

Single-Family Rental Research

Performance Summary Covering All Morningstar-Rated Securitizations

June 2019

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Introduction

The blended rent change for single-borrower, single-family rental securitizations rated by Morningstar Credit Ratings, LLC decreased to 5.3% in May from 5.5% in April. The average vacancy rate increased 10 basis points to 4.1% in May from a revised 4.0% in April. The average retention rate for expiring leases decreased to 79.1% in April, the latest month available, from a revised 80.3% in March. Among the top 20 metropolitan statistical areas, Fort Lauderdale and Denver-Aurora had the highest vacancy rate at 7.2% and 5.5%, respectively. The Sacramento MSA experienced the highest blended rent growth at 9.2%, followed by the Phoenix MSA at 8.6%. The Chicago and Fort Lauderdale MSAs experienced the lowest blended rent growth at 3.3% and 2.6%, respectively. While the Chicago MSA had one of the lowest rates of blended rent growth, it also had the lowest month-end vacancy rate at 2.3%. Rents for properties included in single-family rental securitizations generally exceed or are in line with the RentRange rents for three- and four-bedroom properties located in the same MSAs with the exception of the Tampa, Florida MSA, where RentRange rents exceeded rents for single-family securitizations by approximately 6.7%. CSH 2016-2 was fully paid off in June and PRD 2019-SFR2 reported its first monthly property schedule. The June Single-Family Rental Performance Summary has 23 single-borrower deals with close to 81,000 properties.

Morningstar publishes its 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 April. 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 7.6% in May, up from 7.1% in April. HPA 2016-2 had the highest lease expirations at 12.7%, followed by AH4R 2015-SFR2 at 10.9%. PRD 2018-SFR1 had the lowest percentage of lease expirations at 3.2% followed by PRD 2017-SFR1 at 4.5%. The increase in lease expirations on single-family rental properties is following seasonal trends of increasing in the spring and summer months and could be an indicator of potentially higher vacancies in the near future.

The average retention rate on full-term leases decreased to 79.1% in April, the latest month for which data is available, from a revised 80.3% in March. The overall monthly turnover rate decreased to 2.7% in April, the latest month available, from 2.8% in March. The average delinquency rate increased to 0.6% from 0.5% in April. HPA 2016-2 and HPA 2018-1 transactions reported a delinquency rate above 1.0%, at 1.3% and 1.1%, respectively. 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 5.3% in May, a decline from the 5.5% increase in April. Chart 1 shows that the rent gains for securitized properties in May trailed rent gains for three- and four-bedroom properties; the RentRange rent change for three-bedroom properties was 6.2%, down from 6.8% in April, and the RentRange rent change for four-bedroom properties was 5.5%, down from 5.9% in April. 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 April, the latest month for which data is available, the rent change for renewal properties remain unchanged at 4.9%. Rent growth for vacant-to-occupied properties decreased to 5.4% from 5.6%. Chart 4 shows the MSA-level blended rent change. MSAs with rent changes above the 5.3% 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.

Multiborrower Performance

In May, the number of loans increased to 979 with CAF 2019-1 added this month. The number of loans 30-59 days delinquent increased to 16 from 13, the number of loans 60-89 days delinquent increased to five from four, and loans at least 90 days delinquent remained unchanged at 29. Loans in foreclosure stayed at six, and loans in special servicing increased to 36 from 35.

Table 1 – Multiborrower Loan Performance by Percentage of Balance

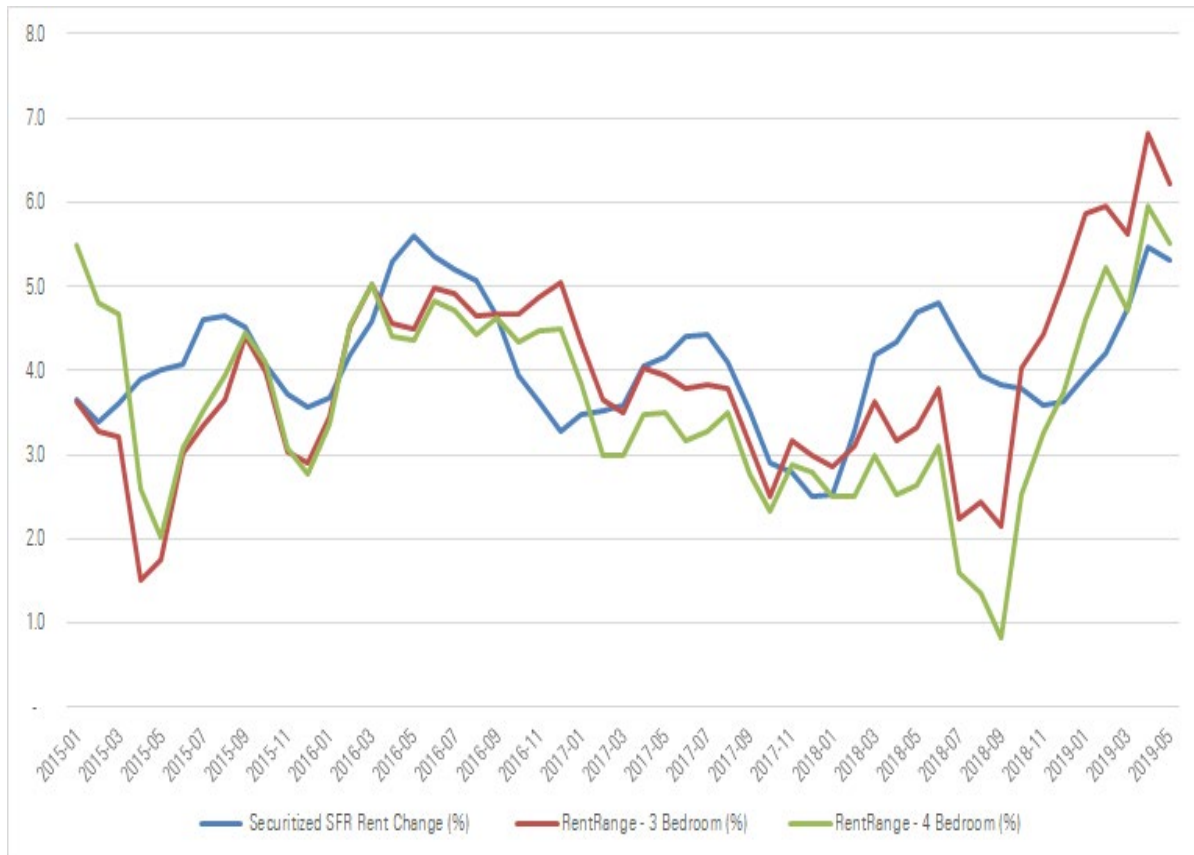
	30-59 Delinquent	60-89 Delinquent	90+ Delinquent	Foreclosure	Real Estate Owned	Special Servicing
B2R 2015-1	0.00	0.65	0.18	0.02	0.00	0.86
FKL 2015-SFR1	0.00	0.00	0.00	0.00	0.00	0.00
CAF 2015-1	0.00	0.00	2.65	0.00	0.00	10.20
B2R 2015-2	0.48	0.00	1.94	0.27	0.00	1.98
CAF 2016-1	0.68	0.00	1.89	0.00	0.00	1.92
B2R 2016-1	1.29	0.64	1.78	0.03	0.00	2.09
CAF 2016-2	0.99	0.00	4.44	3.09	0.00	4.48
CAF 2017-1	4.40	0.00	1.45	0.00	0.00	3.20
CAF 2018-1	0.36	0.63	0.92	0.61	0.32	0.93
CAF 2018-2	1.19	0.49	0.35	0.00	0.00	0.35
CAF 2019-1	0.00	0.00	0.00	0.00	0.00	0.00

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	106	0	1	2	1	0	3
FKL 2015-SFR1	2	0	0	0	0	0	0
CAF 2015-1	43	0	0	2	0	0	3
B2R 2015-2	172	2	0	9	1	0	9
CAF 2016-1	62	1	0	1	0	0	1
B2R 2016-1	149	5	2	5	1	0	8
CAF 2016-2	61	1	0	4	2	0	5
CAF 2017-1	79	3	0	3	0	0	4
CAF 2018-1	116	1	1	2	1	1	2
CAF 2018-2	115	3	1	1	0	0	1
CAF 2019-1	74	0	0	0	0	0	0
Overall	979	16	5	29	6	1	36

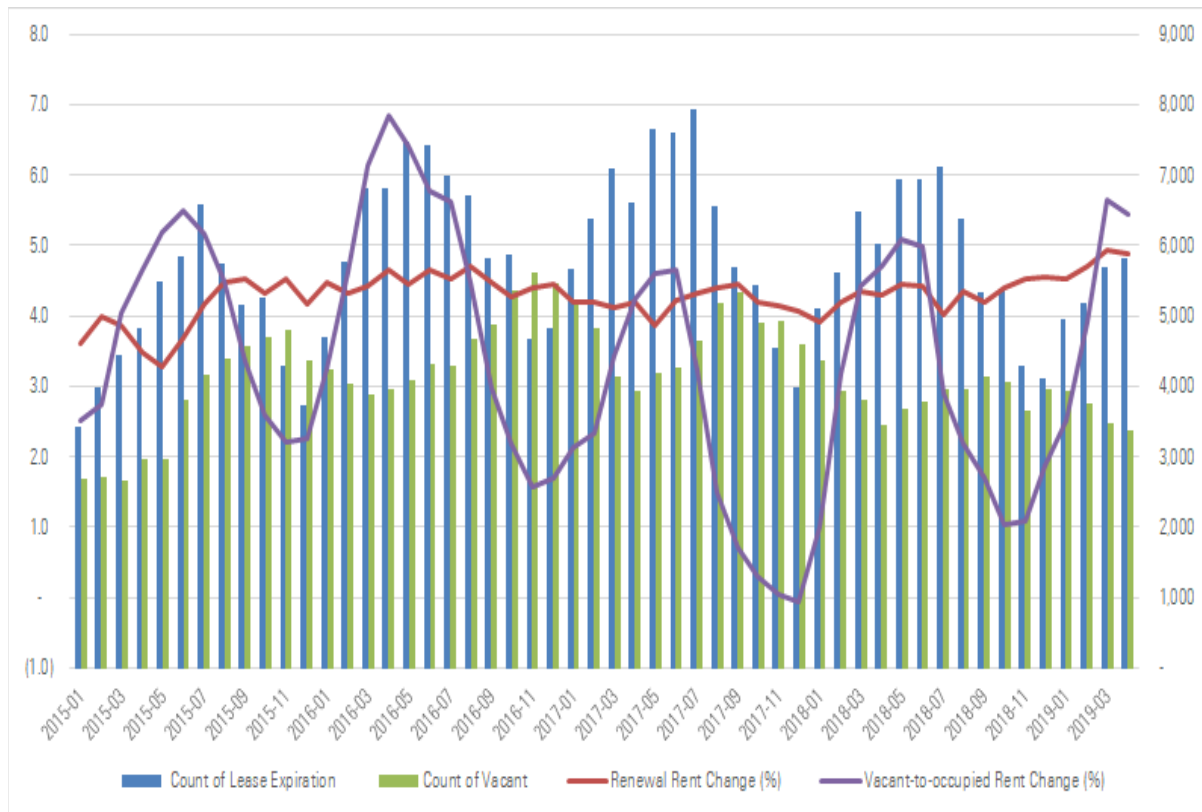
Single-Borrower Charts and Tables

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



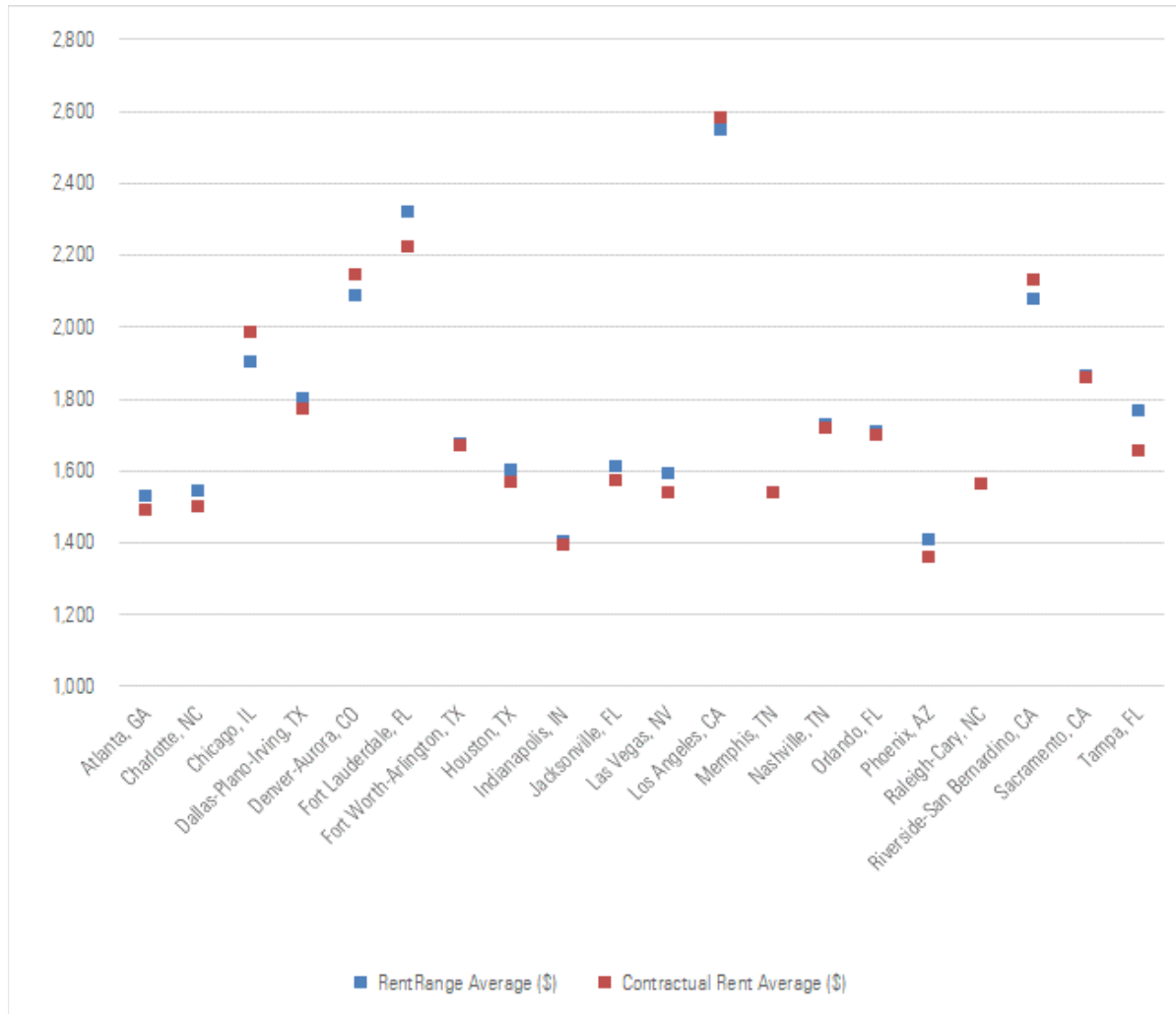
Sources: Morningstar Credit Ratings, LLC and RentRange

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



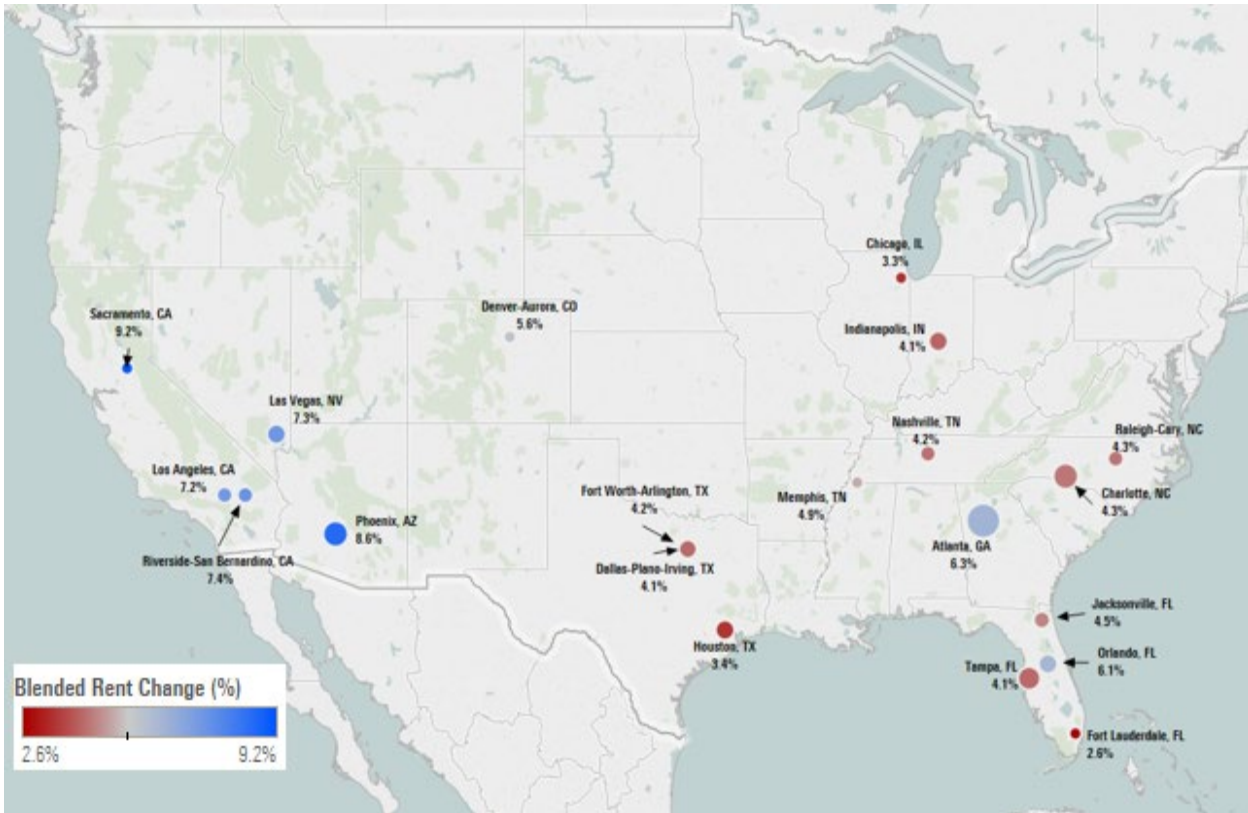
Source: Morningstar Credit Ratings, LLC

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



Sources: Morningstar Credit Ratings, LLC and RentRange

Chart 4 – MSA-Level Blended Rent Change*



Sources: Morningstar Credit Ratings, LLC and Tableau Software

*The size of the circles represents the total percentage (by count) of properties in each MSA, ranging from 1.44% to 14.67%. 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						
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Atlanta, GA		5.1	4.4	4.8	4.1	4.4	4.5	4.6	4.1	4.1	4.7	6.0	6.3
Charlotte, NC		3.8	4.4	3.4	3.3	3.0	2.5	2.8	3.2	3.5	3.9	4.8	4.3
Chicago, IL		4.4	3.0	3.2	2.5	2.3	2.0	1.1	-1.8	0.7	2.7	3.1	3.3
Dallas-Plano-Irving, TX		4.2	4.1	3.7	4.7	3.5	1.8	2.0	2.5	3.2	3.7	4.2	4.1
Denver-Aurora, CO		5.1	2.4	2.3	2.5	2.4	2.2	2.8	3.6	3.8	4.3	6.9	5.6
Fort Lauderdale, FL		3.3	3.6	3.2	2.6	2.9	2.4	3.5	4.0	2.5	3.2	3.1	2.6
Fort Worth-Arlington, TX		5.1	5.3	4.1	3.9	2.2	2.4	2.7	3.3	3.8	4.7	4.5	4.2
Houston, TX		3.3	3.0	2.9	2.5	1.4	1.7	1.4	1.8	1.8	2.9	3.4	3.4
Indianapolis, IN		4.6	3.8	3.0	2.7	2.6	2.5	0.7	1.5	4.1	3.3	5.4	4.1
Jacksonville, FL		5.3	5.6	5.3	4.6	4.2	3.2	3.0	3.8	4.4	4.3	5.7	4.5
Las Vegas, NV		6.1	5.1	5.2	6.4	5.6	5.5	5.6	6.8	6.2	7.1	8.5	7.3
Los Angeles, CA		6.2	5.1	4.5	5.1	6.1	5.3	4.9	6.2	5.5	7.1	7.2	7.2
Memphis, TN		4.2	5.4	5.1	3.6	2.9	3.6	3.2	3.8	2.5	4.5	6.1	4.9
Nashville, TN		4.2	4.5	4.2	3.5	3.1	1.7	2.4	3.4	3.1	3.6	4.1	4.2
Orlando, FL		6.0	6.2	5.2	4.7	4.9	5.0	4.6	4.8	4.9	5.8	5.7	6.1
Phoenix, AZ		6.7	6.1	5.4	6.0	5.9	5.4	5.9	7.0	7.2	7.4	8.2	8.6
Raleigh-Cary, NC		3.2	3.2	2.9	2.6	2.3	2.4	3.4	3.6	3.1	3.1	4.3	4.3
Riverside-San Bernardino, CA		6.7	4.4	3.6	4.6	5.1	5.5	4.5	5.7	5.5	6.6	7.0	7.4
Sacramento, CA		8.0	6.9	5.8	7.4	7.3	6.0	6.2	7.7	10.0	7.6	8.4	9.2
Tampa, FL		4.4	3.8	3.5	2.7	3.0	3.1	4.0	3.3	3.5	4.1	4.7	4.1

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



		Year 2018												Year 2019					Count
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May						
AH4R 2014-SFR2		135	152	168	195	185	172	184	197	184	158	138	145	4,545					
AH4R 2014-SFR3		208	189	199	247	249	252	239	230	202	189	171	144	4,588					
AH4R 2015-SFR1		159	171	173	211	240	236	236	228	221	172	176	140	4,697					
AH4R 2015-SFR2		202	182	180	190	214	191	187	173	147	143	157	149	4,176					
HPA 2016-2		86	98	86	76	78	74	69	73	67	52	63	80	1,267					
HPA 2017-1		42	38	61	84	93	94	92	95	88	75	69	56	1,308					
HPA 2018-1			94	113	141	149	145	126	106	84	91	89	87	1,735					
IH 2017-SFR2		179	204	204	189	183	171	164	161	167	157	159	167	4,327					
IH 2018-SFR1		230	233	219	210	188	187	192	196	192	207	198	207	4,232					
IH 2018-SFR2		248	236	198	231	233	269	241	233	219	228	237	199	5,409					
IH 2018-SFR3						279	284	281	291	295	259	279	274	6,587					
IH 2018-SFR4								253	271	290	260	272	280	5,356					
PRD 2015-SFR2		117	108	151	157	157	140	137	162	156	144	148	160	3,286					
PRD 2015-SFR3		140	149	172	182	158	132	141	134	118	104	109	129	3,149					
PRD 2017-SFR1		90	74	88	102	121	130	131	129	117	105	93	101	2,708					
PRD 2018-SFR1		44	56	84	107	123	132	115	85	53	42	50	56	2,113					
PRD 2018-SFR2					24	50	56	99	116	110	87	82	97	2,116					
PRD 2019-SFR2													106	2,459					
SWH 2017-1		265	269	192	237	206	179	171	195	243	219	248	240	4,369					
TAH 2016-SFR1		156	186	230	186	181	163	180	156	146	151	164	174	3,425					
TAH 2017-SFR1		76	120	136	100	96	110	160	162	149	129	107	110	3,479					
TAH 2017-SFR2		79	99	120	95	110	98	114	87	90	83	68	106	2,619					
TAH 2018-SFR1		80	98	112	72	98	99	109	125	88	77	83	86	2,509					
Overall SFR		2,536	2,756	2,886	3,036	3,391	3,314	3,621	3,605	3,426	3,112	3,160	3,293	80,459					

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



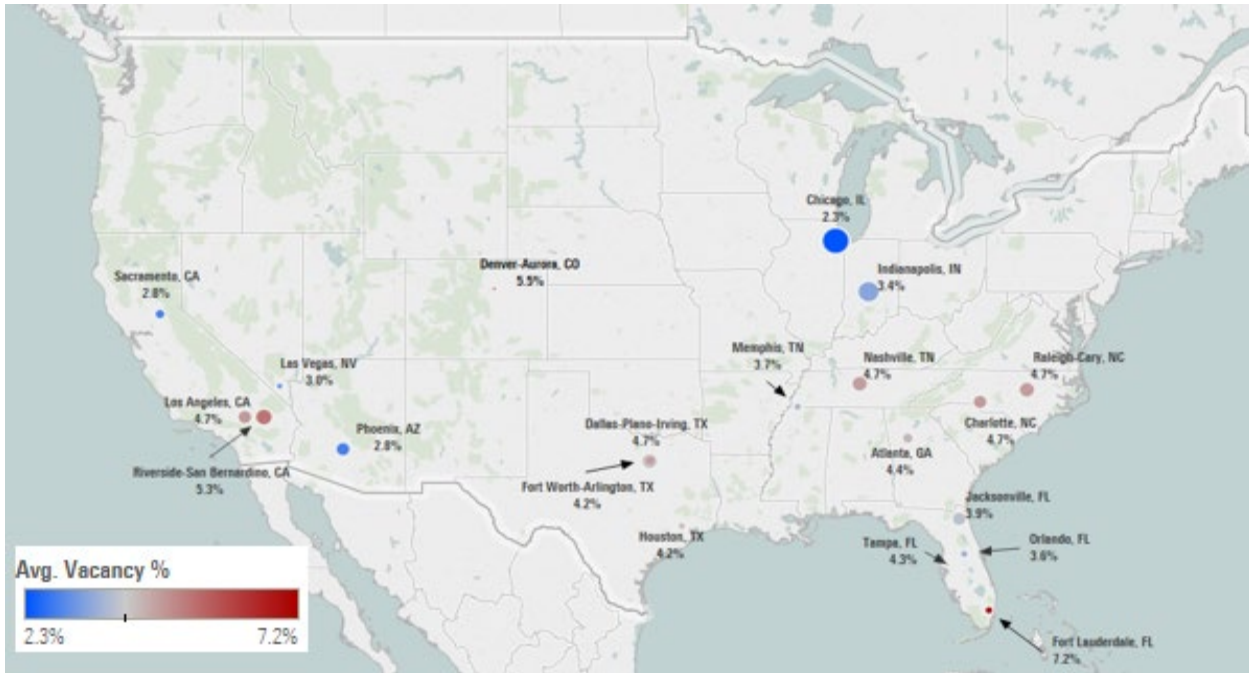
		Year 2018					Year 2019								
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May		
AH4R 2014-SFR2		3.0	3.4	3.7	4.4	4.1	3.8	4.0	4.3	4.0	3.5	3.0	3.2		
AH4R 2014-SFR3		4.6	4.2	4.4	5.5	5.5	5.5	5.2	5.0	4.4	3.7	3.7	3.1		
AH4R 2015-SFR1		3.4	3.7	3.7	4.6	5.2	5.0	5.0	4.9	4.7	3.7	3.7	3.0		
AH4R 2015-SFR2		4.9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

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



		Year 2019											
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Atlanta, GA		4.3	4.7	5.2	4.5	5.0	4.8	4.7	4.8	4.7	4.4	4.1	4.4
Charlotte, NC		4.4	3.8	4.6	4.9	5.1	4.2	4.5	4.3	4.3	4.2	4.7	4.7
Chicago, IL		3.4	3.4	4.2	5.3	6.0	5.7	5.6	4.1	3.7	3.0	2.4	2.3
Dallas-Plano-Irving, TX		4.5	4.9	5.8	5.9	5.6	5.8	5.5	5.3	4.9	4.7	4.6	4.7
Denver-Aurora, CO		7.0	6.1	5.2	7.0	6.5	6.0	5.7	5.8	5.8	5.6	5.2	5.5
Fort Lauderdale, FL		6.0	5.2	6.0	4.4	4.5	3.9	4.9	6.1	5.2	5.8	6.5	7.2
Fort Worth-Arlington, TX		4.8	5.0	5.4	6.1	5.1	4.9	4.6	4.0	3.5	4.1	4.5	4.2
Houston, TX		5.8	6.0	6.7	6.8	6.6	6.8	6.5	6.4	5.8	5.2	5.4	4.2
Indianapolis, IN		3.8	4.3	5.5	5.9	5.4	6.0	5.8	5.0	5.1	3.8	3.3	3.4
Jacksonville, FL		3.6	4.0	4.5	4.4	4.7	4.7	4.5	4.4	4.5	3.7	4.3	3.9
Las Vegas, NV		3.1	3.5	3.2	3.6	3.5	3.2	2.8	3.4	3.5	3.1	2.6	3.0
Los Angeles, CA		5.5	5.4	5.5	5.0	4.9	4.7	4.5	4.0	4.2	4.4	4.1	4.7
Memphis, TN		3.9	3.8	5.0	5.3	5.4	4.9	4.9	5.8	4.6	3.7	3.4	3.7
Nashville, TN		4.0	4.7	5.5	5.2	5.4	4.6	4.5	5.0	4.2	4.1	4.1	4.7
Orlando, FL		3.6	3.5	3.4	3.5	3.4	3.9	4.1	4.4	4.5	4.3	3.4	3.6
Phoenix, AZ		3.0	3.3	3.3	3.5	2.7	2.9	3.1	2.9	2.8	2.7	2.7	2.8
Raleigh-Cary, NC		3.9	4.0	4.0	5.1	5.1	4.8	4.7	4.5	3.6	3.1	4.5	4.7
Riverside-San Bernardino, CA		4.1	4.0	3.4	4.3	4.3	3.8	2.8	3.9	4.5	4.6	4.9	5.3
Sacramento, CA		2.7	3.1	3.5	3.8	4.0	2.9	3.2	3.7	3.3	2.9	3.0	2.8
Tampa, FL		4.8	5.2	5.2	5.0	4.9	4.3	4.6	4.7	4.3	3.9	3.8	4.3

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



Sources: Morningstar Credit Ratings, LLC and 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 19.407% to 28.789%. 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		
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		Apr	May
AH4R 2014-SFR2		411	378	354	265	215	200	172	245	306	345	405	491	4,545
AH4R 2014-SFR3		410	439	382	280	240	198	161	263	275	297	381	419	4,588
AH4R 2015-SFR1		347	405	364	279	276	252	231	341	359	391	298	352	4,697
AH4R 2015-SFR2		425	376	271	181	155	173	153	198	250	296	349	455	4,176
HPA 2016-2		281	191	49	27	24	24	20	26	34	85	124	161	1,267
HPA 2017-1		17	74	119	98	144	139	99	101	78	94	96	76	1,308
HPA 2018-1			229	179	172	122	73	71	69	71	105	113	133	1,735
IH 2017-SFR2		391	373	314	235	243	197	183	218	256	275	273	302	4,327
IH 2018-SFR1		363	380	347	375	324	251	206	260	285	293	292	357	4,232
IH 2018-SFR2		331	378	345	330	346	306	276	320	353	395	338	335	5,409
IH 2018-SFR3						416	401	324	428	410	452	441	387	6,587
IH 2018-SFR4								250	292	363	345	379	457	5,356
PRD 2015-SFR2		216	200	179	161	221	229	195	191	206	220	279	279	3,286
PRD 2015-SFR3		287	341	342	224	223	140	149	126	142	139	203	214	3,149
PRD 2017-SFR1		145	183	188	203	310	232	231	179	152	146	147	122	2,708
PRD 2018-SFR1		97	151	208	249	423	379	85	21	29	56	81	67	2,113
PRD 2018-SFR2					6	7	8	279	345	258	160	181	220	2,116
PRD 2019-SFR2													147	2,459
SWH 2017-1		381	342	318	268	217	195	164	285	307	336	418	459	4,369
TAH 2016-SFR1		260	263	250	181	203	135	137	122	154	174	245	215	3,425
TAH 2017-SFR1		176	188	221	209	244	168	162	225	229	263	192	191	3,479
TAH 2017-SFR2		157	155	166	145	156	111	113	155	153	182	135	174	2,619
TAH 2018-SFR1		137	133	166	150	172	112	119	151	125	156	135	137	2,509
Overall SFR		4,832	5,179	4,762	4,038	4,681	3,923	3,780	4,561	4,795	5,205	5,505	6,150	80,459

Table 5b – Lease Expiration (by Percentage)



		Year 2018					Year 2019							
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
AH4R 2014-SFR2		9.2	8.4	7.9	5.9	4.8	4.4	3.8	5.4	6.7	7.6	8.9	10.8	
AH4R 2014-SFR3		9.1	9.8	8.5	6.2	5.3	4.3	3.5	5.7	6.0	6.5	8.3	9.1	
AH4R 2015-SFR1		7.5	8.7	7.9	6.0	6.0	5.4	4.9	7.3	7.6	8.3	6.3	7.5	
AH4R 2015-SFR2		10.3	9.1	6.6	4.4	3.8	4.1	3.7	4.7	6.0	7.1	8.4	10.9	
HPA 2016-2		21.6	14.7	3.8	2.1	1.9	1.9	1.6	2.0	2.7	6.6	9.7	12.7	
HPA 2017-1		1.3	5.5	8.9	7.3	10.8	10.4	7.4	7.6	5.9	7.1	7.3	5.8	
HPA 2018-1			12.9	10.1	9.7	6.9	4.1	4.0	3.9	4.0	6.0	6.5	7.7	
IH 2017-SFR2		8.9	8.5	7.1	5.3	5.6	4.5	4.2	5.0	5.9	6.3	6.3	7.0	
IH 2018-SFR1		8.5	8.9	8.1	8.7	7.6	5.9	4.8	6.1	6.7	6.9	6.9	8.4	
IH 2018-SFR2		5.9	6.7	6.2	5.9	6.3	5.6	5.0	5.9	6.5	7.3	6.2	6.2	
IH 2018-SFR3						6.3	6.0	4.9	6.5	6.2	6.8	6.7	5.9	
IH 2018-SFR4								4.6	5.4	6.7	6.4	7.1	8.5	
PRD 2015-SFR2		6.6	6.1	5.4	4.9	6.7	7.0	5.9	5.8	6.3	6.7	8.5	8.5	
PRD 2015-SFR3		9.1	10.8	10.9	7.1	7.1	4.4	4.7	4.0	4.5	4.4	6.4	6.8	
PRD 2017-SFR1		5.4	6.8	6.9	7.5	11.4	8.6	8.5	6.6	5.6	5.4	5.4	4.5	
PRD 2018-SFR1		4.6	7.1	9.8	11.8	20.0	17.9	4.0	1.0	1.4	2.7	3.8	3.2	
PRD 2018-SFR2					0.3	0.3	0.4	13.2	16.3	12.2	7.6	8.6	10.4	
PRD 2019-SFR2													6.0	
SWH 2017-1		8.6	7.7	7.2	6.1	4.9	4.4	3.7	6.5	7.0	7.7	9.5	10.5	
TAH 2016-SFR1		7.6	7.7	7.3	5.3	5.9	3.9	4.0	3.6	4.5	5.1	7.2	6.3	
TAH 2017-SFR1		5.1	5.4	6.4	6.0	7.0	4.8	4.7	6.5	6.6	7.6	5.5	5.5	
TAH 2017-SFR2		6.0	5.9	6.3	5.5	6.0	4.2	4.3	5.9	5.8	6.9	5.2	6.6	
TAH 2018-SFR1		5.5	5.3	6.6	6.0	6.9	4.5	4.7	6.0	5.0	6.2	5.4	5.5	
Overall SFR		7.7	8.1	7.4	6.1	6.4	5.4	4.8	5.8	6.1	6.7	7.1	7.6	

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



		Year 2018					Year 2019						
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Atlanta, GA		8.1	7.7	7.3	6.2	6.4	5.0	4.8	5.5	5.8	6.4	7.4	6.9
Charlotte, NC		7.9	7.9	8.3	6.2	6.2	4.7	4.0	5.2	5.2	6.2	7.5	7.8
Chicago, IL		8.2	10.0	7.9	7.6	3.7	3.1	3.9	5.3	5.5	7.5	10.1	11.2
Dallas-Plano-Irving, TX		9.0	8.3	8.1	5.7	6.8	5.4	5.0	5.3	6.8	6.3	7.0	7.3
Denver-Aurora, CO		9.6	9.5	7.5	7.3	6.3	4.8	4.5	7.9	5.6	5.7	5.8	7.9
Fort Lauderdale, FL		7.0	6.0	7.3	5.1	6.5	5.1	5.5	8.0	5.8	6.1	8.1	6.0
Fort Worth-Arlington, TX		8.9	7.4	7.9	6.3	5.8	5.3	5.5	5.6	5.8	7.3	7.2	8.1
Houston, TX		6.9	7.9	6.3	6.2	5.7	5.8	5.0	5.4	6.7	6.9	7.0	6.0
Indianapolis, IN		8.4	8.8	8.0	6.0	6.3	4.6	3.9	5.6	5.5	6.5	8.5	10.1
Jacksonville, FL		6.4	6.0	6.1	5.6	6.6	6.0	5.3	5.8	5.7	6.4	6.9	8.5
Las Vegas, NV		7.2	8.3	8.5	7.1	7.9	5.0	5.0	5.8	8.8	7.0	6.1	6.6
Los Angeles, CA		8.0	7.2	7.2	6.7	6.2	5.0	3.5	4.6	5.2	6.8	5.4	9.6
Memphis, TN		7.0	6.8	7.8	7.3	6.3	6.3	6.6	7.0	5.3	5.1	8.2	6.7
Nashville, TN		8.5	8.7	7.2	4.8	6.5	4.1	5.2	6.1	5.6	6.0	8.0	8.5
Orlando, FL		8.6	8.7	9.3	6.0	6.6	5.6	4.9	5.9	5.6	6.0	6.4	7.6
Phoenix, AZ		6.9	7.3	7.5	5.9	6.2	5.9	5.5	6.6	7.2	7.1	7.4	7.2
Raleigh-Cary, NC		8.4	10.2	9.3	6.3	6.6	7.3	5.1	4.9	5.5	5.4	8.0	9.0
Riverside-San Bernardino, CA		7.2	8.6	7.1	8.2	6.5	6.1	3.9	6.4	5.3	6.5	7.8	8.5
Sacramento, CA		8.8	7.2	9.8	6.9	5.0	4.7	3.4	5.0	6.6	7.1	6.3	7.0
Tampa, FL		8.0	7.8	8.6	6.4	7.4	5.5	5.2	6.0	5.7	6.6	6.4	6.5

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



		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		33	18	23	20	14	18	5	7	2	0	3	2	145
AH4R 2014-SFR3		37	17	28	10	17	12	10	4	4	2	0	3	144
AH4R 2015-SFR1		30	29	19	20	13	9	9	5	2	3	0	1	140
AH4R 2015-SFR2		30	38	22	24	16	8	4	2	3	0	0	2	149
HPA 2016-2		25	20	8	10	8	2	1	2	3	0	1	0	80
HPA 2017-1		16	17	11	4	6	0	1	1	0	0	0	0	56
HPA 2018-1		37	14	15	4	3	3	2	3	1	3	2	0	87
IH 2017-SFR2		79	33	24	15	4	7	2	1	0	0	1	1	167
IH 2018-SFR1		71	39	40	22	12	10	5	1	1	2	3	1	207
IH 2018-SFR2		88	48	35	14	7	1	2	1	0	0	1	2	199
IH 2018-SFR3		122	72	35	17	13	1	5	8	1				274
IH 2018-SFR4		131	65	25	29	10	15	5						280
PRD 2015-SFR2		26	30	33	20	18	9	6	5	4	1	2	6	160
PRD 2015-SFR3		28	23	25	15	9	8	7	5	3	3	1	2	129
PRD 2017-SFR1		34	22	19	14	6	1	2	2	1	0	0	0	101
PRD 2018-SFR1		31	13	5	3	1	0	0	1	0	2	0	0	56
PRD 2018-SFR2		63	20	10	3	0	0	0	1	0	0			97
PRD 2019-SFR2		101	5											106
SWH 2017-1		77	60	46	34	13	3	4	0	1	1	1	0	240
TAH 2016-SFR1		52	29	27	20	22	5	6	5	3	1	2	2	174
TAH 2017-SFR1		57	24	15	10	2	0	0	0	1	1	0	0	110
TAH 2017-SFR2		63	19	8	8	3	1	1	3	0	0	0	0	106
TAH 2018-SFR1		61	10	6	2	2	1	2	1	0	0	1	0	86
Overall SFR		1,292	665	479	318	199	114	79	58	30	19	18	22	3,293

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



		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		22.8	12.4	15.9	13.8	9.7	12.4	3.4	4.8	1.4	0.0	2.1	1.4	100.0
AH4R 2014-SFR3		25.7	11.8	19.4	6.9	11.8	8.3	6.9	2.8	2.8	1.4	0.0	2.1	100.0
AH4R 2015-SFR1		21.4	20.7	13.6	14.3	9.3	6.4	6.4	3.6	1.4	2.1	0.0	0.7	100.0
AH4R 2015-SFR2		20.1	25.5	14.8	16.1	10.7	5.4	2.7	1.3	2.0	0.0	0.0	1.3	100.0
HPA 2016-2		31.3	25.0	10.0	12.5	10.0	2.5	1.3	2.5	3.8	0.0	1.3	0.0	100.0
HPA 2017-1		28.6	30.4	19.6	7.1	10.7	0.0	1.8	1.8	0.0	0.0	0.0	0.0	100.0
HPA 2018-1		42.5	16.1	17.2	4.6	3.4	3.4	2.3	3.4	1.1	3.4	2.3	0.0	100.0
IH 2017-SFR2		47.3	19.8	14.4	9.0	2.4	4.2	1.2	0.6	0.0	0.0	0.6	0.6	100.0
IH 2018-SFR1		34.3	18.8	19.3	10.6	5.8	4.8	2.4	0.5	0.5	1.0	1.4	0.5	100.0
IH 2018-SFR2		44.2	24.1	17.6	7.0	3.5	0.5	1.0	0.5	0.0	0.0	0.5	1.0	100.0
IH 2018-SFR3		44.5	26.3	12.8	6.2	4.7	0.4	1.8	2.9	0.4				100.0
IH 2018-SFR4		46.8	23.2	8.9	10.4	3.6	5.4	1.8						100.0
PRD 2015-SFR2		16.3	18.8	20.6	12.5	11.3	5.6	3.8	3.1	2.5	0.6	1.3	3.8	100.0
PRD 2015-SFR3		21.7	17.8	19.4	11.6	7.0	6.2	5.4	3.9	2.3	2.3	0.8	1.6	100.0
PRD 2017-SFR1		33.7	21.8	18.8	13.9	5.9	1.0	2.0	2.0	1.0	0.0	0.0	0.0	100.0
PRD 2018-SFR1		55.4	23.2	8.9	5.4	1.8	0.0	0.0	1.8	0.0	3.6	0.0	0.0	100.0
PRD 2018-SFR2		64.9	20.6	10.3	3.1	0.0	0.0	0.0	1.0	0.0	0.0			100.0
PRD 2019-SFR2		95.3	4.7											100.0
SWH 2017-1		32.1	25.0	19.2	14.2	5.4	1.3	1.7	0.0	0.4	0.4	0.4	0.0	100.0
TAH 2016-SFR1		29.9	16.7	15.5	11.5	12.6	2.9	3.4	2.9	1.7	0.6	1.1	1.1	100.0
TAH 2017-SFR1		51.8	21.8	13.6	9.1	1.8	0.0	0.0	0.0	0.9	0.9	0.0	0.0	100.0
TAH 2017-SFR2		59.4	17.9	7.5	7.5	2.8	0.9	0.9	2.8	0.0	0.0	0.0	0.0	100.0
TAH 2018-SFR1		70.9	11.6	7.0	2.3	2.3	1.2	2.3	1.2	0.0	0.0	1.2	0.0	100.0
Overall SFR		39.2	20.2	14.5	9.7	6.0	3.5	2.4	1.8	0.9	0.6	0.5	0.7	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/Starwood Waypoint Homes	Past due 30 days or more (not dependent on calendar month) and owing 25% of one month's rent or more
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		
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		Apr	May
AH4R 2014-SFR2		12	13	11	16	16	21	22	18	17	18	8	17	4,545
AH4R 2014-SFR3		5	14	14	12	13	7	15	13	8	9	8	11	4,588
AH4R 2015-SFR1		12	18	11	17	14	17	26	21	25	16	13	13	4,697
AH4R 2015-SFR2		7	11	10	9	11	13	12	15	23	15	8	9	4,176
HPA 2016-2		12	14	16	22	22	16	18	15	11	11	12	16	1,267
HPA 2017-1		9	19	23	22	22	21	20	20	14	11	12	11	1,308
HPA 2018-1			24	23	25	28	17	24	23	22	10	19	19	1,735
IH 2017-SFR2		33	24	30	35	30	40	65	52	23	31	40	42	4,327
IH 2018-SFR1		38	21	16	20	20	41	65	22	28	22	17	21	4,232
IH 2018-SFR2		43	54	49	50	53	48	92	58	61	44	37	49	5,409
IH 2018-SFR3						67	87	134	70	48	73	59	65	6,587
IH 2018-SFR4								65	42	38	33	28	28	5,356
PRD 2015-SFR2		18	25	10	21	20	24	22	21	21	23	13	14	3,286
PRD 2015-SFR3		20	23	16	21	25	25	19	16	36	27	21	22	3,149
PRD 2017-SFR1		12	25	12	12	17	22	18	23	19	11	16	12	2,708
PRD 2018-SFR1		39	16	6	9	9	7	4	10	13	15	10	16	2,113
PRD 2018-SFR2					1	17	15	7	10	14	10	12	9	2,116
PRD 2019-SFR2													12	2,459
SWH 2017-1		45	27	29	36	34	29	87	29	20	20	14	19	4,369
TAH 2016-SFR1		9	14	8	15	6	7	1	18	1	3	7	14	3,425
TAH 2017-SFR1		0	10	7	11	8	9	0	9	1	2	6	14	3,479
TAH 2017-SFR2		4	3	2	4	2	5	2	11	1	3	6	9	2,619
TAH 2018-SFR1		2	4	2	6	1	7	0	8	0	6	4	7	2,509
Overall SFR		320	359	295	364	435	478	718	524	444	413	370	449	80,459

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



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

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



		Year 2018						Year 2019					
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
AH4R 2014-SFR2		77.1	74.9	74.0	77.7	74.9	79.0	69.8	82.9	78.4	83.5	82.2	TBD
AH4R 2014-SFR3		71.7	77.2	79.1	75.4	72.1	71.7	78.3	78.7	79.3	76.4	77.7	TBD
AH4R 2015-SFR1		72.9	71.9	77.5	78.9	71.0	81.3	79.7	78.0	79.4	79.8	78.5	TBD
AH4R 2015-SFR2		71.8	74.2	74.9	68.5	79.4	76.3	68.0	80.8	78.8	74.0	76.8	TBD
HPA 2016-2		79.0	70.7	77.6	77.8	66.7	75.0	80.0	73.1	82.4	80.0	77.4	TBD
HPA 2017-1		52.9	73.0	73.9	89.8	84.7	79.1	83.8	84.2	82.1	76.6	76.0	TBD
HPA 2018-1			72.5	76.0	75.0	82.0	79.5	85.9	79.7	77.5	80.0	78.8	TBD
IH 2017-SFR2		77.7	79.4	79.0	81.7	76.5	81.7	88.5	81.2	80.9	86.5	78.8	TBD
IH 2018-SFR1		76.6	78.9	74.6	82.1	84.6	78.9	81.6	84.2	78.6	80.5	83.2	TBD
IH 2018-SFR2		77.3	81.5	81.7	79.4	80.1	77.5	83.7	80.6	78.2	75.9	78.1	TBD
IH 2018-SFR3						78.6	81.5	80.9	78.5	78.3	80.8	75.3	TBD
IH 2018-SFR4								78.0	83.6	81.8	77.7	80.5	TBD
PRD 2015-SFR2		75.0	79.5	70.4	77.0	76.5	74.7	82.1	73.3	74.3	79.1	77.1	TBD
PRD 2015-SFR3		77.0	77.4	77.5	75.4	76.7	71.4	70.5	71.4	75.4	81.3	76.8	TBD
PRD 2017-SFR1		75.2	79.2	81.9	74.9	74.8	78.4	77.1	79.3	71.1	72.6	73.5	TBD
PRD 2018-SFR1		80.4	81.5	76.9	80.7	78.5	74.4	76.5	81.0	72.4	73.2	80.2	TBD
PRD 2018-SFR2					83.3	100.0	50.0	78.5	81.7	76.4	80.6	76.8	TBD
PRD 2019-SFR2													TBD
SWH 2017-1		72.4	79.5	81.4	79.1	80.2	76.9	81.7	82.1	74.9	80.4	78.0	TBD
TAH 2016-SFR1		78.1	78.3	82.0	85.1	83.7	78.5	81.8	85.2	87.7	83.9	80.8	TBD
TAH 2017-SFR1		85.8	74.5	82.8	82.3	82.8	82.1	78.4	79.6	81.7	87.1	87.5	TBD
TAH 2017-SFR2		81.5	82.6	84.9	80.7	85.9	81.1	81.4	83.9	85.6	87.9	87.4	TBD
TAH 2018-SFR1		83.9	82.7	87.3	78.0	82.6	83.9	82.4	79.5	93.6	87.8	83.7	TBD
Overall SFR		76.2	77.2	78.5	78.9	78.8	78.1	79.4	80.4	79.2	80.3	79.1	TBD

TBD – To Be Determined

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



		Year 2018						Year 2019					
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
AH4R 2014-SFR2		82.0	86.3	84.4	82.6	85.8	85.6	86.1	85.9	89.1	86.8	83.2	TBD
AH4R 2014-SFR3		82.4	82.8	85.3	82.5	82.7	88.1	92.0	92.7	88.5	85.1	86.7	TBD
AH4R 2015-SFR1		84.1	80.3	79.4	80.1	85.6	80.9	84.1	91.6	88.2	80.9	87.9	TBD
AH4R 2015-SFR2		83.9	80.9	79.7	81.5	81.7	78.9	83.3	88.3	84.9	84.2	83.0	TBD
HPA 2016-2													TBD
HPA 2017-1													TBD
HPA 2018-1													TBD
IH 2017-SFR2		84.7	90.0	88.6	74.7	88.2	76.8	85.7	89.8	88.5	86.4	80.0	TBD
IH 2018-SFR1		79.7	83.3	90.2	86.2	86.4	83.6	86.6	88.9	81.4	85.2	89.1	TBD
IH 2018-SFR2		78.8	88.2	91.4	90.7	84.3	94.0	87.5	83.5	89.5	83.7	82.5	TBD
IH 2018-SFR3						86.8	87.3	81.9	84.2	82.6	82.6	87.4	TBD
IH 2018-SFR4								82.1	87.2	89.8	86.2	78.0	TBD
PRD 2015-SFR2		79.5	85.3	79.1	76.5	85.7	63.6	74.2	68.6	75.0	87.5	74.3	TBD
PRD 2015-SFR3		69.7	85.7	71.8	70.5	80.6	67.6	80.0	84.0	75.9	74.2	78.6	TBD
PRD 2017-SFR1		87.5	83.3	75.7	88.6	72.7	92.1	80.5	83.3	71.8	90.6	84.8	TBD
PRD 2018-SFR1		83.3	66.7	62.5	56.3	76.0	66.7	66.7	78.9	85.7	69.2	77.8	TBD
PRD 2018-SFR2					100.0	100.0	88.9	100.0	64.3	71.4	76.7	67.9	TBD
PRD 2019-SFR2													TBD
SWH 2017-1		78.3	82.3	79.2	87.5	84.1	78.3	74.1	85.5	87.2	78.3	80.9	TBD
TAH 2016-SFR1		94.7	90.1	96.4	91.8	95.7	93.2	95.3	92.8	95.9	92.5	91.6	TBD
TAH 2017-SFR1		84.5	91.5	95.7	91.6	93.1	84.8	88.9	93.2	87.3	89.9	90.0	TBD
TAH 2017-SFR2		87.1	85.1	92.5	88.0	96.0	86.4	87.8	94.3	90.8	89.7	70.9	TBD
TAH 2018-SFR1		83.6	94.1	98.8	89.2	91.3	97.4	81.2	93.7	90.9	90.0	76.5	TBD
Overall SFR		84.2	85.5	86.6	84.5	87.3	85.3	85.8	88.5	87.4	85.6	83.6	TBD

TBD – To Be Determined

Table 11a – MTM Tenants (by Count)



		Year 2018												Count
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
AH4R 2014-SFR2		236	219	202	185	172	157	164	152	163	174	190	218	4,545
AH4R 2014-SFR3		226	218	208	203	185	168	155	159	172	192	189	209	4,588
AH4R 2015-SFR1		205	201	200	176	167	160	148	145	174	203	213	214	4,697
AH4R 2015-SFR2		221	215	178	163	151	141	141	125	146	169	179	197	4,176
HPA 2016-2		0	0	0	0	0	0	0	0	0	0	0	0	1,267
HPA 2017-1		0	0	0	0	0	0	0	0	0	0	0	0	1,308
HPA 2018-1			0	0	0	0	0	0	0	0	0	0	0	1,735
IH 2017-SFR2		105	70	88	84	68	69	63	59	61	119	140	136	4,327
IH 2018-SFR1		125	66	61	65	66	67	67	63	86	85	89	118	4,232
IH 2018-SFR2		104	102	82	76	89	84	96	85	86	148	158	169	5,409
IH 2018-SFR3						115	118	116	101	109	179	193	202	6,587
IH 2018-SFR4								84	86	108	129	131	147	5,356
PRD 2015-SFR2		59	52	60	53	55	60	42	47	52	49	50	52	3,286
PRD 2015-SFR3		54	58	79	61	53	48	40	43	43	42	45	48	3,149
PRD 2017-SFR1		47	50	54	58	68	57	54	52	54	46	50	41	2,708
PRD 2018-SFR1		18	27	34	40	59	74	38	21	18	17	14	15	2,113
PRD 2018-SFR2					11	9	9	23	43	53	41	45	41	2,116
PRD 2018-SFR2													32	2,459
SWH 2017-1		83	79	72	72	69	60	54	55	86	71	86	114	4,369
TAH 2016-SFR1		253	202	210	232	233	232	205	194	179	184	187	168	3,425
TAH 2017-SFR1		114	103	98	107	118	111	100	83	81	92	98	81	3,479
TAH 2017-SFR2		152	114	111	116	108	112	101	95	91	92	95	68	2,619
TAH 2018-SFR1		128	85	88	95	89	88	90	88	85	88	92	64	2,509
Overall SFR		2,130	1,861	1,825	1,797	1,874	1,815	1,781	1,696	1,847	2,120	2,244	2,334	80,459

Table 11b – MTM Tenants (by Percentage)



		Year 2018					Year 2019							
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
AH4R 2014-SFR2		5.3	4.9	4.5	4.1	3.8	3.5	3.6	3.3	3.6	3.8	4.2	4.8	
AH4R 2014-SFR3		5.0	4.8	4.6	4.5	4.1	3.7	3.4	3.5	3.7	4.2	4.1	4.6	
AH4R 2015-SFR1		4.4	4.3	4.3	3.8	3.6	3.4	3.2	3.1	3.7	4.3	4.5	4.6	
AH4R 2015-SFR2		5.4	5.2	4.3	4.0	3.7	3.4	3.4	3.0	3.5	4.0	4.3	4.7	
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	0.0	0.0	
IH 2017-SFR2		2.4	1.6	2.0	1.9	1.6	1.6	1.4	1.4	1.4	2.7	3.2	3.1	
IH 2018-SFR1		2.9	1.5	1.4	1.5	1.5	1.6	1.6	1.5	2.0	2.0	2.1	2.8	
IH 2018-SFR2		1.9	1.8	1.5	1.4	1.6	1.5	1.8	1.6	1.6	2.7	2.9	3.1	
IH 2018-SFR3						1.7	1.8	1.7	1.5	1.6	2.7	2.9	3.1	
IH 2018-SFR4								1.6	1.6	2.0	2.4	2.4	2.7	
PRD 2015-SFR2		1.8	1.6	1.8	1.6	1.7	1.8	1.3	1.4	1.6	1.5	1.5	1.6	
PRD 2015-SFR3		1.7	1.8	2.5	1.9	1.7	1.5	1.3	1.4	1.4	1.3	1.4	1.5	
PRD 2017-SFR1		1.7	1.8	2.0	2.1	2.5	2.1	2.0	1.9	2.0	1.7	1.8	1.5	
PRD 2018-SFR1		0.9	1.3	1.6	1.9	2.8	3.5	1.8	1.0	0.9	0.8	0.7	0.7	
PRD 2018-SFR2					0.5	0.4	0.4	1.1	2.0	2.5	1.9	2.1	1.9	
PRD 2019-SFR2													1.3	
SWH 2017-1		1.9	1.8	1.6	1.6	1.6	1.4	1.2	1.3	2.0	1.6	2.0	2.6	
TAH 2016-SFR1		7.4	5.9	6.1	6.8	6.8	6.8	6.0	5.7	5.2	5.4	5.5	4.9	
TAH 2017-SFR1		3.3	3.0	2.8	3.1	3.4	3.2	2.9	2.4	2.3	2.6	2.8	2.3	
TAH 2017-SFR2		5.8	4.3	4.2	4.4	4.1	4.3	3.9	3.6	3.5	3.5	3.6	2.6	
TAH 2018-SFR1		5.1	3.4	3.5	3.8	3.5	3.5	3.6	3.5	3.4	3.5	3.7	2.6	
Overall SFR		3.4	2.9	2.8	2.7	2.6	2.5	2.3	2.2	2.4	2.7	2.9	2.9	

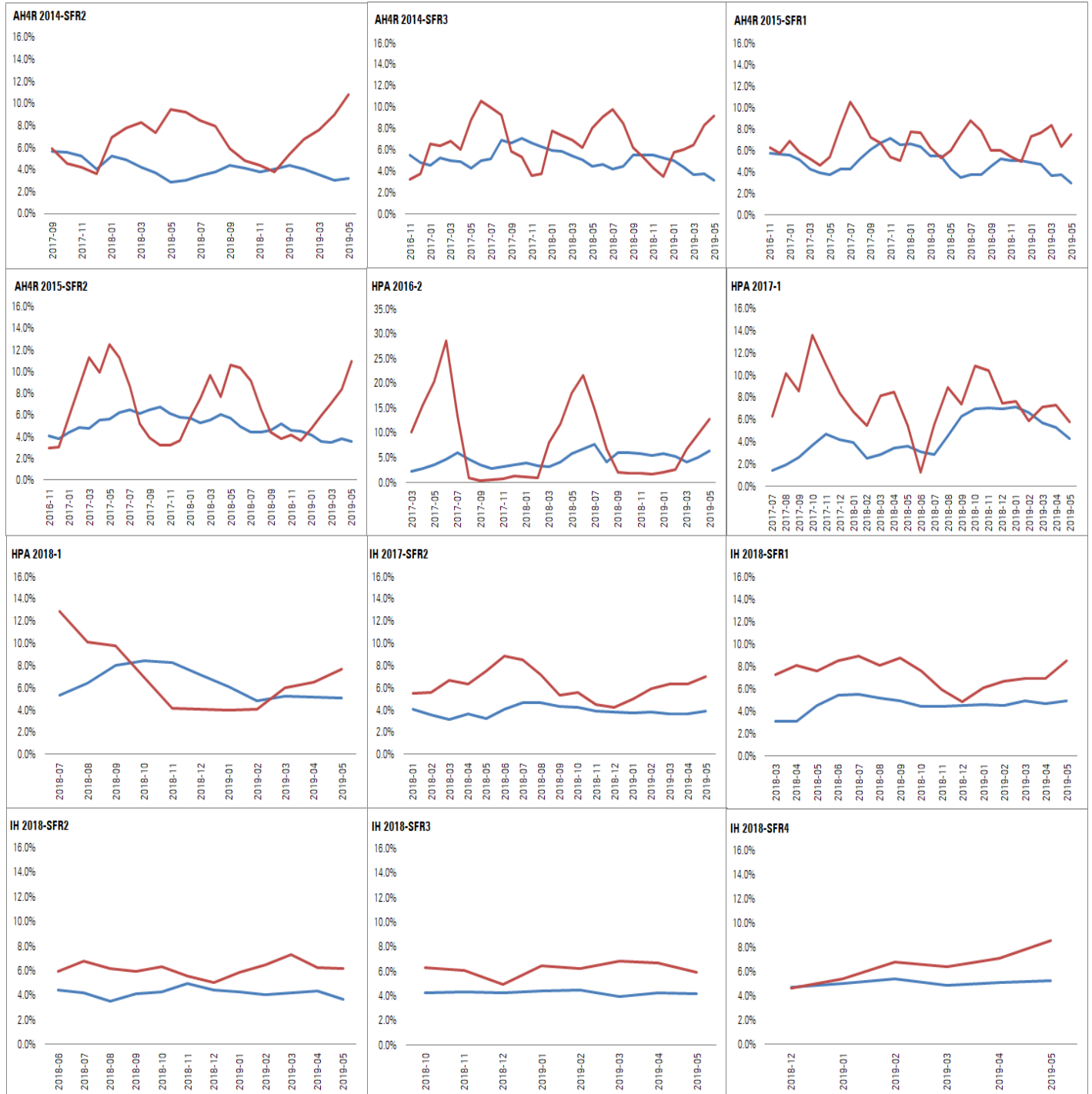
Table 12 – Monthly Turnover Rate (by Percentage)

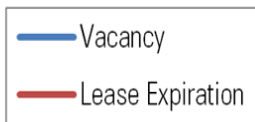
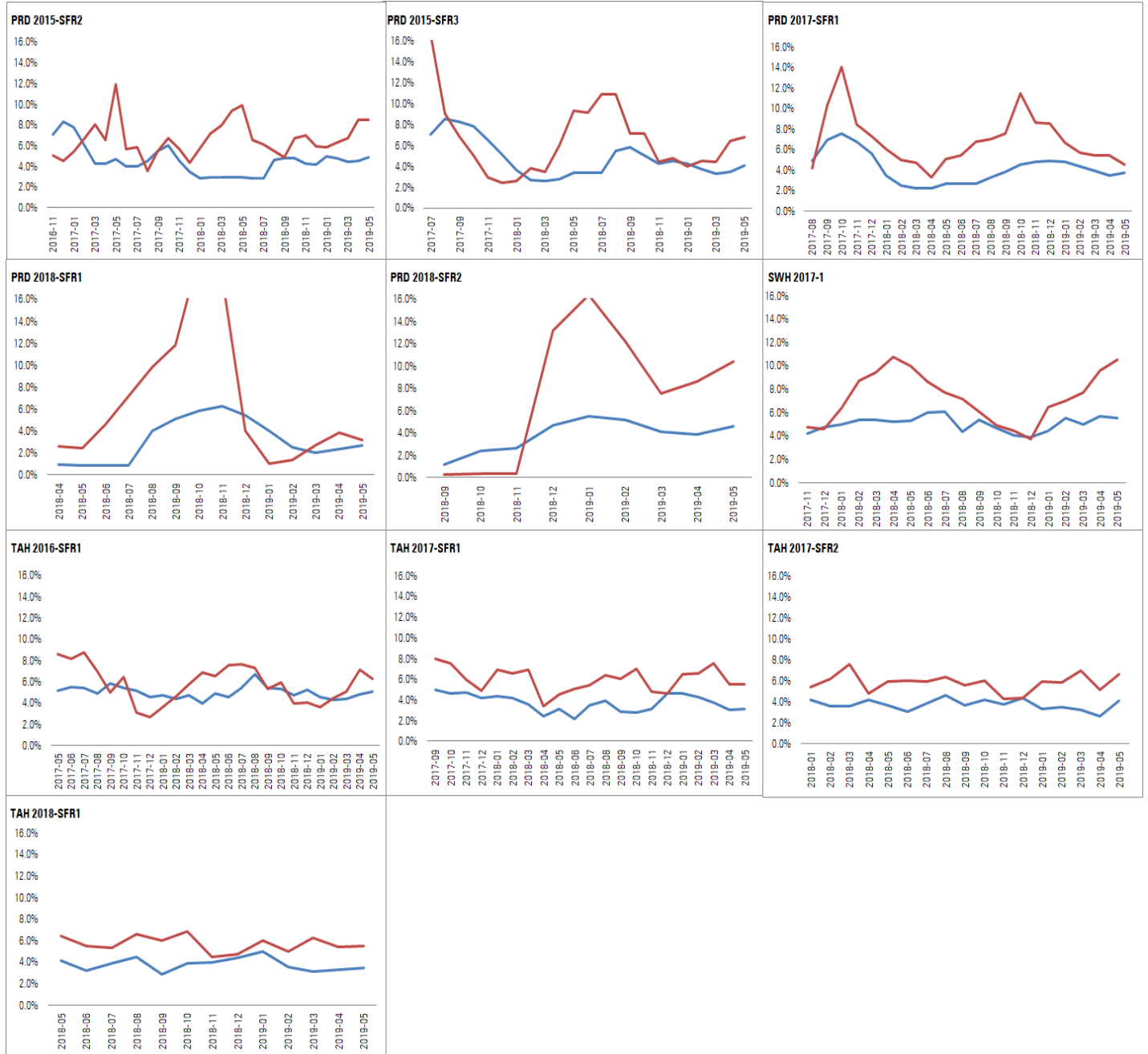


		Year 2018					Year 2019							
		Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
AH4R 2014-SFR2		3.5	4.1	3.5	2.8	2.8	2.0	2.3	2.2	2.4	2.5	2.9	TBD	
AH4R 2014-SFR3		4.4	4.0	3.6	3.0	2.9	2.6	2.1	2.2	2.0	2.9	2.9	TBD	
AH4R 2015-SFR1		4.1	4.5	3.8	3.0	3.2	2.3	2.6	2.7	2.4	3.1	2.7	TBD	
AH4R 2015-SFR2		4.8	4.6	3.4	3.0	2.9	2.3	2.4	1.9	2.3	3.0	3.5	TBD	
HPA 2016-2		5.8	5.9	2.1	1.7	1.9	2.1	1.6	2.3	1.5	2.7	3.3	TBD	
HPA 2017-1		1.5	3.1	4.5	2.8	2.3	3.1	2.0	2.9	2.5	2.4	3.1	TBD	
HPA 2018-1			6.9	4.8	4.1	2.4	2.4	1.5	1.5	1.8	2.8	2.5	TBD	
IH 2017-SFR2		3.4	3.6	3.2	2.2	2.8	1.7	1.7	1.9	2.1	2.0	2.2	TBD	
IH 2018-SFR 1		3.5	3.2	3.6	2.7	2.6	2.5	2.0	2.5	1.9	3.0	2.4	TBD	
IH 2018-SFR2		6.3	3.2	2.5	2.9	2.5	2.6	2.1	2.1	2.0	3.0	2.8	TBD	
IH 2018-SFR3							2.4	2.6	2.2	2.4	2.3	2.6	2.7	TBD
IH 2018-SFR4									2.1	2.2	2.3	2.8	2.7	TBD
PRD 2015-SFR2		3.1	3.3	2.1	3.3	3.6	3.0	2.8	2.9	2.8	3.1	3.0	TBD	
PRD 2015-SFR3		4.8	4.4	3.6	3.6	3.7	2.6	2.7	2.6	2.4	2.3	2.8	TBD	
PRD 2017-SFR1		3.4	3.1	2.5	3.4	4.9	3.9	3.5	3.0	2.7	3.1	2.4	TBD	
PRD 2018-SFR 1		2.4	3.7	4.2	4.2	5.9	6.5	3.7	1.3	1.5	2.3	2.5	TBD	
PRD 2018-SFR2					2.9	2.0	1.9	4.8	4.3	4.2	3.6	3.6	TBD	
PRD 2019-SFR2													TBD	
SWH 2017-1		4.6	3.8	2.7	3.1	2.8	2.0	1.7	2.4	2.8	2.7	3.3	TBD	
TAH 2016-SFR1		3.4	4.0	3.5	1.0	2.7	2.0	1.8	1.8	1.8	3.0	2.2	TBD	
TAH 2017-SFR1		2.5	2.0	3.7	1.0	2.3	2.2	3.0	2.0	2.5	3.3	1.5	TBD	
TAH 2017-SFR2		2.9	2.3	2.7	1.1	3.4	2.2	2.2	1.4	2.1	3.4	1.6	TBD	
TAH 2018-SFR1		1.8	3.7	2.6	0.8	3.2	1.9	2.1	2.1	2.4	2.7	1.8	TBD	
Overall SFR		3.9	3.8	3.3	2.6	3.0	2.5	2.3	2.3	2.3	2.8	2.7	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 – April 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 May lease expirations, Morningstar looks for all May lease expirations in the March 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 March or April are removed from the May lease expiration count.

Tables 6a and 6b – Historical Months of Vacancy

Tables 6a and 6b show the number of months of vacancy the May unoccupied properties have experienced. In other words, if a property is unoccupied as of the May 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 May 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 May property tape to determine the lease status for April 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 April 2019 retention rates are the April statuses of March 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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