           | 2018-FL3  | 03/23/18 | 610.00           | Benefit Street       | Situs           | Benefit Street       |
| 2018                       | GPMT Ltd.                            | 2018-FL1  | 04/26/18 | 826.57           | Granite Point        | Wells Fargo     | Granite Point Mtg    |
| 2018                       | LoanCore Ltd.                        | 2018-CRE1 | 05/18/18 | 1,052.91         | LoanCore Capital     | Situs           | LoanCore Capital     |
| 2018                       | Arbor Realty Commercial Ltd.         | 2018-FL1  | 05/23/18 | 560.00           | Arbor Realty         | Arbor           | Arbor Realty         |
| 2018                       | Exantas Capital Corp.                | 2018-RSO6 | 06/07/18 | 514.23           | RCC Real Estate      | C-III           | Exantas Capital      |
| 2018                       | Ready Capital Mortgage Financing LLC | 2018-FL2  | 06/15/18 | 278.28           | ReadyCap             | KeyBank         | ReadyCap             |
| 2018                       | Marathon CRE Ltd                     | 2018-FL1  | 06/22/18 | 470.00           | Marathon Asset Mgt   | KeyBank         | Marathon Asset Mgt   |
| 2018                       | M360 Ltd.                            | 2018-CRE1 | 07/18/18 | 329.74           | M360 Advisors        | Wells Fargo     | M360 Advisors        |
| 2018                       | Shelter Growth CRE Ltd.              | 2018-FL1  | 07/20/18 | 415.13           | Shelter Growth Cap   | Wells Fargo     | Shelter Growth       |
| 2018                       | BDS Ltd.                             | 2018-FL2  | 07/25/18 | 420.02           | Bridge Investment    | Wells Fargo     | Bridge Investment    |
| 2018                       | Hunt CRE Ltd.                        | 2018-FL2  | 08/03/18 | 285.00           | Hunt Mortgage        | KeyBank         | Hunt Mortgage        |
| 2018                       | Greystone Commercial Ltd             | 2018-HC1  | 09/11/18 | 300.00           | Greystone            | Greystone       | Greystone            |
| 2018                       | Bancorp Commercial Mortgage Trust    | 2018-CRE4 | 09/17/18 | 341.00           | Bancorp Bank         | Wells Fargo     | Bancorp Bank         |
| 2018                       | BSPRT Ltd.                           | 2018-FL4  | 09/27/18 | 868.40           | Benefit Street       | Situs           | Benefit Street       |
| 2018                       | VMC Finance LLC                      | 2018-FL2  | 10/19/18 | 462.30           | VMC Lender           | Trimont         | Varde Partners       |
| 2018                       | AREIT Trust                          | 2018-CRE2 | 10/30/18 | 596.31           | Silverpeak           | Wells Fargo     | Silverpeak           |
| 2018                       | KREF Ltd.                            | 2018-FL1  | 11/07/18 | 1,000.00         | KKR                  | Midland         | KKR                  |
| 2018                       | TRTX Ltd.                            | 2018-FL2  | 11/15/18 | 1,000.17         | TPG Real Estate      | Situs           | TPG Real Estate      |
| 2018                       | OREC Ltd.                            | 2018-CRE1 | 11/20/18 | 350.00           | ORIX                 | RED Mtg Capital | ORIX                 |
| 2018                       | FORT CRE LLC                         | 2018-1    | 11/28/18 | 600.00           | Fortress             | Wells Fargo     | Fortress             |
| <b>2018 - Year to Date</b> |                                      |           |          | <b>13,875.40</b> |                      |                 |                      |
| 2019                       | BDS Ltd.                             | 2019-FL3  | 01/28/19 | 600.00           | Bridge Investment    | Wells Fargo     | Bridge Investment    |
| 2019                       | GPMT Ltd.                            | 2019-FL2  | 02/14/19 | 825.00           | Granite Point        | Wells Fargo     | Granite Point        |
| 2019                       | NLY Ltd.                             | 2019-FL2  | 02/15/19 | 857.30           | Annaly               | Trimont         | Annaly               |
| 2019                       | Bancorp Commercial Mortgage Trust    | 2019-CRE5 | 03/08/19 | 518.30           | Bancorp Bank         | KeyBank         | Bancorp Bank         |
| 2019                       | LMREC LLC                            | 2019-CRE3 | 03/26/19 | 500.00           | LaSalle Mtg Real Est | Northmarq       | LaSalle Mtg Real Est |
| 2019                       | Ready Capital Mortgage Financing LLC | 2019-FL3  | 03/29/19 | 320.80           | ReadyCap             | KeyBank         | ReadyCap             |
| 2019                       | Exantas Capital Corp.                | 2019-RSO7 | 04/04/19 | 687.20           | Exantas              | C-III           | Exantas              |
| 2019                       | PFP Ltd.                             | 2019-5    | 04/11/19 | 764.20           | Prime Finance        | Wells Fargo     | Prime Finance        |
| <b>2019 - Year to Date</b> |                                      |           |          | <b>5,072.80</b>  |                      |                 |                      |

## SOURCES

The third-party Information set forth herein is derived from the following sources:

- Bloomberg
- CBRE Capital Markets
- Citibank Research
- Commercial Mortgage Alert
- CRE Direct
- FHLMC
- Intex Solutions
- Maximus Ten-X
- Morningstar Research
- Moody's / RCA CPPI
- National Center for Education Statistics
- National Real Estate Investor
- Real Capital Analytics
- REIS
- Trepp Information Systems
- US Bureau of Labor Statistics
- US Census Bureau
- US Federal Reserve
- US Treasury
- Wells Fargo Research

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