

CWC Capital Markets Update

Second Quarter 2018

In this Issue:

- Economy: Continued positive employment and economic trends. Relentless flattening of the yield curve, spread tightening in the deep credit space.
- Cyclical highs in property prices, volatility, and Retail's negative fundamentals.
- Feature – Relative Value in the SASB Office Market

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In this issue of the CWC Capital Markets Update, we focus on the fundamentals and trends affecting national commercial real estate debt markets. Our feature includes a framework for analyzing relative value in securitized SASB Office markets. We synthesize and present information gathered from various industry research, public resources, and our own research.

The Economy

- The July jobs report noted that the economy continues to grow with 157,000 created this month. Employment in the professional and business services category grew by 51,000, with strong growth in manufacturing (37,000) and health and social services (34,000). Retail jobs remained relatively stable, amid declining long-term trends.
- The unemployment rate declined to 3.9%, the lowest level since at least 2003. The participation rate was steady at 62.9%. BLS notes state outliers of Alaska currently 6.9%, and Hawaii with the lowest rate at 2.1%. For cities, Nashville and the San Francisco bay area previously reported the lowest rates (2.7%), Buffalo the highest at 5.8%.
- The 10-year US Treasury yield at 2.84% has been stable below the 3.00% level for several weeks. We have seen continued 2/10 flattening of 44bps YTD, with the current level at a low 24bps. Historically, inverted yield curves can signal an economic slowdown. Among the many factors that could influence interest rates in the near to medium term are the Federal Reserve's continued tightening cycle on the short end, the "unwinding" of its quantitative easing balance sheet, increased global growth and recovery, the risk of trade tariff cycles, and increased deficits as a result of tax reform. The Federal Reserve Bank of Atlanta forecasts 2018 US GDP growth at 4.3%.

Property Markets

- Effective rent growth - National average of 3.01% year over year, continuing to slow. Multi-family rents showed a 4.21% increase for the year, while retail growth continues to fade.
- Vacancy rates - For the trailing 1-yr period, vacancy rates increased slightly for all property types, (20 to 110bp). Deliveries in all property types began to slow relative to 2017's pace. Absorption for all asset classes is less than 1.0x, with retail turning negative (-1.09x), the first sector to do so since the financial crisis. We expect continued vacancy increases in multi-family as construction pipeline is delivered.
- National property prices for multi-family declined by 0.45% year to date, while other sectors showed some growth. Continued price volatility in all sectors this year, and we remain at or near peak levels.

Debt Capital Markets

- Credit spreads at senior most levels stable, but significant tightening in credit spreads down the stack. YTD18 CMBS conduit issuance of \$21.5bn is off last years levels by approx. 7.5%. Competing products such as FHLMC (\$37bn), SASB (\$25bn), CRE-CLO (\$8bn), and balance sheet lenders continue to take market share.
- CMBS risk retention pricing - Horizontal subordinates in the 14% area, L-shaped subordinates in the 19% area.
- Conduit delinquency rates dropped to 2.37% this month. Estimated 80% of delinquencies in the 06/07 vintages.

Three trends we are watching

- Cyclical highs in property prices - all property types experiencing price volatility at national level. Retail experiences negative absorption and slowing construction. Multifamily valuations, construction, and cash-out refi's a concern.
- CMBS conduit market share - in our July 2016 update, we noted the decline in market share of conduit CMBS. Only 62% of maturing loan volume was being replenished to the sector. Overall issuance appears flat with Agency, SASB, and CLO issuance all gaining share.
- Student housing performance - competition from universities, other operators and factors impacting performance.

Feature – Relative Value in the SASB Office Market

One of the hottest sectors in securitized CRE debt markets this year has been the Single Asset / Single Borrower space. For example, 2018 has seen 55 deals issued so far aggregating \$25.4bn. This represents 80% of 2017's volume with the typically heavy fall season yet to come. As of this writing, SASB issuance volume equals the traditionally larger conduit issuance for the year. This is further evidence of the shift between conduit and SASB market share.

We review basic information about the sector below (Table 1), and then focus on some interesting spread differentials, and on relative value in the Office component in particular. As with any other sector, Office offers several varieties of deal types and unique risks. Investors can choose from not only short-term floating rate deals, but also 10 year fixed rate deals, and securitized ground leases.

- SASB transactions can contain any property type, but the vast majority have been hotel and office deals.
- Most are floating rate issuances backed by 2yr loans with 3 to 5 one-year extension options
- Transactions typically backed by whole-loans or controlling interests in pari-passu loans
- Single property or borrower exposure allow for easier analysis relative to CMBS conduit
- SASB deals may offer AAA and AA spreads at levels comparable to conduits or just inside of that, however the added transparency and control result in a significant premium at the same deep credit levels. Portions of the loan on 1745 Broadway appear in both a single asset deal, and the BANK 13 conduit. Comparison made at implied subordination levels (Table 2)

Table 1

| SASB 2018 Issuance Year to Date | | | |
|--|-----------|-----------------|---------------|
| Prop Type | Deals | UPB | Pct of Total |
| Hotel | 24 | 10,989.6 | 43.2% |
| Office | 18 | 8,274.9 | 32.5% |
| Retail | 7 | 4,227.7 | 16.6% |
| Multifamily | 4 | 1,415.0 | 5.6% |
| Industrial | 2 | 557.0 | 2.2% |
| | 55 | 25,464.2 | 100.0% |

Table 2

| Class | WFCM 2018-1745 | | | BANK 2018-BNK13 | |
|-------|-----------------------|-------|--------|------------------------|-----------------|
| | Par | Sub | Spread | Impled Spread | SASB Concession |
| AAA | 116.00 | 33.7% | 83 | 85 | (2) |
| AA- | 25.80 | 19.0% | 105 | 115 | (10) |
| A- | 19.30 | 7.9% | 120 | 236 | (116) |
| BBB+ | 5.15 | 5.0% | 145 | 514 | (369) |
| NR | 8.75 | 0.0% | 0.06 | | |
| | 175.00 | | | | |

Feature – Relative Value in the SASB Office Market

By comparing issuance spreads to calculated leverage points and to implied debt yields (based on in-place cashflow if available) at each level of the capital stack, we can normalize for that particular risk. Of course, each property is unique and requires further underwriting to determine and evaluate idiosyncratic risks. At each point of the ratings capital stacks that follow, we highlight the positions offering the highest risk adjusted return in that rating category, and using the comparison described.

In the Office sector alone, 2018 offers 10 floating rate deals, one combination fixed/float deal, 3 fixed rate controlling pari-passu deals, and one securitized ground lease deal. Comparisons and relative value highlight follows:

Floating Rate Deals

| Transaction | BBCMS 2018-TALL | BX 2018- MCSF | DBGS 2018- 5BP | GSMS 2018- RIVR | NCMS 2018- 850T | JPMCC 2018- PTC | MSC 2018- BOP | GPT 2018- GPP | DBGS 2018- BIOD | BX 2018- BIOA |
|-------------|--------------------|------------------|------------------------|------------------------------|-------------------------|---------------------------|-----------------------------|---------------------|-------------------------|---------------------|
| Property | Willis Tower | Mkt Ctr SFO | Five Bryant Park | River Pt North Chicago | 850 Third Ave NYC | Peachtr Ctr Atlanta | 12 Suburban Office DC | 69 Office / Ind | 22 Bio Med Office | BX Bio- Med Port |
| Appraised | 1,781.0 | 570.0 | 640.0 | 489.0 | 480.0 | 260.8 | 361.6 | 428.4 | 1,272.0 | 2,712.2 |
| First Mtg | 1,325.0 | 382.0 | 463.0 | 310.0 | 220.0 | 140.3 | 223.4 | 270.0 | 725.0 | 1,400.0 |
| MRNCF | 79.2 | 24.6 | 26.8 | 20.6 | 15.9 | 16.3 | 31.5 | 31.9 | 44.4 | 119.3 |
| LTV | 74.4% | 67.0% | 72.3% | 63.4% | 45.8% | 53.8% | 61.8% | 63.0% | 57.0% | 51.6% |
| DY | 6.0% | 6.4% | 5.8% | 6.6% | 7.2% | 11.6% | 14.1% | 11.8% | 6.1% | 8.5% |
| Term | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 |
| Extensions | 5 | 5 | 5 | 5 | 2 | 3 | 3 | 5 | 5 | 5 |
| SqFt | 3,785.8 | 758.8 | 683.0 | 1,735.8 | 604.3 | 2,484.0 | 1,800.0 | 3,916.8 | 2,359.5 | 4,088.4 |
| Sr/Ft | 350 | 503 | 678 | 179 | 364 | 56 | 124 | 69 | 307 | 342 |
| Rate | L+138 | L+135 | L+135 | L+149 | L+178 | L+334 | L+157 | L+155 | L+127 | L+124 |
| Pari | - | - | - | - | - | 25.0 | - | - | - | - |
| AAA | 564.2 | 172.5 | 200.2 | 111.0 | 73.8 | 58.0 | 97.4 | 136.5 | 340.5 | 676.0 |
| AA | 127.0 | 32.0 | 44.5 | 45.7 | 18.4 | 15.7 | 23.8 | 31.0 | 65.0 | 122.0 |
| A | 105.7 | 21.5 | 33.4 | 24.0 | 13.8 | 11.6 | 17.9 | 23.3 | 43.0 | 81.0 |
| BBB | 136.8 | 34.0 | 40.9 | 37.7 | 17.0 | 14.3 | 21.9 | 28.5 | 136.5 | 129.0 |
| BB | 212.0 | 52.0 | 55.6 | 32.5 | 23.1 | 9.8 | 31.1 | 37.2 | 83.0 | 199.0 |
| B | 113.0 | 50.9 | 53.8 | 35.5 | 22.3 | - | 20.3 | - | 20.6 | 123.0 |
| NR | - | - | 11.5 | 8.0 | - | - | - | - | - | - |
| HRR | - | 19.1 | 23.2 | - | 8.9 | 5.9 | 11.2 | 13.5 | 36.4 | 70.0 |
| VRR | 66.3 | - | - | 15.5 | - | - | - | - | - | - |
| B-Note | - | - | - | - | 42.8 | - | - | - | - | - |
| First Mtg | 1,325.0 | 382.0 | 463.0 | 310.0 | 220.0 | 140.3 | 223.4 | 270.0 | 725.0 | 1,400.0 |
| Mezz | - | - | - | - | - | 38.7 | 55.0 | - | - | - |
| Total Debt | 1,325.0 | 382.0 | 463.0 | 310.0 | 220.0 | 179.0 | 278.4 | 270.0 | 725.0 | 1,400.0 |
| Spread | FLT | FLT | FLT | FLT | FLT | FLT | FLT | FLT | FLT | FLT |
| AAA | 85 | 77 | 84 | 95 | 98 | 130 | 85 | 108 | 83 | 80 |
| AA | 110 | 100 | 103 | 114 | 115 | 200 | 125 | 128 | 100 | 100 |
| A | 125 | 120 | 123 | 170 | 135 | 240 | 150 | 140 | 120 | 125 |
| BBB | 160 | 165 | 155 | 235 | 165 | 321 | 182 | 185 | 175 | 145 |
| BB | 260 | 235 | 210 | 285 | 215 | 384 | 250 | 247 | 225 | 208 |
| B | 340 | 285 | 278 | 365 | 265 | - | - | - | 275 | 260 |
| NR | - | - | - | - | - | - | - | - | - | - |
| Risk Ret | - | 384 | 380 | - | 525 | 709 | - | 400 | 345 | 302 |
| RR Type | VERT | HRZ | HRZ | VERT | HRZ | HRZ | VERT | HRZ | HRZ | HRZ |
| Holder | Barclays | OMERS | Bkfld | GS | Oaktree | Oaktree | MS | LNR | Prima | Prima |

Feature – Relative Value in the SASB Office Market

Combination, Fixed Rate, and Ground Lease Deals

| Transaction | JPMCC 2018-WPT | | | NCMS 2018- ALXA | NCMS 2018- OSS | WFCM 2018- 1745 | TSQ 2018- 20TS |
|-------------|-------------------------|-------------------------|------------------------|------------------------------|----------------------------|-------------------------|---------------------------|
| | 147 Ofc / Flex Float | 147 Ofc / Flex Fixed | 147 Ofc / Flex Comb | Centre 425 Bellevue WA | One State St Plaza, NYC | 1745 Broadway NYC | 20 Times Square NYC |
| Appraised | - | - | 1,634.29 | 316.0 | 560.0 | 632.0 | 1,636.0 |
| First Mtg | 255.00 | 850.00 | 1,105.00 | 208.5 | 360.0 | 319.0 | 750.0 |
| MRNCF | - | - | 117.16 | 15.2 | 18.0 | 36.6 | 30.4 |
| LTV | - | - | 78.0% | 66.0% | 64.3% | 50.5% | 45.8% |
| DY | - | - | 10.6% | 7.3% | 5.0% | 3.8% | 4.1% |
| Term | 2 | 5 | | 10 | 10 | 10 | 5 |
| Extensions | 3 | - | | - | - | | |
| SqFt | | | 9,884.8 | 356.9 | 891.6 | 684.5 | Ground |
| Sr/Ft | | | 112 | 584 | 404 | 466 | Ground |
| Rate | L+315 | 5.4% | | 4.3% | 4.5% | 3.8% | 3.1% |
| Pari | - | - | 170.0 | 84.0 | 112.0 | 144.0 | 150.0 |
| AAA | 92.4 | 233.9 | 326.3 | 8.0 | 11.4 | 116.0 | 163.1 |
| AA | 23.4 | 59.3 | 82.7 | 8.2 | 29.5 | 25.8 | 113.8 |
| A | 19.0 | 76.1 | 95.1 | 33.3 | 22.1 | 19.3 | 61.4 |
| BBB | 36.2 | 144.7 | 180.9 | 39.0 | 26.8 | 5.2 | 81.4 |
| BB | 27.6 | 110.4 | 138.0 | 29.9 | - | - | 89.5 |
| B | 21.8 | 87.2 | 109.0 | - | - | - | 60.8 |
| NR | 20.4 | 81.4 | 101.8 | - | - | - | - |
| HRR | 14.3 | 57.0 | 71.3 | - | - | - | - |
| VRR | - | - | - | 6.2 | 4.7 | 8.8 | 30.0 |
| B-Note | - | - | - | - | 153.5 | - | - |
| First Mtg | 255.0 | 850.0 | 1,275.0 | 208.5 | 360.0 | 319.0 | 750.0 |
| Mezz | - | - | - | 57.6 | - | - | 150.0 |
| Total Debt | 255.0 | 850.0 | 1,275.0 | 266.1 | 360.0 | 319.0 | 900.0 |
| LTV | | | | | | | |
| Spread | FLT | FX | Comb | FX | FX | FX | FX |
| AAA | 110 | 70 | 81 | 99 | 90 | 83 | 145 |
| AA | 140 | 100 | 111 | 120 | 115 | 105 | 172 |
| A | 180 | 140 | 148 | 140 | 135 | 120 | 160 |
| BBB | 256 | 198 | 210 | 175 | 167 | 145 | 180 |
| BB | 305 | 305 | 305 | 220 | | | 230 |
| B | 355 | 370 | 367 | | | | 290 |
| NR | 580 | 470 | 492 | | | | |
| Risk Ret | 915 | 1000 | 983 | | | | |
| RR Type | HRZ | HRZ | HRZ | VERT | VERT | VERT | VERT |
| Holder | Shelter | Shelter | Shelter | Natixis | Natixis | WF | Natixis |

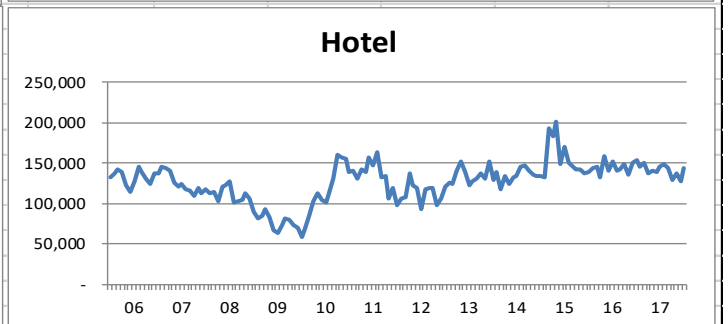
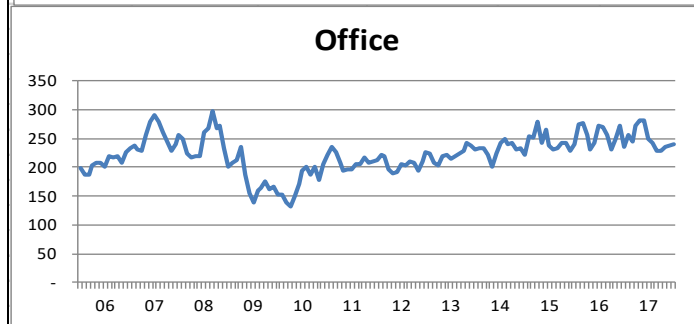
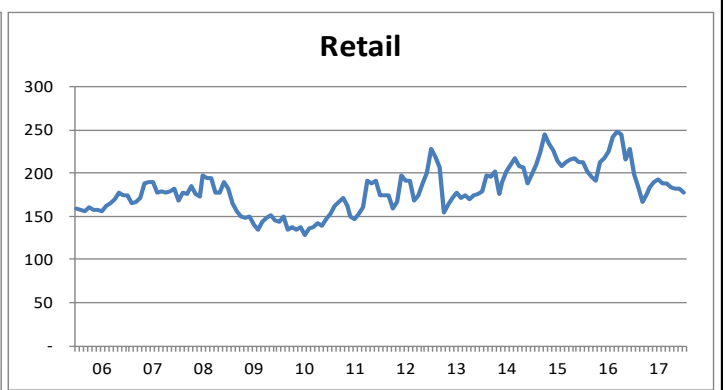
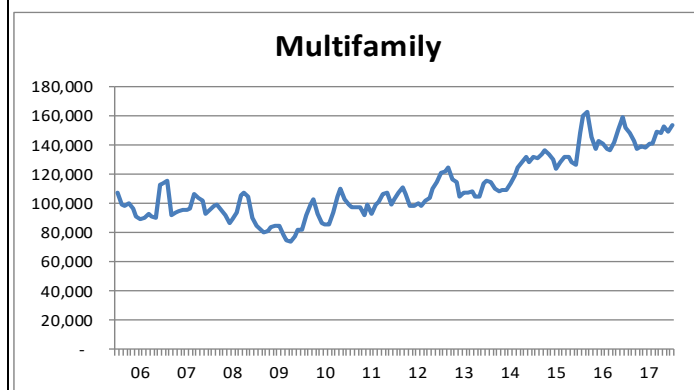
Selected Market Data – Economic and Real Estate Fundamentals and Trends

| | 2008 | 2013 | 2015 | 2016 | 2017 | Q2-18 | 1yr | 5yr | 10yr |
|--------------------------------|--------|---------|---------|---------|---------|----------------|--------|--------|--------|
| Economic | | | | | | | | | |
| UNEMP | 7.30 | 7.00 | 5.00 | 4.70 | 4.10 | 4.00 | -0.40% | -3.60% | -1.60% |
| PART | 65.80 | 63.00 | 62.60 | 62.70 | 62.70 | 62.90 | 0.10% | -0.60% | -3.20% |
| GDP | 14,550 | 16,958 | 18,223 | 18,869 | 19,831 | 20,402 | 5.98% | 4.55% | 3.77% |
| CPI-TTM | -0.40% | 1.51% | 1.44% | 1.91% | 2.09% | 2.94% | 1.15% | 1.02% | -2.11% |
| UST IMPL INF | 0.11% | 2.24% | 1.54% | 1.95% | 1.96% | 2.11% | 0.38% | 0.12% | -0.40% |
| Interest Rate | | | | | | | | | |
| 1M LIBOR | 1.75% | 0.16% | 0.43% | 0.77% | 1.56% | 2.09% | 0.87% | 1.87% | -0.57% |
| Eff Fed Funds | 0.16% | 0.07% | 0.24% | 0.50% | 1.31% | 1.90% | 0.85% | 1.81% | -0.10% |
| Prime | 3.61% | 3.25% | 3.37% | 3.75% | 4.50% | 5.00% | 0.75% | 1.75% | 0.00% |
| UST2 | 0.76% | 0.38% | 1.06% | 1.20% | 1.89% | 2.52% | 1.14% | 2.16% | -0.11% |
| UST10 | 2.25% | 3.04% | 2.27% | 2.45% | 2.40% | 2.85% | 0.54% | 0.33% | -1.14% |
| 2/10 Spread | 1.49% | 2.66% | 1.21% | 1.25% | 0.51% | 0.33% | -0.60% | -1.83% | -1.03% |
| Real10 | 2.14% | 0.80% | 0.73% | 0.50% | 0.44% | 0.74% | 0.16% | 0.21% | -0.74% |
| Vacancy (REIS) | | | | | | | | | |
| Multi | 6.70% | 4.30% | 4.40% | 4.20% | 4.50% | 4.80% | 0.50% | 0.50% | -1.90% |
| Retail | 8.90% | 10.40% | 10.00% | 9.90% | 10.00% | 10.30% | 0.30% | -0.20% | 1.40% |
| Office | 14.50% | 16.90% | 16.20% | 15.80% | 16.40% | 16.60% | 0.20% | -0.40% | 2.10% |
| Industrial | n/a | 11.60% | 10.60% | 10.30% | 8.90% | 10.30% | 1.10% | -1.50% | n/a |
| Hotel | | | | | | | | | |
| Rents (REIS Effective) | | | | | | | | | |
| Multi | 993 | 1,083 | 1,183 | 1,252 | 1,305 | 1,338 | 4.21% | 5.15% | 3.47% |
| Retail | 17.39 | 16.81 | 17.54 | 17.89 | 18.24 | 18.39 | 1.83% | 2.04% | 0.58% |
| Office | 24.61 | 23.50 | 24.97 | 25.93 | 26.43 | 26.83 | 2.52% | 3.09% | 0.90% |
| Industrial | n/a | 4.36 | 4.55 | 4.66 | 4.96 | 5.02 | 3.51% | 3.35% | n/a |
| Hotel | | | | | | | | | |
| National \$PSF (RCA) | | | | | | | | | |
| Multi | 84,671 | 115,919 | 148,228 | 152,206 | 153,656 | 152,965 | 8.77% | 8.58% | 7.09% |
| Retail | 181 | 178 | 213 | 200 | 177 | 186 | -3.13% | 1.01% | -0.61% |
| Office | 200 | 231 | 239 | 235 | 241 | 249 | -0.18% | 3.24% | -0.42% |
| Industrial | 63 | 65 | 73 | 78 | 79 | 84 | 4.50% | 7.03% | 2.29% |
| Hotel | 89,941 | 129,720 | 138,162 | 153,841 | 143,596 | 170,794 | 17.47% | 7.72% | 3.36% |
| National Cap Rate (RCA) | | | | | | | | | |
| MF | 6.58% | 6.21% | 5.91% | 5.70% | 5.62% | 5.50% | -0.14% | -0.79% | -0.94% |
| Ret | 7.10% | 6.99% | 6.48% | 6.52% | 6.60% | 6.50% | 0.00% | -0.55% | -0.27% |
| Office | 7.26% | 6.99% | 6.70% | 6.59% | 6.73% | 6.70% | 0.04% | -0.07% | -0.30% |
| Ind | 7.73% | 7.43% | 6.61% | 6.80% | 6.74% | 6.42% | -0.18% | -1.09% | -1.16% |
| Hotel | 9.02% | 8.18% | 8.38% | 8.50% | 8.51% | 8.70% | 0.00% | 0.55% | -0.21% |
| Risk Premium | | | | | | | | | |
| MF | 4.33% | 3.17% | 3.64% | 3.25% | 3.22% | 2.65% | -0.68% | -1.12% | 0.20% |
| Ret | 4.85% | 3.95% | 4.21% | 4.07% | 4.20% | 3.65% | -0.54% | -0.88% | 0.87% |
| Office | 5.01% | 3.95% | 4.43% | 4.14% | 4.33% | 3.85% | -0.50% | -0.40% | 0.84% |
| Ind | 5.48% | 4.39% | 4.34% | 4.35% | 4.34% | 3.57% | -0.72% | -1.42% | -0.02% |
| Hotel | 6.77% | 5.14% | 6.11% | 6.05% | 6.11% | 5.85% | -0.54% | 0.22% | 0.93% |

CRE Fundamentals – Property Price, Vacancy, and Rent Growth Trends

| Year End | National Average \$price / unit | | | | |
|--------------------|---------------------------------|--------------|------------------|--------------|--------------|
| | MF | Retail | Hotel | Ofc | Ind |
| 2005 | 107,027.7 | 158.3 | 133,060.5 | 197.5 | 62.1 |
| 2006 | 113,416.2 | 174.3 | 136,504.5 | 232.4 | 66.7 |
| 2007 | 95,251.4 | 168.9 | 117,311.2 | 255.0 | 68.6 |
| 2008 | 84,671.0 | 181.3 | 89,940.8 | 199.7 | 63.1 |
| 2009 | 81,953.2 | 144.0 | 59,012.2 | 151.5 | 47.3 |
| 2010 | 99,502.6 | 152.1 | 138,350.5 | 222.2 | 51.3 |
| 2011 | 103,329.8 | 174.8 | 98,186.8 | 213.3 | 60.1 |
| 2012 | 120,788.9 | 228.0 | 121,202.3 | 225.8 | 62.1 |
| 2013 | 115,918.7 | 178.3 | 129,720.0 | 230.7 | 64.8 |
| 2014 | 132,159.3 | 198.4 | 134,397.7 | 222.6 | 69.3 |
| 2015 | 148,228.2 | 212.7 | 138,162.4 | 239.0 | 72.7 |
| 2016 | 152,206.0 | 199.6 | 153,841.0 | 234.9 | 77.7 |
| 2017 | 153,656.0 | 177.4 | 143,596.4 | 241.0 | 79.5 |
| 1H18 | 152,964.6 | 186.0 | 170,794.0 | 249.0 | 83.6 |
| Peak | 163,281.9 | 248.1 | 201,238.3 | 298.5 | 88.0 |
| 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 | Feb-16 | Aug-16 | Apr-15 | Aug-08 | Nov-16 |
| 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 | -5.9% | -28.5% | -28.6% | -19.3% | -9.7% |
| Curr vs Tr | 108.2% | 38.5% | 143.3% | 82.6% | 77.9% |
| 5yr GR | 4.9% | -4.9% | 3.4% | 1.3% | 5.0% |
| 10yr GR | 4.9% | 0.5% | 2.0% | -0.6% | 1.5% |
| Volatility | 12.0% | 14.1% | 30.7% | 17.6% | 11.0% |

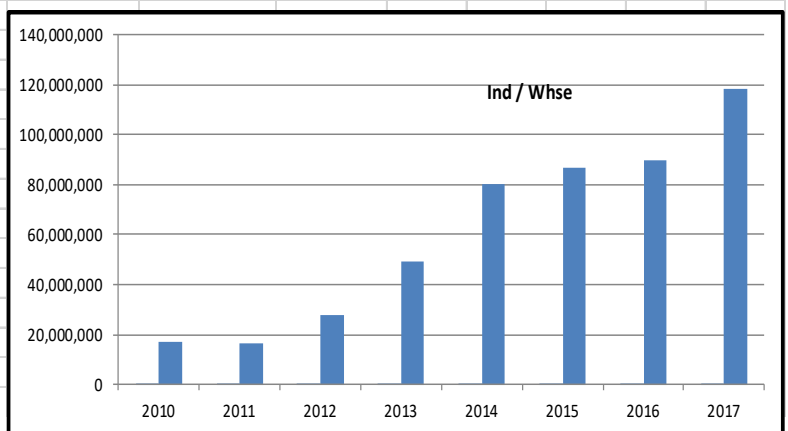
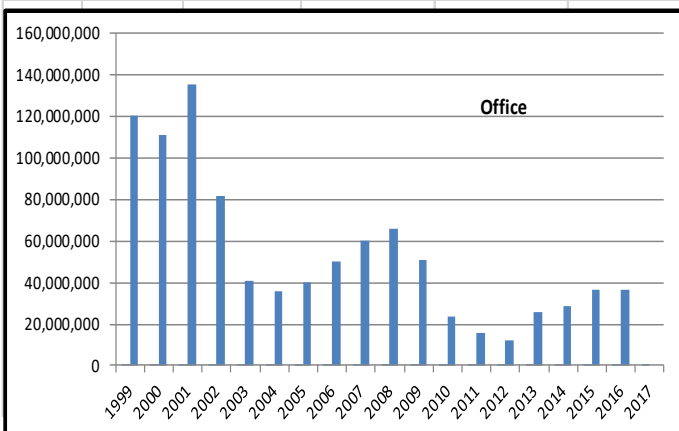
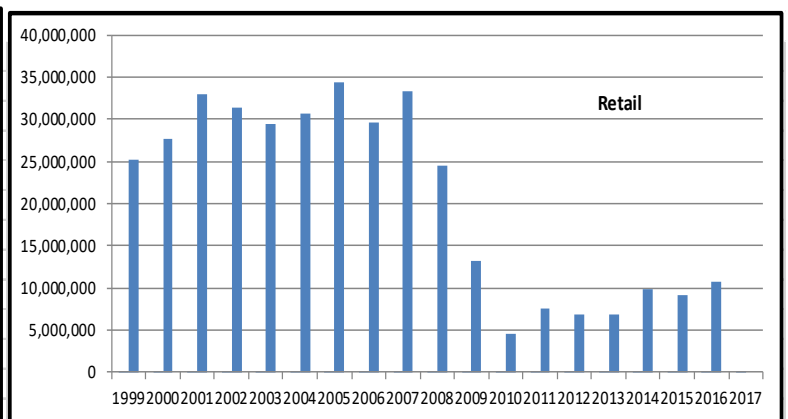
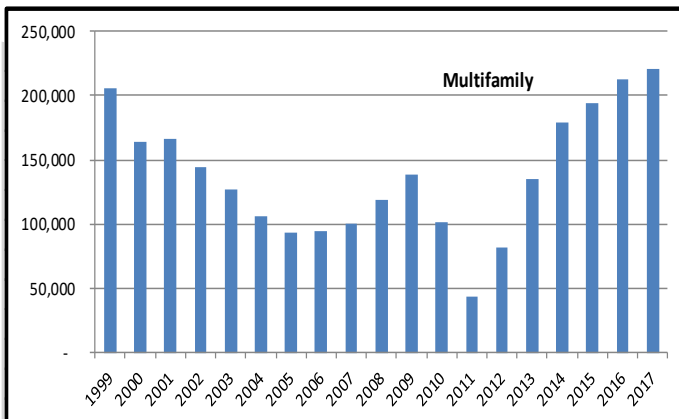
| Year End | Vacancy Trend | | | | |
|-------------|-------------------|--------------|----------|--------------|-------------|
| | MF | Retail | Hotel | Ofc | Ind |
| 2005 | 5.70 | 6.80 | - | 14.70 | - |
| 2006 | 5.80 | 7.10 | - | 13.40 | - |
| 2007 | 5.70 | 7.50 | - | 12.60 | - |
| 2008 | 6.70 | 8.90 | - | 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 |
| 1H18 | 4.80 | 10.30 | - | 16.60 | 9.30 |
| 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 |
| 1H18 | 4.21 | 1.83 | - | 2.52 | 3.51 |





CRE Fundamentals – New Construction and Delivery Trends

| Year | Deliveries | | | | Net Absorption | | | | Notes |
|------|------------|------------|-------------|-------------|----------------|--------|--------|------------|---|
| | Multi | Retail | Office | Ind / Whse | Multi | Retail | Office | Ind / Whse | |
| 1999 | 205,818 | 25,126,000 | 120,280,000 | - | | | | | |
| 2000 | 164,674 | 27,727,000 | 111,061,000 | - | 1.34x | 1.42x | (1.02) | | * Record Multifamily deliveries. |
| 2001 | 166,124 | 33,013,000 | 134,904,000 | - | 0.12x | 0.59x | (0.28) | | Growth rate slowing to 3% |
| 2002 | 143,957 | 31,369,000 | 81,422,000 | - | (0.04) | 0.87x | (0.15) | | Net absorption slowed considerably |
| 2003 | 127,591 | 29,416,000 | 41,016,000 | - | 0.35x | 0.97x | 0.99x | | |
| 2004 | 106,144 | 30,596,000 | 35,475,000 | - | 0.48x | 1.06x | 1.91x | | |
| 2005 | 93,227 | 34,438,000 | 39,792,000 | - | 0.36x | 1.03x | 1.43x | | * Retail deliveries decline significantly. |
| 2006 | 95,205 | 29,627,000 | 49,879,000 | - | (0.03) | 0.75x | 1.08x | | Past 4 years at 9-10mm sqft |
| 2007 | 100,630 | 33,254,000 | 59,902,000 | - | 0.99x | 0.71x | (0.69) | | Net absorption turns negative |
| 2008 | 119,330 | 24,545,000 | 65,450,000 | - | 0.10x | (0.27) | (1.18) | | |
| 2009 | 138,775 | 13,142,000 | 50,548,000 | - | 0.02x | (1.64) | (0.42) | | * Industrial and Whse near LY record of 32% |
| 2010 | 101,691 | 4,499,000 | 23,375,000 | 17,234,000 | 2.26x | (0.71) | 0.71x | (2.04) | Record high deliveries |
| 2011 | 43,489 | 7,625,000 | 15,440,000 | 16,598,000 | 3.95x | 0.83x | 1.01x | 3.89x | Rents relatively stable |
| 2012 | 81,399 | 6,778,000 | 12,443,000 | 28,002,000 | 1.69x | 1.67x | 1.86x | 3.07x | Net absorption slows somewhat |
| 2013 | 135,614 | 6,883,000 | 25,959,000 | 49,178,000 | 1.21x | 1.84x | 1.08x | 1.36x | |
| 2014 | 179,358 | 9,776,000 | 28,287,000 | 80,009,000 | 1.00x | 1.36x | 1.36x | 1.22x | |
| 2015 | 194,459 | 9,088,000 | 36,642,000 | 86,962,000 | 1.04x | 1.36x | 0.79x | 1.33x | |
| 2016 | 213,243 | 10,815,000 | 36,659,000 | 89,732,000 | 1.00x | 1.07x | 0.63x | 1.49x | |
| 2017 | 221,133 | 10,318,000 | 39,048,000 | 118,593,000 | 0.76x | 0.68x | 0.74x | 1.24x | |
| 1H18 | 107,612 | 2,414,000 | 20,207,000 | 52,793,000 | 0.71x | (1.09) | 0.44x | 0.57x | |



(REIS, RUA)



Securitized Markets – 2018

| Type | SERIES | Pricing | AMOUNT | SERVICER | SPSERV | B-PIECE | #PROP | #LOAN | RR Type | RR Yld | |
|-------------|----------------|-----------------|----------|----------|-------------|----------------|---------------------|-------|---------|--------|-------|
| CMBS | Conduit | BMARK 2018-B1 | 01/19/18 | 1,166.38 | Wells Fargo | Midland | Eightfold | 173 | 49 | L | 20.00 |
| | | BANK 2018-BNK10 | 01/26/18 | 1,287.15 | Wells Fargo | Torchlight | Torchlight | 181 | 68 | VERT | - |
| | | BMARK 2018-B2 | 02/09/18 | 1,507.01 | KeyBank | CWCAM | MassMutual | 67 | 57 | HRZ | 13.18 |
| | | UBSCM 2018-C8 | 02/12/18 | 1,045.17 | Midland | Midland | KKR | 126 | 67 | HRZ | 15.02 |
| | | CGCMT 2018-B2 | 03/08/18 | 1,062.39 | Midland | LNR Partners | LNR / Stream | 142 | 52 | VERT | - |
| | | WFCM 2018-C43 | 03/12/18 | 722.45 | Wells Fargo | Midland | KKR | 132 | 63 | L | 17.70 |
| | | GSMS 2018-GS9 | 03/15/18 | 887.13 | Wells Fargo | Rialto Capital | Rialto Capital | 228 | 37 | L | 17.38 |
| | | UBSCM 2018-C9 | 03/23/18 | 839.91 | Midland | Rialto Capital | Rialto Capital | 112 | 43 | HRZ | 15.01 |
| | | BMARK 2018-B3 | 03/23/18 | 1,092.54 | Midland | Midland | KKR | 75 | 45 | HRZ | 13.80 |
| | | CSAIL 2018-CX11 | 04/03/18 | 952.87 | Midland | LNR Partners | Silverpeak | 118 | 56 | HRZ | 14.15 |
| | | BANK 2018-BNK11 | 04/13/18 | 688.20 | Wells Fargo | Midland | Eightfold | 76 | 42 | VERT | - |
| | | WFCM 2018-C44 | 04/30/18 | 766.69 | Wells Fargo | Rialto Capital | Rialto Capital | 55 | 44 | HRZ | 15.00 |
| | | COMM 2018-COR3 | 05/04/18 | 1,006.08 | Midland | Midland | LoanCore Capital | 44 | 41 | HRZ | 13.88 |
| | | BANK 2018-BNK12 | 05/15/18 | 901.17 | Wells Fargo | Midland | Ellington | 95 | 63 | VERT | - |
| | | UBSCM 2018-C10 | 05/23/18 | 730.42 | Wells Fargo | Rialto Capital | Rialto Capital | 87 | 57 | HRZ | 15.13 |
| | | JPMDB 2018-C8 | 05/23/18 | 713.14 | Wells Fargo | LNR Partners | LNR | 69 | 41 | L | 20.85 |
| | | CGCMT 2018-C5 | 06/07/18 | 668.24 | Midland | KeyBank | Prime Group | 45 | 40 | HRZ | 14.06 |
| | | MSC 2018-H3 | 06/27/18 | 1,024.24 | Wells Fargo | LNR Partners | Silverpeak | 120 | 66 | HRZ | 13.59 |
| | | UBSCM 2018-C11 | 06/28/18 | 803.82 | Midland | LNR Partners | Silverpeak | 91 | 48 | L | 18.54 |
| | | BMARK 2018-B4 | 06/28/18 | 1,158.48 | Wells Fargo | Wells Fargo | CWCAM | 60 | 44 | HRZ | 13.15 |
| | | WFCM 2018-C45 | 06/28/18 | 658.77 | Wells Fargo | LNR Partners | Prime Group | 89 | 49 | HRZ | 14.44 |
| | | GSMS 2018-GS10 | 07/18/18 | 873.84 | Wells Fargo | Rialto Capital | Rialto / DoubleLine | 57 | 33 | L | 19.65 |
| | | BANK 2018-BNK13 | 07/23/18 | 944.19 | Wells Fargo | Torchlight | Torchlight | 80 | 62 | VERT | - |
| | | BMARK 2018-B5 | 07/27/18 | 1,039.13 | Wells Fargo | Midland | Prime Group | 219 | 55 | HRZ | 13.53 |
| | | CD 2018-CD7 | 08/02/18 | 717.44 | KeyBank | Rialto Capital | Rialto Capital | 72 | 42 | HRZ | 14.16 |
| | | UBSCM 2018-C12 | 08/03/18 | 804.94 | Midland | Midland | KKR | 75 | 65 | HRZ | 14.60 |
| | | CSAIL 2018-CX12 | 08/08/18 | 715.66 | Wells Fargo | LNR Partners | Silverpeak | 116 | 41 | HRZ | 14.20 |
| | | WFCM 2018-C46 | 08/10/18 | 692.11 | Wells Fargo | LNR Partners | Silverpeak | 55 | 49 | HRZ | 14.11 |

25,469.54

| Type | SERIES | Pricing | AMOUNT | SELLER | SPSERV | Risk Retention | Asset | RR Type | RR Yld | |
|-------------|-------------|-----------------|----------|-----------|----------------------|----------------|--------------------|------------------------------|--------|-------|
| CMBS | SASB | Various | Q1 2018 | 9,420.05 | Various | Various | Various | | | |
| | | Various | Q2 2018 | 10,260.50 | Various | Various | Various | | | |
| | | GPT 2018-GPP | 07/13/18 | 270.00 | Greenfield Ptnrs | LNR Partners | LNR Partners | 69 Office / Ind | HRZ | L+400 |
| | | BHMS 2018-ATLS | 07/13/18 | 604.00 | Brookfield | CWCAM | LNR Partners | Atlantis Paradise Island | HRZ | L+450 |
| | | GSMS 2018-RIVR | 07/18/18 | 310.00 | Blackstone | Wells Fargo | Goldman | River Pt North Chicago | VERT | - |
| | | JPMCC 2018-WPT | 07/18/18 | 1,105.00 | Workspc Prop Trust | KeyBank | Shelter Grwth Fund | 147 Office / Flex props | HRZ | L+915 |
| | | MSC 2018-SUN | 07/19/18 | 356.63 | Edw Thos Collections | Aegon | KSL Capital | 2 Santa Monica Hotels | HRZ | L+472 |
| | | BBCMS 2018-CBM | 07/19/18 | 415.00 | Colony Capital | KeyBank | Barclays | 30 Courtyard Hotels | VERT | - |
| | | WFCM 2018-AUS | 07/20/18 | 330.00 | Am Campus, Allianz | Aegon | Wells Fargo | Student Housing - Austin | VERT | - |
| | | NCMS 2018-850T | 07/23/18 | 177.22 | HNA, Murray Hill | Wells Fargo | Oaktree Capital | 850 Third Ave NYC | HRZ | L+525 |
| | | NCMS 2018-SOX | 07/24/18 | 110.00 | Extell Development | Wells Fargo | Natixis | InterContinental Boston | VERT | - |
| | | GSMS 2018-TWR | 07/26/18 | 212.50 | Starwood Capital | Trimont | Goldman | Tower Place, Atlanta | VERT | - |
| | | BBCMS 2018-CHRS | 07/26/18 | 284.32 | GGP, MS Prime | Wells Fargo | Barclays | Christiana Mall, Newark DE | VERT | - |
| | | MSC 2018-MP | 07/26/18 | 464.34 | Millennium Ptnrs | Wells Fargo | Blackstone | Retail / Ofc Lincoln, Ritz D | VERT | - |
| | | JPMCC 2018-PHH | 07/27/18 | 333.20 | Thor Equities | Aegon | KSL Capital | Palmer Hs Hilton Chicago | HRZ | L+603 |
| | | GSMS 2018-HULA | 08/02/18 | 350.00 | MSD, Lake Avenue | KeyBank | Goldman | Four Seasons Hawaii | VERT | - |
| | | MBR 2018-MBR | 08/07/18 | 238.00 | KSL Capital | CWCAM | Blackstone | Monarch Beach Resort | HRZ | L+441 |
| | | MSC 2018-BOP | 08/16/18 | 223.40 | Brookfield | KeyBank | Morgan Stanley | 12 Suburban Office DC | VERT | - |

25,464.15

| Subordinate Buyer | Conduit | SASB | Total | Special Servicers | Conduit | SASB | Total | Type | Balance | Deals |
|-------------------|------------------|------------------|------------------|-------------------|------------------|------------------|------------------|---------|------------------|-------|
| Silverpeak | 4,188.69 | - | 4,188.69 | Midland | 8,466.06 | 650.00 | 9,116.06 | | | |
| Rialto Capital | 3,941.59 | - | 3,941.59 | KeyBank | 668.24 | 7,544.90 | 8,213.13 | Conduit | | |
| KKR | 3,665.09 | - | 3,665.09 | LNR Partners | 6,622.98 | 1,057.00 | 7,679.98 | VERT | 4,883.09 | 5 |
| MassMutual | 2,665.49 | - | 2,665.49 | Aegon | - | 6,491.88 | 6,491.88 | HRZ | 15,419.69 | 17 |
| Prime Group | 2,366.14 | - | 2,366.14 | CWCAM | 2,665.49 | 2,627.00 | 5,292.49 | L | 5,166.75 | 6 |
| Torchlight | 2,231.34 | - | 2,231.34 | Wells Fargo | - | 5,183.58 | 5,183.58 | | 25,469.54 | 28 |
| Eightfold | 1,854.58 | - | 1,854.58 | Rialto Capital | 4,815.43 | - | 4,815.43 | | | |
| LNR / Stream | 1,062.39 | - | 1,062.39 | Torchlight | 2,231.34 | 400.00 | 2,631.34 | | | |
| LoanCore Cap | 1,006.08 | - | 1,006.08 | Trimont | - | 1,194.50 | 1,194.50 | SASB | | |
| Ellington | 901.17 | - | 901.17 | Cohen Financial | - | 315.30 | 315.30 | VERT | 11,426.31 | 28 |
| Rialto / Douc | 873.84 | - | 873.84 | | - | - | - | HRZ | 14,037.85 | 27 |
| LNR | 713.14 | - | 713.14 | | - | - | - | L | - | - |
| | - | - | - | | - | - | - | | 25,464.15 | 55 |
| | - | 25,464.15 | 25,464.15 | | | | | | | |
| Total | 25,469.54 | 25,464.15 | 50,933.69 | | 25,469.54 | 25,464.15 | 50,933.69 | | 50,933.69 | |



Securitized Markets - 2018

| Type | SERIES | Pricing | AMOUNT | SERVICER | SPSERV | B-PIECE | #PROP | #LOAN | |
|------------------|-----------------|------------------|------------------|------------------|------------------|-----------------|----------------------|--------------------|-----|
| FREMF | 7-Year | FREMF 2018-K730 | 02/28/18 | 1,470.54 | Midland | KeyBank | Connor Group | 52 | 52 |
| | | FREMF 2018-K731 | 04/05/18 | 1,248.73 | Wells Fargo | KeyBank | Berkshire Group | 58 | 54 |
| | | FREMF 2018-K732 | 06/20/18 | 1,082.43 | Midland | CWCAM | Torchlight | 49 | 49 |
| 10-Year | | FREMF 2018-K72 | 01/23/18 | 1,326.97 | Midland | Wells Fargo | Berkshire Group | 66 | 66 |
| | | FREMF 2018-K73 | 02/26/18 | 1,141.14 | KeyBank | Midland | Related Cos. | 50 | 50 |
| | | FREMF 2018-K74 | 03/20/18 | 1,434.17 | KeyBank | Midland | Cyrus Capital | 81 | 81 |
| | | FREMF 2018-K75 | 04/18/18 | 1,290.03 | KeyBank | Wells Fargo | Morgan Prop | 74 | 73 |
| | | FREMF 2018-K76 | 05/22/18 | 1,310.73 | Midland | Wells Fargo | Bridge | 58 | 58 |
| | | FREMF 2018-K77 | 06/14/18 | 1,220.55 | Wells Fargo | CWCAM | Blackstone | 60 | 60 |
| | | FREMF 2018-K78 | 07/10/18 | 1,310.43 | Wells Fargo | CWCAM | Kayne Anderson | 48 | 48 |
| | | FREMF 2018-K79 | 08/08/18 | 1,179.06 | KeyBank | Wells Fargo | Berkshire Group | 60 | 60 |
| | 15-Year | | FREMF 2018-K1504 | 01/11/18 | 881.68 | KeyBank | KeyBank | Prideroock Capital | 59 |
| | | FREMF 2018-K1505 | 06/07/18 | 904.93 | KeyBank | Midland | Related Cos. | 51 | 51 |
| | | FREMF 2018-K1506 | 08/14/18 | 699.54 | KeyBank | CWCAM | Angelo Gordon, Mc | 34 | 34 |
| Floater | | FREMF 2018-KF42 | 02/13/18 | 1,413.30 | Wells Fargo | CWCAM | Kayne Anderson | 58 | 58 |
| | | FREMF 2018-KF43 | 02/22/18 | 1,264.59 | Wells Fargo | Wells Fargo | Bridge | 42 | 42 |
| | | FREMF 2018-KF44 | 03/13/18 | 1,470.51 | Midland | Midland | Related Cos. | 77 | 74 |
| | | FREMF 2018-KF45 | 05/16/18 | 1,103.77 | KeyBank | KeyBank | Harbor | 65 | 65 |
| | | FREMF 2018-KF46 | 05/23/18 | 1,219.65 | Wells Fargo | KeyBank | Prideroock Capital | 51 | 51 |
| | | FREMF 2018-KF47 | 06/20/18 | 1,116.63 | KeyBank | CWCAM | Kayne Anderson | 63 | 55 |
| | | FREMF 2018-KF48 | 07/18/18 | 1,315.70 | Wells Fargo | CWCAM | Kayne Anderson | 62 | 43 |
| | | FREMF 2018-KF49 | 08/08/18 | 1,239.89 | Wells Fargo | Wells Fargo | Greystar | 55 | 55 |
| Jr Lien | | 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 |
| Small Bal | | FRESB 2018-SB45 | 01/17/18 | 402.24 | Freddie Mac | Arbor | Waterfall, Axonic, / | 155 | 155 |
| | | FRESB 2018-SB46 | 02/14/18 | 494.15 | Freddie Mac | LNR Partners | Axonic Capital | 169 | 169 |
| | | FRESB 2018-SB47 | 03/15/18 | 552.60 | Freddie Mac | Sabal Financial | Sabal Financial | 209 | 209 |
| | | FRESB 2018-SB48 | 04/13/18 | 559.36 | Freddie Mac | LNR Partners | Garrison | 236 | 236 |
| | | FRESB 2018-SB49 | 05/10/18 | 568.26 | Freddie Mac | Arbor | Axonic, Arbor, Sab | 208 | 208 |
| | | FRESB 2018-SB50 | 06/15/18 | 505.18 | Freddie Mac | KeyBank | Axonic Capital | 180 | 180 |
| | FRESB 2018-SB51 | 07/12/18 | 507.85 | Freddie Mac | KeyBank | Axonic Capital | 197 | 197 | |
| Wkforce | | FREMF 2018-KW04 | 03/23/18 | 631.50 | Midland | KeyBank | NexPoint Advisors | 44 | 42 |
| | | FREMF 2018-KW05 | 06/05/18 | 637.67 | Midland Loan Sei | Wells Fargo | Bridge | 51 | 38 |
| | | FREMF 2018-KW06 | 08/01/18 | 666.04 | Midland Loan Sei | Wells Fargo | Morgan Prop | 45 | 45 |
| SASB | | FREMF 2018-KI01 | 01/31/18 | 591.31 | Freddie Mac | Wells Fargo | Bridge | 21 | 21 |
| | | FREMF 2018-KHG1 | 02/07/18 | 789.58 | Midland | Wells Fargo | Bridge | 11 | 1 |
| | | FREMF 2018-KBX1 | 03/23/18 | 741.34 | Wells Fargo | Midland | Blackstone | 13 | 13 |
| Large | | FREMF 2018-KL02 | 03/06/18 | 1,317.92 | Wells Fargo | Wells Fargo | Bridge | 37 | 10 |
| Kick-out | | FREMF 2018-KX03 | 05/17/18 | 876.89 | Freddie Mac | Midland | Pimco, Bridge, Harl | 81 | 83 |
| | | | 39 | 37,092.61 | | | | | |

| Subordinate Buyer | Deals | Deal Balance | Special Servicers | Deals | Deal Balance |
|---------------------|-------|--------------|-------------------|-------|--------------|
| Bridge | 6 | 5,911.80 | Wells Fargo | 12 | 11,904.76 |
| Kayne Anderson | 4 | 5,156.06 | KeyBank | 8 | 7,568.89 |
| Related Cos. | 4 | 3,831.37 | CWCAM | 7 | 8,158.59 |
| Berkshire Group | 3 | 3,754.77 | Midland | 7 | 6,883.78 |
| Prideroock Capital | 2 | 2,101.33 | Sabal Financial | 1 | 552.60 |
| Blackstone | 2 | 1,961.89 | Arbor | 2 | 970.50 |
| Morgan Prop | 2 | 1,956.06 | LNR Partners | 2 | 1,053.51 |
| Axonic Capital | 3 | 1,507.17 | | | |
| Connor Group | 1 | 1,470.54 | | | |
| Cyrus Capital | 1 | 1,434.17 | | | |
| Greystar | 1 | 1,239.89 | | | |
| Harbor | 1 | 1,103.77 | | | |
| Torchlight | 1 | 1,082.43 | | | |
| Pimco, Bridge, Harl | 1 | 876.89 | | | |
| Angelo Gordon, M | 1 | 699.54 | | | |
| NexPoint Advisor | 1 | 631.50 | | | |
| Axonic, Arbor, Sab | 1 | 568.26 | | | |
| Garrison | 1 | 559.36 | | | |
| Sabal Financial | 1 | 552.60 | | | |
| Waterfall, Axonic, | 1 | 402.24 | | | |
| Waterton | 1 | 290.98 | | | |

39 37,092.61

39 37,092.61
(Commercial Mortgage Alert, CUDANK Research)



Securitized Markets - CLO Issuance – 2017 / 2018

| Year | ISSUER | SERIES | DATE | AMOUNT | SELLER | SERVICER | COLMGR |
|------|--|-----------|----------|----------|------------------|----------------|------------------|
| 2017 | PPF Ltd. | 2017-3 | 03/06/17 | 567.40 | Prime Finance | Wells Fargo | Prime Finance |
| 2017 | Arbor Realty Commercial Real Estate Notes Ltd. | 2017-FL1 | 03/28/17 | 360.00 | Arbor Realty | Arbor Realty | Arbor Realty |
| 2017 | BSPRT Ltd. | 2017-FL1 | 06/12/17 | 418.06 | Benefit Street | Situs | Benefit Street |
| 2017 | RAIT Trust | 2017-FL7 | 06/13/17 | 342.37 | RAIT Financial | RAIT Financial | RAIT Financial |
| 2017 | Resource Capital Corp. | 2017-CRE5 | 06/26/17 | 376.70 | Resource Capital | C-III | Resource Capital |
| 2017 | Hunt CRE Ltd. | 2017-FL1 | 08/01/17 | 349.23 | Hunt Mortgage | KeyBank | Hunt Mortgage |
| 2017 | Ready Capital Mortgage Financing LLC | 2017-FL1 | 08/02/17 | 243.80 | ReadyCap | KeyBank | ReadyCap |
| 2017 | Arbor Realty Commercial Real Estate Notes Ltd. | 2017-FL2 | 08/07/17 | 365.00 | Arbor Realty | Arbor Realty | Arbor Realty |
| 2017 | A10 Term Asset Financing LLC | 2017-1 | 08/08/17 | 350.97 | A10 Capital | A10 Capital | A10 Capital |
| 2017 | Bancorp Commercial Mortgage Trust | 2017-CRE2 | 08/11/17 | 314.36 | Bancorp Bank | Wells Fargo | Bancorp Bank |
| 2017 | PPF Ltd. | 2017-4 | 09/18/17 | 652.15 | Prime Finance | Wells Fargo | Prime Finance |
| 2017 | LCCM CRE Trust | 2017-FL1 | 10/03/17 | 456.85 | Ladder Capital | Wells Fargo | Ladder Capital |
| 2017 | BSPRT Ltd. | 2017-FL2 | 11/15/17 | 440.69 | Benefit Street | Situs | Benefit Street |
| 2017 | RAIT Trust | 2017-FL8 | 11/17/17 | 259.78 | RAIT Financial | RAIT Financial | RAIT Financial |
| 2017 | Arbor Realty Commercial Real Estate Notes Ltd. | 2017-FL3 | 12/06/17 | 480.00 | Arbor Realty | Arbor Realty | Arbor Realty |
| 2017 | BXMT Ltd. | 2017-FL1 | 12/08/17 | 1,000.00 | Blackstone | Midland | Blackstone |

6,977.36

| | | | | | | | |
|------|---|-----------|----------|----------|------------------------|-------------|--------------------|
| 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 Argentic | 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 Mortgage | 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 Real Estate Notes 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 Commercial | 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 Capital | Wells Fargo | Shelter Growthl |
| 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 - Year to Date

8,357.22

(Commercial Mortgage Alert, CitiBank Research)



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

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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