

Single-Family Rental Research

Performance Summary Covering All Morningstar-Rated Securitizations

August 2018

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Authors:

Monte Bays | Vice President | monte.bays@morningstar.com | +1 646 560-4536

Yash Agarwal | Analyst | yash.agarwal@morningstar.com | +91 22 61217208

Arindam Vatsa | Analyst | arindam.vatsa@morningstar.com | +91 22 61217213

Analytical Manager:

Kevin Dwyer | Managing Director | kevin.dwyer@morningstar.com | +1 646 560-4525

Introduction

The blended rent change for single borrower, single-family rental securitizations rated by Morningstar Credit Ratings, LLC increased by 3.9% in July, down from a revised 4.5% in June. It was the second consecutive month of reduced rent growth after five consecutive months of increasing rent growth. The average vacancy rate increased by 30 basis points to 4.5% in July, the second consecutive month of increasing vacancy rates, from a revised 4.2% in June. The increase in vacancy was likely due to a corresponding increase in lease expirations, following a seasonal trend of higher lease expirations and vacancies in the spring and summer months. The average retention rate for expiring leases declined 240 basis points to 76.2% in June, the latest month available, from a revised 78.6% in May, but remained over 75% for the 10th consecutive month. Among the top 20 metropolitan statistical areas, the Denver-Aurora MSA had the highest vacancy rate at 6.2%, down from a revised 7.0% in June, followed by Houston at 6.0%, and the Sarasota-Bradenton-Venice, Florida, MSA at 5.7%. Five MSAs experienced blended rent growth of 5.0% or higher, led by Jacksonville, Florida, at 5.6% and Phoenix at 5.5%. Five MSAs experienced blended rent growth of 3.0% or less, with the Denver-Aurora MSA experiencing the lowest blended rent growth of 1.4%. HPA 2018-1 is now reporting data and was added to this month's report. The August Single-Family Rental Performance Summary includes 25 single-borrower deals with over 88,900 properties.

Starting in February, Morningstar noted that the spread between the RentRange rent change for securitized single-family rental properties and the RentRange rent change for three- and four-bedroom properties was increasing, with the RentRange figures reflecting declining rent growth. RentRange informed Morningstar in August of an error in the MSA data starting in February.

RentRange is in the process of updating that information, and Morningstar has removed it from the associated tables and graphs until the updated data is received.

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 July. Page 6 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 8.0% in July, up from a revised 7.9% in June, following a seasonal trend of increasing in the spring and summer months. The increase in lease expirations corresponds with a 30-basis-point increase in the vacancy rate. Three securitizations had a lease expiration rate over 10.0%: HPA 2016-2 at 14.7%, HPA 2018-1 at 13.0%, and PRD 2015-SFR3 at 10.8%. The average retention rate on full-term leases declined to 76.2% in June, the latest month for which data is available, from a revised 78.6% in May. Six securitizations have retention rates below 75%, including HPA 2017-1 at 52.9%, while four transactions had a retention rate of 80.0% or higher. The overall turnover rate increased to 3.9% in June, the latest month for which data is available, from 3.5% in May. The average delinquency rate increased 10 basis points to 0.6% in July, with five transactions reporting delinquency rates of 1.0% or more. AMSR 2016-SFR1 reported the highest delinquency rate, at 1.6% in July, down from 1.7% in June. Please note that any review of delinquency should be viewed within the context of the delinquency definitions in Table 7.

Rents rose 3.9% in July, compared with a revised 4.5% increase in June. Chart 1 shows that the rent gains for securitized properties increased above their RentRange benchmarks. 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 June, the latest month for which data is available, the rent change for renewal properties increased 4.4% for the second consecutive month, and for vacant-to-occupied properties increased by 4.2%. Chart 3 shows that the average contractual rents by MSA have been largely in line with their property-level RentRange estimates. Chart 4 shows the MSA-level blended rent change. MSAs with rent changes above the 3.9% 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 shows the MSA-level blended rent change for the past 12 months.

Table 11b shows the percentage of loans rented out under a month-to-month lease. AMSR 2016-SFR1 MTM leases declined to 14.3% of its portfolio, but still rank the highest. TAH 2016-SFR1 has the second-highest percentage of MTM leases with 5.9% in July, down from 7.4% in June.

Multiborrower Performance

As of the most recent remittance report, 868 total loans secured nine multiborrower transactions. The number of loans 30-59 days delinquent declined by two to eight, while the number of loans 60-89 days delinquent decreased to two from three, and the loans over 90 days delinquent declined by one to 15. Loans in foreclosure remained unchanged at five, and loans in special servicing increased by one to 30.

Table 1 – Multiborrower Loan Performance by Percentage of Balance

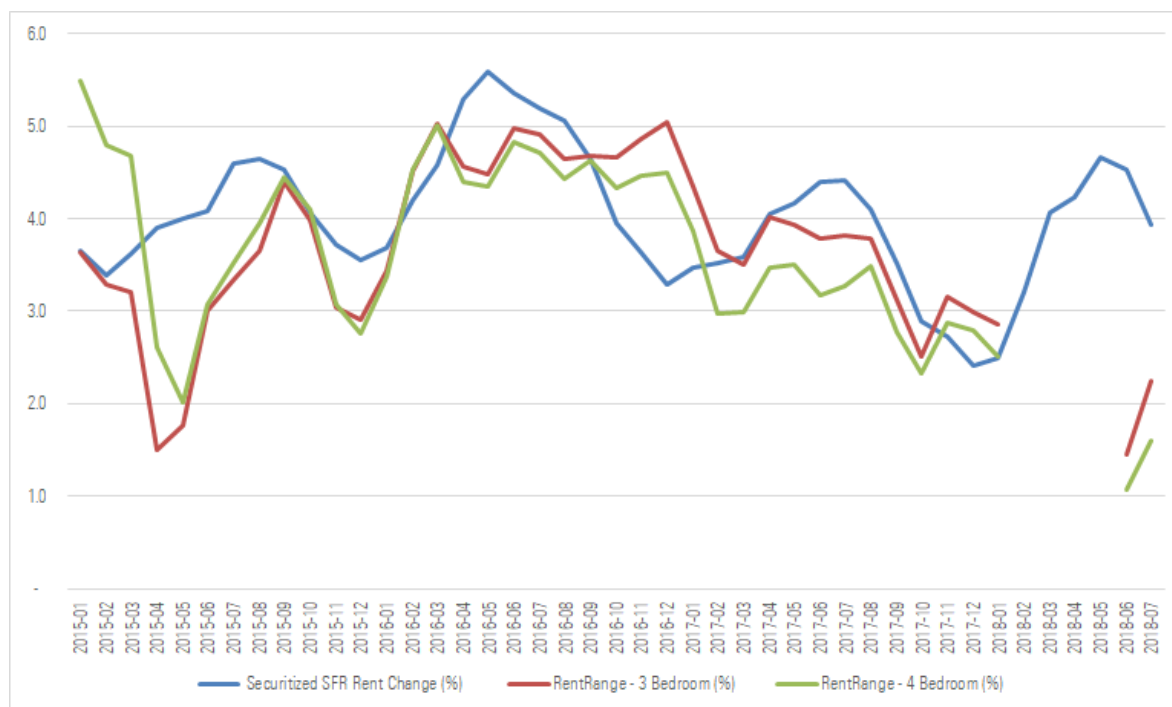
	30-59 Delinquent	60-89 Delinquent	90+ Delinquent	Foreclosure	Real Estate Owned	Special Servicing
B2R 2015-1	0.42	0.00	0.46	0.20	0.00	0.60
FKL 2015-SFR1	0.00	0.00	0.00	0.00	0.00	0.00
CAF 2015-1	0.00	0.00	0.00	0.00	0.00	4.77
B2R 2015-2	0.41	0.21	1.14	0.23	0.00	1.51
CAF 2016-1	0.76	0.00	0.00	0.00	0.00	1.43
B2R 2016-1	0.93	0.00	1.75	0.25	0.00	2.82
CAF 2016-2	0.00	0.00	3.12	2.80	0.00	4.25
CAF 2017-1	0.00	0.00	0.72	0.00	0.00	1.45
CAF 2018-1	0.00	0.00	0.00	0.00	0.00	0.31

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	124	1	0	2	1	0	3
FKL 2015-SFR1	8	0	0	0	0	0	0
CAF 2015-1	54	0	0	0	0	0	1
B2R 2015-2	185	2	1	5	1	0	7
CAF 2016-1	72	1	0	0	0	0	1
B2R 2016-1	154	4	0	3	1	0	9
CAF 2016-2	68	0	0	3	2	0	5
CAF 2017-1	86	0	0	2	0	0	3
CAF 2018-1	117	0	1	0	0	0	1
Overall	868	8	2	15	5	0	30

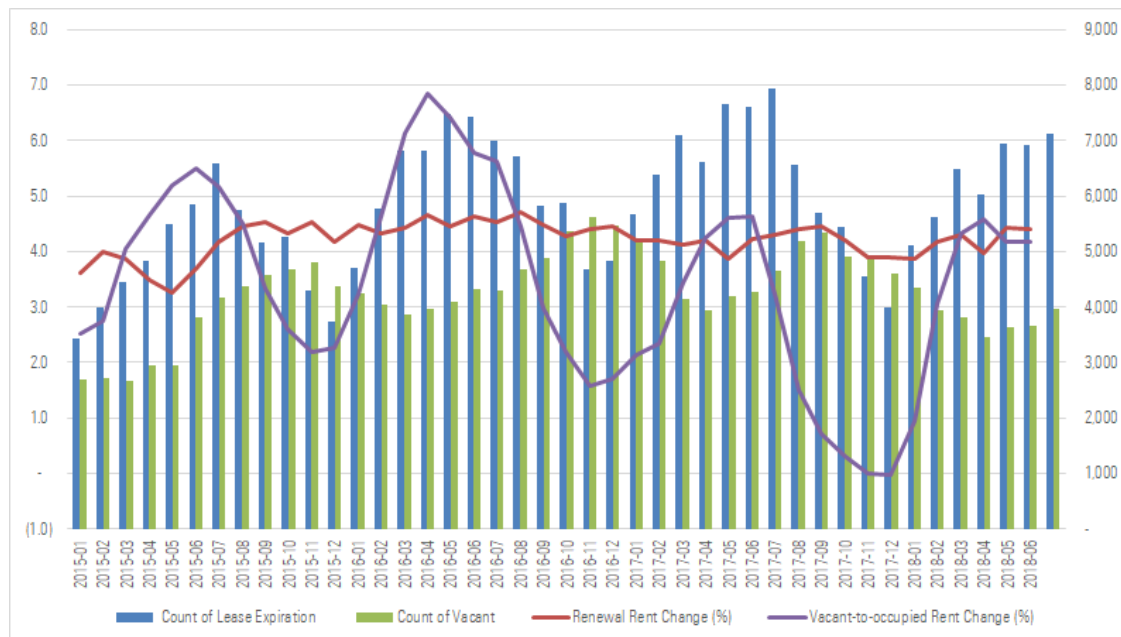
Single-Borrower Charts and Tables

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



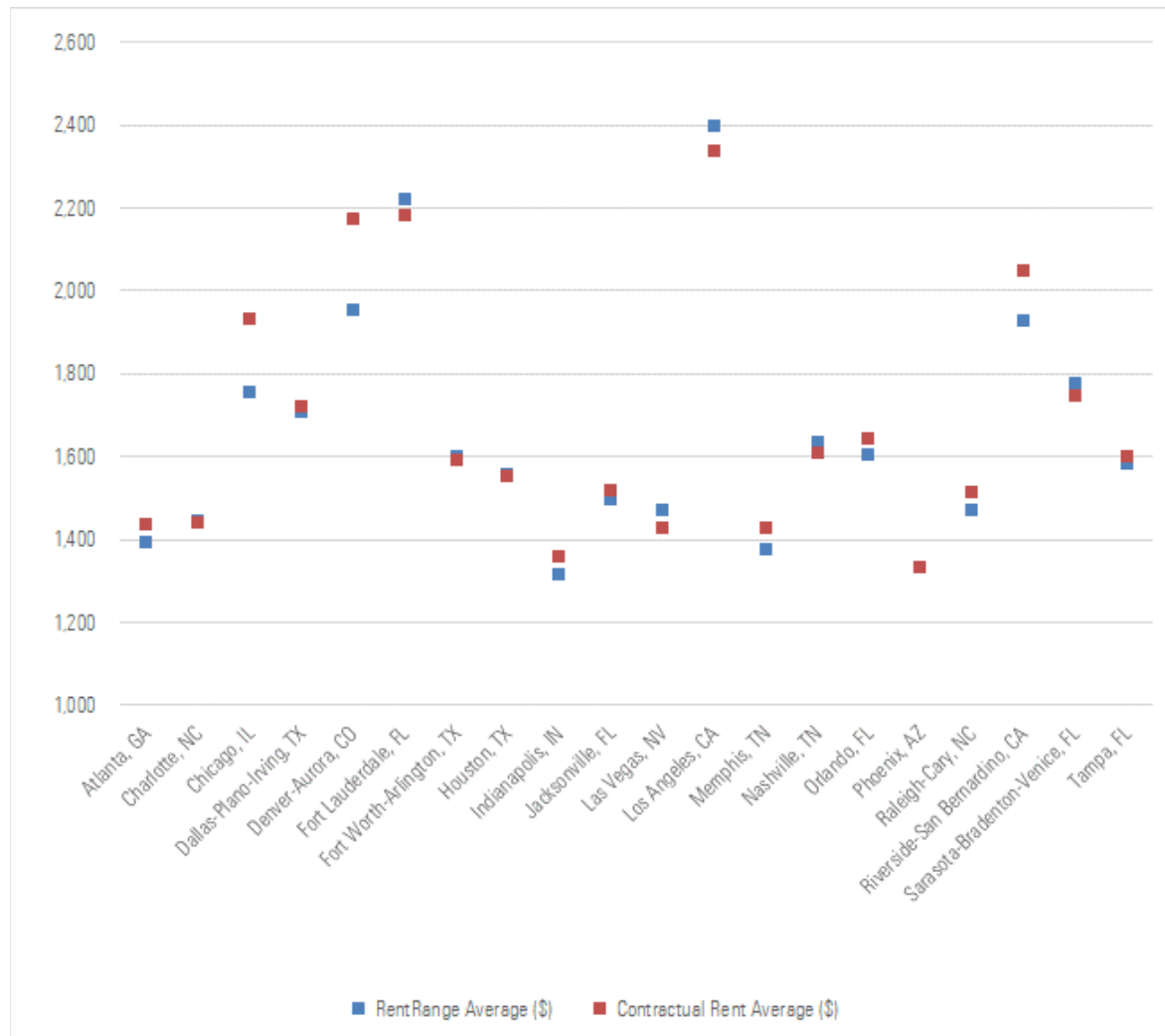
Sources: Morningstar Credit Ratings, LLC; RentRange

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



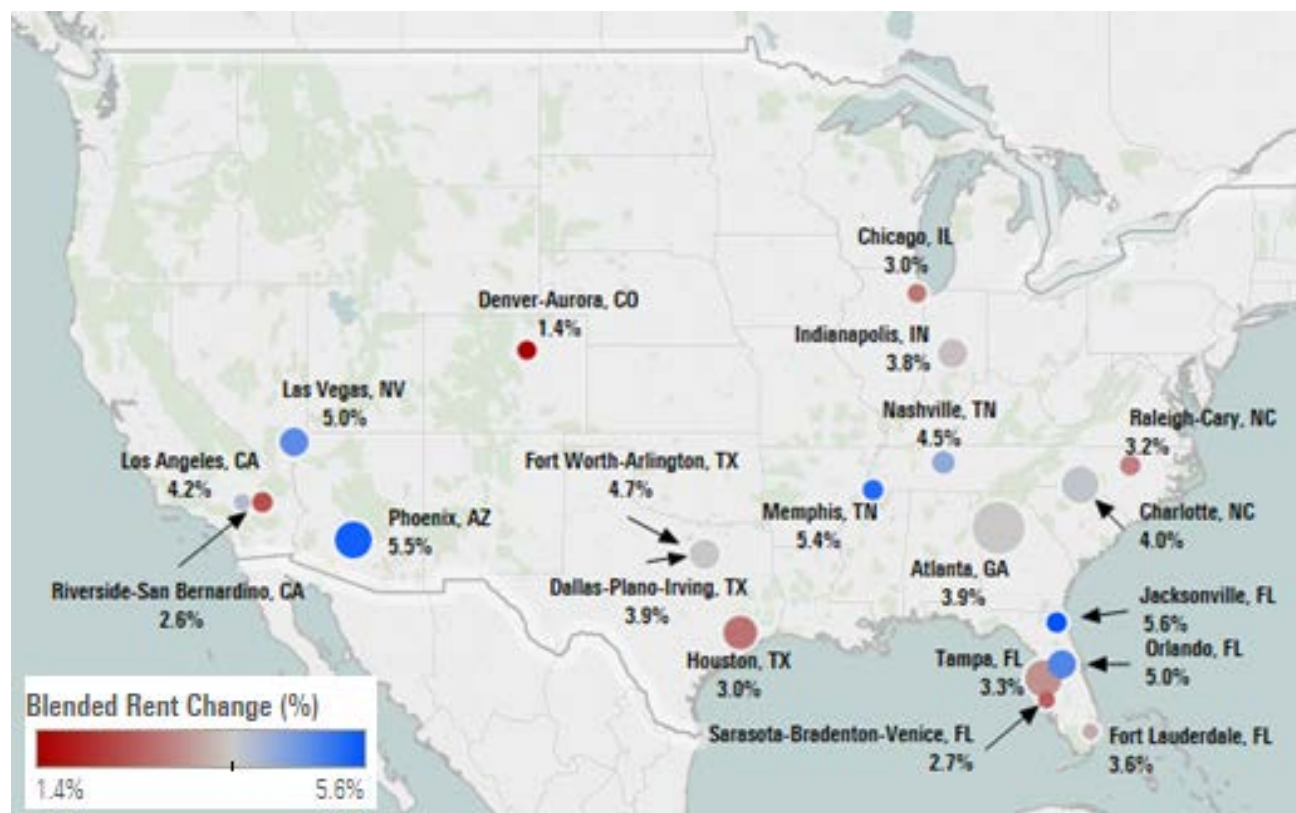
Source: Morningstar Credit Ratings, LLC

Chart 3 – July 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 1.34% to 14.13%. 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 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Atlanta, GA		4.6	4.4	4.3	3.6	3.5	3.1	3.9	5.1	4.8	5.3	4.8	3.9
Charlotte, NC		3.2	3.0	2.7	1.7	1.0	1.4	2.5	3.4	3.1	4.0	3.4	4.0
Chicago, IL		2.1	0.8	0.8	-0.2	-0.6	0.7	1.3	1.6	3.0	4.3	4.4	3.0
Dallas-Plano-Irving, TX		4.3	4.1	2.8	2.8	2.4	2.5	3.2	3.6	3.9	4.0	3.9	3.9
Denver-Aurora, CO		6.2	4.2	1.7	2.4	3.8	1.6	4.3	5.7	4.9	4.6	5.1	1.4
Fort Lauderdale, FL		1.8	2.2	2.2	1.2	1.7	1.8	2.5	2.8	2.9	3.8	3.3	3.6
Fort Worth-Arlington, TX		4.5	4.4	3.3	3.2	2.7	2.3	3.2	4.2	4.1	4.1	5.0	4.7
Houston, TX		1.6	-0.8	-0.4	-0.6	0.0	1.4	1.4	3.1	3.6	3.3	3.2	3.0
Indianapolis, IN		3.1	2.0	1.8	0.4	0.2	-0.1	2.9	3.3	3.3	4.2	4.5	3.8
Jacksonville, FL		3.5	3.7	3.3	2.6	2.3	3.0	3.3	4.1	5.2	5.5	4.6	5.6
Las Vegas, NV		5.9	5.1	3.1	4.5	4.0	4.2	5.1	5.6	5.2	6.2	5.8	5.0
Los Angeles, CA		7.5	6.3	6.5	6.0	6.4	6.3	4.6	5.7	6.0	6.3	6.2	4.2
Memphis, TN		2.7	2.4	1.0	0.2	-0.1	0.9	1.5	3.2	3.9	4.4	3.3	5.4
Nashville, TN		4.0	3.7	3.3	2.2	1.1	1.7	1.9	2.8	3.1	4.6	3.7	4.5
Orlando, FL		4.7	4.1	3.2	4.0	4.0	3.2	4.9	4.9	5.1	5.3	5.5	5.0
Phoenix, AZ		6.1	5.5	4.8	5.0	4.1	4.1	5.0	6.3	6.4	6.2	6.3	5.5
Raleigh-Cary, NC		3.3	3.4	2.6	2.1	0.5	1.3	1.6	2.4	3.0	3.9	2.7	3.2
Riverside-San Bernardino, CA		5.2	5.1	5.1	5.0	4.9	4.5	4.6	4.9	5.2	5.3	6.9	2.6
Sarasota-Bradenton-Venice, FL		1.4	1.0	0.4	1.0	0.4	0.8	2.0	2.9	2.9	3.4	2.3	2.7
Tampa, FL		3.2	2.6	1.7	2.4	2.1	2.1	2.9	3.7	4.3	4.3	4.2	3.3

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

		Year 2017					Year 2018							Count
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
AH4R 2014-SFR2		230	251	248	235	215	233	217	186	166	128	135	152	4,481
AH4R 2014-SFR3		310	298	317	299	284	266	265	243	227	200	208	189	4,499
AH4R 2015-SFR1		243	282	312	331	304	309	294	253	256	198	159	171	4,634
AH4R 2015-SFR2		253	268	276	252	238	235	217	229	248	234	202	182	4,123
AMSR 2016-SFR1		335	350	339	366	375	397	328	280	244	215	248	258	4,262
CAH 2015-1		261	225	214	226	230	176	165	171	153	146	223	210	3,754
CSH 2016-1		215	207	214	207	207	202	180	189	180	196	206	185	3,515
CSH 2016-2		266	241	230	254	257	256	229	214	217	223	232	205	3,953
HPA 2016-2		63	48	36	42	46	52	45	41	53	75	86	98	1,296
HPA 2017-1		26	36	50	64	57	53	34	39	46	49	42	38	1,343
HPA 2018-1													94	1,781
IH 2017-SFR2							177	158	136	124	141	179	204	4,410
IH 2018-SFR1									131	131	193	230	254	4,289
IH 2018-SFR2												248	234	5,607
PRD 2015-SFR2		149	180	197	148	113	93	95	95	95	95	94	108	3,287
PRD 2015-SFR3		269	259	245	206	160	114	83	80	87	107	107	149	3,150
PRD 2016-SFR1		314	311	304	277	244	227	215	185	201	197	197	185	5,549
PRD 2016-SFR2		282	265	238	162	122	104	104	105	98	109	109	160	3,742
PRD 2017-SFR1		131	187	203	183	150	94	67	60	60	71	71	74	2,708
PRD 2018-SFR1										19	18	18	56	2,113
SWH 2017-1					184	209	219	238	239	231	233	265	269	4,426
TAH 2018-SFR1		169	199	186	178	156	161	150	162	136	167	156	186	3,433
TAH 2017-SFR1			173	162	164	146	152	145	124	84	109	76	120	3,480
TAH 2017-SFR2							109	93	94	109	96	79	99	2,621
TAH 2018-SFR1											104	80	98	2,509
Overall SFR		3,516	3,780	3,771	3,778	3,513	3,629	3,322	3,256	3,165	3,304	3,650	3,978	88,965

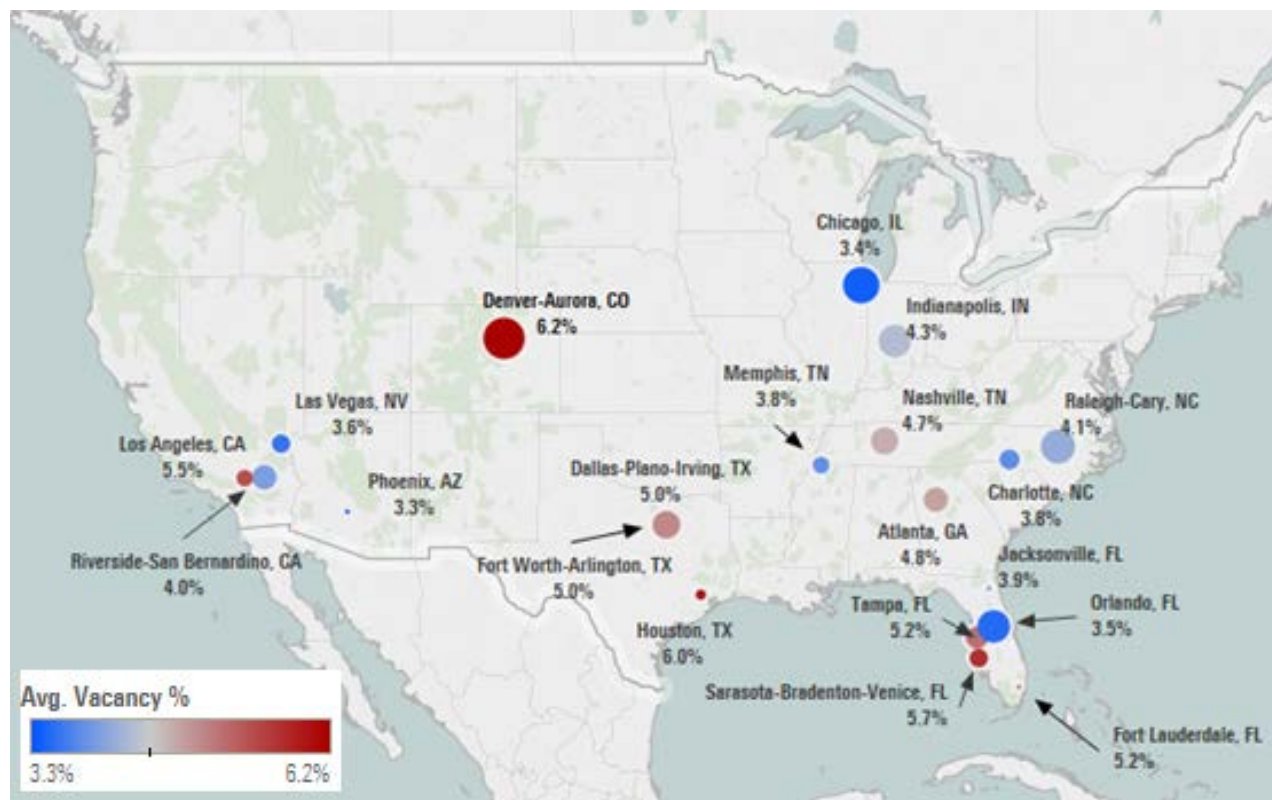
Table 4b – Month-End Vacancy (by Percentage)

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		5.1	5.6	5.5	5.2	4.8	5.2	4.8	4.2	3.7	2.9	3.0	3.4
AH4R 2014-SFR3		6.9	6.6	7.0	6.6	6.3	5.9	5.9	5.4	5.0	4.4	4.6	4.2
AH4R 2015-SFR1		5.2	6.1	6.7	7.1	6.5	6.6	6.3	5.4	5.5	4.3	3.4	3.7
AH4R 2015-SFR2		6.1	6.5	6.7	6.1	5.8	5.7	5.3	5.6	6.0	5.7	4.9	4.4
AMSR 2016-SFR1		7.9	8.2	8.0	8.6	8.8	9.3	7.7	6.6	5.7	5.0	5.8	6.1
CAH 2015-1		6.8	5.9	5.6	6.0	6.1	4.6	4.4	4.5	4.1	3.9	5.9	5.6
CSH 2016-1		6.0	5.8	6.0	5.8	5.8	5.7	5.1	5.3	5.1	5.6	5.9	5.3
CSH 2016-2		6.7	6.0	5.8	6.4	6.4	6.4	5.7	5.4	5.5	5.6	5.9	5.2
HPA 2016-2		4.7	3.6	2.7	3.1	3.4	3.9	3.4	3.1	4.0	5.7	6.6	7.6
HPA 2017-1		1.9	2.6	3.6	4.7	4.2	3.9	2.5	2.9	3.4	3.6	3.1	2.8
HPA 2018-1													5.3
IH 2017-SFR2							4.0	3.6	3.1	2.8	3.2	4.1	4.6
IH 2018-SFR1									3.1	3.1	4.5	5.4	5.9
IH 2018-SFR2												4.4	4.2
PRD 2015-SFR2		4.5	5.5	6.0	4.5	3.4	2.8	2.9	2.9	2.9	2.9	2.9	3.3
PRD 2015-SFR3		8.5	8.2	7.8	6.5	5.1	3.6	2.6	2.5	2.8	3.4	3.4	4.7
PRD 2016-SFR1		5.6	5.6	5.5	5.0	4.4	4.1	3.9	3.3	3.6	3.6	3.6	3.3
PRD 2016-SFR2		7.5	7.1	6.4	4.3	3.3	2.8	2.8	2.8	2.6	2.9	2.9	4.3
PRD 2017-SFR1		4.8	6.9	7.5	6.8	5.5	3.5	2.5	2.2	2.2	2.6	2.6	2.7
PRD 2018-SFR1										0.9	0.9	0.9	2.7
SWH 2017-1					4.2	4.7	4.9	5.4	5.4	5.2	5.3	6.0	6.1
TAH 2016-SFR1		4.9	5.8	5.4	5.2	4.5	4.7	4.4	4.7	4.0	4.9	4.5	5.4
TAH 2017-SFR1			5.0	4.7	4.7	4.2	4.4	4.2	3.6	2.4	3.1	2.2	3.4
TAH 2017-SFR2							4.2	3.5	3.6	4.2	3.7	3.0	3.8
TAH 2018-SFR1											4.1	3.2	3.9
Overall SFR		6.1	6.1	6.1	5.7	5.3	5.0	4.6	4.2	4.0	4.0	4.2	4.5

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

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Atlanta, GA		4.9	4.8	5.0	4.7	4.4	4.6	4.6	4.0	4.2	4.1	4.1	4.8
Charlotte, NC		5.8	6.6	6.6	6.1	5.8	5.8	5.5	5.4	4.4	4.4	4.4	3.8
Chicago, IL		5.0	5.0	5.7	5.2	4.5	4.5	4.6	4.3	4.9	4.8	3.4	3.4
Dallas-Plano-Irving, TX		5.6	5.5	5.5	4.9	5.3	5.0	4.5	4.6	4.3	4.1	4.6	5.0
Denver-Aurora, CO		6.5	5.4	4.9	4.7	5.4	4.8	5.0	4.0	4.0	5.6	7.0	6.2
Fort Lauderdale, FL		6.3	6.7	6.8	6.1	5.8	5.1	4.2	5.0	4.9	6.1	5.7	5.2
Fort Worth-Arlington, TX		5.0	4.8	4.9	5.9	5.2	5.0	4.3	4.0	4.0	4.0	4.5	5.0
Houston, TX		9.2	9.8	10.0	9.4	8.8	8.8	7.3	6.4	6.3	5.9	5.6	6.0
Indianapolis, IN		6.7	6.7	6.2	5.6	5.3	4.4	5.1	4.3	4.1	3.0	3.4	4.3
Jacksonville, FL		5.1	6.4	5.8	5.2	4.5	4.6	4.0	3.2	2.6	3.4	3.3	3.9
Las Vegas, NV		4.4	4.5	3.8	3.5	3.6	2.6	2.5	2.8	2.2	3.0	3.3	3.6
Los Angeles, CA		4.6	4.6	4.9	5.2	4.3	5.0	3.7	3.2	3.9	4.0	5.5	5.5
Memphis, TN		6.7	7.3	7.3	6.2	5.3	5.2	4.3	4.0	3.9	3.5	3.8	3.8
Nashville, TN		7.1	7.1	7.6	8.0	7.5	7.3	5.9	4.7	4.1	3.6	3.5	4.7
Orlando, FL		4.8	4.8	4.5	3.8	3.5	3.3	3.1	3.6	2.6	2.9	3.3	3.5
Phoenix, AZ		5.5	4.5	4.8	4.8	4.0	3.2	3.2	2.7	2.2	2.7	3.0	3.3
Raleigh-Cary, NC		6.1	7.1	7.1	6.8	5.6	5.8	5.1	5.2	4.7	3.9	3.4	4.1
Riverside-San Bernardino, CA		3.6	3.4	3.8	3.7	4.3	3.8	4.1	3.7	3.5	3.7	4.1	4.0
Sarasota-Bradenton-Venice, FL		7.7	7.7	7.0	7.3	5.9	4.5	4.6	4.8	5.3	6.3	6.3	5.7
Tampa, FL		6.3	6.7	6.3	5.9	5.0	4.5	4.0	4.0	4.1	4.4	4.5	5.2

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 20.84% to 29.45%. 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 2017					Year 2018							Total Count
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
AH4R 2014-SFR2		331	264	201	189	161	310	346	368	329	423	411	378	4,481
AH4R 2014-SFR3		416	265	241	160	171	348	332	311	280	361	410	439	4,499
AH4R 2015-SFR1		423	336	313	251	235	360	354	291	247	278	347	405	4,634
AH4R 2015-SFR2		214	159	132	133	151	238	310	397	315	438	425	376	4,123
AMSR 2016-SFR1		225	186	193	178	167	178	271	300	320	361	323	250	4,262
CAH 2015-1		378	298	287	266	175	215	207	219	251	319	374	363	3,754
CSH 2016-1		273	264	234	191	170	197	220	276	303	308	346	331	3,515
CSH 2016-2		287	230	243	237	167	232	257	306	325	392	354	302	3,953
HPA 2016-2		11	5	6	10	16	14	12	105	155	235	281	191	1,296
HPA 2017-1		141	118	186	149	114	91	74	110	114	73	17	74	1,343
HPA 2018-1													231	1,781
IH 2017-SFR2							242	247	292	294	330	391	373	4,410
IH 2018-SFR1									311	346	323	363	380	4,289
IH 2018-SFR2												331	378	5,607
PRD 2015-SFR2		118	179	221	185	142	189	234	260	307	324	216	200	3,287
PRD 2015-SFR3		284	216	157	93	76	81	120	108	187	292	287	341	3,150
PRD 2016-SFR1		176	216	322	230	286	330	426	480	567	468	368	340	5,549
PRD 2016-SFR2		426	270	209	127	113	150	145	148	165	271	333	364	3,742
PRD 2017-SFR1		112	279	381	229	197	162	133	127	89	136	145	183	2,708
PRD 2018-SFR1										54	52	97	151	2,113
SWH 2017-1					210	204	284	385	418	475	442	381	343	4,426
TAH 2016-SFR1		238	171	221	107	92	124	159	197	235	225	260	263	3,433
TAH 2017-SFR1			276	261	206	171	241	229	241	119	159	176	188	3,480
TAH 2017-SFR2							141	161	197	124	154	157	155	2,621
TAH 2018-SFR1											160	137	133	2,509
Overall SFR		4,053	3,732	3,808	3,151	2,808	4,127	4,622	5,462	5,601	6,524	6,930	7,132	88,965

Table 5b – Lease Expiration (by Percentage)

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		7.4	5.9	4.5	4.2	3.6	6.9	7.7	8.2	7.3	9.4	9.2	8.4
AH4R 2014-SFR3		9.2	5.9	5.4	3.6	3.8	7.7	7.4	6.9	6.2	8.0	9.1	9.8
AH4R 2015-SFR1		9.1	7.2	6.7	5.4	5.0	7.7	7.6	6.2	5.3	6.0	7.5	8.7
AH4R 2015-SFR2		5.2	3.9	3.2	3.2	3.7	5.8	7.5	9.6	7.6	10.6	10.3	9.1
AMSR 2016-SFR1		5.3	4.4	4.5	4.2	3.9	4.2	6.4	7.0	7.5	8.5	7.6	5.9
CAH 2015-1		9.9	7.8	7.5	7.0	4.6	5.7	5.5	5.8	6.7	8.5	10.0	9.7
CSH 2016-1		7.7	7.4	6.6	5.4	4.8	5.6	6.2	7.8	8.6	8.7	9.8	9.4
CSH 2016-2		7.2	5.8	6.1	5.9	4.2	5.8	6.4	7.7	8.2	9.9	9.0	7.6
HPA 2016-2		0.8	0.4	0.4	0.7	1.2	1.1	0.9	7.9	11.8	17.9	21.6	14.7
HPA 2017-1		10.2	8.6	13.6	10.9	8.4	6.7	5.4	8.1	8.4	5.4	1.3	5.5
HPA 2018-1													13.0
IH 2017-SFR2							5.5	5.6	6.6	6.7	7.5	8.9	8.5
IH 2018-SFR1									7.3	8.1	7.5	8.5	8.9
IH 2018-SFR2												5.9	6.7
PRD 2015-SFR2		3.6	5.4	6.7	5.6	4.3	5.7	7.1	7.9	9.3	9.9	6.6	6.1
PRD 2015-SFR3		9.0	6.9	5.0	3.0	2.4	2.6	3.8	3.4	5.9	9.3	9.1	10.8
PRD 2016-SFR1		3.2	3.9	5.8	4.1	5.1	5.9	7.7	8.6	10.2	8.4	6.6	6.1
PRD 2016-SFR2		11.4	7.2	5.6	3.4	3.0	4.0	3.9	4.0	4.4	7.2	8.9	9.7
PRD 2017-SFR1		4.1	10.3	14.1	8.5	7.3	6.0	4.9	4.7	3.3	5.0	5.4	6.8
PRD 2018-SFR1										2.6	2.5	4.6	7.1
SWH 2017-1					4.7	4.6	6.4	8.7	9.4	10.7	10.0	8.6	7.7
TAH 2016-SFR1		6.9	5.0	6.4	3.1	2.7	3.6	4.6	5.7	6.8	6.5	7.6	7.7
TAH 2017-SFR1			7.9	7.5	5.9	4.9	6.9	6.6	6.9	3.4	4.6	5.1	5.4
TAH 2017-SFR2							5.4	6.1	7.5	4.7	5.9	6.0	5.9
TAH 2018-SFR1											6.4	5.5	5.3
Overall SFR		7.0	6.1	6.2	4.8	4.3	5.7	6.3	7.1	7.1	8.0	7.9	8.0

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

		Year 2017				Year 2018							
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Atlanta, GA		6.7	6.3	6.0	5.2	4.6	5.8	6.3	6.6	7.5	8.2	8.1	7.7
Charlotte, NC		7.7	7.4	7.2	5.0	4.4	5.2	6.1	7.3	6.6	7.1	7.9	7.9
Chicago, IL		7.4	5.9	5.0	3.0	3.0	6.6	8.8	8.2	7.8	9.3	8.2	10.0
Dallas-Plano-Irving, TX		7.0	5.8	6.7	4.9	4.7	5.8	6.5	7.9	6.5	7.2	9.0	8.3
Denver-Aurora, CO		8.3	7.2	6.2	4.8	5.2	5.1	7.3	8.0	9.8	10.3	9.6	9.5
Fort Lauderdale, FL		6.0	6.2	7.9	6.6	5.4	7.8	6.3	7.8	7.1	8.0	7.0	6.0
Fort Worth-Arlington, TX		6.5	6.0	6.4	5.2	4.5	4.8	6.4	8.1	7.5	7.8	8.9	7.4
Houston, TX		6.1	5.5	5.2	5.0	4.4	5.2	6.2	7.2	6.3	6.5	6.9	7.9
Indianapolis, IN		7.4	5.1	5.0	2.3	1.9	6.9	7.3	7.1	7.3	9.4	8.4	8.8
Jacksonville, FL		5.6	5.6	8.6	6.5	5.5	6.9	6.9	6.3	5.2	8.5	6.4	6.0
Las Vegas, NV		7.7	6.4	6.8	5.2	4.4	5.4	5.8	6.5	7.5	6.9	7.2	8.3
Los Angeles, CA		7.3	6.8	7.0	6.9	6.0	6.2	4.7	7.3	7.2	6.7	8.0	7.2
Memphis, TN		6.4	5.4	6.0	3.3	3.1	5.2	5.2	8.1	8.3	8.5	7.0	6.8
Nashville, TN		6.4	5.4	7.4	4.6	4.1	5.3	5.4	6.4	7.7	7.5	8.5	8.7
Orlando, FL		8.0	6.4	7.1	5.6	5.1	6.1	5.7	5.9	5.8	8.9	8.6	8.7
Phoenix, AZ		7.4	5.9	8.0	5.6	5.2	6.7	7.3	7.2	7.0	6.8	6.9	7.3
Raleigh-Cary, NC		7.7	6.8	7.6	5.2	4.0	4.3	6.6	7.1	6.2	8.1	8.4	10.2
Riverside-San Bernardino, CA		7.0	6.8	8.2	7.0	4.1	5.8	7.0	8.2	7.9	8.1	7.2	8.6
Sarasota-Bradenton-Venice, FL		7.7	7.2	8.0	6.1	5.4	4.7	6.9	7.4	5.6	7.5	7.4	7.7
Tampa, FL		7.8	6.7	6.1	5.4	4.8	5.7	6.4	6.6	6.8	7.5	8.0	7.8

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

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		25	33	36	25	12	7	7	4	0	2	0	1	152
AH4R 2014-SFR3		38	33	22	20	21	15	6	6	4	8	4	12	189
AH4R 2015-SFR1		33	35	26	29	16	9	2	0	2	2	4	13	171
AH4R 2015-SFR2		40	44	34	22	19	8	3	0	1	7	1	3	182
AMSR 2016-SFR1		74	75	42	21	13	12	10	5	0	3	1	2	258
CAH 2015-1		51	58	34	28	18	7	4	4	1	1	0	4	210
CSH 2016-1		51	51	37	15	12	5	3	3	3	1	1	3	185
CSH 2016-2		71	61	30	20	10	8	0	0	1	1	3	0	205
HPA 2016-2		43	32	10	7	3	1	1	1	0	0	0	0	98
HPA 2017-1		21	9	5	3	0	0	0	0	0	0	0	0	38
HPA 2018-1		94	0											94
IH 2017-SFR2		123	55	15	7	3	1	0	0					204
IH 2018-SFR1		144	63	37	0	9	1							254
IH 2018-SFR2		132	96	6										234
PRD 2015-SFR2		38	29	16	10	4	2	4	3	1	0	1	0	108
PRD 2015-SFR3		63	30	21	9	2	8	6	2	3	3	0	2	149
PRD 2016-SFR1		92	33	24	17	8	5	2	2	0	0	0	2	185
PRD 2016-SFR2		99	23	22	5	4	1	1	1	0	1	1	2	160
PRD 2017-SFR1		55	8	10	0	0	0	0	1	0	0	0	0	74
PRD 2018-SFR1		53	0	3	0	0								56
SWH 2017-1		130	89	35	8	5	0	0	1	1	0			269
TAH 2016-SFR1		74	56	24	15	6	4	3	2	0	1	0	1	186
TAH 2017-SFR1		72	34	10	2	1	0	0	0	1	0	0	0	120
TAH 2017-SFR2		67	21	6	3	0	1	1	0					99
TAH 2018-SFR1		73	10	15	0									98
Overall SFR		1,756	978	520	266	166	95	53	35	18	30	16	45	3,978

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

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		16.4	21.7	23.7	16.4	7.9	4.6	4.6	2.6	0.0	1.3	0.0	0.7	100.0
AH4R 2014-SFR3		20.1	17.5	11.6	10.6	11.1	7.9	3.2	3.2	2.1	4.2	2.1	6.3	100.0
AH4R 2015-SFR1		19.3	20.5	15.2	17.0	9.4	5.3	1.2	0.0	1.2	1.2	2.3	7.6	100.0
AH4R 2015-SFR2		22.0	24.2	18.7	12.1	10.4	4.4	1.6	0.0	0.5	3.8	0.5	1.6	100.0
AMSR 2016-SFR1		28.7	29.1	16.3	8.1	5.0	4.7	3.9	1.9	0.0	1.2	0.4	0.8	100.0
CAH 2015-1		24.3	27.6	16.2	13.3	8.6	3.3	1.9	1.9	0.5	0.5	0.0	1.9	100.0
CSH 2016-1		27.6	27.6	20.0	8.1	6.5	2.7	1.6	1.6	1.6	0.5	0.5	1.6	100.0
CSH 2016-2		34.6	29.8	14.6	9.8	4.9	3.9	0.0	0.0	0.5	0.5	1.5	0.0	100.0
HPA 2016-2		43.9	32.7	10.2	7.1	3.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0	100.0
HPA 2017-1		55.3	23.7	13.2	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
HPA 2018-1		100.0	0.0											100.0
IH 2017-SFR2		60.3	27.0	7.4	3.4	1.5	0.5	0.0	0.0					100.0
IH 2018-SFR1		56.7	24.8	14.6	0.0	3.5	0.4							100.0
IH 2018-SFR2		56.4	41.0	2.6										100.0
PRD 2015-SFR2		35.2	26.9	14.8	9.3	3.7	1.9	3.7	2.8	0.9	0.0	0.9	0.0	100.0
PRD 2015-SFR3		42.3	20.1	14.1	6.0	1.3	5.4	4.0	1.3	2.0	2.0	0.0	1.3	100.0
PRD 2016-SFR1		49.7	17.8	13.0	9.2	4.3	2.7	1.1	1.1	0.0	0.0	0.0	1.1	100.0
PRD 2016-SFR2		61.9	14.4	13.8	3.1	2.5	0.6	0.6	0.6	0.0	0.6	0.6	1.3	100.0
PRD 2017-SFR1		74.3	10.8	13.5	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	100.0
PRD 2018-SFR1		94.6	0.0	5.4	0.0	0.0								100.0
SWH 2017-1		48.3	33.1	13.0	3.0	1.9	0.0	0.0	0.4	0.4	0.0			100.0
TAH 2016-SFR1		39.8	30.1	12.9	8.1	3.2	2.2	1.6	1.1	0.0	0.5	0.0	0.5	100.0
TAH 2017-SFR1		60.0	28.3	8.3	1.7	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.0	100.0
TAH 2017-SFR2		67.7	21.2	6.1	3.0	0.0	1.0	1.0	0.0					100.0
TAH 2018-SFR1		74.5	10.2	15.3	0.0									100.0
Overall SFR		44.1	24.6	13.1	6.7	4.2	2.4	1.3	0.9	0.5	0.8	0.4	1.1	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
Amherst	Past due one calendar month or more (not dependent on day count) and owing \$500 or more
Colony American Homes/Colony	
Starwood Homes/Starwood	Past due one calendar month or more (not dependent on day count) and owing \$200 or more
Waypoint Homes	
Home Partners of America	Past due 30 days or more (not dependent on calendar month) and owing \$500 or more
Invitation Homes	Past due 30 days or more (not dependent on calendar month) and owing 25% of one month's rent 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 2017					Year 2018							Total Count
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
AH4R 2014-SFR2		15	9	21	19	20	20	22	8	7	7	12	13	4,481
AH4R 2014-SFR3		11	7	21	12	14	19	20	7	12	9	5	14	4,499
AH4R 2015-SFR1		14	21	26	28	26	22	29	13	15	8	12	18	4,634
AH4R 2015-SFR2		6	10	17	24	10	21	18	6	7	10	7	11	4,123
AMSR 2016-SFR1		78	66	97	111	114	98	95	80	60	75	73	67	4,262
CAH 2015-1		22	30	28	31	32	20	23	26	17	42	35	22	3,754
CSH 2016-1		21	29	28	26	29	33	26	21	7	29	37	29	3,515
CSH 2016-2		23	43	34	40	48	37	36	24	13	36	32	36	3,953
HPA 2016-2		12	19	17	12	16	9	10	9	6	11	12	14	1,296
HPA 2017-1		13	17	12	11	7	10	10	5	8	7	9	19	1,343
HPA 2018-1													24	1,781
IH 2017-SFR2							33	30	19	15	27	33	24	4,410
IH 2018-SFR1									15	29	30	38	20	4,289
IH 2018-SFR2												43	54	5,607
PRD 2015-SFR2		14	26	25	23	24	28	21	18	10	24	20	25	3,287
PRD 2015-SFR3		19	22	23	17	22	29	25	20	17	19	5	23	3,150
PRD 2016-SFR1		29	27	43	45	44	39	40	31	28	27	5	34	5,549
PRD 2016-SFR2		16	24	23	19	39	41	0	26	18	17	4	29	3,742
PRD 2017-SFR1		14	20	19	16	17	17	22	16	17	14	2	25	2,708
PRD 2018-SFR1										15	16	0	16	2,113
SWH 2017-1					34	36	45	45	31	19	45	45	27	4,426
TAH 2016-SFR1		5	3	2	15	15	18	23	10	10	21	9	14	3,433
TAH 2017-SFR1			25	19	14	12	10	12	2	3	26	0	10	3,480
TAH 2017-SFR2							7	9	4	6	13	4	3	2,621
TAH 2018-SFR1											0	2	4	2,509
Overall SFR		312	398	455	497	525	556	516	391	339	513	444	575	88,965

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

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		0.3	0.2	0.5	0.4	0.4	0.4	0.5	0.2	0.2	0.2	0.3	0.3
AH4R 2014-SFR3		0.2	0.2	0.5	0.3	0.3	0.4	0.4	0.2	0.3	0.2	0.1	0.3
AH4R 2015-SFR1		0.3	0.5	0.6	0.6	0.6	0.5	0.6	0.3	0.3	0.2	0.3	0.4
AH4R 2015-SFR2		0.1	0.2	0.4	0.6	0.2	0.5	0.4	0.1	0.2	0.2	0.2	0.3
AMSR 2016-SFR1		1.8	1.5	2.3	2.6	2.7	2.3	2.2	1.9	1.4	1.8	1.7	1.6
CAH 2015-1		0.6	0.8	0.7	0.8	0.8	0.5	0.6	0.7	0.5	1.1	0.9	0.6
CSH 2016-1		0.6	0.8	0.8	0.7	0.8	0.9	0.7	0.6	0.2	0.8	1.1	0.8
CSH 2016-2		0.6	1.1	0.9	1.0	1.2	0.9	0.9	0.6	0.3	0.9	0.8	0.9
HPA 2016-2		0.9	1.4	1.3	0.9	1.2	0.7	0.8	0.7	0.5	0.8	0.9	1.1
HPA 2017-1		0.9	1.2	0.9	0.8	0.5	0.7	0.7	0.4	0.6	0.5	0.7	1.4
HPA 2018-1													1.3
IH 2017-SFR2							0.7	0.7	0.4	0.3	0.6	0.7	0.5
IH 2018-SFR1									0.3	0.7	0.7	0.9	0.5
IH 2018-SFR2												0.8	1.0
PRD 2015-SFR2		0.4	0.8	0.8	0.7	0.7	0.9	0.6	0.5	0.3	0.7	0.6	0.8
PRD 2015-SFR3		0.6	0.7	0.7	0.5	0.7	0.9	0.8	0.6	0.5	0.6	0.2	0.7
PRD 2016-SFR1		0.5	0.5	0.8	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.1	0.6
PRD 2016-SFR2		0.4	0.6	0.6	0.5	1.0	1.1	0.0	0.7	0.5	0.5	0.1	0.8
PRD 2017-SFR1		0.5	0.7	0.7	0.6	0.6	0.6	0.8	0.6	0.6	0.5	0.1	0.9
PRD 2018-SFR1										0.7	0.8	0.0	0.8
SWH 2017-1					0.8	0.8	1.0	1.0	0.7	0.4	1.0	1.0	0.6
TAH 2016-SFR1		0.1	0.1	0.1	0.4	0.4	0.5	0.7	0.3	0.3	0.6	0.3	0.4
TAH 2017-SFR1			0.7	0.5	0.4	0.3	0.3	0.3	0.1	0.1	0.7	0.0	0.3
TAH 2017-SFR2							0.3	0.3	0.2	0.2	0.5	0.2	0.1
TAH 2018-SFR1											0.0	0.1	0.2
Overall SFR		0.5	0.6	0.7	0.8	0.8	0.8	0.7	0.5	0.4	0.6	0.5	0.6

Table 9 – Monthly Retention Rate of Expiring Leases

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		73.1	74.6	78.6	75.1	75.2	77.4	78.9	80.4	79.3	76.8	77.1	TBD
AH4R 2014-SFR3		72.6	73.6	71.0	78.1	78.9	76.7	81.9	74.3	80.0	73.1	71.7	TBD
AH4R 2015-SFR1		74.9	75.9	75.7	77.3	76.2	75.3	74.9	77.7	72.5	72.3	72.9	TBD
AH4R 2015-SFR2		67.3	62.9	78.0	68.4	76.2	76.1	80.3	75.3	75.2	72.1	71.8	TBD
AMSR 2016-SFR1		79.6	87.1	86.0	87.1	85.6	88.8	83.0	80.3	80.9	80.6	78.3	TBD
CAH 2015-1		73.5	80.2	81.5	74.4	77.1	83.3	75.8	79.9	84.9	86.2	75.4	TBD
CSH 2016-1		75.5	76.1	83.3	73.8	79.4	76.6	82.7	76.1	79.5	78.2	76.6	TBD
CSH 2016-2		68.3	73.0	78.6	67.5	73.1	78.9	80.9	80.7	79.7	73.2	76.3	TBD
HPA 2016-2		63.6	100.0	66.7	90.0	81.3	78.6	75.0	77.1	77.4	75.7	79.0	TBD
HPA 2017-1		85.1	80.5	82.3	89.3	83.3	87.9	79.7	80.9	75.4	78.1	52.9	TBD
HPA 2018-1													TBD
IH 2017-SFR2							78.1	80.6	83.2	81.0	79.7	77.7	TBD
IH 2018-SFR1									84.6	78.9	80.2	74.9	TBD
IH 2018-SFR2												77.6	TBD
PRD 2015-SFR2		70.3	72.1	78.7	80.0	83.1	79.9	77.4	81.9	85.3	80.6	75.0	TBD
PRD 2015-SFR3		66.9	67.1	73.9	77.4	73.7	72.8	75.8	75.9	80.2	80.8	77.0	TBD
PRD 2016-SFR1		65.9	68.5	79.5	77.0	76.9	80.9	78.4	81.7	81.1	82.3	75.8	TBD
PRD 2016-SFR2		70.4	77.0	79.4	80.3	80.5	87.3	81.4	82.4	78.8	80.1	76.3	TBD
PRD 2017-SFR1		69.6	73.1	79.8	76.0	76.1	82.1	81.2	91.3	83.1	73.5	75.2	TBD
PRD 2018-SFR1										85.2	78.8	80.4	TBD
SWH 2017-1					74.8	84.8	81.3	75.8	78.5	78.5	85.7	72.4	TBD
TAH 2016-SFR1		85.3	81.3	82.8	78.5	84.8	81.5	83.6	81.2	85.5	81.3	78.1	TBD
TAH 2017-SFR1			77.2	82.8	84.0	88.3	79.3	82.5	79.7	84.0	78.0	85.8	TBD
TAH 2017-SFR2						76.6	81.4	80.7	78.2	78.6	81.5	TBD	
TAH 2018-SFR1											77.5	83.9	TBD
Overall SFR		73.1	75.1	79.5	77.3	79.4	79.5	79.5	79.9	80.0	78.6	76.2	TBD

TBD – To Be Determined

Table 10 – Monthly Retention Rate of MTM Leases

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		80.4	82.4	83.7	87.4	86.8	89.7	87.3	86.9	87.5	85.4	82.0	TBD
AH4R 2014-SFR3		81.9	86.0	83.2	81.4	89.2	90.0	85.8	83.6	86.4	76.0	82.4	TBD
AH4R 2015-SFR1		81.3	81.3	81.0	87.1	84.9	86.5	82.3	88.6	86.1	78.7	84.1	TBD
AH4R 2015-SFR2		81.1	81.2	87.0	80.9	88.8	86.4	85.5	82.9	82.6	72.6	83.9	TBD
AMSR 2016-SFR1		92.4	96.7	95.7	95.0	93.7	98.2	95.2	94.6	95.5	90.9	87.6	TBD
CAH 2015-1		81.1	72.5	80.0	74.4	78.0	72.5	91.7	81.0	88.6	77.8	75.8	TBD
CSH 2016-1		75.6	78.9	67.5	75.0	79.3	77.8	78.6	80.0	75.7	85.7	83.6	TBD
CSH 2016-2		78.4	57.5	62.9	70.4	74.1	75.0	75.8	78.1	77.8	83.9	75.6	TBD
HPA 2016-2		100.0	100.0										TBD
HPA 2017-1													TBD
HPA 2018-1													TBD
IH 2017-SFR2							91.0	78.4	89.1	82.9	80.6	84.7	TBD
IH 2018-SFR1									77.2	87.5	77.6	74.7	TBD
IH 2018-SFR2												78.8	TBD
PRD 2015-SFR2		72.7	82.6	81.0	78.6	79.5	80.6	91.9	88.4	82.5	82.5	73.8	TBD
PRD 2015-SFR3		73.7	78.6	75.7	75.5	76.7	83.3	80.6	84.4	70.0	75.9	62.2	TBD
PRD 2016-SFR1		80.0	80.7	88.0	81.8	81.9	85.0	80.9	78.8	79.3	82.6	72.7	TBD
PRD 2016-SFR2		73.9	77.2	78.8	76.8	81.8	100.0	65.8	91.1	96.0	81.5	66.1	TBD
PRD 2017-SFR1		81.3	73.5	76.3	66.7	91.4	82.1	91.2	100.0	68.1	67.7	77.8	TBD
PRD 2018-SFR1										75.0	60.0	71.4	TBD
SWH 2017-1					61.3	80.8	75.0	71.4	82.4	78.3	77.0	78.3	TBD
TAH 2016-SFR1		91.3	93.6	95.1	95.5	92.9	95.5	94.4	95.3	95.3	89.4	94.7	TBD
TAH 2017-SFR1			88.1	92.5	93.5	87.0	90.2	87.6	85.7	84.3	86.8	84.5	TBD
TAH 2017-SFR2							98.2	93.1	88.1	92.7	89.5	87.1	TBD
TAH 2018-SFR1											92.1	83.6	TBD
Overall SFR		84.6	87.0	88.3	88.2	88.9	92.2	88.6	88.9	88.7	84.5	83.5	TBD

TBD – To Be Determined

Table 11a – MTM Tenants (by Count)

		Year 2017					Year 2018							Total Count
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
AH4R 2014-SFR2		245	217	185	178	175	170	190	206	208	232	236	219	4,481
AH4R 2014-SFR3		216	199	180	168	148	155	188	220	199	233	226	218	4,499
AH4R 2015-SFR1		229	227	198	195	187	184	204	220	219	223	205	201	4,634
AH4R 2015-SFR2		207	179	147	156	143	143	150	183	200	235	221	215	4,123
AMSR 2016-SFR1		600	605	648	684	709	696	733	747	759	761	754	608	4,262
CAH 2015-1		37	40	40	43	41	40	36	42	44	54	66	64	3,754
CSH 2016-1		41	38	40	36	29	27	28	30	37	42	55	60	3,515
CSH 2016-2		37	40	35	27	27	28	33	32	27	31	45	65	3,953
HPA 2016-2		1	1	0	0	0	0	0	0	0	0	0	0	1,296
HPA 2017-1		0	0	0	0	0	0	0	0	0	0	0	0	1,343
HPA 2018-1													0	1,781
IH 2017-SFR2							92	95	115	101	111	105	70	4,410
IH 2018-SFR1									92	104	116	125	63	4,289
IH 2018-SFR2												104	105	5,607
PRD 2015-SFR2		71	63	66	64	49	55	58	65	62	62	62	52	3,287
PRD 2015-SFR3		115	110	87	60	52	49	50	41	46	63	58	58	3,150
PRD 2016-SFR1		125	116	122	111	120	119	127	127	126	133	128	107	5,549
PRD 2016-SFR2		137	123	99	85	70	71	201	59	63	78	87	76	3,742
PRD 2017-SFR1		47	62	76	67	49	46	47	47	108	49	50	50	2,708
PRD 2018-SFR1										6	14	19	27	2,113
SWH 2017-1					31	26	24	28	34	60	87	83	79	4,426
TAH 2016-SFR1		371	379	360	377	339	257	252	261	215	278	253	202	3,433
TAH 2017-SFR1			207	197	217	225	195	197	184	121	127	114	103	3,480
TAH 2017-SFR2							229	195	194	176	174	152	114	2,621
TAH 2018-SFR1											118	128	85	2,509
Overall SFR		2,479	2,606	2,480	2,499	2,389	2,580	2,812	2,899	2,881	3,221	3,276	2,841	88,965

Table 11b – MTM Tenants (by Percentage)

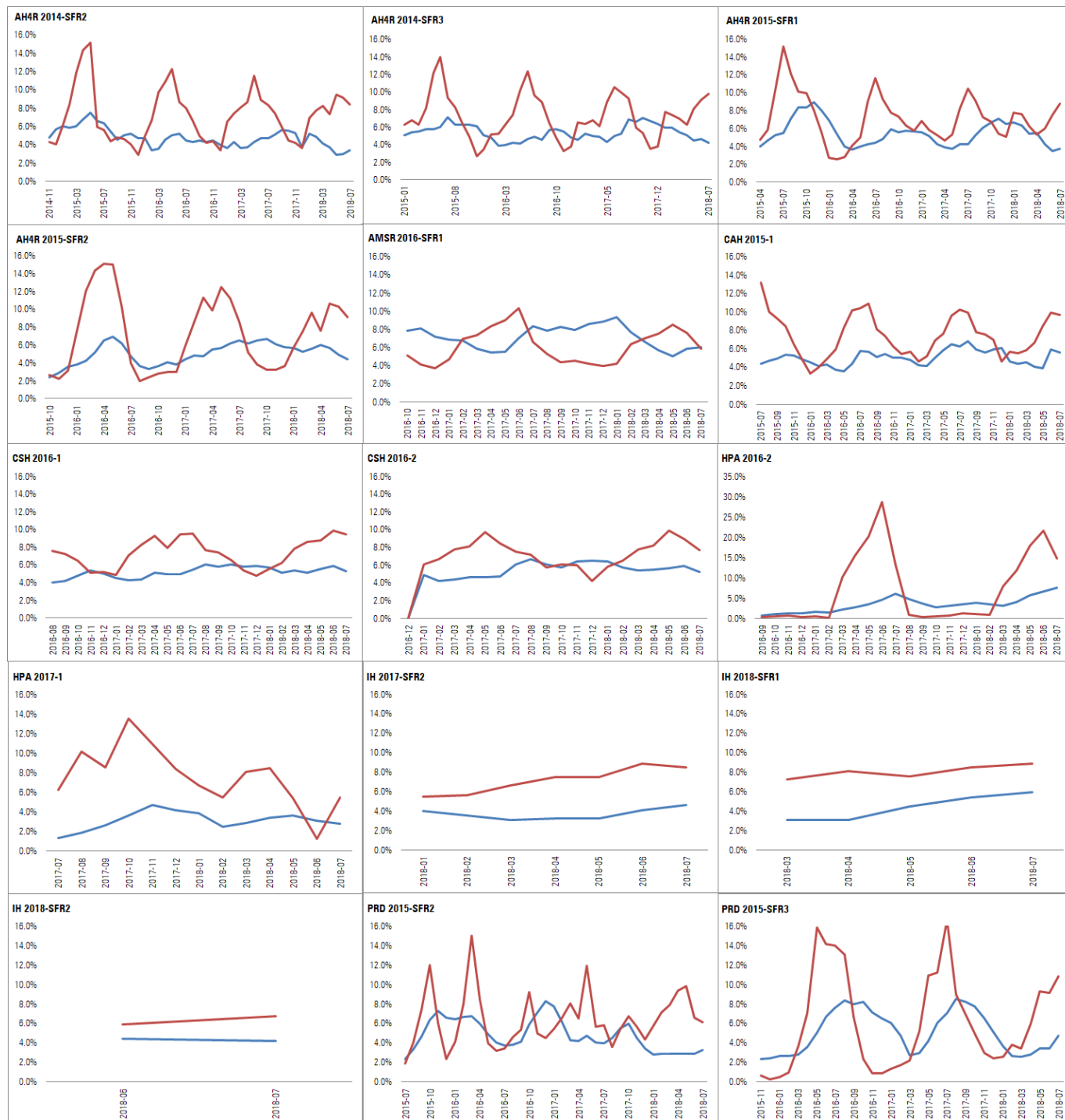
		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		5.5	4.8	4.1	4.0	3.9	3.8	4.2	4.6	4.6	5.2	5.3	4.9
AH4R 2014-SFR3		4.8	4.4	4.0	3.7	3.3	3.4	4.2	4.9	4.4	5.2	5.0	4.8
AH4R 2015-SFR1		4.9	4.9	4.2	4.2	4.0	4.0	4.4	4.7	4.7	4.8	4.4	4.3
AH4R 2015-SFR2		5.0	4.3	3.6	3.8	3.5	3.5	3.6	4.4	4.9	5.7	5.4	5.2
AMSR 2016-SFR1		14.1	14.2	15.2	16.0	16.6	16.3	17.2	17.5	17.8	17.9	17.7	14.3
CAH 2015-1		1.0	1.0	1.1	1.1	1.1	1.1	1.0	1.1	1.2	1.4	1.8	1.7
CSH 2016-1		1.2	1.1	1.1	1.0	0.8	0.8	0.8	0.8	1.0	1.2	1.6	1.7
CSH 2016-2		0.9	1.0	0.9	0.7	0.7	0.7	0.8	0.8	0.7	0.8	1.1	1.6
HPA 2016-2		0.1	0.1	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
IH 2017-SFR2							2.1	2.2	2.6	2.3	2.5	2.4	1.6
IH 2018-SFR1									2.1	2.4	2.7	2.9	1.5
IH 2018-SFR2												1.9	1.9
PRD 2015-SFR2		2.2	1.9	2.0	1.9	1.5	1.7	1.8	2.0	1.9	1.9	1.9	1.6
PRD 2015-SFR3		3.6	3.5	2.8	1.9	1.7	1.6	1.6	1.3	1.5	2.0	1.8	1.8
PRD 2016-SFR1		2.2	2.1	2.2	2.0	2.2	2.1	2.3	2.3	2.3	2.4	2.3	1.9
PRD 2016-SFR2		3.7	3.3	2.6	2.3	1.9	1.9	5.4	1.6	1.7	2.1	2.3	2.0
PRD 2017-SFR1		1.7	2.3	2.8	2.5	1.8	1.7	1.7	1.7	4.0	1.8	1.8	1.8
PRD 2018-SFR1										0.3	0.7	0.9	1.3
SWH 2017-1					0.7	0.6	0.5	0.6	0.8	1.4	2.0	1.9	1.8
TAH 2016-SFR1		10.8	11.0	10.5	11.0	9.9	7.5	7.3	7.6	6.3	8.1	7.4	5.9
TAH 2017-SFR1			5.9	5.7	6.2	6.5	5.6	5.7	5.3	3.5	3.6	3.3	3.0
TAH 2017-SFR2							8.7	7.4	7.4	6.7	6.6	5.8	4.3
TAH 2018-SFR1											4.7	5.1	3.4
Overall SFR		4.3	4.2	4.0	3.8	3.6	3.5	3.9	3.8	3.6	3.9	3.8	3.2

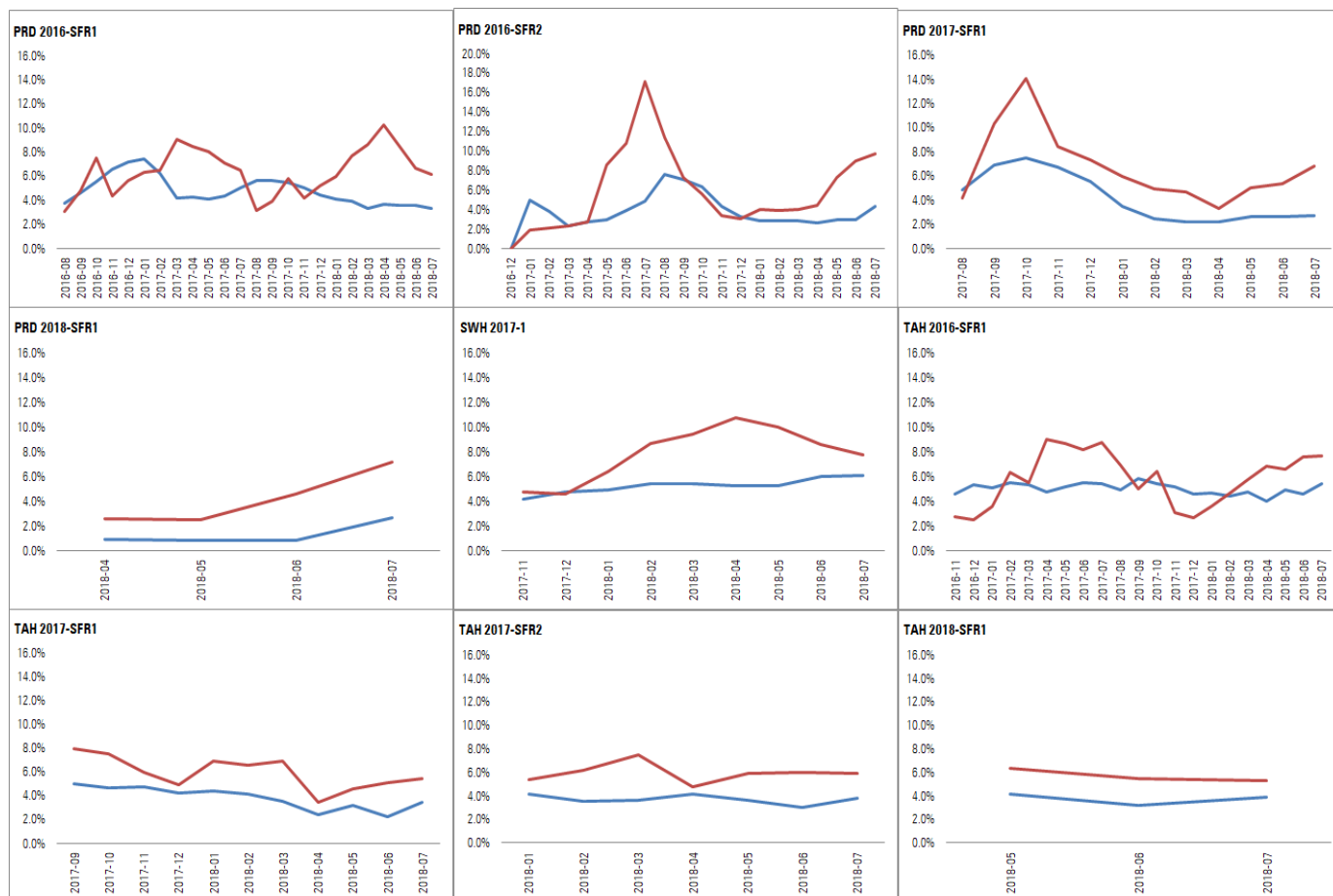
Table 12 – Monthly Turnover Rate

		Year 2017					Year 2018						
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
AH4R 2014-SFR2		3.9	2.9	2.9	2.5	2.2	2.8	2.4	2.9	2.7	3.9	3.5	TBD
AH4R 2014-SFR3		4.3	3.4	3.1	2.1	2.4	2.6	2.4	3.3	3.0	3.6	4.4	TBD
AH4R 2015-SFR1		4.1	3.9	3.4	2.8	2.8	3.4	3.2	3.2	2.6	3.0	4.1	TBD
AH4R 2015-SFR2		3.7	3.3	2.5	2.3	2.9	2.5	2.6	4.0	3.6	4.4	4.8	TBD
AMSR 2016-SFR1		2.5	2.1	2.1	2.0	2.2	2.8	1.7	2.7	2.9	2.8	3.4	TBD
CAH 2015-1		4.1	2.7	3.2	2.8	2.3	1.9	2.6	2.6	1.7	3.0	4.5	TBD
CSH 2016-1		3.6	2.9	2.9	2.6	2.1	2.2	2.3	3.2	2.5	4.0	3.6	TBD
CSH 2016-2		4.5	3.0	3.2	3.0	2.4	2.6	2.5	3.2	2.3	4.1	4.0	TBD
HPA 2016-2		1.9	1.0	1.6	2.2	1.2	1.7	1.5	3.5	3.8	5.7	5.8	TBD
HPA 2017-1		2.5	2.3	3.6	2.3	1.7	1.6	1.9	2.4	2.5	2.4	1.5	TBD
HPA 2018-1													TBD
IH 2017-SFR2							2.4	2.2	2.4	2.4	2.8	3.4	TBD
IH 2018-SFR1									1.8	2.8	2.9	3.5	TBD
IH 2018-SFR2												6.3	TBD
PRD 2015-SFR2		3.2	3.1	2.9	2.5	2.2	2.4	2.5	3.5	3.3	5.0	3.8	TBD
PRD 2015-SFR3		4.6	4.2	3.0	2.4	2.0	2.0	2.0	2.2	2.3	3.5	4.8	TBD
PRD 2016-SFR1		3.2	3.2	2.9	2.4	2.6	2.6	2.8	3.0	3.4	3.7	3.8	TBD
PRD 2016-SFR2		5.3	3.2	3.0	1.7	1.7	2.0	2.2	2.5	2.2	3.3	4.0	TBD
PRD 2017-SFR1		7.5	4.3	4.1	3.8	3.5	2.4	1.8	2.1	1.6	3.4	3.3	TBD
PRD 2018-SFR1										3.3	1.9	2.5	TBD
SWH 2017-1					2.0	2.3	2.4	3.0	3.7	2.7	3.6	4.6	TBD
TAH 2016-SFR1		2.8	3.5	2.2	2.5	1.7	2.1	1.7	2.4	2.3	2.8	3.4	TBD
TAH 2017-SFR1			6.6	3.3	2.7	2.0	3.1	2.4	2.7	2.3	2.3	2.5	TBD
TAH 2017-SFR2							6.3	1.3	2.7	2.7	2.2	2.9	TBD
TAH 2018-SFR1											6.5	1.8	TBD
Overall SFR		3.9	3.4	3.0	2.5	2.3	2.6	2.4	2.9	2.7	3.5	3.9	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 – July 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 July 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 July lease expirations, Morningstar looks for all July lease expirations in the April 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 May or June are removed from the July lease expiration count.

Tables 6a and 6b – Historical Months of Vacancy

Tables 6a and 6b show the number of months of vacancy the July unoccupied properties have experienced. In other words, if a property is unoccupied as of the July 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 July 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 July property tape to determine the lease status for June 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 June 2018 retention rates are the July statuses of June 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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To reprint, translate, or use the data or information other than as provided herein, contact Vanessa Sussman (+1 646 560-4541) or by email to: vanessa.sussman@morningstar.com.