

Capital Markets Update

First Quarter 2018

In this Issue:

- Economy: Continued positive employment and economic trends. Rising rates, the ever flattening yield curve, and spread tightening.
- Cyclical highs and volatility in property prices
- Feature – A framework for relative value in securitized commercial real estate debt markets

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In this issue of the 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 debt products. We synthesize and present information gathered from various industry research, public resources, and our own research.

The Economy

- The March jobs report noted that the economy continues to add jobs creating 103,000 this month. Some 22,000 job creations were in the durable goods manufacturing segment, with gains also to show in mining, health care, and professional services. Retail jobs declined by some 4,000 workers, reflecting the longer-term trends in this sector.
- The unemployment rate remained unchanged at 4.1%, the lowest level since at least 2003. The participation rate was steady at 62.9%. BLS notes state outliers of Alaska currently 7.3%, and Hawaii with the lowest rate at 2.1%. For cities, Nashville and the San Francisco bay area have lowest rates (2.7%), Buffalo the highest at 5.8%.
- The 10-year US Treasury yield at 2.96% has been testing the 3.00% level for several weeks. The last time yields topped 3.00% was seven years ago in 2011. We have seen continued 2/10 flattening of 5bps YTD, with the current level at a low 46bps. 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, and increased deficits as a result of reform. The Federal Reserve Bank of Atlanta forecasts 2018 US GDP growth at 4.1% while consensus forecasts are closer to 3.1%.

Property Markets

- Effective rent growth - National average of 2.27% year over year, continuing to slow. Of note, Industrial growth now leads multi-family growth, reporting 3.33% versus 2.92%. Retail and Office lag in the 1.50% area.
- Vacancy rates – For the trailing 1-yr period, vacancy rates increased slightly for all property types, (20 to 60bp). Higher deliveries in all property types except retail, with multi-family absorption below 1.0x deliveries for first time since 2009. We expect continued vacancy increases as construction pipeline is delivered.
- National property prices report declines and volatility in all sectors this year, although we remain near peak levels.

Debt Capital Markets

- Significant credit spread tightening across all sectors as interest rates rise and investors compete for product. YTD18 CMBS conduit issuance of \$9.2bn topped YTD17 by 7% as investors became more comfortable with risk retention and the maturity wave. FHLMC issuance was nearly 50% greater than CMBS at \$17.2bn, with \$9.8bn of single asset deals and \$3.2bn of CRE-CLOs also coming to market.
- CMBS risk retention pricing - Horizontal subordinates in the 14% area, L-shaped subordinates in the 17% area.
- Conduit delinquency rates dropped to 2.85% this month. Estimated 80% of delinquencies in the 06/07 vintages.

Three trends we are watching

- *Cyclical highs in property prices* - national average hotel, retail, and office property prices experiencing volatility. Hotel risk premiums have widened out appreciably year to date. As property values increase, we see certain sponsors re-levering and extracting equity. Multifamily valuations and construction a concern.
- *Credit spread tightening in a rising rate environment* – Credit spreads across all sectors have tightened by over 200bp since early 2017. Competition for product, rising rates, and other factors driving spreads to 3year lows.
- *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.

Feature – Relative Value in the Commercial Real Estate Debt Markets

Comparing investment options in securitized CRE can be challenging. In this edition, we outline one possible approach to comparing various alternatives. Our first step is to take a high-level look at certain fundamentals. This macro review can help inform our view of economic trends, overall property trends, risk premiums, and market trends.

Property Types

	2018			2017			2016		
	Rent Growth	Px Growth	Risk Prem	Rent Growth	Px Growth	Risk Prem	Rent Growth	Px Growth	Risk Prem
Multifamily	4.23%	2.56%	2.95%	4.23%	5.15%	3.22%	5.83%	9.50%	3.25%
Retail	1.96%	-8.88%	3.79%	1.96%	-3.67%	4.20%	2.00%	3.82%	4.07%
Office	1.93%	-1.77%	4.00%	1.93%	2.68%	4.33%	3.84%	0.60%	4.14%
Industrial	6.44%	4.94%	3.71%	6.44%	4.68%	4.34%	2.42%	6.26%	4.35%
Hotel	0.00%	-7.81%	5.78%	0.00%	2.23%	6.11%	0.00%	5.85%	6.05%

Real estate prices begin to show volatility in 3 year growth rates this year. Rent growth continues at relatively stable rates with the exception of Industrial where which saw a 6.44% rate in 2017. Overall risk premiums declining, however continue to carry approx 150bp premium over pre-crisis lows.

Market Issuance

<u>Asset Class</u>	2018			2017			2016		
	Volume	Deals	Sub Buyers	Volume	Deals	Sub Buyers	Volume	Deals	Sub Buyers
ACMBS	17,463.2	18	13	62,069.9	75	22	51,178.1	63	22
CMBS	11,251.2	11	7	48,522.9	52	13	48,017.1	57	17
Single Asset	9,802.1	21	15	36,499.6	64	-	19,339.0	39	-
CLO	3,205.4	6	6	7,685.1	18	14	2,843.2	9	8
	41,721.8	56		154,777.5	209		121,377.4	168	

Significant growth in transaction volume in Agency CMBS, Single Asset deals, and CLOs. CMBS conduit issuance flat year over year. Conduit remains second largest by issuance, however market share has declined. Factors include risk retention complexity, maturity wave, and borrower experience.

Credit Spread and Rate Trends

<u>Month</u>	FREM F			FHLMC			CMBS		
	Floater B	Floater C	Fixed C	CMBS BBB-	HRR	CMBS LRR	SASB BBB	UST10	1mL
Dec-16	500	1,025	430	550	-	18.25	210	2.45	0.77
Mar-17	400	1,050	325	495	16.00	18.62	198	2.39	0.98
Jun-17	290	1,000	285	445	13.75	20.39	175	2.31	1.22
Sep-17	270	1,000	267	440	14.00	29.00	164	2.33	1.23
Dec-17	250	900	230	415	13.90	20.00	160	2.40	1.56
Mar-18	215	850	190	335	14.10	17.38	165	2.74	1.88
Change	(285)	(175)	(240)	(215)	(190)	(124)	(45)	0.29	1.11

Credit spreads across all asset classes continue to tighten. Since 2016, average decline of over 200bp. As interest rates increase, all-in yields move in a less dramatic fashion. Short rates have risen faster than long rates resulting in curve flattening. 2/10 now at 46bps.

Feature – Relative Value in the Commercial Real Estate Debt Markets

Secondly, we review characteristics of four main investment alternatives in securitized commercial real estate debt as well as current risk retention guidelines (detailed in offering materials)

Product Observations and Risk Retention Overview

ACMBS:

FHLMC Floating Rate

Typically 7 and 10 year properties.

Limited Call protection - typically 1 year lockout followed by 1% penalty

Bonds typically purchase at par, enjoy upside when LIBOR increases

Bond classes are NOT rated

All bonds pay pro-rata principal amortization, provided no default

Not subject to Risk Retention

FHLMC Fixed Rate (7, 10,15yr)

Typically 7 and 10 year stabilized properties

Call Protected - Long term lockout or defeasance

Bond classes are rated

Sequential pay, but contain important PO and IO class features.

Interest shortfalls allocated to Class X3 IO, but Class D bears the impact

Guaranty protects final maturity of loans to an extent.

Not subject to Risk Retention

FHLMC Other (small bal, workforce, SASB, large, tax)

Mix of various types of multi-family assets and bonds structures

CMBS:

Typically 10 year fixed-rate conduit quality properties.

Focus on retail, office, and hotel sectors. More volatile than Multifamily

Now many pari-passu pieces in deals. Loan control outside deal in many cases.

Subordinate bonds subject to appraisal reduction control loss.

Subordinate shorfalls permanent given revised liquidation waterfalls

Subject to Risk Retention Requirements

SASB:

Primarily floating rate Hotel, Office, or Industrial properties

Short terms - (2yr) with Extention options out to 7 years

Loans may be on single properties or to a portfolio borrower

May not have an un-rated bond or equity class

Subject to Risk Retention Requirements

CLO:

Typically transitional collateral - subject to redevelopment or renovation

Collateral can include multi-family, hotel, office, or other properties

Typically short-term loans subject to extension options pending qualification

Transactions as alternative to warehouse financing for balance sheet lenders

Lender typically services the loans in the event of distress

Risk Retention:

Required for CMBS Conduit, Single Asset, and CLO transactions. Risk retention rules restrict hedging, financing, and transferability of the investment. Transfers prohibited except to a majority-owned affiliate ("MOA").

-5% of the value of the securitization or 5% of each class of bonds

-5 year holding period before risk retention piece can be traded

-Additional Qualified Transferee requirements when tradeable

-No hedging of the interest permitted

-No financing of the interest is permitted

-Expires when collat <=33% of orig pool

May be structured in the form of:

Vertical: Issuer retains 5% of each class

Horizontal: Bottom 5% of value of overall transaction.

L-Shaped: Combination of Vertical and Horizontal interests.

Feature – Relative Value in the Commercial Real Estate Debt Markets

- In determining relative value, we reviewed various options and calculated nominal yields (non-loss adjusted) based on pricing available in the offering memoranda or from actual spread levels. These options were then ranked from lowest to highest yield. We calculated excess spread over a benchmark and 1-year price volatility for each asset type (national average) over the past 13 years. Evaluated investment positions are highlighted.
- Investment constraints (and relative compensation for such) become apparent. Considerations include risk retention holding period and fixed versus floating rate structures.
- We estimated a loss based on property price volatility at 1 and 2 standard deviations, then estimated the payback period required for nominal yield to compensate for that loss. Although very simplistic, this method can be an intuitive basis for comparison. There are many additional factors to consider, and several other ways to compare investments which may be more suitable to any given investor. Each investor is encouraged to conduct their own analysis and diligence.

	BBCMS 2018- TALL	BX 2018- MCSF	FREMF 2018- KF44	FREMF 2018-K74	JPMCC 2018- ASH8	GSMS 2018- GS9	CSAIL 2018- CX11	GSMS 2018- GS9	BSPRT 2018- FL3
Nominal Yield	5.2%	5.6%	10.5%	10.7%	11.5%	12.0%	14.2%	17.8%	17.9%
Type	SASB	SASB	ACMBS	ACMBS	SASB	CMBS	CMBS	CMBS	CLO
Fixed or Float	Float	Float	Float	Fixed	Float	Fixed	Fixed	Fixed	Float
Horizon	Trade	Horiz Risk	Trade	Trade	Horiz Risk	Trade	Horiz Risk	L-Shape	Horiz Risk
Collateral	Willis Tower	Market Ctr SFO	FHLMC Floater	FHLMC Fixed	Ashford Hospitality	Mix - OFC, RET, LO	Mix - OFC, RET, LO	Mix - OFC, RET, LO	Mix Transitnl
Appraisal	1,781.0	570.0	2,095.8	2,107.0	523.1	6,699.3	4,597.3	6,699.3	939.0
Debt	1,325.0	382.0	1,470.5	1,434.2	392.0	3,862.1	2,578.6	3,862.1	660.7
WALTV	74.4%	67.0%	70.9%	68.9%	74.9%	58.6%	57.9%	58.6%	72.5%
Wtd Av Vol	17.8%	17.8%	12.2%	12.2%	31.3%	20.0%	16.7%	20.0%	19.0%
WADY	10.8%	8.0%	7.5%	7.7%	11.5%	10.4%	9.8%	10.4%	7.4%
Initial Term	24	24	81	121	24	108	109	108	31
Extended Term	84	84	81	121	84	108	109	108	52
Securitization									
AAA-BBB	933.8	260.0	1,360.2	1,326.6	217.4	804.2	857.6	804.2	488.0
BB	212.0	52.0	-	-	60.2	16.1	-	16.1	-
B	123.0	50.9	-	-	50.4	-	-	-	-
NR	-	-	110.3	107.6	47.0	-	-	-	-
HRR	-	19.1	-	-	20.0	36.4	95.3	36.4	122.0
VRR	66.3	-	-	-	-	30.4	-	30.4	-
Total	1,335.0	382.0	1,470.5	1,434.2	395.0	887.1	952.9	887.1	610.0
Investment									
Nominal Yield	5.2%	5.6%	10.5%	10.7%	11.5%	12.0%	14.2%	17.8%	17.9%
Par	123.0	19.1	110.3	107.6	20.0	16.1	95.3	36.4	122.0
Price	1.00	1.00	1.00	0.56	1.00	0.58	0.52	0.40	1.00
Invest \$	123.0	19.1	110.3	59.9	20.0	9.2	49.3	14.4	122.0
Spread	L+324	L+364	L+850	S+870	L+950	S+900	S+1125	S+1490	L+1593
Pct of Deal	9.0%	5.0%	7.5%	7.5%	5.0%	1.9%	10.0%	4.3%	20.0%
First Exp DY	10.8%	8.0%	7.1%	7.2%	11.5%	9.0%	6.6%	8.7%	6.1%
1 Stress BEP	5	-	-	-	28	-	23	0	5
2 Stress BEP	41	45	11	11	81	360	55	119	11

Selected Market Data – Economic and Real Estate Fundamentals and Trends

	2008	2013	2015	2016	2017	Q1-18	1yr	5yr	10yr
<u>Economic</u>									
UNEMP	7.30	7.00	5.00	4.70	4.10	4.10	-0.40%	-3.50%	-1.00%
PART	65.80	63.00	62.60	62.70	62.70	62.90	-0.10%	-0.40%	-3.20%
GDP	14,550	16,958	18,223	18,869	19,754	19,754	3.65%	3.94%	3.47%
CPI-TTM	-0.40%	1.51%	1.44%	1.91%	2.09%	2.02%	0.12%	0.85%	-1.29%
UST IMPL INF	0.11%	2.24%	1.54%	1.95%	1.96%	2.05%	0.09%	-0.46%	-0.29%
<u>Interest Rate</u>									
1M LIBOR	1.75%	0.16%	0.43%	0.77%	1.56%	1.88%	0.90%	1.65%	-0.99%
Eff Fed Funds	0.16%	0.07%	0.24%	0.50%	1.31%	1.67%	0.86%	1.53%	-0.94%
Prime	3.61%	3.25%	3.37%	3.75%	4.50%	4.75%	0.75%	1.50%	-0.91%
UST2	0.76%	0.38%	1.06%	1.20%	1.89%	2.27%	1.01%	2.02%	0.65%
UST10	2.25%	3.04%	2.27%	2.45%	2.40%	2.74%	0.35%	0.87%	-0.71%
2/10 Spread	1.49%	2.66%	1.21%	1.25%	0.51%	0.47%	-0.66%	-1.15%	-1.36%
Real10	2.14%	0.80%	0.73%	0.50%	0.44%	0.69%	0.26%	1.33%	-0.42%
<u>Vacancy (REIS)</u>									
Multi	6.70%	4.30%	4.40%	4.20%	4.50%	4.50%	0.20%	0.10%	-2.20%
Retail	8.90%	10.40%	10.00%	9.90%	10.00%	10.00%	0.10%	-0.60%	1.10%
Office	14.50%	16.90%	16.20%	15.80%	16.40%	16.40%	0.10%	-0.70%	1.90%
Industrial	n/a	11.60%	10.60%	10.30%	8.90%	10.00%	0.60%	-1.90%	n/a
Hotel									
<u>Rents (REIS Effective)</u>									
Multi	993	1,083	1,183	1,252	1,305	1,305	2.92%	4.72%	3.14%
Retail	17.39	16.81	17.54	17.89	18.24	18.24	1.50%	1.92%	0.49%
Office	24.61	23.50	24.97	25.93	26.43	26.43	1.34%	2.84%	0.74%
Industrial	n/a	4.36	4.55	4.66	4.96	4.96	3.33%	3.18%	n/a
Hotel									
<u>National \$PSF (RCA)</u>									
Multi	84,671	115,919	148,228	152,206	153,656	147,149	7.10%	5.24%	5.42%
Retail	181	178	213	200	177	185	5.25%	3.99%	-0.02%
Office	200	231	239	235	241	264	-2.68%	5.94%	2.13%
Industrial	63	65	73	78	79	88	9.45%	8.64%	2.63%
Hotel	89,941	129,720	138,162	153,841	143,596	144,123	5.46%	0.41%	3.96%
<u>National Cap Rate (RCA)</u>									
MF	6.58%	6.21%	5.91%	5.70%	5.62%	5.69%	0.06%	-0.57%	-0.55%
Ret	7.10%	6.99%	6.48%	6.52%	6.60%	6.53%	0.03%	-0.55%	-0.26%
Office	7.26%	6.99%	6.70%	6.59%	6.73%	6.74%	0.02%	-0.40%	-0.38%
Ind	7.73%	7.43%	6.61%	6.80%	6.74%	6.45%	-0.65%	-1.18%	-0.87%
Hotel	9.02%	8.18%	8.38%	8.50%	8.51%	8.52%	-0.08%	0.39%	-0.28%
<u>Risk Premium</u>									
MF	4.33%	3.17%	3.64%	3.25%	3.22%	2.95%	-0.29%	-1.44%	0.16%
Ret	4.85%	3.95%	4.21%	4.07%	4.20%	3.79%	-0.32%	-1.42%	0.45%
Office	5.01%	3.95%	4.43%	4.14%	4.33%	4.00%	-0.33%	-1.27%	0.33%
Ind	5.48%	4.39%	4.34%	4.35%	4.34%	3.71%	-1.00%	-2.05%	-0.16%
Hotel	6.77%	5.14%	6.11%	6.05%	6.11%	5.78%	-0.43%	-0.48%	0.43%

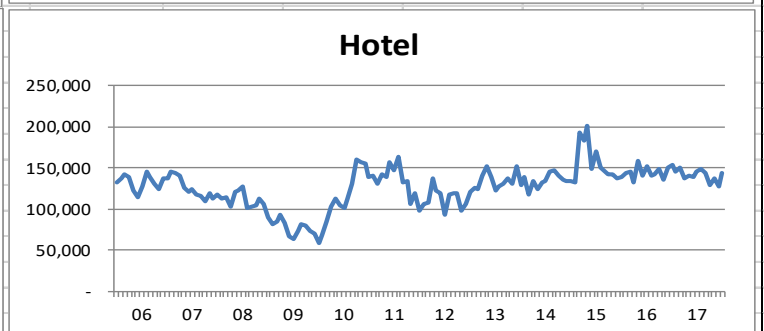
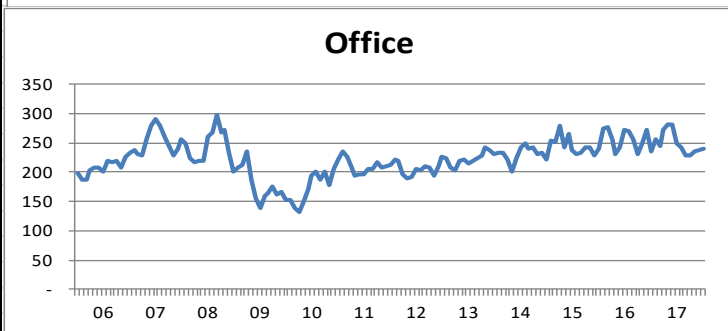
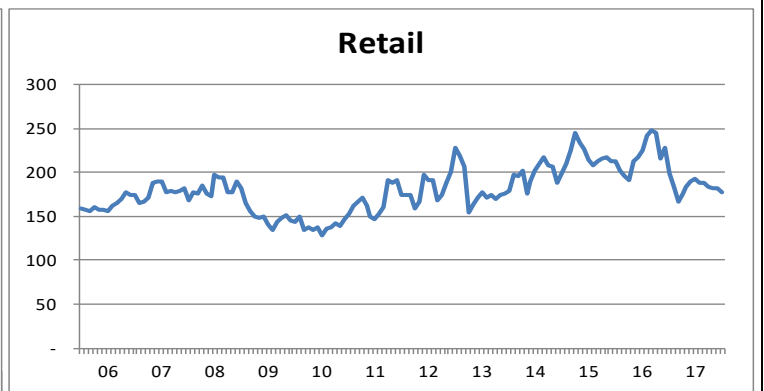
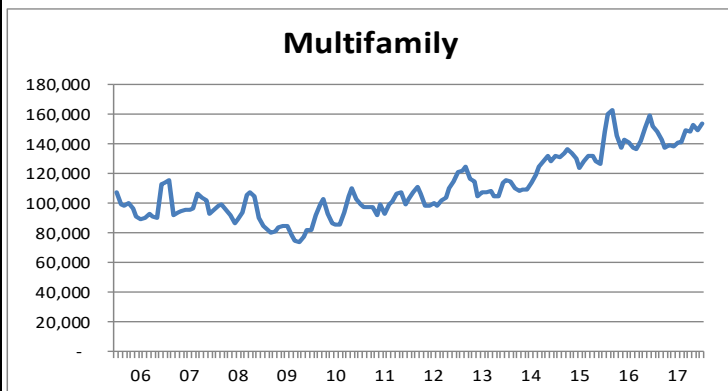
CRE Fundamentals – Property Price, Vacancy, and Rent Growth Trends

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
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	12.2%	14.3%	31.3%	17.8%	11.1%

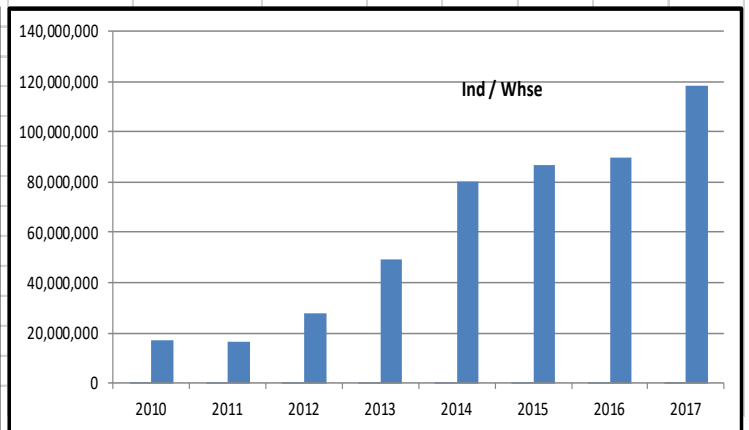
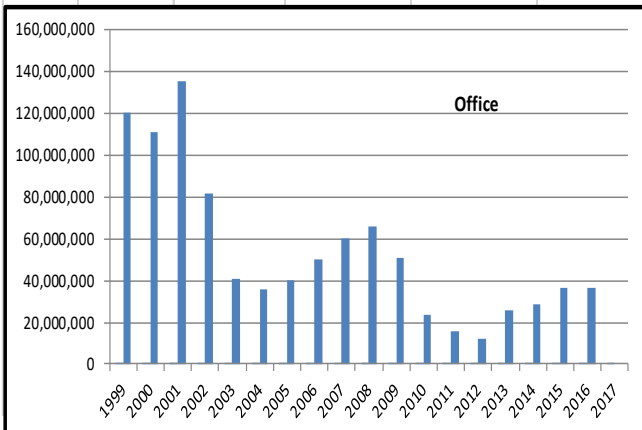
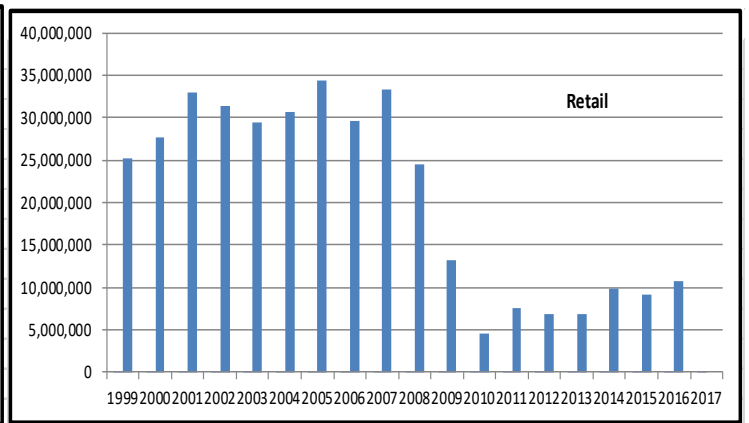
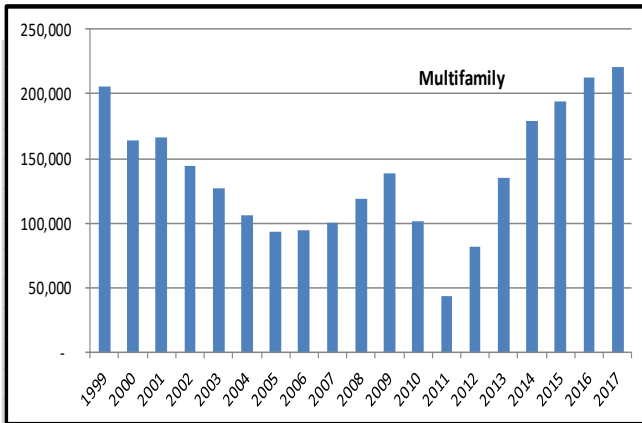
Year End	Vacancy Trend				
	MF	Retail	Hotel	Ofc	Ind
2005	5.70	6.80	-	14.70	-
2006	5.80	7.10	-	13.40	-
2007	5.70	7.50	-	12.60	-
2008	6.70	8.90	-	14.50	-
2009	8.00	10.60	-	17.00	-
2010	6.60	11.00	-	17.60	14.00
2011	5.30	11.00	-	17.40	13.20
2012	4.60	10.70	-	17.10	12.10
2013	4.30	10.40	-	16.90	11.60
2014	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

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



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 down by 5%.
2006	95,205	29,627,000	49,879,000	-	(0.03)	0.75x	1.08x		Relatively stable at 9-10mm sqft
2007	100,630	33,254,000	59,902,000	-	0.99x	0.71x	(0.69)		Net absorption slowed considerably
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 Warehouse up 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 - multiple of deliveries
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	



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			VERT	-

11,251.19

Type	SERIES	Pricing	AMOUNT	SELLER	SPSERV	Risk Retention	Asset	RR Type	RR Yld	
CMBS	SASB	WFCM 2018-BX1	01/16/18	192.00	Blackstone	Aegon	Prima Capital	Blackstone Industrial Port	HRZ	L+375
		NCMS 2018-285M	01/17/18	235.00	RFR Holding	KeyBank	Natixis	285 Madison Ave	VERT	-
		NCMS 2018-TECH	01/19/18	150.00	Preylock Real Estate	Wells Fargo	Natixis	Silicon Valley Office Port	VERT	-
		CGCMT 2018-TBR	01/19/18	189.10	Blackstone	Aegon	Citigroup	Turtle Bay Resort, HI	VERT	-
		THPT 2018-THPT	01/22/18	960.00	Colony NorthStar	KeyBank	JPMorgan	Theraldson Hotel Port	VERT	-
		IHPT 2018-STAY	01/26/18	471.00	Starwood Capital	Midland	Goldman	In Town Suites Port	VERT	-
		JPMCC 2018-BCON	01/26/18	200.00	Building and Land Tech	Cohen Financial	Oaktree	Multifamily NY, NJ	HRZ	7.20
		BBCMS 2018-RR1	02/08/18	400.00	Thomas Tan, Westmont	Torchlight	Waterfall	Red Roof Inns	HRZ	L+800
		JPMCC 2018-ASH8	02/08/18	395.00	Ashford Hospitality	Wells Fargo	Shelter Growth Funds	Embassy, Hilton, Sheraton	HRZ	L+950
		NCMS 2018-ALXA	02/09/18	124.45	RFR Holding, TriStar	Aegon	Natixis	Centre 425 Bellevue WA	VERT	-
		NCMS 2018-OSS	02/14/18	94.50	Wolfson family	KeyBank	Natixis	One State Street Plaza, NY	VERT	-
		HILT 2018-ORL	02/14/18	475.00	RIDA, Ares	KeyBank	Brookfield	Hilton Orlando	HRZ	L+575
		UBSCM 2018-NYCH	02/16/18	300.00	Cindat Capital, Hersha	Aegon	KSL / PCSD	NYC HIX, Hampton Hotels	HRZ	L+540
		GSMS 2018-CHILL	02/16/18	365.00	Cloverleaf Cold Storage	Wells Fargo	Goldman	Cloverleaf Cold Storage	VERT	-
		NCMS 2018-RIVA	02/23/18	179.00	Junson Capital	Midland			VERT	-
		NCMS 2018-PREZ	02/28/18	210.00	Post Brothers	Wells Fargo	Natixis	Presidential City - Phila	VERT	-
		BX 2018-BIOA	03/02/18	1,400.00	Blackstone	Aegon	Prima Capital	Blackstone Bio-Med Port	HRZ	L+302
		RETL 2018-RVP	03/07/18	1,350.00	DDR	KeyBank	WAMCO REIT	Retail Value Port - PR / US	HRZ	L+950
		CGGS 2018-WSS	03/09/18	405.00	Brookfield	LNR Partners	Grand Avenue	Woodspring Suites Port	HRZ	L+650
		BBCMS 2018-TALL	03/19/18	1,325.00	Blackstone	KeyBank	Barclays	Willis Tower Chicago	VERT	-
		BX 2018-MCSF	04/06/18	382.00	Blackstone	LNR Partners	OMERS	Market Ctr San Francisco	HRZ	L+364

9,802.05

Subordinate Buyer	Conduit	SASB	Total	Special Servicers	Conduit	SASB	Total	Type	Balance	Deals
KKR	2,860.16	-	2,860.16	Midland	4,714.73	650.00	5,364.73			
Eightfold	1,854.58	-	1,854.58	Keybank	-	4,439.50	4,439.50	Conduit		
Rialto Capital	1,727.04	-	1,727.04	LNR Partners	2,015.25	787.00	2,802.25	L	2,775.96	3
MassMutual	1,507.01	-	1,507.01	Aegon	-	2,205.55	2,205.55	VERT	3,037.73	3
Torchlight	1,287.15	-	1,287.15	Rialto Capital	1,727.04	-	1,727.04	HRZ	5,437.49	5
LNR / Stream	1,062.39	-	1,062.39	Torchlight	1,287.15	400.00	1,687.15		11,251.19	11
Silverpeak	952.87	-	952.87	CWCAM	1,507.01	-	1,507.01			
Blackrock	-	-	-	Wells Fargo	-	1,120.00	1,120.00			
Colony	-	-	-	Cohen Financial	-	200.00	200.00	SASB		
Elliott Mgt	-	-	-		-	-	-	VERT	4,303.05	11
Jefferies LoanCore	-	-	-		-	-	-	HRZ	5,499.00	10
Lone Star Funds	-	-	-		-	-	-	L	-	-
Resource Capital	-	-	-		-	-	-		9,802.05	21
C-III	-	-	-		-	-	-			
		9,802.05	9,802.05							
Total	11,251.19	9,802.05	21,053.23		11,251.19	9,802.05	21,053.23		21,053.23	

Securitized Markets - 2018

Type	SERIES	Pricing	AMOUNT	SERVICER	SPSERV	B-PIECE	#PROP	#LOAN	
FREFM	7-Year	FREFM 2018-K730	02/28/18	1,470.54	Midland	KeyBank	Connor Group	52	52
		FREFM 2018-K731	04/05/18	1,248.73	Wells Fargo	KeyBank	Berkshire Group	58	54
10-Year		FREFM 2018-K72	01/23/18	1,326.97	Midland	Wells Fargo	Berkshire Group	66	66
		FREFM 2018-K73	02/26/18	1,141.14	KeyBank	Midland	Related Cos.	50	50
		FREFM 2018-K74	03/20/18	1,434.17	KeyBank	Midland	Cyrus Capital	81	81
15-Year		FREFM 2018-K1504	01/11/18	881.68	KeyBank	KeyBank	Priderock Capital	59	59
Floater		FREFM 2018-KF42	02/13/18	1,413.30	Wells Fargo	CWCAM	Kayne Anderson	58	58
		FREFM 2018-KF43	02/22/18	1,264.59	Wells Fargo	Wells Fargo	Bridge	42	42
		FREFM 2018-KF44	03/13/18	1,470.51	Midland	Midland	Related Cos.	77	74
Jr Lien		FREFM 2017-KJ19	03/15/18	290.98	Freddie Mac	Wells Fargo	Waterton	60	60
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
Wkforce		FREFM 2018-KW04	03/23/18	631.50	Midland	KeyBank	NexPoint Advisors	44	42
SASB		FREFM 2018-KI01	01/31/18	591.31	Freddie Mac	Wells Fargo	Bridge	21	21
		FREFM 2018-KHG1	02/07/18	789.58	Midland	Wells Fargo	Bridge	11	1
		FREFM 2018-KBX1	03/23/18	741.34	Wells Fargo	Midland	Blackstone	13	13
Large		FREFM 2018-KL02	03/06/18	1,317.92	Wells Fargo	Wells Fargo	Bridge	37	10
			18	17,463.24					

Subordinate Buyer	Deals	Deal Balance	Special Servicers	Deals	Deal Balance
Bridge	4	3,963.39	Wells Fargo	6	5,581.34
Related Cos.	2	2,611.65	KeyBank	4	4,232.45
Berkshire Group	2	2,575.71	Midland	4	4,787.16
Connor Group	1	1,470.54	CWCAM	1	1,413.30
Cyrus Capital	1	1,434.17	Sabal Financial	1	552.60
Kayne Anderson	1	1,413.30	Arbor	1	402.24
Priderock Capital	1	881.68	LNR Partners	1	494.15
Blackstone	1	741.34			
NexPoint Advisors	1	631.50			
Sabal Financial	1	552.60			
Axonic Capital	1	494.15			
Waterfall, Axonic, Arbor	1	402.24			
Waterton	1	290.98			
18 17,463.24			18 17,463.24		

Securitized Markets - 2018 - CLO Issuance

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
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 Argentic
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
2017				6,977.36			
2018				3,205.35			

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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