

Capital Markets Update

Third Quarter 2018

In this Issue:

- Economy: Continued positive employment and economic trends. UST10 yield reaches 7-year high.
- Cyclical highs in property prices, volatility, and negative fundamentals.
- Feature – Student Housing – A Study of the Risks

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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 review of current trends in the Student Housing sub-sector. We synthesize and present information gathered from various industry research, public resources, and our own research.

The Economy

- The November 2nd jobs report noted that the economy continues to grow with 250,000 jobs created in October. Employment in the professional and business services category again led with 516,000 jobs created over the past year, leading both construction (330,000), and manufacturing (296,000) for the same period.
- The unemployment rate remained at 3.7%, the lowest level in decades. The participation rate was relatively steady at 62.9%. Recently, BLS noted state outliers Alaska (currently highest at 6.7%), and Hawaii (lowest rate at 2.1%). For cities, the Ames IA, Idaho Falls ID, Iowa City, IA, and Fargo ND Metro areas all report less than 2.0% unemployment, while Merced, Bakersfield, El Centro CA, and Yuma AZ all report over 7.0% unemployment.
- The 10-year US Treasury yield at 3.19% has broken out recently and has reached levels not seen since 2011. The 2/10 spread is 30bps, showing slight steepening in the past month, but still relatively flat. Historically, inverted yield curves can signal an economic slowdown. With continued economic strength, the Federal Reserve is expected to continue its tightening cycle. The US budget deficit rose 17% in its 2017 fiscal year to \$779 billion. The break-out in 10-year rates could signal a housing and commercial real estate slow-down in the months to come. Combined with the lower tax revenues, increasing deficits, and trade tensions, we remain watchful for signs of real estate price weakness. The Federal Reserve Bank of Atlanta recent GDP forecast has now trended down to 3.9%.

Property Markets

- Effective rent growth - National average now 2.23% year over year, continuing to slow. Multi-family rents showed a 3.00% increase for the year, while retail growth continues to fade at 1.32%.
- Vacancy rates – For the trailing 1-yr period, vacancy rates increased slightly for all property types, (20 to 130bp). 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 increased by 6.80% on an annualized 3-year basis, while retail properties lost 5.29% on the same basis. 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 \$27.8bn is off last year's levels by approx. 18.7%. Competing products such as FHLMC (\$45bn), SASB (\$28bn), CRE-CLO (\$9bn), and balance sheet lenders continue to take market share.
- CMBS risk retention pricing - Horizontal subordinates in the 14% area, L-shaped subordinates in the 16% area.
- Conduit delinquency rates dropped to 2.16% this month. Estimated 72% 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.
- Rising Interest Rates - recent break-out in the 10-year, growing deficit, trade tensions may pressure property values.
- Student housing performance - declining enrollment, demographics, technology, overbuilding impact performance.

Feature – Student Housing – A Study of the Risks

The mere mention of student housing generally brings a generically negative reaction from many market participants. Primary reasons for the reaction include perceptions of:

- defaults in recently securitized transactions
- high turnover rates, maintenance costs, property wear and tear
- market overbuilding
- falling enrollment rates

To validate these perceptions, we reviewed recent performance information for 1,063 student housing loans in various CMBS, CLO, and Agency securitized transactions identifiable thru Intex.

Student Housing Performance - Securitized Market

Type	Broad Market	Student Sector	Loan Count	% of Market	% of Sector	Defaulted \$	Defaulted Count	Cum Dflt - Count	% of Sector
CLO	16,844.0	13.5	1	0.08%	0.1%	-	-	0.00%	0.0%
CMBS	342,944.6	5,074.4	274	1.48%	25.8%	349.2	17	6.20%	68.0%
Agency	238,387.6	9,863.0	788	4.14%	74.1%	69.9	8	1.02%	32.0%
Total	598,176.2	14,950.9	1,063	2.50%	100.0%	419.0	25	2.35%	100.0%

- Some of our key findings include:
 - Nearly 75% of student housing risk (by count) is securitized in FHLMC or FNMA Agency CMBS, with only 25% of such risk contained in CMBS Conduit market. Agencies also have nearly 3 times the percentage exposure to student housing when compared to all property types in the relative asset class.
 - Ironically, nearly 70% of the actual defaults (by count) are contained in the CMBS Conduit Market whereas only 30% are in the Agency market. This statistic supports general market perception of the underwriting standards of conduit versus agency loans.
 - In current FHLMC CMBS pools, 80% (by count) of currently specially serviced loans, and 54% of dollar losses realized to date are attributable to student housing. For generally well performing pools, this statistic stands out.
 - Of the \$410mm in defaults across 25 loans:
 - 60% of the loans appear to be in tier 2/3 smaller universities relative to tier 1 schools.
 - A review of servicer commentary attributes defaults on these loans as follows:
 - **Declining Enrollment and Overbuilding** - 50% of defaults (by count) attributed to the theme of declining enrollment and local overbuilding. Demand expectations not realized. Rents lowered to unsustainable levels. Policy changes result in enrollment / demand declines via tuition funding cuts, and changes in requirements for on-campus housing for freshmen and sophomores. New university funded housing also competing directly with agency / conduit borrowers.
 - **Borrower Issues** - 31% of defaults appear related to borrower issues such as certain who are under USTreasury sanctions, some accused of financial mis-appropriation, and some who appeared consistently underfunded.
 - **Property Reputational Issues** - 12% appear related to the poor reputation of specific properties including unruliness, crime, shootings, unrepaired damage, poor condition.
 - **Other Issues** - 7% (by count) related to miscellaneous other issues.

Feature – Student Housing – A Study of the Risks

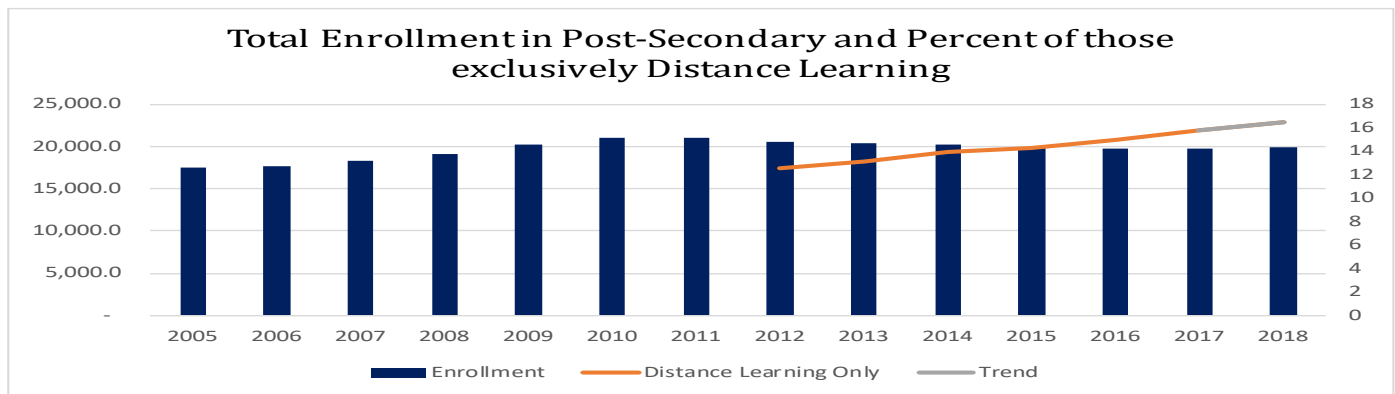
Performing Loans – To assess the non-defaulted loan outlook, we reviewed the 887 performing loans which reported both most recent year and issuer underwritten net cash flow. We calculated the cumulative percentage of loans performing at or below the indicated multiple of the underwriting assumption.

- There is no appreciable difference between conduit and agency in the weakest category (0.75x). 9% for both.
- For all underperforming loans ($\leq 0.95x$ underwriting), nearly 40% of conduit loans fall into this category, while only 26% of agency loans do the same. Although agency is clearly stronger, even 26% underperforming does not provide much comfort when considering our outlook.

Cumulative % of Loans performing at or below indicated multiple of underwritten NCF.

Type	.75x	.85x	0.95x	1.05x	1.15x	1.25x	1.35x	1.45x	Total
CLO	-	-	-	-	-	-	-	-	-
CMBS	9%	19.7%	38.9%	61.1%	77.9%	88.5%	94.7%	100.0%	244
Agency	9%	14.6%	26.1%	44.2%	62.2%	76.0%	86.3%	100.0%	643

What drives underperformance? –



- **Flat to Declining Enrollment Trend** – The National Center for Education Statistics enrollment trends show flat to declining university enrollment growth rates which peaked in 2010. Forecasts include minor growth.
- **Heavy Building Pipeline** - National Real Estate Investor reports that builders have added **50,000 new beds every year since 2015**, with an expectation to do so again in 2019.
- **Significant shift to on-line learning** – similar to the internet’s impact on physical retail shopping, on-line learning is now a standard component for nearly 30% of all students, while 16% are exclusively on-line distance learning with this figure growing at 5% per year.

We also note literature indicating overall slowing in sales of student housing in 2017 (down 21%), public REIT net selling of properties, and new capital preferring new purpose-built concentration within a mile of campus.

Although there are several positives including rent growth, stability in traditionally strong universities, and always specific situation exceptions, we see several fundamental factors which could create significant headwinds for the student housing sector. These include demographic trends, overbuilding, and similar to the retail sector, a real trend of on-line and technology based delivery which reduces the need for physical properties.

Selected Market Data – Economic and Real Estate Fundamentals and Trends

	2008	2013	2015	2016	2017	Q3-18	1yr	5yr	10yr
Economic									
UNEMP	7.30	7.00	5.00	4.70	4.10	3.70	-0.50%	-3.50%	-2.40%
PART	65.80	63.00	62.60	62.70	62.70	62.70	-0.40%	-0.50%	-3.30%
GDP	14,550	16,958	18,223	18,869	19,831	20,402	4.62%	4.39%	3.75%
CPI-TTM	-0.40%	1.51%	1.44%	1.91%	2.09%	2.37%	1.01%	1.15%	-2.34%
UST IMPL INF	0.11%	2.24%	1.54%	1.95%	1.96%	2.15%	0.31%	-0.04%	0.55%
Interest Rate									
1M LIBOR	1.75%	0.16%	0.43%	0.77%	1.56%	2.26%	1.03%	2.04%	-1.75%
Eff Fed Funds	0.16%	0.07%	0.24%	0.50%	1.31%	2.15%	1.10%	2.07%	0.34%
Prime	3.61%	3.25%	3.37%	3.75%	4.50%	5.25%	1.00%	2.00%	0.25%
UST2	0.76%	0.38%	1.06%	1.20%	1.89%	2.82%	1.34%	2.49%	0.82%
UST10	2.25%	3.04%	2.27%	2.45%	2.40%	3.06%	0.73%	0.42%	-0.79%
2/10 Spread	1.49%	2.66%	1.21%	1.25%	0.51%	0.24%	-0.61%	-2.07%	-1.61%
Real10	2.14%	0.80%	0.73%	0.50%	0.44%	0.91%	0.42%	0.46%	-1.34%
Vacancy (REIS)									
Multi	6.70%	4.30%	4.40%	4.20%	4.50%	4.80%	0.40%	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%	1.30%	-1.40%	n/a
Hotel									
Rents (REIS Effective)									
Multi	993	1,083	1,183	1,252	1,305	1,338	3.00%	4.89%	3.47%
Retail	17.39	16.81	17.54	17.89	18.24	18.39	1.32%	1.96%	0.58%
Office	24.61	23.50	24.97	25.93	26.43	26.83	2.13%	3.01%	0.90%
Industrial	n/a	4.36	4.55	4.66	4.96	5.02	2.45%	3.24%	n/a
Hotel									
National \$PSF (RCA)									
Multi	84,671	115,919	148,228	152,206	153,656	160,551	7.96%	10.56%	4.95%
Retail	181	178	213	200	177	181	-1.99%	1.21%	0.22%
Office	200	231	239	235	241	294	28.95%	5.82%	0.98%
Industrial	63	65	73	78	79	91	11.07%	7.99%	3.93%
Hotel	89,941	129,720	138,162	153,841	143,596	165,328	27.81%	4.13%	5.76%
National Cap Rate (RCA)									
MF	6.58%	6.21%	5.91%	5.70%	5.62%	5.41%	-0.09%	-0.85%	-1.03%
Ret	7.10%	6.99%	6.48%	6.52%	6.60%	0.06	-0.02%	-0.58%	-0.37%
Office	7.26%	6.99%	6.70%	6.59%	6.73%	0.07	-0.17%	-0.55%	-0.65%
Ind	7.73%	7.43%	6.61%	6.80%	6.74%	6.49%	0.01%	-0.94%	-0.99%
Hotel	9.02%	8.18%	8.38%	8.50%	8.51%	8.60%	-0.22%	0.45%	-0.29%
Risk Premium									
MF	4.33%	3.17%	3.64%	3.25%	3.22%	2.35%	-0.82%	-1.27%	-0.25%
Ret	4.85%	3.95%	4.21%	4.07%	4.20%	3.42%	-0.75%	-1.00%	0.41%
Office	5.01%	3.95%	4.43%	4.14%	4.33%	3.44%	-0.90%	-0.97%	0.14%
Ind	5.48%	4.39%	4.34%	4.35%	4.34%	3.43%	-0.72%	-1.36%	-0.20%
Hotel	6.77%	5.14%	6.11%	6.05%	6.11%	5.54%	-0.95%	0.02%	0.49%

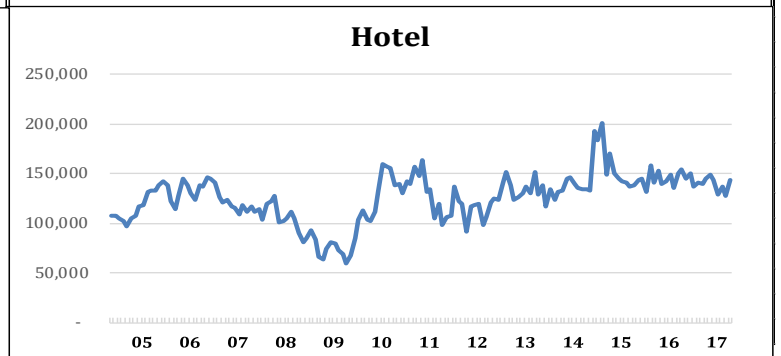
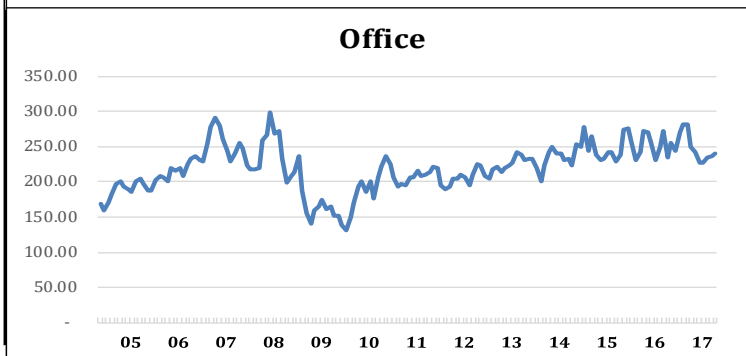
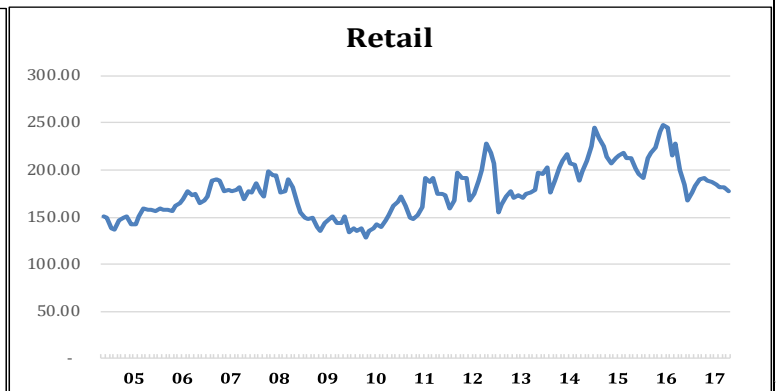
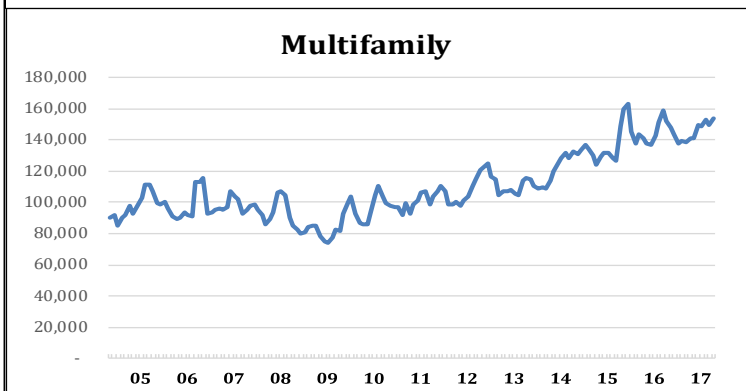
CRE Fundamentals – Property Price, Vacancy, and Rent Growth Trends

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%

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

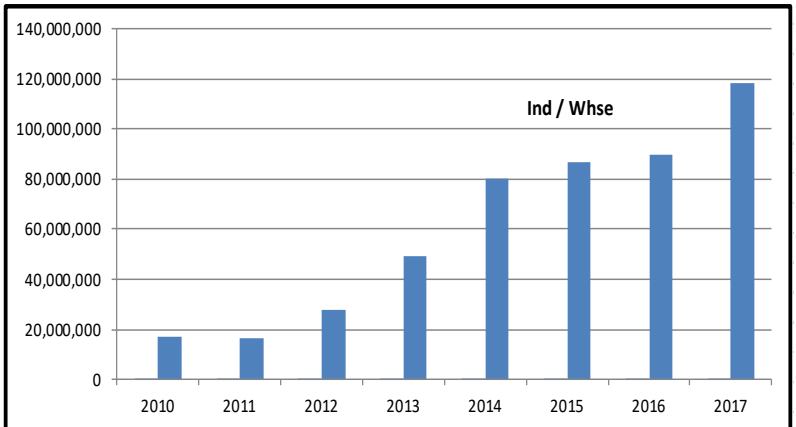
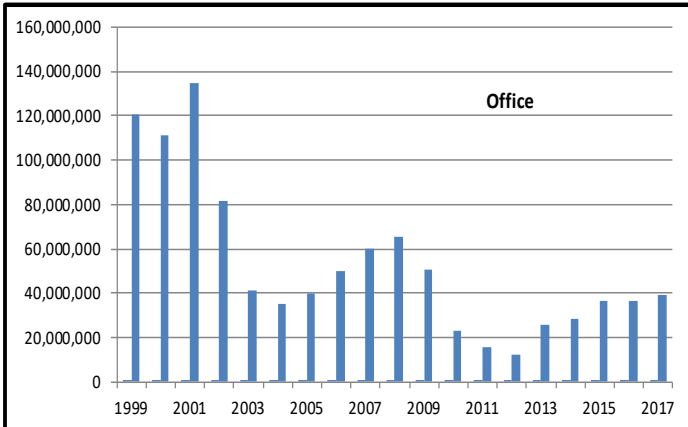
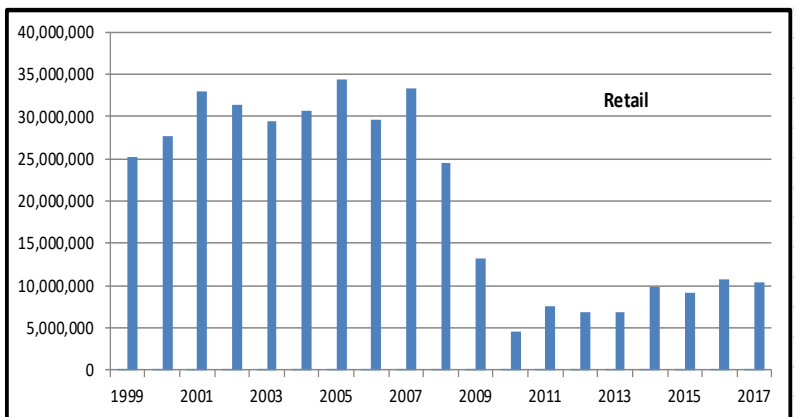
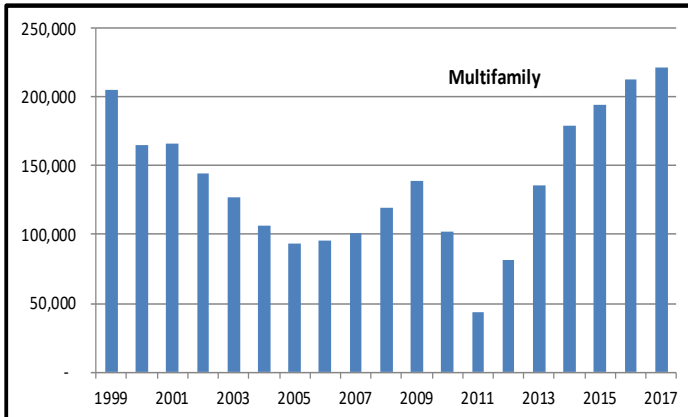
Year End	Rent Growth Trend				
	MF	Retail	Hotel	Ofc	Ind
2005	2.89	3.23	-	3.19	-
2006	4.38	3.37	-	8.93	-
2007	4.73	2.39	-	10.54	-
2008	1.95	(1.02)	-	0.24	-
2009	(2.92)	(3.68)	-	(8.86)	-
2010	2.39	(1.43)	-	(1.52)	-
2011	2.43	(0.06)	-	2.04	(0.48)
2012	3.86	0.48	-	1.95	1.91
2013	3.33	1.51	-	2.22	1.64
2014	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

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%



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	



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	CWCAM	MassMutual	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
		BANK 2018-BNK14	09/18/18	1,379.43	Wells Fargo	Rialto Capital	Rialto Capital	136	62	VERT	-
		BMARK 2018-B6	09/20/18	1,147.03	KeyBank	Midland	KKR	211	55	L	16.75
		UBSCM 2018-C13	09/21/18	714.88	Midland	Midland	KKR	68	53	HRZ	14.17
		KCM 2018-S1	09/27/18	132.33	KeyBank	KeyBank	Sutherland	40	31	VERT	-
		WFCM 2018-C47	10/09/18	951.56	Wells Fargo	Midland	KKR	106	74	HRZ	14.20

29,794.76

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 DI	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	-
		CSWF 2018-TOP	08/17/18	530.00	TPG Office Properties	LNR Partners	Waterfall	15 Office Properties	HRZ	L+615
		BAMLL 2018-PARK	08/23/18	365.00	Peter Kalikow	Aegon	BOA	101 Park Avenue NYC	VERT	-
		STWD 2018-URB	09/06/18	225.00	Starwood Capital	Aegon	Starwood	10 Full Service Hotels	HRZ	~L+740
		COMM 2018-HCLV	09/13/18	325.00	Blackstone	KeyBank	Deutsche Bank	Huges Ctr Ofc - Las Vegas	VERT	-
		SLIDE 2018-FUN	09/17/18	362.57	Kalahari Resorts	Situs	Prima Capital	Kalahari Resort, Poconos	HRZ	L+595
		GSMS 2018-3PCK	09/20/18	375.00	GGP	Rialto Capital	Waterfall	3 Regional Malls	HRZ	L+1245
		BX 2018-EXCL	10/02/18	576.20	Blackstone	Aegon	BOA / Goldman	13 retail centers, 1 theatre	VERT	-
		BBCMS 2018-BXH	10/02/18	257.00	Blackstone	Wells Fargo	Barclays	17 Hyatt, Marriott, Hiltons	VERT	-
		MSCG 2018-SELF	10/09/18	370.00	Brookfield	Wells Fargo	Morgan / Citi	65 Simply Self Storage	VERT	-

28,849.92

Subordinate Buyer	Conduit	SASB	Total	Special Servicers	Conduit	SASB	Total	Type	Balance	Deals
KKR	6,478.56	-	6,478.56	Midland	11,279.52	650.00	11,929.52			
Rialto Capital	5,321.02	-	5,321.02	Keybank	800.56	7,869.90	8,670.46			
Silverpeak	4,188.69	-	4,188.69	LNR Partners	6,622.98	1,587.00	8,209.98	VERT	6,394.85	7
MassMutual	2,665.49	-	2,665.49	Aegon	-	7,658.08	7,658.08	HRZ	17,086.13	19
Prime Group	2,366.14	-	2,366.14	Rialto Capital	6,194.86	375.00	6,569.86	L	6,313.78	7
Torchlight	2,231.34	-	2,231.34	Wells Fargo	-	5,810.58	5,810.58		29,794.76	33
Eightfold	1,854.58	-	1,854.58	CWCAM	2,665.49	2,627.00	5,292.49			
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			
Ellington	901.17	-	901.17	Cohen Financial	-	315.30	315.30	VERT	13,319.51	33
Rialto / Dout	873.84	-	873.84	Situs	-	362.57	362.57	HRZ	15,530.41	31
LNR	713.14	-	713.14		-	-	-	L	-	-
Sutherland	132.33	-	132.33		-	-	-		28,849.92	64
RR Holders>	-	28,849.92	28,849.92							
Total	29,794.76	28,849.92	58,644.68		29,794.76	28,849.92	58,644.68		58,644.68	

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	Greystone Commercial Real Estate Notes Ltc.	2018-HC1	09/11/18	300.00	Greystone	Greystone	Greystone
2018	Bancorp Commercial Mortgage Trust	2018-CRE4	09/17/18	341.00	Bancorp Bank	Wells Fargo	Bancorp Bank
2018	BSPRT Ltd.	2018-FL4	09/27/18	868.40	Benefit Street	Situs	Benefit Street

2018 - Year to Date

9,866.62

Sources

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

Bloomberg

CBRE Capital Markets

Citibank Research

Commercial Mortgage Alert

CRE Direct

FHLMC

Intex Solutions

Maximus Ten-X

Morningstar Research

Moody's / RCA CPPI

National Center for Education Statistics

National Real Estate Investor

Real Capital Analytics

REIS

Trepp Information Systems

US Bureau of Labor Statistics

US Census Bureau

US Federal Reserve

US Treasury

Wells Fargo Research

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