

Single-Family Rental Research

Performance Summary Covering All Morningstar-Rated Securitizations

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Introduction

The blended rent change for single-borrower, single-family rental securitizations rated by Morningstar Credit Ratings, LLC increased to 4.7% in March from 4.2% in February. The average vacancy rate declined 40 basis points to 4.0% in March from 4.4% in February, the lowest rate since May 2018. The average retention rate for expiring leases dropped to 78.9% in February, the latest month available, from 80.4% in January. Among the top 20 metropolitan statistical areas, Fort Lauderdale and Denver-Aurora had the highest vacancy rate at 5.8% and 5.6%, respectively. The Sacramento MSA continued to experience the highest blended rent growth at 7.6%, a decline from the previous month at 10.0%, followed by the Phoenix MSA at 7.4%. The Chicago MSA again experienced the lowest rent growth at 2.7%, followed by Houston at 2.9%, and the Raleigh-Cary MSA at 3.1%. Interestingly, the Chicago MSA continues to have the lowest rate of rent growth while also having one of the lowest vacancy rates. Rents for properties included in single-family rental securitizations generally continue to exceed or be in line with the RentRange rents for three- and four-bedroom properties located in the same MSAs. The April Single-Family Rental Performance Summary has 24 single-borrower deals with close to 86,000 properties.

Morningstar publishes our performance summary to provide market participants detailed property-level information on each single-family rental securitization that Morningstar has rated. The data below summarizes issuer-reported property-level information through February. Page 5 includes a summary of the multiborrower transactions. For deals seasoned at least one year, we provide Morningstar Surveillance Analysis reports, available on our website, www.morningstarcreditratings.com.

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Single-Borrower Performance

Lease expirations increased to 6.6% in March, up from 6.0% in February. AH4R 2015-SFR1 had the highest lease expirations at 8.3%, up from 7.6% in February. PRD 2018-SFR1 had the lowest percentage of lease expirations at 2.7% followed by PRD 2015-SFR3 at 4.4%.

The average retention rate on full-term leases declined to 78.9% in February, the latest month for which data is available, from 80.4% in January. The overall turnover rate remained at 2.3% in February, unchanged from the previous two months. The average delinquency rate declined 10 basis points to 0.5% in March, with IH 2018-SFR3 transaction reporting a delinquency rate of 1.1% and all the other deals were under 1%. Please note that any review of delinquency should be viewed within the context of the delinquency definitions in Table 7.

Rents for properties included in single-family rental securitizations rated by Morningstar Credit Ratings increased by 4.7% in March, compared with a 4.2% increase in February. Chart 1 shows that the rent gains for securitized properties in March trailed rent gains for three-bedroom properties; the RentRange rent change for three-bedroom properties was 5.6%, a decline from 6.0% in February, and the RentRange rent change for four-bedroom properties was 4.7%, the same as the securitized single-family rental blended rent change for March. The RentRange benchmarks track the year-over-year change on three- and four-bedroom median rents, weighted by MSA to match the geographic concentration of the Morningstar database.

Chart 2 shows the rental change of renewals versus vacant-to-occupied properties. For February, the latest month for which data is available, the rent change for renewal properties increased 4.7%, up from a 4.5% increase in January. Rent growth for vacant-to-occupied properties increased to 3.9% from 2.5%. Chart 3 shows that the average contractual rents by MSA have been largely in line with, or exceed, their property-level RentRange estimates. Chart 4 shows the MSA-level blended rent change. MSAs with rent changes above the 4.2% average are in blue, while those below are in red. The size of the circle indicates the percentage of properties by count from a given MSA in Morningstar's database. Table 3 exhibits the MSA-level blended rent change for the past 12 months.

Table 11b shows the percentage of properties rented out under a month-to-month lease, with 2.6% of properties in single-family rental securitizations rated by Morningstar Credit Ratings having month-to-month leases in March, up from 2.3% in February. TAH 2016-SFR1 again having the highest percentage of MTM leases, at 5.4% of its portfolio.

Multiborrower Performance

In April, the number of loans dropped to 920 with 10 multiborrower transactions. The number of loans 30-59 days delinquent increased to 16 from 10, the number of loans 60-89 days delinquent decreased to three from seven, and loans at least 90 days delinquent increased to 30 from 28. Loans in foreclosure increased to five, and loans in special servicing increased to 35.

Table 1 – Multiborrower Loan Performance by Percentage of Balance

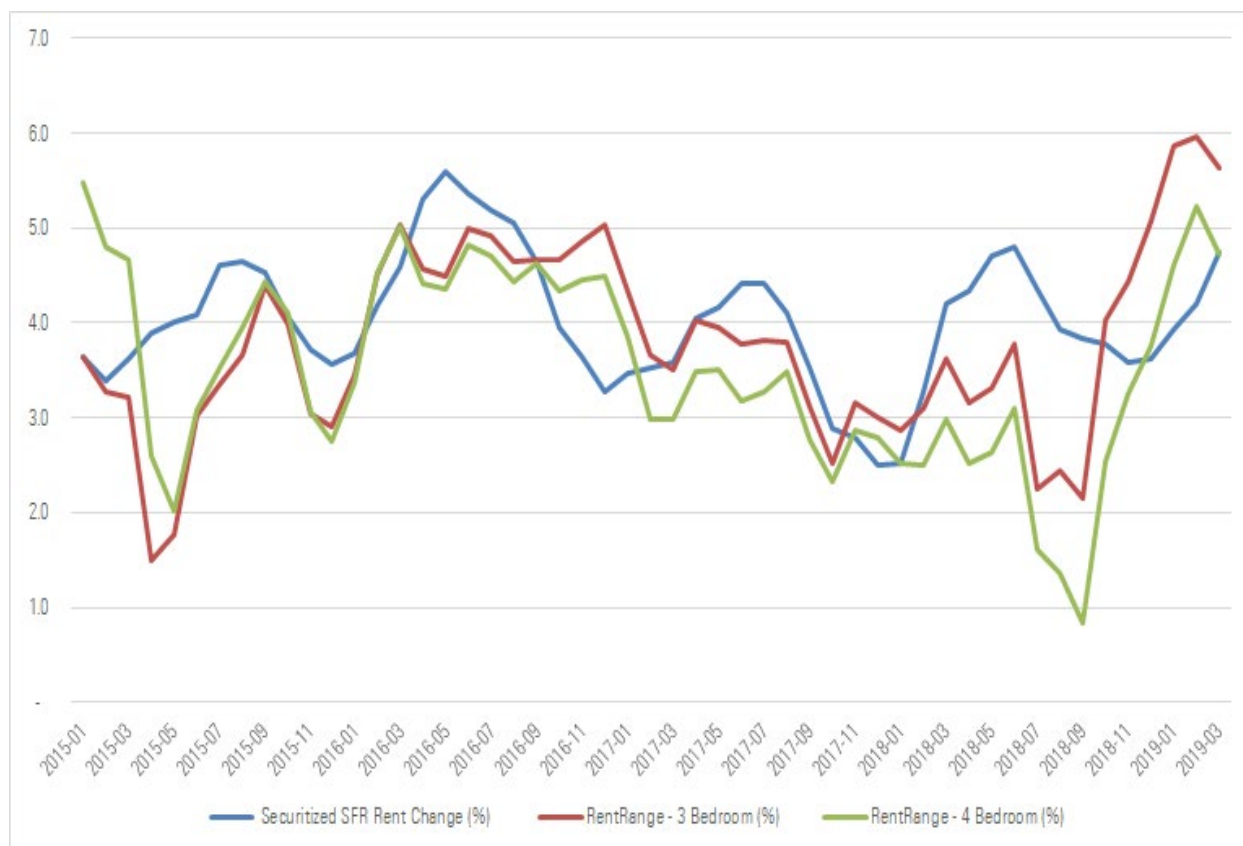
	30-59 Delinquent	60-89 Delinquent	90+ Delinquent	Foreclosure	Real Estate Owned	Special Servicing
B2R 2015-1	1.16	0.00	0.51	0.02	0.34	0.52
FKL 2015-SFR1	0.00	0.00	0.00	0.00	0.00	0.00
CAF 2015-1	0.00	0.00	2.54	0.00	0.00	9.75
B2R 2015-2	0.31	0.22	1.66	0.25	0.00	1.70
CAF 2016-1	0.00	0.00	1.71	0.00	0.00	1.73
B2R 2016-1	2.03	0.16	1.76	0.10	0.00	1.96
CAF 2016-2	0.00	0.00	4.38	2.71	0.00	4.55
CAF 2017-1	0.00	1.72	1.45	0.00	0.00	3.19
CAF 2018-1	0.93	0.00	0.92	0.61	0.31	0.93
CAF 2018-2	1.93	0.00	0.35	0.00	0.00	0.35

Table 2 – Multiborrower Loan Performance by Loan Count

	Total Loans	30-59 Delinquent	60-89 Delinquent	90+ Delinquent	Foreclosure	Real Estate Owned	Special Servicing
B2R 2015-1	113	2	0	3	1	1	3
FKL 2015-SFR1	2	0	0	0	0	0	0
CAF 2015-1	45	0	0	2	0	0	3
B2R 2015-2	174	1	1	8	1	0	8
CAF 2016-1	63	0	0	1	0	0	1
B2R 2016-1	151	7	1	6	1	0	8
CAF 2016-2	62	0	0	4	1	0	5
CAF 2017-1	79	0	1	3	0	0	4
CAF 2018-1	116	2	0	2	1	1	2
CAF 2018-2	115	4	0	1	0	0	1
Overall	920	16	3	30	5	2	35

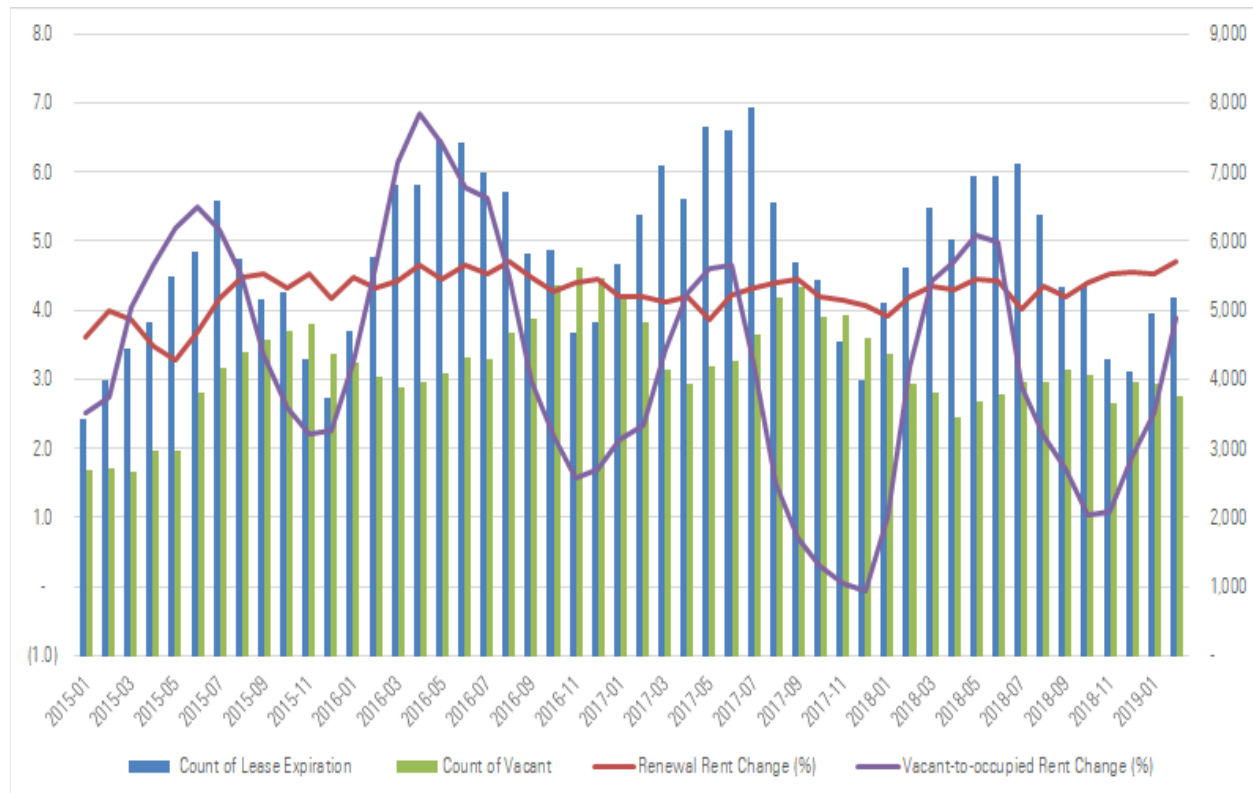
Single-Borrower Charts and Tables

Chart 1 – Single-Family Rental Rent Change Versus RentRange Year-Over-Year Rent Change



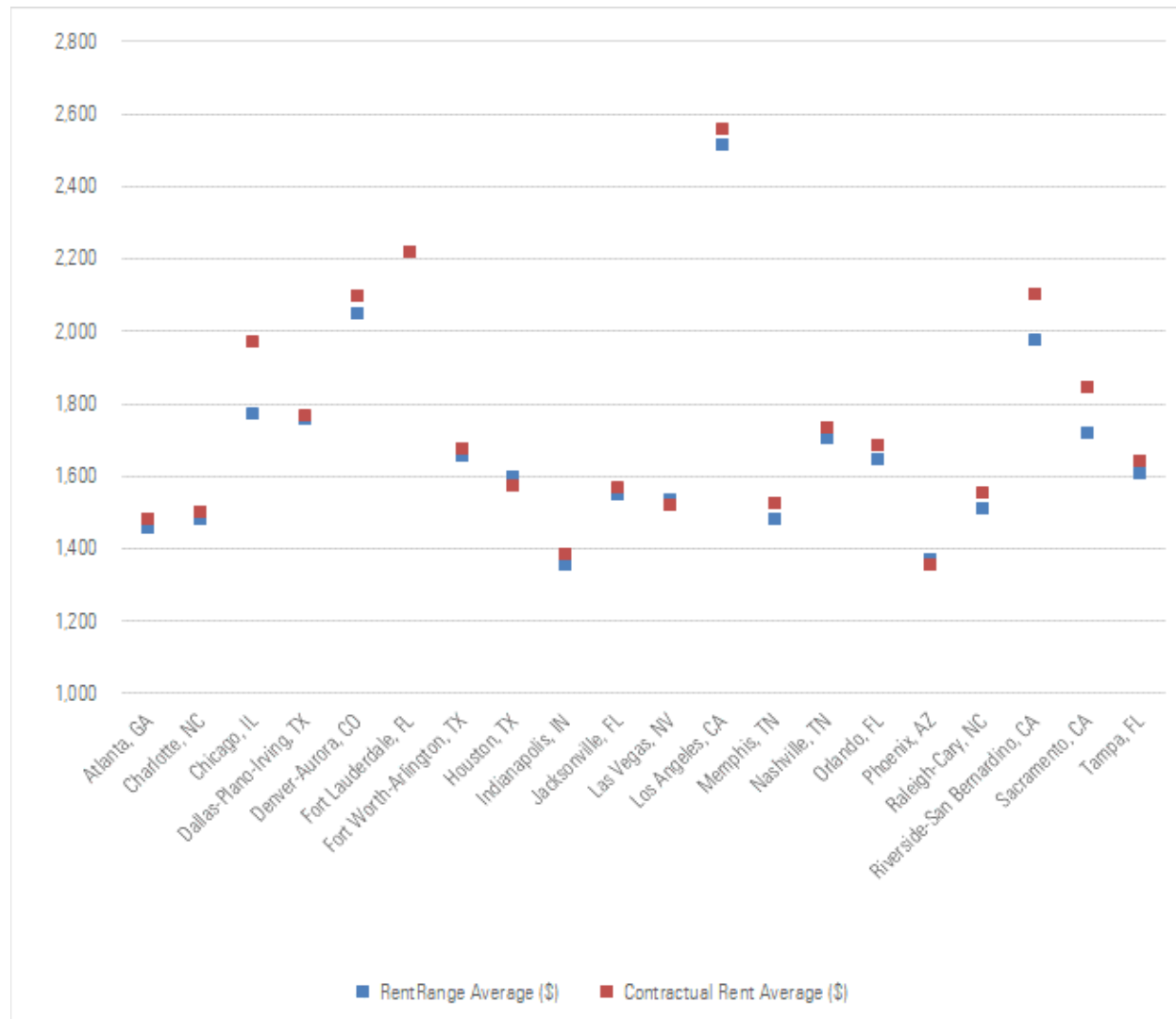
Sources: Morningstar Credit Ratings, LLC; RentRange

Chart 2 – Rental Changes for Renewals Versus Vacant-to-Occupied Properties



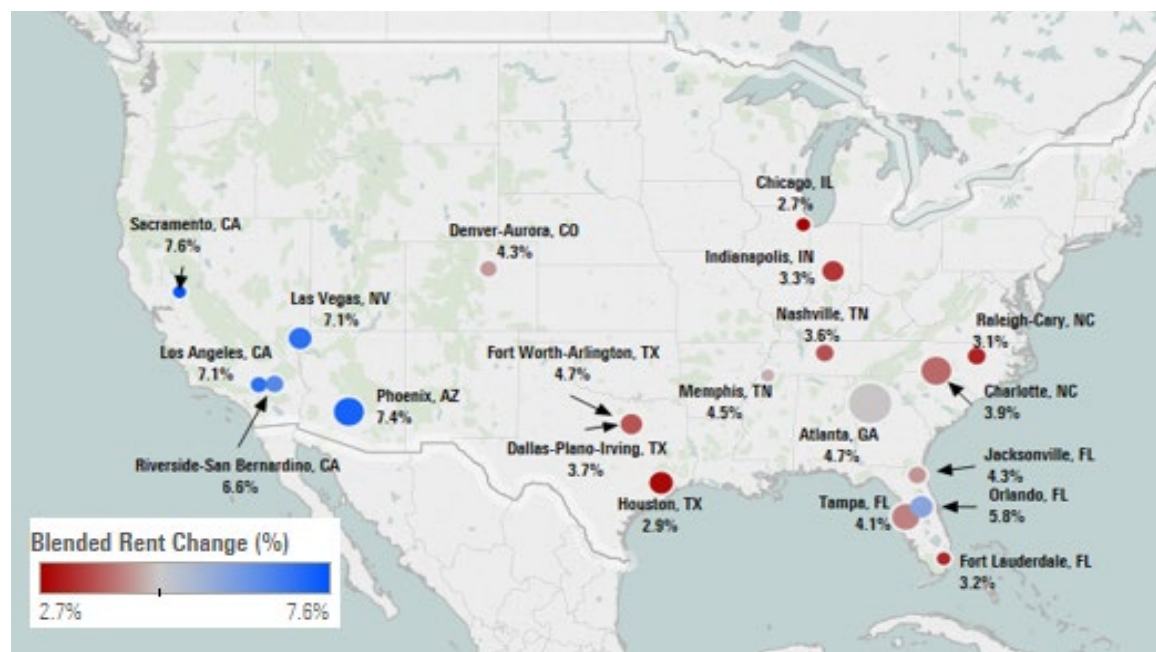
Source: Morningstar Credit Ratings, LLC

Chart 3 – February Average Contractual Rent Versus Property-Level RentRange Estimate by MSA



Sources: Morningstar Credit Ratings, LLC; RentRange

Chart 4 – MSA-Level Blended Rent Change*



Sources: Morningstar Credit Ratings, LLC; Tableau Software

*The size of the circles represents the total percentage (by count) of properties in each MSA, ranging from 1.42% to 14.85%. Because of their proximity, the Fort Worth-Arlington, Texas, MSA is hidden behind the Dallas-Plano-Irving, Texas, MSA.

Table 3 – Blended Rent Change (by Percentage) - Top MSAs

		Year 2018						Year 2019					
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Atlanta, GA		4.8	5.3	5.1	4.4	4.8	4.1	4.4	4.5	4.6	4.1	4.1	4.7
Charlotte, NC		3.0	4.0	3.8	4.4	3.4	3.3	3.0	2.5	2.8	3.2	3.5	3.9
Chicago, IL		2.9	4.3	4.4	3.0	3.2	2.5	2.3	2.0	1.1	-1.8	0.7	2.7
Dallas-Plano-Irving, TX		4.0	4.0	4.2	4.1	3.7	4.7	3.5	1.8	2.0	2.5	3.2	3.7
Denver-Aurora, CO		5.3	4.6	5.1	2.4	2.3	2.5	2.4	2.2	2.8	3.6	3.8	4.3
Fort Lauderdale, FL		2.9	3.8	3.3	3.6	3.2	2.6	2.9	2.4	3.5	4.0	2.5	3.2
Fort Worth-Arlington, TX		4.1	4.1	5.1	5.3	4.1	3.9	2.2	2.4	2.7	3.3	3.8	4.7
Houston, TX		3.6	3.3	3.3	3.0	2.9	2.5	1.4	1.7	1.4	1.8	1.8	2.9
Indianapolis, IN		3.3	4.2	4.6	3.8	3.0	2.7	2.6	2.5	0.7	1.5	4.1	3.3
Jacksonville, FL		5.2	5.4	5.3	5.6	5.3	4.6	4.2	3.2	3.0	3.8	4.4	4.3
Las Vegas, NV		5.3	6.2	6.1	5.1	5.2	6.4	5.6	5.5	5.6	6.8	6.2	7.1
Los Angeles, CA		5.7	5.8	6.2	5.1	4.5	5.1	6.1	5.3	4.9	6.2	5.5	7.1
Memphis, TN		4.0	4.4	4.2	5.4	5.1	3.6	2.9	3.6	3.2	3.8	2.5	4.5
Nashville, TN		3.0	4.6	4.2	4.5	4.2	3.5	3.1	1.7	2.4	3.4	3.1	3.6
Orlando, FL		5.2	5.3	6.0	6.2	5.2	4.7	4.9	5.0	4.6	4.8	4.9	5.8
Phoenix, AZ		6.4	6.3	6.7	6.1	5.4	6.0	5.9	5.4	5.9	7.0	7.2	7.4
Raleigh-Cary, NC		3.0	3.9	3.2	3.2	2.9	2.6	2.3	2.4	3.4	3.6	3.1	3.1
Riverside-San Bernardino, CA		5.5	5.5	6.7	4.4	3.6	4.6	5.1	5.5	4.5	5.7	5.5	6.6
Sacramento, CA		7.4	8.0	8.0	6.9	5.8	7.4	7.3	6.0	6.2	7.7	10.0	7.6
Tampa, FL		4.2	4.3	4.4	3.8	3.5	2.7	3.0	3.1	4.0	3.3	3.5	4.1

Table 4a – Month-End Vacancy (by Count)

		Year 2018												Year 2019					Count
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar						
AH4R 2014-SFR2		166	128	135	152	168	195	185	172	184	197	184	156	4,546					
AH4R 2014-SFR3		227	200	208	189	199	247	249	252	239	230	202	167	4,588					
AH4R 2015-SFR1		256	198	159	171	173	211	240	236	236	228	221	173	4,697					
AH4R 2015-SFR2		248	234	202	182	180	190	214	191	187	173	147	142	4,178					
CSH 2016-2		217	223	232	205	207	228	227	191	184	186	188	222	3,870					
HPA 2016-2		53	75	86	98	86	76	78	74	69	73	67	52	1,279					
HPA 2017-1		46	49	42	38	61	84	93	94	92	95	88	75	1,323					
HPA 2018-1					94	113	141	149	145	126	106	84	91	1,749					
IH 2017-SFR2		124	141	179	204	204	189	183	171	164	161	167	157	4,348					
IH 2018-SFR1		131	193	230	233	219	210	188	187	192	196	192	207	4,258					
IH 2018-SFR2				248	236	198	231	233	269	241	233	219	228	5,440					
IH 2018-SFR3								279	284	281	291	295	258	6,614					
IH 2018-SFR4										253	271	290	246	5,376					
PRD 2015-SFR2		95	126	117	108	151	157	157	140	137	162	156	144	3,286					
PRD 2015-SFR3		87	107	140	149	172	182	158	132	141	134	118	104	3,149					
PRD 2016-SFR2		98	109	134	160	203	211	181	160	144	152	144	144	3,742					
PRD 2017-SFR1		60	71	90	74	88	102	121	130	131	129	117	105	2,708					
PRD 2018-SFR1		36	30	44	56	84	107	123	132	115	85	53	42	2,113					
PRD 2018-SFR2							24	50	56	99	116	110	87	2,116					
SWH 2017-1		231	233	265	269	192	237	206	179	171	195	243	219	4,382					
TAH 2016-SFR1		136	167	156	186	230	186	181	163	180	156	146	151	3,428					
TAH 2017-SFR1		84	109	76	120	136	100	96	110	160	162	149	129	3,479					
TAH 2017-SFR2		109	96	79	99	120	95	110	98	114	87	90	83	2,619					
TAH 2018-SFR1			104	80	98	112	72	98	99	109	125	88	77	2,509					
Overall SFR		2,404	2,593	2,902	3,121	3,296	3,475	3,799	3,665	3,949	3,943	3,758	3,459	85,797					

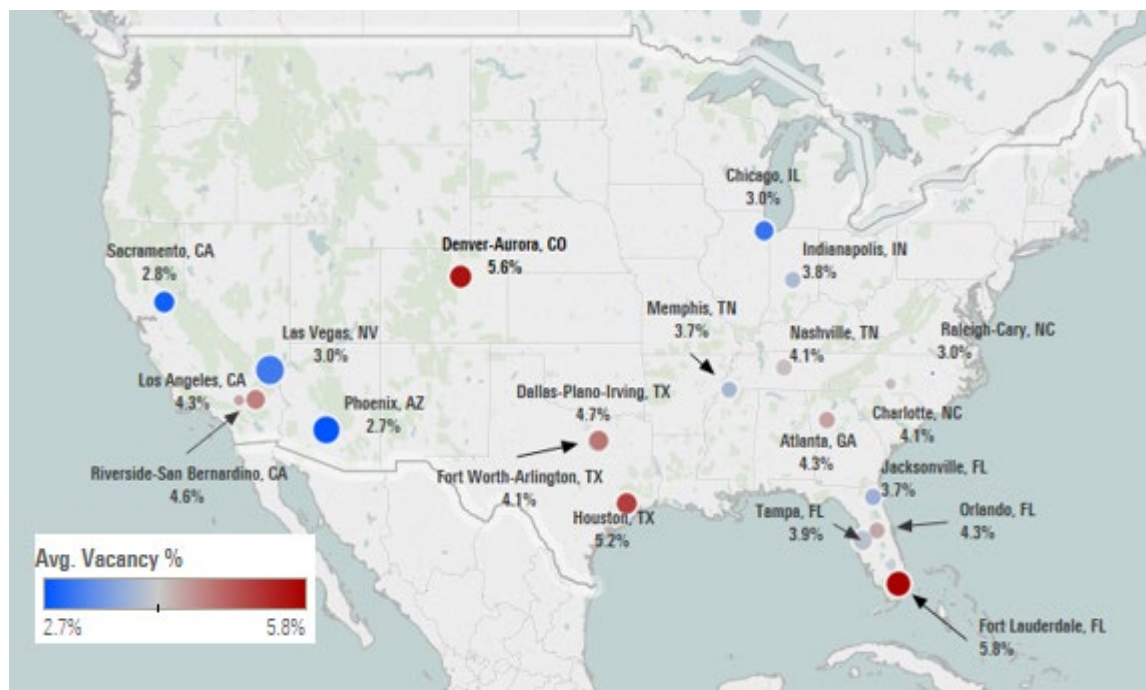
Table 4b – Month-End Vacancy (by Percentage)

		Year 2018												Year 2019		
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
AH4R 2014-SFR2		3.7	2.9	3.0	3.4	3.7	4.4	4.1	3.8	4.0	4.3	4.0	3.4			
AH4R 2014-SFR3		5.0	4.4	4.6	4.2	4.4	5.5	5.5	5.5	5.2	5.0	4.4	3.6			
AH4R 2015-SFR1		5.5	4.3	3.4	3.7	3.7	4.6	5.2	5.0	5.0	4.9	4.7	3.7			
AH4R 2015-SFR2		6.0	5.7	4.9	4.4	4.4	4.6	5.2	4.6	4.5	4.1	3.5	3.4			
CSH 2016-2		5.5	5.6	5.9	5.2	5.2	5.8	5.8	4.9	4.7	4.8	4.8	5.7			
HPA 2016-2		4.0	5.7	6.6	7.6	6.6	5.9	6.0	5.7	5.4	5.7	5.2	4.1			
HPA 2017-1		3.4	3.6	3.1	2.8	4.5	6.3	7.0	7.1	6.9	7.2	6.6	5.7			
HPA 2018-1					5.3	6.4	8.0	8.5	8.2	7.2	6.0	4.8	5.2			
IH 2017-SFR2		2.8	3.2	4.1	4.6	4.6	4.3	4.2	3.9	3.8	3.7	3.8	3.6			
IH 2018-SFR1		3.1	4.5	5.4	5.4	5.1	4.9	4.4	4.4	4.5	4.6	4.5	4.9			
IH 2018-SFR2				4.4	4.2	3.5	4.1	4.2	4.9	4.4	4.3	4.0	4.2			
IH 2018-SFR3								4.2	4.3	4.2	4.4	4.5	3.9			
IH 2018-SFR4										4.7	5.0	5.4	4.6			
PRD 2015-SFR2		2.9	3.8	3.6	3.3	4.6	4.8	4.8	4.3	4.2	4.9	4.7	4.4			
PRD 2015-SFR3		2.8	3.4	4.4	4.7	5.5	5.8	5.0	4.2	4.5	4.3	3.7	3.3			
PRD 2016-SFR2		2.6	2.9	3.6	4.3	5.4	5.6	4.8	4.3	3.8	4.1	3.8	3.8			
PRD 2017-SFR1		2.2	2.6	3.3	2.7	3.2	3.8	4.5	4.8	4.8	4.8	4.3	3.9			
PRD 2018-SFR1		1.7	1.4	2.1	2.7	4.0	5.1	5.8	6.2	5.4	4.0	2.5	2.0			
PRD 2018-SFR2							1.1	2.4	2.6	4.7	5.5	5.2	4.1			
SWH 2017-1		5.2	5.3	6.0	6.1	4.3	5.4	4.7	4.1	3.9	4.4	5.5	5.0			
TAH 2016-SFR1		4.0	4.9	4.5	5.4	6.7	5.4	5.3	4.7	5.2	4.5	4.3	4.4			
TAH 2017-SFR1		2.4	3.1	2.2	3.4	3.9	2.9	2.8	3.2	4.6	4.7	4.3	3.7			
TAH 2017-SFR2		4.2	3.7	3.0	3.8	4.6	3.6	4.2	3.7	4.4	3.3	3.4	3.2			
TAH 2018-SFR1			4.1	3.2	3.9	4.5	2.9	3.9	3.9	4.3	5.0	3.5	3.1			
Overall SFR		3.9	4.0	4.1	4.3	4.6	4.7	4.7	4.5	4.6	4.6	4.4	4.0			

Table 4c – Month-End Vacancy (by Percentage) – Top MSAs

		Year 2018								Year 2019			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Atlanta, GA		4.2	4.2	4.3	4.7	5.2	4.5	5.0	4.8	4.7	4.8	4.7	4.3
Charlotte, NC		4.5	4.5	4.4	3.8	4.6	4.9	5.1	4.2	4.5	4.3	4.3	4.1
Chicago, IL		4.9	4.8	3.4	3.4	4.2	5.3	6.0	5.7	5.6	4.1	3.7	3.0
Dallas-Plano-Irving, TX		4.3	4.1	4.5	4.9	5.8	5.9	5.6	5.8	5.5	5.3	4.9	4.7
Denver-Aurora, CO		4.0	5.6	7.0	6.1	5.2	7.0	6.5	6.0	5.7	5.8	5.8	5.6
Fort Lauderdale, FL		4.9	6.0	6.0	5.2	6.0	4.4	4.5	3.9	4.9	6.1	5.2	5.8
Fort Worth-Arlington, TX		4.0	4.2	4.8	5.0	5.4	6.1	5.1	4.9	4.6	4.0	3.5	4.1
Houston, TX		6.3	5.8	5.8	6.0	6.7	6.8	6.6	6.8	6.5	6.4	5.8	5.2
Indianapolis, IN		4.1	3.2	3.8	4.3	5.5	5.9	5.4	6.0	5.8	5.0	5.1	3.8
Jacksonville, FL		2.6	3.5	3.6	4.0	4.5	4.4	4.7	4.7	4.5	4.4	4.5	3.7
Las Vegas, NV		2.2	2.9	3.1	3.5	3.2	3.6	3.5	3.2	2.8	3.4	3.5	3.0
Los Angeles, CA		3.9	4.0	5.5	5.4	5.5	5.0	4.9	4.7	4.5	4.0	4.2	4.3
Memphis, TN		4.0	3.6	3.9	3.8	5.0	5.3	5.4	4.9	4.9	5.8	4.6	3.7
Nashville, TN		4.2	3.7	4.0	4.7	5.5	5.2	5.4	4.6	4.5	5.0	4.2	4.1
Orlando, FL		2.6	2.9	3.6	3.5	3.4	3.5	3.4	3.9	4.1	4.4	4.5	4.3
Phoenix, AZ		2.2	2.7	3.0	3.3	3.3	3.5	2.7	2.9	3.1	2.9	2.8	2.7
Raleigh-Cary, NC		4.8	4.2	3.9	4.0	4.0	5.1	5.1	4.8	4.7	4.5	3.6	3.0
Riverside-San Bernardino, CA		3.5	3.7	4.1	4.0	3.4	4.3	4.3	3.8	2.8	3.9	4.5	4.6
Sacramento, CA		2.9	2.9	2.7	3.1	3.5	3.8	4.0	2.9	3.2	3.7	3.3	2.8
Tampa, FL		4.1	4.5	4.8	5.2	5.2	5.0	4.9	4.3	4.6	4.7	4.3	3.9

Chart 5 – MSA-Level Vacancy and Lease Expiration Percentage (by Count)*



Sources: Morningstar Credit Ratings, LLC; Tableau Software

*The size of the circles represents the past three months of lease expirations by count as a percentage of each MSA, ranging from 15.702% to 21.570%. Because of their proximity, the Fort Worth-Arlington, Texas, MSA is hidden behind the Dallas-Plano-Irving, Texas, MSA.

Table 5a – Lease Expiration (by Count)

		Year 2018												Year 2019				Total Count
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
AH4R 2014-SFR2		329	423	411	378	354	265	215	200	172	245	306	345	4,546				
AH4R 2014-SFR3		280	361	410	439	382	280	240	198	161	263	275	297	4,588				
AH4R 2015-SFR1		247	278	347	405	364	279	276	252	231	341	359	391	4,697				
AH4R 2015-SFR2		315	438	425	376	271	181	155	173	153	198	250	296	4,178				
CSH 2016-2		325	392	354	302	332	275	251	187	168	211	244	293	3,870				
HPA 2016-2		155	235	281	191	49	27	24	24	20	26	34	86	1,279				
HPA 2017-1		114	73	17	74	119	98	144	139	99	101	78	94	1,323				
HPA 2018-1					229	179	172	122	73	71	69	71	105	1,749				
IH 2017-SFR2		294	330	391	373	314	235	243	197	183	218	256	275	4,348				
IH 2018-SFR1		346	323	363	380	347	375	324	251	206	260	285	293	4,258				
IH 2018-SFR2				331	378	345	330	346	306	276	320	353	395	5,440				
IH 2018-SFR3								416	401	324	428	410	452	6,614				
IH 2018-SFR4										250	292	363	345	5,376				
PRD 2015-SFR2		307	324	216	200	179	161	221	229	195	191	206	220	3,286				
PRD 2015-SFR3		187	292	287	341	342	224	223	140	149	126	142	139	3,149				
PRD 2016-SFR2		165	271	333	364	465	323	270	193	172	170	154	188	3,742				
PRD 2017-SFR1		89	136	145	183	188	203	310	232	231	179	152	146	2,708				
PRD 2018-SFR1		54	52	97	151	208	249	423	379	85	21	29	56	2,113				
PRD 2018-SFR2							6	7	8	279	345	258	160	2,116				
SWH 2017-1		475	442	381	342	318	268	217	195	164	285	307	336	4,382				
TAH 2016-SFR1		235	225	260	263	250	181	203	135	137	122	154	174	3,428				
TAH 2017-SFR1		119	159	176	188	221	209	244	168	162	225	229	263	3,479				
TAH 2017-SFR2		124	154	157	155	166	145	156	111	113	155	153	182	2,619				
TAH 2018-SFR1			160	137	133	166	150	172	112	119	151	125	156	2,509				
Overall SFR		4,160	5,068	5,519	5,845	5,559	4,636	5,202	4,303	4,120	4,942	5,193	5,687	85,797				

Table 5b – Lease Expiration (by Percentage)



		Year 2018						Year 2019					
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
AH4R 2014-SFR2		7.3	9.4	9.2	8.4	7.9	5.9	4.8	4.4	3.8	5.4	6.7	7.6
AH4R 2014-SFR3		6.2	8.0	9.1	9.8	8.5	6.2	5.3	4.3	3.5	5.7	6.0	6.5
AH4R 2015-SFR1		5.3	6.0	7.5	8.7	7.9	6.0	6.0	5.4	4.9	7.3	7.6	8.3
AH4R 2015-SFR2		7.6	10.6	10.3	9.1	6.6	4.4	3.8	4.1	3.7	4.7	6.0	7.1
CSH 2016-2		8.2	9.9	9.0	7.6	8.4	7.0	6.4	4.8	4.3	5.4	6.3	7.6
HPA 2016-2		11.8	17.9	21.6	14.7	3.8	2.1	1.9	1.9	1.6	2.0	2.7	6.7
HPA 2017-1		8.4	5.4	1.3	5.5	8.9	7.3	10.8	10.4	7.4	7.6	5.9	7.1
HPA 2018-1					12.9	10.1	9.7	6.9	4.1	4.0	3.9	4.0	6.0
IH 2017-SFR2		6.7	7.5	8.9	8.5	7.1	5.3	5.6	4.5	4.2	5.0	5.9	6.3
IH 2018-SFR1		8.1	7.5	8.5	8.9	8.1	8.7	7.6	5.9	4.8	6.1	6.7	6.9
IH 2018-SFR2				5.9	6.7	6.2	5.9	6.3	5.6	5.0	5.9	6.5	7.3
IH 2018-SFR3								6.3	6.0	4.9	6.5	6.2	6.8
IH 2018-SFR4										4.6	5.4	6.7	6.4
PRD 2015-SFR2		9.3	9.9	6.6	6.1	5.4	4.9	6.7	7.0	5.9	5.8	6.3	6.7
PRD 2015-SFR3		5.9	9.3	9.1	10.8	10.9	7.1	7.1	4.4	4.7	4.0	4.5	4.4
PRD 2016-SFR2		4.4	7.2	8.9	9.7	12.4	8.6	7.2	5.2	4.6	4.5	4.1	5.0
PRD 2017-SFR1		3.3	5.0	5.4	6.8	6.9	7.5	11.4	8.6	8.5	6.6	5.6	5.4
PRD 2018-SFR1		2.6	2.5	4.6	7.1	9.8	11.8	20.0	17.9	4.0	1.0	1.4	2.7
PRD 2018-SFR2							0.3	0.3	0.4	13.2	16.3	12.2	7.6
SWH 2017-1		10.7	10.0	8.6	7.7	7.2	6.1	4.9	4.4	3.7	6.5	7.0	7.7
TAH 2016-SFR1		6.8	6.5	7.6	7.7	7.3	5.3	5.9	3.9	4.0	3.6	4.5	5.1
TAH 2017-SFR1		3.4	4.6	5.1	5.4	6.4	6.0	7.0	4.8	4.7	6.5	6.6	7.6
TAH 2017-SFR2		4.7	5.9	6.0	5.9	6.3	5.5	6.0	4.2	4.3	5.9	5.8	6.9
TAH 2018-SFR1			6.4	5.5	5.3	6.6	6.0	6.9	4.5	4.7	6.0	5.0	6.2
Overall SFR		6.7	7.9	7.9	8.1	7.7	6.3	6.5	5.3	4.8	5.7	6.0	6.6

Table 5c – Lease Expiration (by Percentage) – Top MSAs

		Year 2018				Year 2019							
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Atlanta, GA		7.5	8.2	8.1	7.7	7.3	6.2	6.4	5.0	4.8	5.5	5.8	6.4
Charlotte, NC		6.6	7.1	7.9	7.9	8.3	6.2	6.2	4.7	4.0	5.2	5.2	6.2
Chicago, IL		7.8	9.3	8.2	10.0	7.9	7.6	3.7	3.1	3.9	5.3	5.5	7.5
Dallas-Plano-Irving, TX		6.5	7.2	9.0	8.3	8.1	5.7	6.8	5.4	5.0	5.3	6.8	6.3
Denver-Aurora, CO		9.8	10.3	9.6	9.5	7.5	7.3	6.3	4.8	4.5	7.9	5.6	5.7
Fort Lauderdale, FL		7.1	8.0	7.0	6.0	7.3	5.1	6.5	5.1	5.5	8.0	5.8	6.1
Fort Worth-Arlington, TX		7.5	7.8	8.9	7.4	7.9	6.3	5.8	5.3	5.5	5.6	5.8	7.3
Houston, TX		6.3	6.5	6.9	7.9	6.3	6.2	5.7	5.8	5.0	5.4	6.7	6.9
Indianapolis, IN		7.3	9.4	8.4	8.8	8.0	6.0	6.3	4.6	3.9	5.6	5.5	6.5
Jacksonville, FL		5.2	8.5	6.4	6.0	6.1	5.6	6.6	6.0	5.3	5.8	5.7	6.4
Las Vegas, NV		7.5	6.9	7.2	8.3	8.5	7.1	7.9	5.0	5.0	5.8	8.8	7.0
Los Angeles, CA		7.2	6.7	8.0	7.2	7.2	6.7	6.2	5.0	3.5	4.6	5.2	6.8
Memphis, TN		8.3	8.5	7.0	6.8	7.8	7.3	6.3	6.3	6.6	7.0	5.3	5.1
Nashville, TN		7.7	7.5	8.5	8.7	7.2	4.8	6.5	4.1	5.2	6.1	5.6	6.0
Orlando, FL		5.8	8.9	8.6	8.7	9.3	6.0	6.6	5.6	4.9	5.9	5.6	6.0
Phoenix, AZ		7.0	6.8	6.9	7.3	7.5	5.9	6.2	5.9	5.5	6.6	7.2	7.1
Raleigh-Cary, NC		6.2	8.1	8.4	10.2	9.3	6.3	6.6	7.3	5.1	4.9	5.5	5.4
Riverside-San Bernardino, CA		7.9	8.1	7.2	8.6	7.1	8.2	6.5	6.1	3.9	6.4	5.3	6.6
Sacramento, CA		7.1	6.4	8.8	7.2	9.8	6.9	5.0	4.7	3.4	5.0	6.6	7.1
Tampa, FL		6.8	7.5	8.0	7.8	8.6	6.4	7.4	5.5	5.2	6.0	5.7	6.6

Table 6a – Historical Months of Vacancy for March Vacancies (by Count)

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		25	24	21	25	16	19	12	4	6	0	2	2	156
AH4R 2014-SFR3		22	24	30	19	16	12	12	13	0	3	2	14	167
AH4R 2015-SFR1		29	35	25	17	26	12	7	7	3	2	0	10	173
AH4R 2015-SFR2		31	29	25	13	11	9	10	5	1	1	0	7	142
CSH 2016-2		52	47	49	34	11	6	5	11	2	0	2	3	222
HPA 2016-2		9	12	7	7	7	4	3	1	1	0	1	0	52
HPA 2017-1		26	12	17	6	7	5	2	0	0	0	0	0	75
HPA 2018-1		37	15	7	10	7	5	4	4	2	0			91
IH 2017-SFR2		54	48	27	12	2	5	2	1	3	0	1	2	157
IH 2018-SFR1		82	44	32	20	11	3	2	5	6	1	1	0	207
IH 2018-SFR2		105	67	26	8	8	5	2	1	3	3	0		228
IH 2018-SFR3		129	59	32	8	8	20	2						258
IH 2018-SFR4		107	62	34	36	7								246
PRD 2015-SFR2		24	19	22	19	16	13	13	3	6	4	1	4	144
PRD 2015-SFR3		12	17	16	15	14	5	11	9	2	1	0	2	104
PRD 2016-SFR2		49	17	24	28	12	2	2	3	1	1	2	3	144
PRD 2017-SFR1		37	23	23	9	8	2	3	0	0	0	0	0	105
PRD 2018-SFR1		24	13	2	0	0	1	0	2	0	0	0	0	42
PRD 2018-SFR2		54	28	4	0	0	1	0	0					87
SWH 2017-1		79	62	41	15	14	1	1	4	1	0	0	1	219
TAH 2016-SFR1		35	39	25	15	14	9	3	2	6	2	1	0	151
TAH 2017-SFR1		41	35	21	19	5	3	3	2	0	0	0	0	129
TAH 2017-SFR2		33	22	14	4	4	5	0	0	0	0	0	1	83
TAH 2018-SFR1		33	22	9	4	4	2	1	0	1	0	1	0	77
Overall SFR		1,129	775	533	343	228	149	100	77	44	18	14	49	3,459

Table 6b – Historical Months of Vacancy for March Vacancies (by Percentage)

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		16.0	15.4	13.5	16.0	10.3	12.2	7.7	2.6	3.8	0.0	1.3	1.3	100.0
AH4R 2014-SFR3		13.2	14.4	18.0	11.4	9.6	7.2	7.2	7.8	0.0	1.8	1.2	8.4	100.0
AH4R 2015-SFR1		16.8	20.2	14.5	9.8	15.0	6.9	4.0	4.0	1.7	1.2	0.0	5.8	100.0
AH4R 2015-SFR2		21.8	20.4	17.6	9.2	7.7	6.3	7.0	3.5	0.7	0.7	0.0	4.9	100.0
CSH 2016-2		23.4	21.2	22.1	15.3	5.0	2.7	2.3	5.0	0.9	0.0	0.9	1.4	100.0
HPA 2016-2		17.3	23.1	13.5	13.5	13.5	7.7	5.8	1.9	1.9	0.0	1.9	0.0	100.0
HPA 2017-1		34.7	16.0	22.7	8.0	9.3	6.7	2.7	0.0	0.0	0.0	0.0	0.0	100.0
HPA 2018-1		40.7	16.5	7.7	11.0	7.7	5.5	4.4	4.4	2.2	0.0			100.0
IH 2017-SFR2		34.4	30.6	17.2	7.6	1.3	3.2	1.3	0.6	1.9	0.0	0.6	1.3	100.0
IH 2018-SFR1		39.6	21.3	15.5	9.7	5.3	1.4	1.0	2.4	2.9	0.5	0.5	0.0	100.0
IH 2018-SFR2		46.1	29.4	11.4	3.5	3.5	2.2	0.9	0.4	1.3	1.3	0.0		100.0
IH 2018-SFR3		50.0	22.9	12.4	3.1	3.1	7.8	0.8						100.0
IH 2018-SFR4		43.5	25.2	13.8	14.6	2.8								100.0
PRD 2015-SFR2		16.7	13.2	15.3	13.2	11.1	9.0	9.0	2.1	4.2	2.8	0.7	2.8	100.0
PRD 2015-SFR3		11.5	16.3	15.4	14.4	13.5	4.8	10.6	8.7	1.9	1.0	0.0	1.9	100.0
PRD 2016-SFR2		34.0	11.8	16.7	19.4	8.3	1.4	1.4	2.1	0.7	0.7	1.4	2.1	100.0
PRD 2017-SFR1		35.2	21.9	21.9	8.6	7.6	1.9	2.9	0.0	0.0	0.0	0.0	0.0	100.0
PRD 2018-SFR1		57.1	31.0	4.8	0.0	0.0	2.4	0.0	4.8	0.0	0.0	0.0	0.0	100.0
PRD 2018-SFR2		62.1	32.2	4.6	0.0	0.0	1.1	0.0	0.0					100.0
SWH 2017-1		36.1	28.3	18.7	6.8	6.4	0.5	0.5	1.8	0.5	0.0	0.0	0.5	100.0
TAH 2016-SFR1		23.2	25.8	16.6	9.9	9.3	6.0	2.0	1.3	4.0	1.3	0.7	0.0	100.0
TAH 2017-SFR1		31.8	27.1	16.3	14.7	3.9	2.3	2.3	1.6	0.0	0.0	0.0	0.0	100.0
TAH 2017-SFR2		39.8	26.5	16.9	4.8	4.8	6.0	0.0	0.0	0.0	0.0	0.0	1.2	100.0
TAH 2018-SFR1		42.9	28.6	11.7	5.2	5.2	2.6	1.3	0.0	1.3	0.0	1.3	0.0	100.0
Overall SFR		32.6	22.4	15.4	9.9	6.6	4.3	2.9	2.2	1.3	0.5	0.4	1.4	100.0

Table 7 – Delinquency Definition



Issuer	Definition
American Homes 4 Rent	Past due one calendar month or more (not dependent on day count) and owing \$200 or more
Invitation Homes/Colony Starwood Homes/Starwood	Past due 30 days or more (not dependent on calendar month) and owing 25% of one month's rent or more
Waypoint Homes	
Home Partners of America	Past due 30 days or more (not dependent on calendar month) and owing \$500 or more
Progress Residential	Past due 30 days or more (not dependent on calendar month) and owing \$200 or more ¹
Tricon American Homes	Past due 30 days or more (not dependent on calendar month) and owing \$500 or more ²

¹ Includes Section 8 rent, pet fees, and MTM fees, but excludes late fees and damage fees.

² Based on total receivables.

Table 8a – Month-End Delinquency (by Count)

		Year 2018												Year 2019				Total Count
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
AH4R 2014-SFR2		7	7	12	13	11	16	16	21	22	18	17	18	4,546				
AH4R 2014-SFR3		12	9	5	14	14	12	13	7	15	13	8	9	4,588				
AH4R 2015-SFR1		15	8	12	18	11	17	14	17	26	21	25	16	4,697				
AH4R 2015-SFR2		7	10	7	11	10	9	11	13	12	15	23	15	4,178				
CSH 2016-2		13	36	32	36	30	35	34	30	44	30	43	22	3,870				
HPA 2016-2		6	11	12	14	16	22	22	16	18	15	11	11	1,279				
HPA 2017-1		8	7	9	19	23	22	22	21	20	20	14	11	1,323				
HPA 2018-1					24	23	25	28	17	24	23	22	10	1,749				
IH 2017-SFR2		15	27	33	24	30	35	30	40	65	52	23	31	4,348				
IH 2018-SFR1		29	30	38	21	16	20	20	41	65	22	28	22	4,258				
IH 2018-SFR2				43	54	49	50	53	48	92	58	61	44	5,440				
IH 2018-SFR3									67	87	134	70	48	6,614				
IH 2018-SFR4										65	42	38	33	5,376				
PRD 2015-SFR2		12	24	18	25	10	21	20	24	22	21	21	23	3,286				
PRD 2015-SFR3		17	19	20	23	16	21	25	25	19	16	36	27	3,149				
PRD 2016-SFR2		18	17	22	29	16	25	23	26	20	26	51	31	3,742				
PRD 2017-SFR1		17	14	12	25	12	12	17	22	18	23	19	11	2,708				
PRD 2018-SFR1		15	16	39	16	6	9	9	7	4	10	13	15	2,113				
PRD 2018-SFR2							1	17	15	7	10	14	10	2,116				
SWH 2017-1		19	45	45	27	29	36	34	29	87	29	20	20	4,382				
TAH 2016-SFR1		10	21	9	14	8	15	6	7	1	18	1	3	3,428				
TAH 2017-SFR1		3	26	0	10	7	11	8	9	0	9	1	2	3,479				
TAH 2017-SFR2		6	13	4	3	2	4	2	5	2	11	1	3	2,619				
TAH 2018-SFR1			0	2	4	2	6	1	7	0	8	0	6	2,509				
Overall SFR		229	340	374	424	341	424	492	534	782	580	538	466	85,797				

Table 8b – Month-End Delinquency (by Percentage)

		Year 2018						Year 2019					
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
AH4R 2014-SFR2		0.2	0.2	0.3	0.3	0.2	0.4	0.4	0.5	0.5	0.4	0.4	0.4
AH4R 2014-SFR3		0.3	0.2	0.1	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2
AH4R 2015-SFR1		0.3	0.2	0.3	0.4	0.2	0.4	0.3	0.4	0.6	0.4	0.5	0.3
AH4R 2015-SFR2		0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.6	0.4
CSH 2016-2		0.3	0.9	0.8	0.9	0.8	0.9	0.9	0.8	1.1	0.8	1.1	0.6
HPA 2016-2		0.5	0.8	0.9	1.1	1.2	1.7	1.7	1.2	1.4	1.2	0.9	0.9
HPA 2017-1		0.6	0.5	0.7	1.4	1.7	1.6	1.6	1.6	1.5	1.5	1.1	0.8
HPA 2018-1					1.3	1.3	1.4	1.6	1.0	1.4	1.3	1.3	0.6
IH 2017-SFR2		0.3	0.6	0.7	0.5	0.7	0.8	0.7	0.9	1.5	1.2	0.5	0.7
IH 2018-SFR1		0.7	0.7	0.9	0.5	0.4	0.5	0.5	1.0	1.5	0.5	0.7	0.5
IH 2018-SFR2				0.8	1.0	0.9	0.9	1.0	0.9	1.7	1.1	1.1	0.8
IH 2018-SFR3								1.0	1.3	2.0	1.1	0.7	1.1
IH 2018-SFR4										1.2	0.8	0.7	0.6
PRD 2015-SFR2		0.4	0.7	0.5	0.8	0.3	0.6	0.6	0.7	0.7	0.6	0.6	0.7
PRD 2015-SFR3		0.5	0.6	0.6	0.7	0.5	0.7	0.8	0.8	0.6	0.5	1.1	0.9
PRD 2016-SFR2		0.5	0.5	0.6	0.8	0.4	0.7	0.6	0.7	0.5	0.7	1.4	0.8
PRD 2017-SFR1		0.6	0.5	0.4	0.9	0.4	0.4	0.6	0.8	0.7	0.8	0.7	0.4
PRD 2018-SFR1		0.7	0.8	1.8	0.8	0.3	0.4	0.4	0.3	0.2	0.5	0.6	0.7
PRD 2018-SFR2							0.0	0.8	0.7	0.3	0.5	0.7	0.5
SWH 2017-1		0.4	1.0	1.0	0.6	0.7	0.8	0.8	0.7	2.0	0.7	0.5	0.5
TAH 2016-SFR1		0.3	0.6	0.3	0.4	0.2	0.4	0.2	0.2	0.0	0.5	0.0	0.1
TAH 2017-SFR1		0.1	0.7	0.0	0.3	0.2	0.3	0.2	0.3	0.0	0.3	0.0	0.1
TAH 2017-SFR2		0.2	0.5	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.4	0.0	0.1
TAH 2018-SFR1			0.0	0.1	0.2	0.1	0.2	0.0	0.3	0.0	0.3	0.0	0.2
Overall SFR		0.4	0.5	0.5	0.6	0.5	0.6	0.6	0.7	0.9	0.7	0.6	0.5

Table 9 – Monthly Retention Rate of Expiring Leases (by Percentage)

		Year 2018								Year 2019				
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
AH4R 2014-SFR2		79.3	76.8	77.1	74.9	74.0	77.7	74.9	79.0	69.8	82.9	78.4	TBD	
AH4R 2014-SFR3		80.0	73.1	71.7	77.2	79.1	75.4	72.1	71.7	78.3	78.7	79.3	TBD	
AH4R 2015-SFR1		72.5	72.3	72.9	71.9	77.5	78.9	71.0	81.3	79.7	78.0	79.4	TBD	
AH4R 2015-SFR2		75.2	72.1	71.8	74.2	74.9	68.5	79.4	76.3	68.0	80.8	78.8	TBD	
CSH 2016-2		79.7	73.2	76.3	78.8	73.8	74.2	77.7	76.5	79.8	82.0	76.6	TBD	
HPA 2016-2		77.4	75.7	79.0	70.7	77.6	77.8	66.7	75.0	80.0	73.1	82.4	TBD	
HPA 2017-1		75.4	78.1	52.9	73.0	73.9	89.8	84.7	79.1	83.8	84.2	82.1	TBD	
HPA 2018-1					72.5	76.0	75.0	82.0	79.5	85.9	79.7	77.5	TBD	
IH 2017-SFR2		81.0	79.7	77.7	79.4	79.0	81.7	76.5	81.7	88.5	81.2	80.9	TBD	
IH 2018-SFR1		78.9	80.2	76.6	78.9	74.6	82.1	84.6	78.9	81.6	84.2	78.6	TBD	
IH 2018-SFR2				77.3	81.5	81.7	79.4	80.1	77.5	83.7	80.6	78.2	TBD	
IH 2018-SFR3								78.6	81.5	80.9	78.5	78.3	TBD	
IH 2018-SFR4										78.0	83.6	81.8	TBD	
PRD 2015-SFR2		82.1	78.1	75.0	79.5	70.4	77.0	76.5	74.7	82.1	73.3	74.3	TBD	
PRD 2015-SFR3		80.2	79.8	77.0	77.4	77.5	75.4	76.7	71.4	70.5	71.4	75.4	TBD	
PRD 2016-SFR2		78.8	79.7	76.3	78.3	77.8	81.4	80.0	72.5	82.0	77.6	72.7	TBD	
PRD 2017-SFR1		83.1	72.1	75.2	79.2	81.9	74.9	74.8	78.4	77.1	79.3	71.1	TBD	
PRD 2018-SFR1		85.2	75.0	80.4	81.5	76.9	80.7	78.5	74.4	76.5	81.0	72.4	TBD	
PRD 2018-SFR2							83.3	100.0	50.0	78.5	81.7	76.4	TBD	
SWH 2017-1		78.5	85.7	72.4	79.5	81.4	79.1	80.2	76.9	81.7	82.1	74.9	TBD	
TAH 2016-SFR1		85.5	81.3	78.1	78.3	82.0	85.1	83.7	78.5	81.8	85.2	87.7	TBD	
TAH 2017-SFR1		84.0	78.0	85.8	74.5	82.8	82.3	82.8	82.1	78.4	79.6	81.7	TBD	
TAH 2017-SFR2		78.2	78.6	81.5	82.6	84.9	80.7	85.9	81.1	81.4	83.9	85.6	TBD	
TAH 2018-SFR1			77.5	83.9	82.7	87.3	78.0	82.6	83.9	82.4	79.5	93.6	TBD	
Overall SFR		79.3	77.3	76.2	77.3	78.2	78.8	78.8	77.8	79.5	80.4	78.9	TBD	

TBD – To Be Determined

Table 10 – Monthly Retention Rate of MTM Leases (by Percentage)

		Year 2018						Year 2019					
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
AH4R 2014-SFR2		87.5	85.4	82.0	86.3	84.4	82.6	85.8	85.6	86.1	85.9	89.1	TBD
AH4R 2014-SFR3		86.4	76.0	82.4	82.8	85.3	82.5	82.7	88.1	92.0	92.7	89.7	TBD
AH4R 2015-SFR1		86.1	78.7	84.1	80.3	79.4	80.1	85.6	80.9	84.1	91.6	88.2	TBD
AH4R 2015-SFR2		82.6	72.6	83.9	80.9	79.7	81.5	81.7	78.9	83.3	88.3	84.9	TBD
CSH 2016-2		77.8	83.9	75.6	72.3	75.4	80.8	86.5	85.2	76.1	89.5	83.7	TBD
HPA 2016-2													TBD
HPA 2017-1													TBD
HPA 2018-1													TBD
IH 2017-SFR2		82.9	80.6	84.7	90.0	88.6	74.7	88.2	76.8	85.7	89.8	88.5	TBD
IH 2018-SFR1		87.5	77.6	79.7	83.3	90.2	86.2	86.4	83.6	86.6	88.9	81.4	TBD
IH 2018-SFR2				78.8	88.2	91.4	90.7	84.3	94.0	87.5	83.5	89.5	TBD
IH 2018-SFR3								86.8	87.3	81.9	84.2	83.5	TBD
IH 2018-SFR4										82.1	87.2	89.8	TBD
PRD 2015-SFR2		64.0	82.5	79.5	85.3	79.1	76.5	85.7	63.6	74.2	68.6	75.0	TBD
PRD 2015-SFR3		70.0	72.4	69.7	85.7	71.8	70.5	80.6	67.6	80.0	84.0	75.9	TBD
PRD 2016-SFR2		96.0	72.2	73.6	76.6	72.7	75.5	77.8	70.0	80.5	81.6	81.3	TBD
PRD 2017-SFR1		68.1	61.3	87.5	83.3	75.7	88.6	72.7	92.1	80.5	83.3	71.8	TBD
PRD 2018-SFR1		75.0	60.0	83.3	66.7	62.5	56.3	76.0	66.7	66.7	78.9	85.7	TBD
PRD 2018-SFR2							100.0	100.0	88.9	100.0	64.3	71.4	TBD
SWH 2017-1		78.3	77.0	78.3	82.3	79.2	87.5	84.1	78.3	74.1	85.5	87.2	TBD
TAH 2016-SFR1		95.3	89.4	94.7	90.1	96.4	91.8	95.7	93.2	95.3	92.8	95.9	TBD
TAH 2017-SFR1		84.3	86.8	84.5	91.5	95.7	91.6	93.1	84.8	88.9	93.2	87.3	TBD
TAH 2017-SFR2		92.7	89.5	87.1	85.1	92.5	88.0	96.0	86.4	87.8	94.3	90.8	TBD
TAH 2018-SFR1			92.1	83.6	94.1	98.8	89.2	91.3	97.4	81.2	93.7	90.9	TBD
Overall SFR		85.9	81.8	83.7	84.8	85.8	84.2	87.0	84.8	85.4	88.4	87.3	TBD

TBD – To Be Determined

Table 11a – MTM Tenants (by Count)



		Year 2018												Year 2019				Total Count
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar					
AH4R 2014-SFR2		208	232	236	219	202	185	172	157	164	152	163	174	4,546				
AH4R 2014-SFR3		199	233	226	218	208	203	185	168	155	159	172	194	4,588				
AH4R 2015-SFR1		219	223	205	201	200	176	167	160	148	145	174	203	4,697				
AH4R 2015-SFR2		200	235	221	215	178	163	151	141	141	125	146	169	4,178				
CSH 2016-2		27	31	45	65	57	52	52	54	46	38	49	74	3,870				
HPA 2016-2		0	0	0	0	0	0	0	0	0	0	0	0	1,279				
HPA 2017-1		0	0	0	0	0	0	0	0	0	0	0	0	1,323				
HPA 2018-1					0	0	0	0	0	0	0	0	0	1,749				
IH 2017-SFR2		101	111	105	70	88	84	68	69	63	59	61	119	4,348				
IH 2018-SFR1		104	116	125	66	61	65	66	67	67	63	86	85	4,258				
IH 2018-SFR2				104	102	82	76	89	84	96	85	86	148	5,440				
IH 2018-SFR3								115	118	116	101	109	180	6,614				
IH 2018-SFR4										84	86	108	129	5,376				
PRD 2015-SFR2		72	61	59	52	60	53	55	60	42	47	52	49	3,286				
PRD 2015-SFR3		46	63	54	58	79	61	53	48	40	43	43	42	3,149				
PRD 2016-SFR2		63	78	81	76	95	80	73	73	53	51	56	52	3,742				
PRD 2017-SFR1		108	49	47	50	54	58	68	57	54	52	54	46	2,708				
PRD 2018-SFR1		6	14	18	27	34	40	59	74	38	21	18	17	2,113				
PRD 2018-SFR2							11	9	9	23	43	53	41	2,116				
SWH 2017-1		60	87	83	79	72	72	69	60	54	55	86	71	4,382				
TAH 2016-SFR1		215	278	253	202	210	232	233	232	205	194	179	184	3,428				
TAH 2017-SFR1		121	127	114	103	98	107	118	111	100	83	81	92	3,479				
TAH 2017-SFR2		176	174	152	114	111	116	108	112	101	95	91	92	2,619				
TAH 2018-SFR1			118	128	85	88	95	89	88	90	88	85	88	2,509				
Overall SFR		1,925	2,230	2,256	2,002	1,977	1,929	1,999	1,942	1,880	1,785	1,952	2,249	85,797				

Table 11b – MTM Tenants (by Percentage)

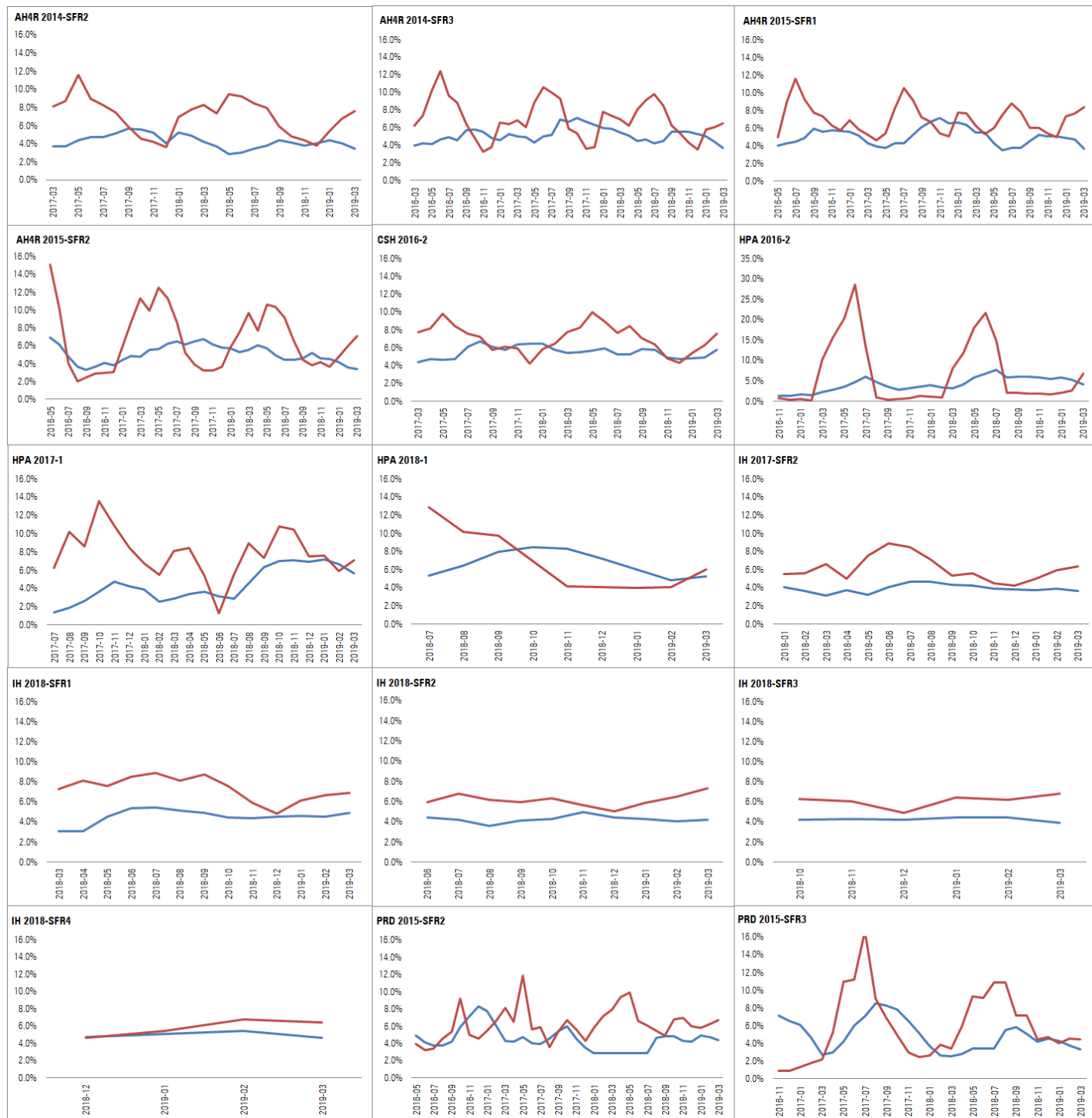
		Year 2018										Year 2019			
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
AH4R 2014-SFR2		4.6	5.2	5.3	4.9	4.5	4.1	3.8	3.5	3.6	3.3	3.6	3.8		
AH4R 2014-SFR3		4.4	5.2	5.0	4.8	4.6	4.5	4.1	3.7	3.4	3.5	3.7	4.2		
AH4R 2015-SFR1		4.7	4.8	4.4	4.3	4.3	3.8	3.6	3.4	3.2	3.1	3.7	4.3		
AH4R 2015-SFR2		4.9	5.7	5.4	5.2	4.3	4.0	3.7	3.4	3.4	3.0	3.5	4.0		
CSH 2016-2		0.7	0.8	1.1	1.6	1.4	1.3	1.3	1.4	1.2	1.0	1.3	1.9		
HPA 2016-2		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
HPA 2017-1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
HPA 2018-1					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
IH 2017-SFR2		2.3	2.5	2.4	1.6	2.0	1.9	1.6	1.6	1.4	1.4	1.4	2.7		
IH 2018-SFR1		2.4	2.7	2.9	1.5	1.4	1.5	1.5	1.6	1.6	1.5	2.0	2.0		
IH 2018-SFR2				1.9	1.8	1.5	1.4	1.6	1.5	1.8	1.6	1.6	2.7		
IH 2018-SFR3								1.7	1.8	1.7	1.5	1.6	2.7		
IH 2018-SFR4										1.6	1.6	2.0	2.4		
PRD 2015-SFR2		2.2	1.9	1.8	1.6	1.8	1.6	1.7	1.8	1.3	1.4	1.6	1.5		
PRD 2015-SFR3		1.5	2.0	1.7	1.8	2.5	1.9	1.7	1.5	1.3	1.4	1.4	1.3		
PRD 2016-SFR2		1.7	2.1	2.2	2.0	2.5	2.1	2.0	2.0	1.4	1.4	1.5	1.4		
PRD 2017-SFR1		4.0	1.8	1.7	1.8	2.0	2.1	2.5	2.1	2.0	1.9	2.0	1.7		
PRD 2018-SFR1		0.3	0.7	0.9	1.3	1.6	1.9	2.8	3.5	1.8	1.0	0.9	0.8		
PRD 2018-SFR2							0.5	0.4	0.4	1.1	2.0	2.5	1.9		
SWH 2017-1		1.4	2.0	1.9	1.8	1.6	1.6	1.6	1.4	1.2	1.3	2.0	1.6		
TAH 2016-SFR1		6.3	8.1	7.4	5.9	6.1	6.8	6.8	6.8	6.0	5.7	5.2	5.4		
TAH 2017-SFR1		3.5	3.6	3.3	3.0	2.8	3.1	3.4	3.2	2.9	2.4	2.3	2.6		
TAH 2017-SFR2		6.7	6.6	5.8	4.3	4.2	4.4	4.1	4.3	3.9	3.6	3.5	3.5		
TAH 2018-SFR1			4.7	5.1	3.4	3.5	3.8	3.5	3.5	3.6	3.5	3.4	3.5		
Overall SFR		3.1	3.5	3.2	2.8	2.8	2.6	2.5	2.4	2.2	2.1	2.3	2.6		

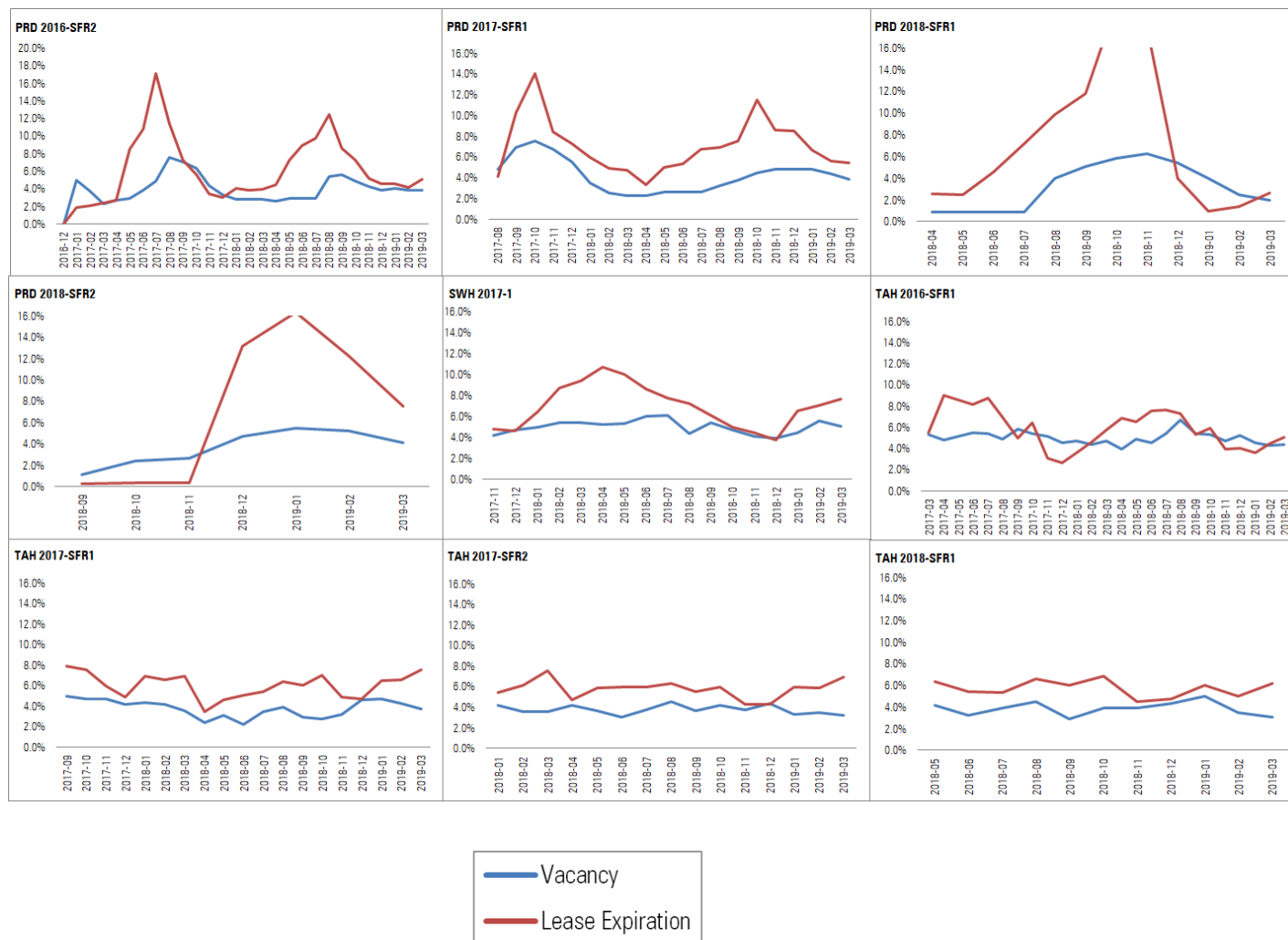
Table 12 – Monthly Turnover Rate (by Percentage)

		Year 2018												Year 2019		
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar			
AH4R 2014-SFR2		2.7	3.9	3.5	4.1	3.5	2.8	2.8	2.0	2.3	2.2	2.4	TBD			
AH4R 2014-SFR3		3.0	3.6	4.4	4.0	3.6	3.0	2.9	2.6	2.1	2.2	2.0	TBD			
AH4R 2015-SFR1		2.6	3.0	4.1	4.5	3.8	3.0	3.2	2.3	2.6	2.7	2.4	TBD			
AH4R 2015-SFR2		3.6	4.4	4.8	4.6	3.4	3.0	2.9	2.3	2.4	1.9	2.3	TBD			
CSH 2016-2		2.3	4.1	4.0	3.3	3.9	3.3	3.5	2.6	2.1	2.0	2.5	TBD			
HPA 2016-2		3.8	5.7	5.8	5.9	2.1	1.7	1.9	2.1	1.6	2.3	1.5	TBD			
HPA 2017-1		2.5	2.4	1.5	3.1	4.5	2.8	2.3	3.1	2.0	2.9	2.5	TBD			
HPA 2018-1					6.9	4.8	4.1	2.4	2.4	1.5	1.5	1.8	TBD			
IH 2017-SFR2		2.4	2.8	3.4	3.6	3.2	2.2	2.8	1.7	1.7	1.9	2.1	TBD			
IH 2018-SFR1		2.8	2.9	3.5	3.2	3.6	2.7	2.6	2.5	2.0	2.5	1.9	TBD			
IH 2018-SFR2				6.3	3.2	2.5	2.9	2.5	2.6	2.1	2.1	2.0	TBD			
IH 2018-SFR3								2.4	2.6	2.2	2.4	2.3	TBD			
IH 2018-SFR4										2.1	2.2	2.3	TBD			
PRD 2015-SFR2		3.1	5.3	3.1	3.3	2.1	3.3	3.6	3.0	2.8	2.9	2.8	TBD			
PRD 2015-SFR3		2.3	3.5	4.8	4.4	3.6	3.6	3.7	2.6	2.7	2.6	2.4	TBD			
PRD 2016-SFR2		2.2	3.3	4.0	4.2	4.3	3.5	3.3	2.8	2.2	2.1	2.1	TBD			
PRD 2017-SFR1		1.6	3.4	3.4	3.1	2.5	3.4	4.9	3.9	3.5	3.0	2.7	TBD			
PRD 2018-SFR1		3.6	1.6	2.4	3.7	4.2	4.2	5.9	6.5	3.7	1.3	1.5	TBD			
PRD 2018-SFR2							2.9	2.0	1.9	4.8	4.3	4.2	TBD			
SWH 2017-1		2.7	3.6	4.6	3.8	2.7	3.1	2.8	2.0	1.7	2.4	2.8	TBD			
TAH 2016-SFR1		2.3	2.8	3.4	4.0	3.5	1.0	2.7	2.0	1.8	1.8	1.8	TBD			
TAH 2017-SFR1		2.3	2.3	2.5	2.0	3.7	1.0	2.3	2.2	3.0	2.0	2.5	TBD			
TAH 2017-SFR2		2.7	2.2	2.9	2.3	2.7	1.1	3.4	2.2	2.2	1.4	2.1	TBD			
TAH 2018-SFR1			6.5	1.8	3.7	2.6	0.8	3.2	1.9	2.1	2.1	2.4	TBD			
Overall SFR		2.7	3.5	3.9	3.8	3.3	2.7	3.0	2.5	2.3	2.3	2.3	TBD			

TBD – To Be Determined

Appendix I – Vacancy Versus Lease Expiration





Appendix II – Description of Analysis

Morningstar tracks key metrics to gauge the performance of single-borrower, single-family rental transactions that Morningstar rates. There are several ways to view these metrics. For example, the vacancy rate might be calculated based on property count, by cash flow, or by days of occupancy. To account for different reporting across issuers, Morningstar seeks commonality across the single-borrower issuers' monthly reporting to derive its calculations.

Multiborrower deals are similar to single-borrower transactions in that the underlying collateral is generally single-family rental properties. They differ, though, in that single-borrower deals are backed by one loan, while multiborrower deals have many loans. As such, the monthly reporting for multiborrower deals is different from the data reported in the single-borrower sector. For example, delinquency reported in Tables 8a and 8b are tenants that are past due on rental payments at a property level. For multiborrower transactions, delinquency is measured by borrowers that are past due on payments at the loan level.

Table 1 – Multiborrower Loan Performance by Percentage of Balance

To calculate the percentage of loans delinquent, in foreclosure, and/or in special servicing, Morningstar takes the respective balance divided by the current deal balance.

Table 2 – Multiborrower Loan Performance by Loan Count

Morningstar shows the total loan count in a securitization and the number of loans 30-59 days delinquent, 60-89 days delinquent, over 90 days delinquent, in foreclosure, real estate owned, and in special servicing.

Chart 1 – Single-Family Rental Rent Change Versus RentRange Year-Over-Year Rent Change

To calculate the rent change across single-borrower, single-family rental transactions, Morningstar isolated the leases starting in a given period and compared the contractual rent in that period with the prior occupied contractual rent. Morningstar then compared this rent change with the year-over-year change in three- and four-bedroom median rents from RentRange. Morningstar weighted the RentRange median rents by geography to match the MSA concentration of the Morningstar single-family rental database.

Chart 2 – Rental Changes for Renewals Versus Vacant-to-Occupied Properties

Morningstar calculated the rent change using the contractual rent for the corresponding period versus the prior occupied contractual rent. To determine the lease expiration sample, Morningstar used the logic outlined in the Tables 5a, 5b, and 5c – Lease Expiration section. Morningstar then looked at the property tape to determine the renewed properties and compared that contractual rent with

the prior contractual rent. For vacant properties subsequently occupied by new tenants, Morningstar isolated those properties that were vacant in a given month and occupied in the next month and again compared the current contractual rent with the prior contractual rent.

Chart 3 – February Average Contractual Rent Versus Property-Level RentRange Estimate by MSA

Chart 3, which shows some of the MSAs most frequently found in single-family rental securitizations, takes a snapshot of the contractual rents in the Morningstar single-family rental database and compares these rents with their property-specific rent estimates from RentRange.

Chart 4 – MSA-Level Blended Rent Change

Chart 4 shows the blended rent change of some of the MSAs frequently found in single-family rental securitizations. The size of each circle represents the percentage of properties by count in each MSA from Morningstar's database. MSAs in red are below the overall average rent change for the month, while those in blue are above.

Table 3 – Blended Rent Change (by Percentage) – Top MSAs

Table 3 shows the MSA-level blended rent change for the past 12 months using the same rent change calculation used in Chart 1 and Chart 4.

Tables 4a, 4b, and 4c – Month-End Vacancy

Table 4a displays deal-level vacancy by the month-end count of empty properties. Table 4b shows the deal-level vacancy as a percentage of the total properties in each pool. Table 4c shows the MSA-level vacancy percentage for some of the MSAs frequently found in single-family rental securitizations. The vacancy rate is heavily influenced by the number of lease expirations in each month. Generally, the more leases expiring in a given month, the higher the vacancy rate will be. Because each transaction or MSA has a distinct lease expiration schedule, the vacancy rate should not be viewed at one point in time, but rather in the context of its lease expiration cycle, as reported in Tables 5a, 5b, and 5c and as seen in the charts in Appendix I.

Chart 5 – MSA-Level Vacancy and Lease Expiration Percentage (by Count)

Chart 5 shows the vacancy rate of some of the MSAs frequently found in single-family rental securitizations. The size of each circle represents the percentage of leases expiring in the past three months. MSAs in red are above the overall average vacancy percentage for the month, while those in blue are below. Typically, the more leases expiring, the higher the vacancy rate.

Tables 5a, 5b, and 5c – Lease Expiration

Because lease expiration profiles change over time as tenants renew or new tenants occupy vacant properties, Morningstar seeks to rely on more recently published reporting of lease expirations, rather than solely using the lease expiration schedule from the cutoff date. To determine March lease expirations, Morningstar looks for all March lease expirations in the January property tape. Morningstar looks three months back to set a lease expiration sample that more accurately captures tenants who renew their leases in months before their scheduled lease expiration. Certain issuers have indicated that they proactively work to renew tenants a few months before the lease expiration date. Because Morningstar is looking three months back to determine its sample, there are instances when tenants vacate properties between the time Morningstar determines its sample and the month in which the tenant must make a decision to stay in the property. Morningstar excludes those vacated properties from its lease expiration sample and its retention rate calculation in Table 9. In the current example, properties that become vacant or that have move out dates in either February or February are removed from the March lease expiration count.

Tables 6a and 6b – Historical Months of Vacancy

Tables 6a and 6b show the number of months of vacancy the February unoccupied properties have experienced. In other words, if a property is unoccupied as of the March property tape, these tables summarize the number of total months the property has been vacant since the transaction cutoff date. Depending on the length of performance history, the overall vacancy may be in line with the number of consecutive vacant months, but this might not always be the case for those properties that have gone through multiple leasing cycles. Table 6a shows historical months of vacancy by count, and Table 6b is as a percentage of the March vacancies.

Table 7 – Delinquency Definition

Morningstar's calculation of delinquency is based on the number of properties flagged as delinquent in the monthly property-level data. Each issuer uses its own criteria for classifying a tenant as delinquent. Table 7 summarizes the delinquency definition for each issuer and contains details on the length of time that must pass from a tenant's due date to be considered delinquent. The length of time is either based on a count of 30 days or is based on the calendar month. The slight distinction, for example, either results in a property with payment due on May 1 considered as delinquent after 30 days or as delinquent on June 1. None of the issuers factor a grace period into their delinquency definition, meaning their respective measures of past due begin if payment has not been received by the stated due date. In addition to timing, these conditions can also differ by the total dollar threshold an issuer uses to classify a tenant as delinquent and by the types of overdue payments that the issuer uses to count toward that threshold. For example, most issuers use only base rent to determine the dollar amount of delinquency. However, Tricon American Homes counts total receivables to determine the past due amount. Progress Residential includes certain fees above base rent but not total receivables.

Tables 8a and 8b – Month-End Delinquency

Table 8a shows the month-end count of delinquencies based on the definition in Table 7, and Table 8b shows delinquency as a percentage of the total number of properties in each pool. Any review of delinquency should be viewed within the context of the delinquency definitions in Table 7.

Table 9 – Monthly Retention Rate of Expiring Leases

When evaluating an issuer's ability to keep tenants in a property, Morningstar considers a retention rate. Once again, differences in monthly reporting affect the calculation that Morningstar uses. Typically, a renewal rate would review those tenants who signed a full-term lease. Considering the different methods issuers use to designate tenants with either a renewal or an MTM status, Morningstar opted to report the retention rate instead of the renewal rate. The retention rate is defined as those properties that retained previous tenants, whether on full-term or MTM leases, divided by the total number of leases due to expire in that period, as reported in Table 5a and explained in Appendix II. If there is not enough seasoning in the deal to look three months back to determine the lease expiration sample, Morningstar relies on the cutoff tape lease expiration profile. As a result, the first three months of retention rate reported in Table 9 will use the cutoff tape to find the sample of lease expirations. After isolating the applicable lease expiration sample, Morningstar looks at the most recent property tape to determine the lease status of the properties. In this report, Morningstar uses the March property tape to determine the lease status for February expirations. Morningstar relies on the issuer's labeling of vacant, renewal, new lease, or MTM, to the extent that these notations are available in each tape.

Table 10 – Monthly Retention Rate of MTM Leases

In Table 10, Morningstar reviews the retention rate of those properties in an MTM status. This table looks at previous tenants who went to an MTM status and either renewed or remained in the property on an MTM basis. For the MTM retention rate, Morningstar looks for MTM tenants in the previous month's property tape, and then looks to the current month for their occupancy status. For example, the February 2019 retention rates are the March statuses of February MTM tenants.

Tables 11a and 11b – MTM Tenants

In Tables 11a and 11b, Morningstar shows the count and percentage of properties with MTM tenants. Securitizations with higher concentrations of MTM tenants typically report higher retention rates of their MTM leases. MTM tenants are usually subject to a monthly fee, which may encourage them to eventually sign full-term leases.

Table 12 – Monthly Turnover Rate

In evaluating how effective an issuer is at retaining tenants, Morningstar considers the monthly turnover rate. For this metric, Morningstar strives to apply a consistent calculation given the differences in issuers' reporting. Morningstar considers a property turned over if it meets one of three criteria:

- The property is vacant but was occupied in the previous month and the move-out date, if available, is on or after the first day of the current month;
- The move-out date is on or after the first day of the current month, including the last day of the current month; or
- The property was occupied in the prior month and a tenant has signed a new lease that starts on or after the second day of the current month.

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