



CWC Capital Markets Update

November 2016

CWC Capital Markets Update, November 2016

In this issue of the Capital Markets update, we focus on the fundamentals and trends affecting national commercial real estate debt markets and take a brief look at property value growth relative to NOI growth over the past few years. We synthesize and present information gathered from various industry research, public resources, and our own research.

The Economy

- October saw 161,000 jobs added to the economy, just below analyst estimates. The unemployment rate remained at 4.9% and the participation rate remained steady at 62.8, still well over 100bps below the 10-year average.
- The Bureau of Labor Statistics notes job growth in healthcare, financial, and professional services. Average hourly earnings rose by 2.8% year over year. Jobs in mining, manufacturing, and construction were unchanged. This trend could change should post-election infrastructure investments materialize. WTI remains mid \$40/bbl range.
- Since the November election, 10-year US Treasury yields have risen by over 60bps to 2.35%. Market discussion is focused on the need to finance planned economic stimulus programs and some early signs that wage growth and increased inflation are beginning to appear. Our measure of GDP growth shows an annualized 3%+ growth rate on average. Forward trade policy bears watching and could influence currency and interest rate trends.

Property Markets

- Effective rent growth - National average of 2.83%. Multi-family leads at 4.19%, retail lags at 2.06%, both slowing.
- Vacancy rates - Multifamily vacancy fell slightly for the quarter, equaling 2015's year end of 4.50%. This level remains the highest reading in three years. We note that new deliveries seem to have slowed slightly relative to 2015's record pace, however 2016 still looks like it will produce the second highest level of deliveries in 15 years.
- National property prices report average increases in the 5% area for Q3-16. *We note several months of declines and volatility in hotel prices and double digit growth in multi-family prices. The 3-year growth rates for hotels have now decelerated into negative territory. Some market participants note curtailed hotel lending for many hotel properties.*

Debt Capital Markets

- Conduit originations and issuance have slowed significantly this year as market volatility, liquidity, and risk retention all begin to apply. Current year issuance as of October lags 2015's same period issuance by 37%.
- Credit spreads on new issue long AAAs have now tightened by 45bps since the year began, with BBBs tightening by 150 amid significant volatility this year. AAA's have varied by 80bps, while BBBs have varied by as much as 400bps.
- Current conduit delinquency is reported at 3.62% according to Trepp. Although this level varies, maturity wave and conduit market contraction are driving the reversal of several years of declining delinquency.

Three trends we are watching

- *Maturity wave and risk retention* - potential for increased loan defaults as liquidity recedes from securitized markets due to risk retention, bank capital rules, and regulatory requirements. Overall maturity defaults (later than 90 days past maturity) spiked to 18%-20% in the past quarter according to Morningstar data. More to come.
- *Transformation of the lending base* - as conduit lenders and securitized markets withdraw, an opportunity for new balance sheet or long-term lenders to enter the space. Second "risk retention compliant" deal priced in November, but overall, the product continues to contract and lose market share.
- *Volatility in property prices* - national average hotel, retail, and office property prices have seen interim volatility. Multifamily valuations relative to highs, construction, and risk premium relative to benchmarks bear watching.



CWC Capital Markets Update – Property type valuations relative to fundamentals

- In this report, we focus on the current property valuations relative to underlying fundamentals. Our goal is to determine whether there are broad indications of rich versus cheap valuations available in market data.
- Both office and multi-family property types appear to be trading at significant premiums to underlying 5yr NOI growth (2x-10x), while hotel prices (which seem to be falling) appear at closer to parity with reported NOI growth. In some cases, expenses appear to be keeping pace with rent growth. With suburban office still below pre-crisis peaks, prices may reflect weakness still not fully priced in, while multi-family may reflect significant assumptions about future strength and support.**
- We reviewed over 38,000 properties securitized in CMBS conduit deals between 2005 and 2016 made up of 1.4tn sqft of office space, 1.6tn of retail, 861,000 hotel rooms, and 1.9mm multifamily units. We analyzed reported NOI and appraisal per unit for each property at securitization. Since post securitization appraisals are not always available, the comparisons are based on the implied national per unit metrics calculated for each individual asset class.
- The analysis has inherent limitations including that it is based on aggregate and average data. Aggregates don't always work for specific properties, however, some indications are useful. Valuation for any individual property depends on unique facts and circumstances. Property comparisons can be influenced by asset mix in any vintage, as well as selection bias such as the shift away from conduit financing to agency financing in the multi-family sector.

| Vintage | Units Securitized | | | | NOI / Unit | | | | Appr/Unit | | | |
|-----------|-------------------|---------|---------|-----------|------------|-------|--------|-------|-----------|-------|---------|---------|
| | OF | RT | HT | MF | OF | RT | HT | MF | OF | RT | HT | MF |
| 2005 | 313.1 | 320.9 | 131,040 | 451,357 | 14.73 | 13.23 | 11,348 | 4,004 | 228.0 | 202.9 | 126,156 | 63,465 |
| 2006 | 323.5 | 377.0 | 180,489 | 504,409 | 14.26 | 12.65 | 11,610 | 4,045 | 234.7 | 202.3 | 140,714 | 70,045 |
| 2007 | 334.8 | 322.6 | 181,065 | 442,994 | 16.61 | 12.90 | 12,575 | 5,380 | 314.2 | 214.5 | 162,135 | 103,334 |
| 2010 | 11.7 | 26.7 | 2,159 | 1,281 | 12.33 | 14.57 | 11,967 | 9,885 | 146.4 | 184.7 | 125,151 | 139,891 |
| 2011 | 50.7 | 85.1 | 22,137 | 27,327 | 14.30 | 15.09 | 14,592 | 4,720 | 223.6 | 216.2 | 196,644 | 71,653 |
| 2012 | 60.3 | 86.8 | 47,742 | 43,667 | 13.15 | 14.34 | 12,044 | 4,537 | 220.4 | 210.4 | 160,283 | 72,850 |
| 2013 | 83.8 | 124.0 | 78,706 | 117,070 | 14.12 | 15.67 | 12,659 | 4,199 | 230.8 | 260.4 | 162,234 | 65,193 |
| 2014 | 86.2 | 108.9 | 71,655 | 162,793 | 13.05 | 13.47 | 14,352 | 4,692 | 229.2 | 217.4 | 185,851 | 77,415 |
| 2015 | 98.0 | 120.6 | 101,876 | 168,473 | 14.70 | 13.30 | 13,044 | 4,345 | 283.2 | 229.5 | 171,810 | 74,584 |
| 2016 | 59.6 | 58.0 | 44,644 | 52,450 | 18.23 | 17.35 | 14,861 | 4,877 | 394.7 | 326.1 | 192,301 | 100,231 |
| Ttl / Avg | 1,421.8 | 1,630.4 | 861,513 | 1,971,821 | 14.55 | 14.26 | 12,905 | 5,068 | 250.5 | 226.4 | 162,328 | 83,866 |

| | | | | | | | | |
|---------------------|------|------|------|------|-------|------|-------|------|
| 5 Year Growth Rate | 5.0% | 2.8% | 0.4% | 0.7% | 12.0% | 8.6% | -0.4% | 6.9% |
| 10 Year Growth Rate | 2.5% | 3.2% | 2.5% | 1.9% | 5.3% | 4.9% | 3.2% | 3.6% |

| Summary | 5 Year Growth Rate | | | 10 Year Growth Rate | | |
|---------|--------------------|-------|-------|---------------------|------|------|
| | NOI | Appr | Var | NOI | Appr | Var |
| Office | 5.0% | 12.0% | 7.1% | 2.5% | 5.3% | 2.9% |
| Retail | 2.8% | 8.6% | 5.7% | 3.2% | 4.9% | 1.7% |
| Hotel | -0.4% | -0.4% | -0.1% | 2.5% | 3.2% | 0.7% |
| Multi | 0.7% | 6.9% | 6.3% | 1.9% | 3.6% | 1.8% |

Selected Market Data – Economic and Real Estate Fundamentals and Trends

| | 2006 | 2010 | 2011 | 2015 | Q3 2016 | 1yr | 5yr | 10yr |
|--------------------------------|---------|---------|---------|----------------|----------------|--------|--------|--------|
| Economic | | | | | | | | |
| UNEMP | 4.40 | 9.30 | 8.50 | 5.00 | 5.00 | -0.1% | -4.0% | 0.5% |
| PART | 66.40 | 64.30 | 64.00 | 62.60 | 62.90 | 0.5% | -1.3% | -3.2% |
| GDP | 14,066 | 15,230 | 15,785 | 18,165 | 18,651 | 3.27% | 3.93% | 3.41% |
| CPI-TTM | 1.77% | 1.15% | 2.47% | 1.44% | 1.51% | 1.29% | -2.23% | -0.35% |
| UST IMPL INF | 2.30% | 2.30% | 1.96% | 1.54% | 1.60% | 0.19% | -0.15% | -0.77% |
| Interest Rate | | | | | | | | |
| 1M LIBOR | 5.35% | 0.32% | 0.35% | 0.43% | 0.53% | 0.34% | 0.20% | -4.79% |
| Eff Fed Funds | 5.24% | 0.18% | 0.07% | 0.24% | 0.28% | 0.14% | 0.20% | -4.97% |
| Prime | 8.25% | 3.25% | 3.25% | 3.37% | 3.50% | 0.25% | 0.25% | -4.75% |
| UST2 | 4.82% | 0.61% | 0.25% | 1.06% | 0.77% | 0.13% | 0.52% | -3.94% |
| UST10 | 4.71% | 3.30% | 1.89% | 2.27% | 1.60% | -0.46% | -0.32% | -3.04% |
| 2/10 Spread | -0.11% | 2.69% | 1.64% | 1.21% | 0.83% | -0.59% | -0.84% | 0.90% |
| Real10 | 2.41% | 1.00% | -0.07% | 0.73% | 0.00% | -0.65% | -0.17% | -2.27% |
| Vacancy (REIS) | | | | | | | | |
| Multi | 5.80% | 6.60% | 5.30% | 4.40% | 4.40% | 0.10% | -0.90% | -1.40% |
| Retail | 7.10% | 11.00% | 11.00% | 10.00% | 10.00% | -0.10% | -1.00% | 2.90% |
| Office | 13.40% | 17.60% | 17.40% | 16.20% | 16.00% | -0.40% | -1.40% | 2.60% |
| Industrial | n/a | 14.00% | 13.20% | 10.60% | 10.50% | -0.20% | -2.70% | n/a |
| Hotel | | | | | | | | |
| Rents (REIS Effective) | | | | | | | | |
| Multi | 930 | 987 | 1,010 | 1,183 | 1,219 | 4.19% | 4.11% | 3.11% |
| Retail | 17.16 | 16.51 | 16.50 | 17.54 | \$17.80 | 2.06% | 1.58% | 0.37% |
| Office | 22.21 | 22.09 | 22.54 | 24.97 | \$25.49 | 2.87% | 2.62% | 1.48% |
| Industrial | n/a | 4.21 | 4.19 | 4.55 | \$4.62 | 2.21% | 2.05% | n/a |
| Hotel | | | | | | | | |
| National \$PSF (RCA) | | | | | | | | |
| Multi | 113,416 | 99,503 | 103,330 | 148,228 | 141,817 | 7.7% | 6.7% | 5.5% |
| Retail | 174 | 152 | 175 | 213 | 247 | 14.9% | 5.8% | 4.6% |
| Office | 232 | 222 | 213 | 239 | 232 | -4.1% | 1.5% | 0.6% |
| Industrial | 67 | 51 | 60 | 73 | 80 | 2.0% | 11.1% | 2.1% |
| Hotel | 136,505 | 138,350 | 98,187 | 138,162 | 150,409 | 6.0% | 2.4% | 1.5% |
| National Cap Rate (RCA) | | | | | | | | |
| MF | 6.23% | 6.55% | 6.26% | 5.91% | 5.53% | -0.35% | -0.74% | -0.66% |
| Ret | 6.66% | 7.61% | 7.41% | 6.48% | 6.43% | -0.12% | -1.02% | -0.24% |
| Office | 6.69% | 7.57% | 7.32% | 6.70% | 6.46% | -0.34% | -0.88% | -0.45% |
| Ind | 7.14% | 8.23% | 7.69% | 6.61% | 6.60% | -0.19% | -1.07% | -0.34% |
| Hotel | 8.92% | 8.21% | 7.94% | 8.38% | 8.32% | 0.10% | 0.33% | -0.56% |
| Risk Premium | | | | | | | | |
| MF | 1.52% | 3.25% | 4.37% | 3.64% | 3.93% | 0.11% | -0.42% | 2.38% |
| Ret | 1.95% | 4.31% | 5.52% | 4.21% | 4.83% | 0.34% | -0.70% | 2.80% |
| Office | 1.98% | 4.27% | 5.43% | 4.43% | 4.86% | 0.12% | -0.56% | 2.59% |
| Ind | 2.43% | 4.93% | 5.80% | 4.34% | 5.00% | 0.27% | -0.75% | 2.70% |
| Hotel | 4.21% | 4.91% | 6.05% | 6.11% | 6.72% | 0.56% | 0.65% | 2.48% |



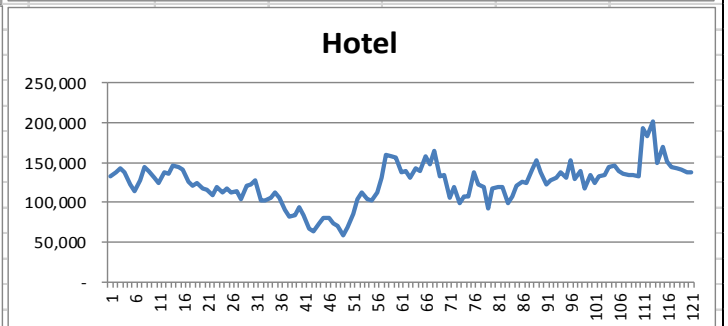
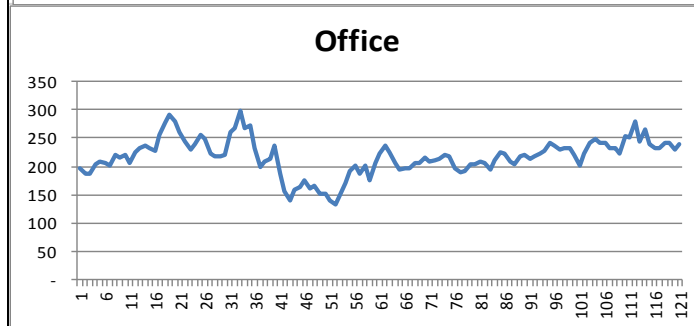
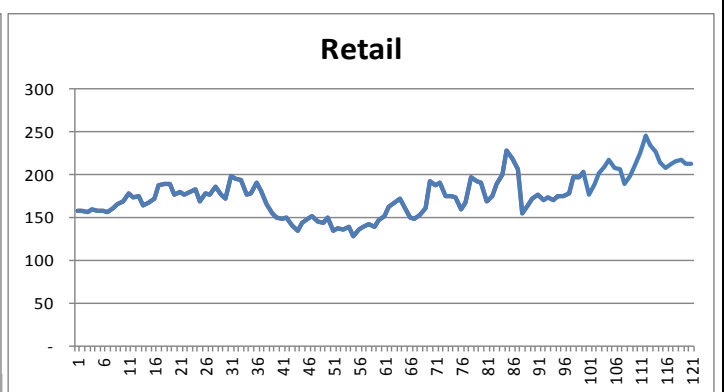
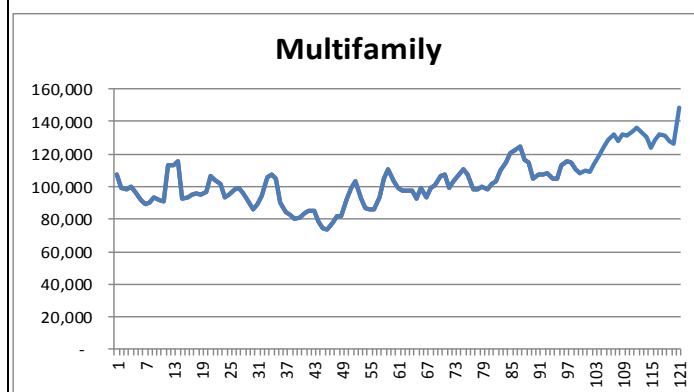
CRE Fundamentals – Property Price, Fundamentals, and Trends

| 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 |
| Q3 2016 | 141,816.6 | 247.3 | 150,408.7 | 232.0 | 80.2 |
| Peak | 162,671.2 | 249.6 | 201,238.3 | 298.5 | 86.5 |
| 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 | Jul-16 | Apr-15 | Aug-08 | Jul-16 |
| Trough Date | Sep-09 | Jun-10 | Dec-09 | Mar-10 | Apr-10 |
| Curr vs '06 | 25.0% | 41.9% | 10.2% | -0.2% | 20.2% |
| Curr vs Pk | -12.8% | -0.9% | -25.3% | -22.3% | -7.3% |
| Curr vs Tr | 92.2% | 93.2% | 154.9% | 75.7% | 79.6% |

| | | | | | |
|------------|-------|-------|-------|-------|-------|
| 5yr GR | 8.3% | 6.9% | 0.0% | 1.5% | 7.2% |
| 10yr GR | 3.3% | 3.0% | 0.4% | 1.9% | 1.6% |
| Volatility | 12.5% | 13.8% | 32.8% | 18.3% | 11.5% |

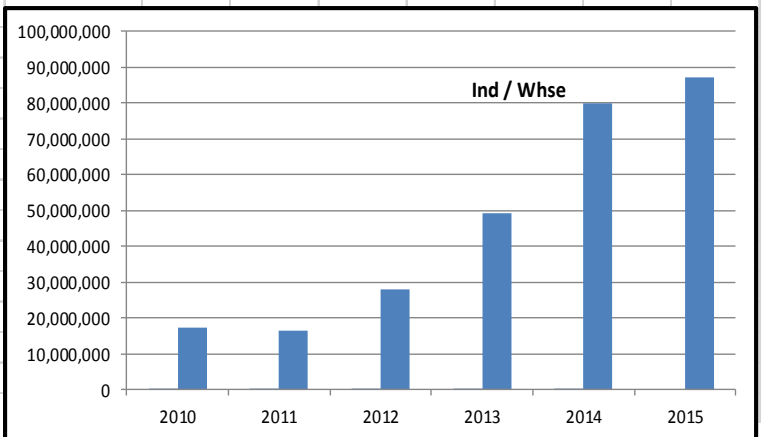
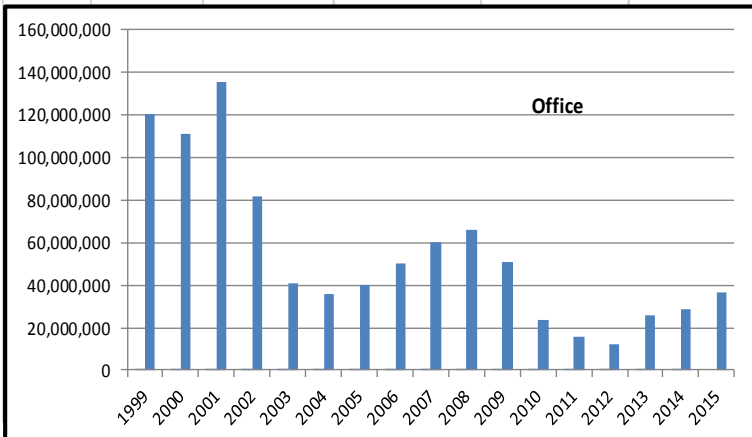
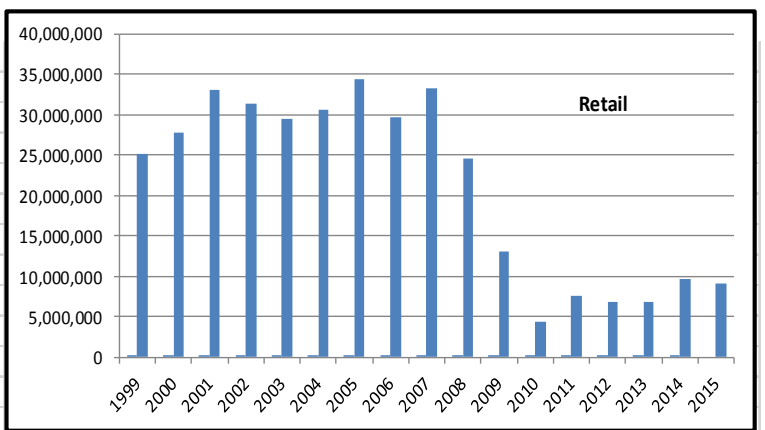
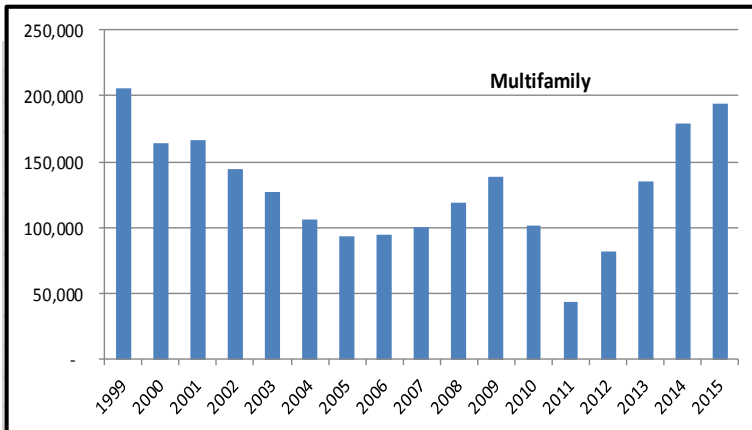
| Year End | Vacancy Trend | | | | |
|----------|---------------|--------|-------|-------|-------|
| | MF | Retail | Hotel | Ofc | Ind |
| 2005 | 5.70 | 6.80 | - | 14.70 | - |
| 2006 | 5.80 | 7.10 | - | 13.40 | - |
| 2007 | 5.70 | 7.50 | - | 12.60 | - |
| 2008 | 6.70 | 8.90 | - | 14.50 | - |
| 2009 | 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 |
| Q3 2016 | 4.40 | 10.00 | - | 16.00 | 10.50 |

| 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 |



CRE Fundamentals – New Construction and Delivery Trends

| Year | Multi | Retail | Hotel | Office | Ind / Whse | Notes |
|---------|---------|------------|-------|-------------|------------|---|
| 1999 | 205,818 | 25,126,000 | - | 120,280,000 | - | |
| 2000 | 164,674 | 27,727,000 | - | 111,061,000 | - | |
| 2001 | 166,124 | 33,013,000 | - | 134,904,000 | - | * Multifamily deliveries and supply continued growth |
| 2002 | 143,957 | 31,369,000 | - | 81,422,000 | - | |
| 2003 | 127,591 | 29,416,000 | - | 41,016,000 | - | * Continued slow growth of retail and office product remains at levels near post crisis levels |
| 2004 | 106,144 | 30,596,000 | - | 35,475,000 | - | |
| 2005 | 93,227 | 34,438,000 | - | 39,792,000 | - | |
| 2006 | 95,205 | 29,627,000 | - | 49,879,000 | - | *On an annualized basis, all property type deliveries slowing relative to 2015 levels. |
| 2007 | 100,630 | 33,254,000 | - | 59,902,000 | - | |
| 2008 | 119,330 | 24,545,000 | - | 65,450,000 | - | -New retail deliveries down 45% relative to 2015. This follows a 7% decline between 2014 and 2015 |
| 2009 | 138,775 | 13,142,000 | - | 50,548,000 | - | |
| 2010 | 101,691 | 4,499,000 | - | 23,375,000 | 17,234,000 | |
| 2011 | 43,489 | 7,625,000 | - | 15,440,000 | 16,598,000 | -Industrial deliveries trending lower by 22% relative to 2015's high of 87mm sqft |
| 2012 | 81,399 | 6,778,000 | - | 12,443,000 | 28,002,000 | |
| 2013 | 135,614 | 6,883,000 | - | 25,959,000 | 49,178,000 | |
| 2014 | 179,358 | 9,776,000 | - | 28,287,000 | 80,009,000 | -Multifamily trending lower by 5% relative to 2015's level of 194,459 units. As supply has ramped up significantly, this slowing may be a positive for the property type. |
| 2015 | 194,459 | 9,088,000 | - | 36,642,000 | 86,962,000 | |
| 1Q 2016 | 45,975 | 1,349,000 | - | 7,815,000 | 17,902,000 | |
| 2Q 2016 | 53,587 | 928,000 | - | 8,951,000 | 19,629,000 | |
| 3Q 2016 | 38,010 | 1,459,000 | - | 7,226,000 | 13,387,000 | |



(REIS, NAA)



Securitized Markets - 2016 CMBS Conduit Issuance

| PRICING | SHELF | SERIES | AMOUNT | SPSERV | B-PIECE | #PROP | #LOAN | LCF AAA | BBB |
|----------|--------|-------------|-----------|-----------------|--------------------|-------|-------|---------|-----|
| 01/22/16 | CFCRE | 2016-C3 | 703.55 | CWCAM | Seer Capital | 67 | 38 | 162 | 725 |
| 01/26/16 | CSAIL | 2016-C5 | 936.42 | Rialto Capital | Rialto Capital | 241 | 59 | 155 | |
| 01/27/16 | COMM | 2016-CCRE28 | 1,026.80 | Midland | KKR | 119 | 49 | 155 | 830 |
| 02/03/16 | CGCMT | 2016-GC36 | 1,155.94 | Wells Fargo | Eightfold | 104 | 58 | 157 | 750 |
| 02/03/16 | WFCMT | 2016-C32 | 959.98 | Rialto Capital | Rialto Capital | 152 | 112 | 151 | 750 |
| 02/12/16 | MSBAM | 2016-C28 | 955.65 | C-III Asset Mgt | C-III Capital | 161 | 42 | 165 | 725 |
| 02/18/16 | WFCMT | 2016-NXS5 | 875.13 | Rialto Capital | Rialto Capital | 116 | 64 | 165 | 925 |
| 02/19/16 | MSCI | 2016-UBS9 | 666.61 | CWCAM | Ellington | 222 | 31 | 165 | 650 |
| 02/23/16 | JPMCC | 2016-C1 | 1,021.91 | Midland | Eightfold | 110 | 50 | 166 | |
| 03/03/16 | COMM | 2016-DC2 | 806.20 | CWCAM | Seer Capital | 91 | 64 | 173 | 825 |
| 03/18/16 | WFCMT | 2016-C33 | 712.20 | Rialto / NCB | Rialto Capital | 104 | 79 | 138 | 700 |
| 03/29/16 | CGCMT | 2016-P3 | 770.97 | C-III Asset Mgt | Raith | 75 | 37 | 132 | 600 |
| 03/31/16 | DBJPM | 2016-C1 | 818.03 | Midland | Eightfold | 45 | 33 | 129 | 600 |
| 04/13/16 | CGCMT | 2016-GC37 | 694.73 | Midland | Eightfold | 64 | 54 | 134 | 700 |
| 04/22/16 | MSBAM | 2016-C29 | 809.46 | Rialto Capital | Rialto Capital | 106 | 69 | 125 | 660 |
| 05/04/16 | CFCRE | 2016-C4 | 840.00 | Rialto Capital | Rialto Capital | 154 | 50 | 130 | |
| 05/04/16 | JPMDB | 2016-C2 | 892.80 | Midland | Blackrock | 79 | 30 | 117 | 625 |
| 05/10/16 | WFCMT | 2016-C34 | 702.80 | LNR Partners | Prime / LNR | 92 | 68 | 117 | 720 |
| 05/18/16 | CGCMT | 2016-C1 | 755.70 | LNR Partners | Prime / LNR | 130 | 54 | 125 | |
| 05/18/16 | CSAIL | 2016-C6 | 767.50 | Torchlight | Torchlight | 363 | 50 | 113 | |
| 05/18/16 | GSMS | 2016-GS2 | 750.60 | Torchlight | Torchlight | 115 | 37 | 110 | 565 |
| 05/20/16 | BACM | 2016-UBS10 | 876.30 | Rialto Capital | Rialto Capital | 84 | 52 | 114 | 660 |
| 06/10/16 | LNSTR | 2016-4 | 506.30 | Hudson Adv | Lone Star Funds | 26 | 22 | 175 | |
| 07/01/16 | SOCGEN | 2016-C5 | 736.81 | Rialto Capital | Rialto Capital | 138 | 47 | 138 | 760 |
| 07/08/16 | JPMCC | 2016-JP2 | 939.20 | LNR Partners | LNR / Och Ziff | 78 | 47 | 122 | 600 |
| 07/14/16 | CITI | 2016-P4 | 721.16 | CWCAM | Eightfold | 64 | 45 | 118 | - |
| 07/15/16 | WFCMT | 2016-C35 | 1,022.88 | CWCAM | Basis Inv Grp | 140 | 102 | 115 | 600 |
| 07/26/16 | DBJPM | 2016-C3 | 893.74 | Midland | BlackRock | 54 | 32 | 108 | - |
| 08/04/16 | WFCMT | 2016-BNK1 | 870.56 | Rialto Capital | Rialto Capital | 46 | 40 | 94 | 425 |
| 08/10/16 | CD | 2016-CD1 | 703.22 | Rialto Capital | Rialto Capital | 58 | 32 | 100 | 485 |
| 08/11/16 | CITI | 2016-C2 | 609.17 | C-III Asset Mgt | C-III Capital | 53 | 44 | 106 | 515 |
| 08/12/16 | MSCI | 2016-UBS11 | 719.76 | CWCAM | Ellington / Prime | 75 | 38 | 105 | 485 |
| 09/14/16 | WFCMT | 2016-LC24 | 1,045.36 | Midland | Prime / Ellington | 128 | 91 | 108 | 625 |
| 09/22/16 | JPMCC | 2016-JP3 | 1,217.50 | Torchlight | Torchlight | 62 | 52 | 108 | - |
| 09/22/16 | GSMS | 2016-GS3 | 1,122.55 | Rialto Capital | Rialto Capital | 152 | 34 | 106 | 520 |
| 09/26/16 | MSBAM | 2016-C30 | 885.24 | LNR Partners | LNR / Och Ziff | 58 | 48 | 111 | 560 |
| 09/29/16 | WFCMT | 2016-NXS6 | 757.13 | CWCAM | Ellington | 63 | 50 | 117 | 630 |
| 09/30/16 | CITI | 2016-P5 | 917.43 | LNR Partners | Prime / LNR | 73 | 49 | 115 | 615 |
| 10/07/16 | COMM | 2016-COR1 | 890.68 | Midland | Jefferies LoanCore | 50 | 42 | 120 | - |
| 10/21/16 | WFCMT | 2016-C36 | 858.18 | C-III Asset Mgt | C-III Capital | 98 | 73 | 115 | 600 |
| 10/25/16 | MSBAM | 2016-C31 | 953.19 | Rialto Capital | Rialto Capital | 101 | 60 | 118 | 615 |
| 10/31/16 | JPMDB | 2016-C4 | 1,124.38 | Midland | BlackRock | 42 | 36 | 111 | 525 |
| | | | 35,993.69 | | | | | | |

(Commercial Mortgage Alert, CitiBank Research)



Securitized Markets - 2016 FREMF Agency Issuance

| PRICING | SHELF | SERIES | AMOUNT | SPSERV | B-PIECE | #PROP | #LOAN | LCF AAA | BBB |
|----------|--------------------|------------|----------|-----------------|--------------------|-------|-------|---------|-----|
| 01/15/16 | <u>5 Year</u> | 2016-K504 | 587.41 | CWCAM | Providnc / Benefit | 22 | 22 | 55 | - |
| 06/22/16 | <u>7 Year</u> | 2016 K722 | 949.78 | Midland | Related Cos. | 52 | 52 | 60 | - |
| 01/27/16 | <u>10 Year</u> | 2016-K52 | 1,395.79 | CWCAM | Torchlight | 96 | 91 | 90 | 650 |
| 03/21/16 | " | 2016-K53 | 1,447.25 | Wells Fargo | Berkshire Group | 88 | 88 | 85 | - |
| 04/06/16 | " | 2016-K54 | 1,423.01 | Midland | Related Cos. | 79 | 79 | 80 | 625 |
| 06/08/16 | " | 2016-K55 | 1,036.96 | Wells Fargo | Carmel Partners | 78 | 78 | 77 | - |
| 07/26/16 | " | 2016-K56 | 1,015.09 | Midland | Torchlight | 82 | 82 | 73 | - |
| 09/14/16 | " | 2016-K57 | 1,040.48 | KeyBank | Berkshire Group | 72 | 72 | 70 | - |
| 10/26/16 | " | 2016-K58 | 1,282.89 | Midland | Related Cos. | 74 | 74 | 68 | - |
| 06/01/16 | <u>15 Year</u> | 2016-K1502 | 619.13 | CWCAM | AngGordn, McDowell | 59 | 59 | 92 | - |
| 04/12/16 | <u>Seasoned</u> | 2016-KP03 | 974.04 | Freddie Mac | Berkeley Point | 40 | 40 | 45 | - |
| 01/05/16 | <u>Floating</u> | 2016-KF13 | 875.88 | CWCAM | Harbor Group | 48 | 48 | 76 | - |
| 03/03/16 | " | 2016-KF14 | 1,486.41 | Wells Fargo | Bridge Invest | 83 | 83 | 65 | - |
| 04/13/16 | " | 2016-KF15 | 1,458.92 | CWCAM | Kayne Anderson | 67 | 67 | - | - |
| 05/03/16 | " | 2016-KF16 | 1,045.02 | Wells Fargo | Bridge Inv Grp | 69 | 69 | 63 | - |
| 06/15/16 | " | 2016-KF17 | 1,078.78 | KeyBank | Harbor Group | 56 | 56 | 55 | - |
| 07/13/16 | " | 2016-KF18 | 1,088.04 | Wells Fargo | Bridge Inv Grp | 41 | 41 | 52 | - |
| 08/02/16 | " | 2016-KF19 | 1,263.79 | CWCAM | Kayne Anderson | 66 | 66 | 45 | - |
| 09/08/16 | " | 2016-KF20 | 1,090.31 | Wells Fargo | Bridge Inv Grp | 48 | 48 | 43 | - |
| 09/15/16 | " | 2016-KF21 | 1,192.88 | CWCAM | Kayne Anderson | 83 | 83 | 48 | - |
| 10/17/16 | " | 2016-KF22 | 1,307.27 | KeyBank | Harbor Group | 58 | 58 | 50 | - |
| 01/14/16 | <u>Small Bal</u> | 2016-SB11 | 109.97 | KeyBank | Sutherland | 55 | 55 | 130 | - |
| 02/04/16 | " | 2016-SB12 | 167.02 | Centerline | Axonic Capital | 67 | 67 | 115 | - |
| 02/25/16 | " | 2016-SB13 | 400.89 | Arbor | Axonic Capital | 160 | 160 | 105 | - |
| 03/17/19 | " | 2016-SB14 | 309.78 | CBRE / Sabal | CBRE / Sabal | 115 | 115 | 100 | - |
| 04/13/16 | " | 2016-SB15 | 301.63 | Arbor | Arbor / Greystone | 117 | 117 | 90 | - |
| 05/12/16 | " | 2016-SB16 | 314.55 | Red Mtg Capital | Axonic Capital | 154 | 154 | - | - |
| 06/08/16 | " | 2016-SB17 | 347.74 | Hunt Mortgage | Axonic Capital | 165 | 165 | - | - |
| 07/12/16 | " | 2016-SB18 | 118.00 | KeyBank | Sutherland | 58 | 58 | 100 | - |
| 07/21/16 | " | 2016-SB19 | 264.50 | Situs | First Foundation | 84 | 84 | 120 | - |
| 08/02/16 | " | 2016-SB20 | 298.10 | Greystone | Axonic Capital | 119 | 119 | 115 | - |
| 09/13/16 | " | 2016-SB21 | 94.00 | KeyBank | Axonic Capital | 37 | 37 | - | - |
| 10/04/16 | " | 2016-SB22 | 254.86 | Sabal | Sabal | 94 | 94 | - | - |
| 10/18/16 | " | 2016-SB23 | 341.75 | Arbor | Axonic Capital | 123 | 123 | - | - |
| 02/04/16 | <u>Jr Lien</u> | 2016-KJ03 | 316.30 | KeyBank | Berkshire Group | 38 | 43 | 115 | - |
| 05/11/16 | " | 2016-KJ04 | 238.39 | Wells Fargo | Ares Mgt | 57 | 63 | 53 | - |
| 06/17/16 | " | 2016-KJ05 | 217.60 | KeyBank | Berkshire Group | 54 | 58 | 60 | 560 |
| 07/18/16 | " | 2016-KJ06 | 109.90 | Berkadia | | 10 | 10 | 75 | - |
| 09/13/16 | " | 2016-KJ07 | 209.30 | Wells Fargo | Waterton Assoc | 32 | 32 | - | - |
| 10/21/16 | " | 2016-KJ08 | 272.42 | Wells Fargo | Berkshire Group | 75 | 69 | 65 | - |
| 01/22/16 | <u>Single Borr</u> | 2016-KBAM | 841.00 | Wells Fargo | Principal | 27 | 27 | 70 | - |
| 02/11/16 | " | 2016-KLH1 | 1,493.67 | Trimont | Annaly Capital | 28 | 28 | 70 | - |
| 03/09/16 | " | 2016-KLH2 | 1,379.82 | Situs | Canada Pension | 26 | 26 | 70 | - |
| 04/01/16 | " | 2016-KLH3 | 1,341.45 | Situs | CPPIB | 27 | 27 | 70 | - |
| 04/19/16 | Reduced Call | 2016-KC01 | 83.22 | Wells Fargo | Berkshire Group | 27 | 27 | 73 | - |
| 05/18/16 | Workforce | 2016-KW01 | 608.57 | Wells Fargo | Ares Mgt | 89 | 89 | 80 | - |
| 07/19/16 | Senior Housing | 2016-KS05 | 1,411.00 | KeyBank | Kayne Anderson | 96 | 96 | 50 | - |
| 08/12/16 | Mixed | 2016-KX02 | 715.00 | KeyBank | Harbor Group | 54 | 54 | 72 | - |
| 10/06/16 | Senior Housing | 2016-KS06 | 576.26 | CWCAM | Northstar Realty | 42 | 42 | 80 | - |
| 10/19/16 | Senior Housing | 2016-KS07 | 464.68 | Wells Fargo | Bridge Investment | 28 | 28 | 84 | - |

37,260.47

(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

Olasav Conway Appraisal Study 2012

Real Capital Analytics

REIS

Trepp Information Systems

US Bureau of Labor Statistics

US Federal Reserve

US Treasury

Wells Fargo Research

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