

# Single-Family Rental Research

## Performance Summary Covering All DBRS Morningstar-Rated Securitizations

December 2019

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### Introduction

The blended rent change for single-borrower, single-family rental securitizations rated by Morningstar Credit Ratings, LLC (DBRS Morningstar) increased by 3.2% in November, down from a 3.9% increase in October, the lowest rate of growth since January 2018. The average vacancy rate decreased to 4.9% in November from 5.0% in October. The average retention rate for expiring leases decreased by 50 basis points to 78.4% in October, the latest month for which data is available, from 78.9% in September. Among the top 20 metropolitan statistical areas (MSAs), the Denver-Aurora MSA continued to have the highest vacancy rate at 7.2%, followed by the Memphis MSA with a 6.0% vacancy rate. The Phoenix MSA has the highest blended rent growth at 7.2%, followed by the Sacramento MSA at 5.9%. The Chicago and Fort Lauderdale MSAs experienced the lowest blended rent growth at -0.4% and 0.4% respectively. Rents for properties included in single-family rental securitizations are generally within 5.0% of the RentRange rents for properties located in the same MSAs except for Tampa Bay at -6.8% and Fort Lauderdale at -5.6% variance from RentRange rents. The December Single-Family Rental Performance Summary has 25 single-borrower deals with close to 82,800 properties.

DBRS Morningstar publishes its performance summary to provide market participants detailed property-level information on each single-family rental securitization that DBRS Morningstar has rated. The data below summarize issuer-reported property-level information through November. Page 6 includes a summary of the multiborrower transactions. For deals seasoned at least one year, we provide DBRS Morningstar Surveillance Analysis reports, available on our website, [www.morningstar.com/learn/dbrs](http://www.morningstar.com/learn/dbrs).

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## Single-Borrower Performance

Lease expirations declined to 4.9% in November, down from a revised 5.8% in October. For seasoned transactions, PRD 2018-SFR1 continued to have the highest lease expirations at 13.1%, followed by PRD 2017-SFR1 at 7.4%. HPA 2019-1 had the lowest percentage of lease expirations at 0.3%.

The average retention rate on full-term leases increased to 78.4% in October, the latest month for which data is available, from 78.9% in September. The overall monthly turnover rate increased to 2.9% in October, the latest month available, from 2.8% in September. The average delinquency rate increased by 0.7%. HPA 2019-1 and HPA 2017-1 transactions reported a delinquency rate of 2.4% and 2.2%, respectively. Please note that any review of delinquency should be viewed within the context of the delinquency definitions in Table 8.

Chart 1 shows that the rent gains for securitized properties in November trailed rent gains for three- and four-bedroom properties; the RentRange rent change for three-bedroom properties was 5.4%, down from 6.1% in October, and the RentRange rent change for four-bedroom properties was 4.5%, down from 5.3% in October. 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 DBRS Morningstar database.

Chart 2 shows the rental change of renewals versus vacant-to-occupied properties. For October, the latest month for which data are available, the rent change for renewal properties decreased 4.4%. Rent growth for vacant-to-occupied properties decreased by 1.1%. Chart 4 shows the MSA-level blended rent change. MSAs with rent changes above the 3.2% average are in blue, while those below are in red. The size of the circle indicates the percentage of properties by count from a given MSA in DBRS Morningstar's database. Table 4 exhibits the MSA-level blended rent change for the past 12 months.

[Single-Family Rental Research Performance Summary Tables Raw Data, December](#)

## Multiborrower Performance

In November, the total number of loans increased to 1,045 from 921 with the addition of CAF 2019-3. The number of loans 30-59 days delinquent increased to 24 from 21, 60-89 days delinquent decreased to 7 from 12, and loans at least 90 days delinquent stayed at 28. Loans in foreclosure increased to 11 from 9, and loans in special servicing stayed at 42.

**Table 1 – Multiborrower Loan Performance by Percentage of Balance**

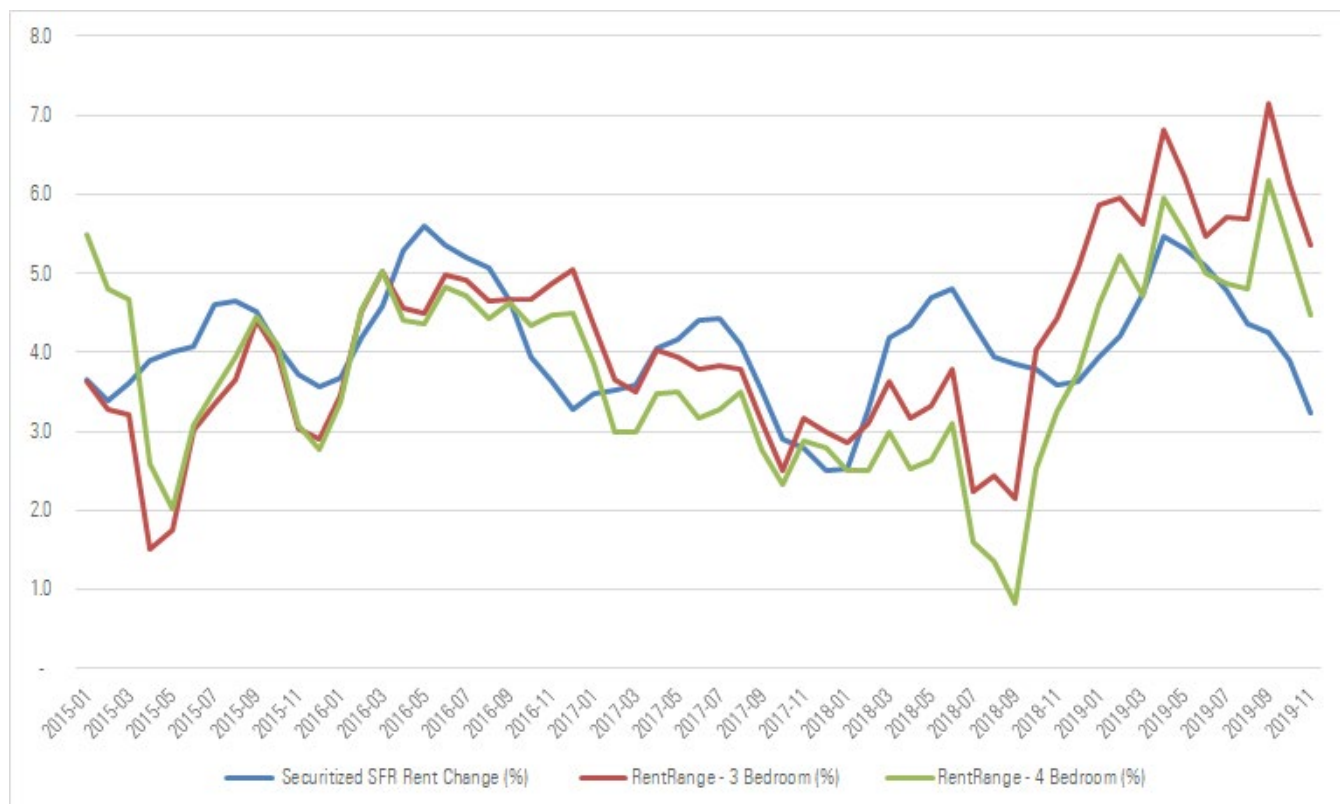
	30-59 Delinquent	60-89 Delinquent	90+ Delinquent	Foreclosure	Real Estate Owned	Special Servicing
B2R 2015-1	1.83	0.36	0.02	0.02	0.00	1.68
FKL 2015-SFR1	0.00	0.00	0.00	0.00	0.00	0.00
CAF 2015-1	0.00	0.00	3.14	0.00	0.00	12.06
B2R 2015-2	1.01	0.14	1.81	0.54	0.00	1.98
CAF 2016-1	1.25	1.11	2.08	0.75	0.00	2.88
B2R 2016-1	2.87	0.21	2.35	1.20	0.00	3.05
CAF 2016-2	0.54	0.00	6.18	3.54	0.00	6.54
CAF 2017-1	1.79	2.92	0.87	0.00	0.38	5.60
CAF 2018-1	0.99	0.00	2.92	0.65	0.47	3.40
CAF 2018-2	1.25	0.74	0.84	0.35	0.00	1.16
CAF 2019-1	1.62	0.00	0.00	0.00	0.00	0.00
CAF 2019-3	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	89	3	1	1	1	0	2
FKL 2015-SFR1	2	0	0	0	0	0	0
CAF 2015-1	31	0	0	2	0	0	3
B2R 2015-2	162	3	1	6	2	0	7
CAF 2016-1	58	2	1	1	1	0	2
B2R 2016-1	144	7	1	6	2	0	9
CAF 2016-2	56	1	0	5	3	0	6
CAF 2017-1	73	1	2	1	0	1	5
CAF 2018-1	113	1	0	4	1	1	5
CAF 2018-2	115	4	1	2	1	0	3
CAF 2019-1	74	2	0	0	0	0	0
CAF 2019-3	128	0	0	0	0	0	0
Overall	1,045	24	7	28	11	2	42

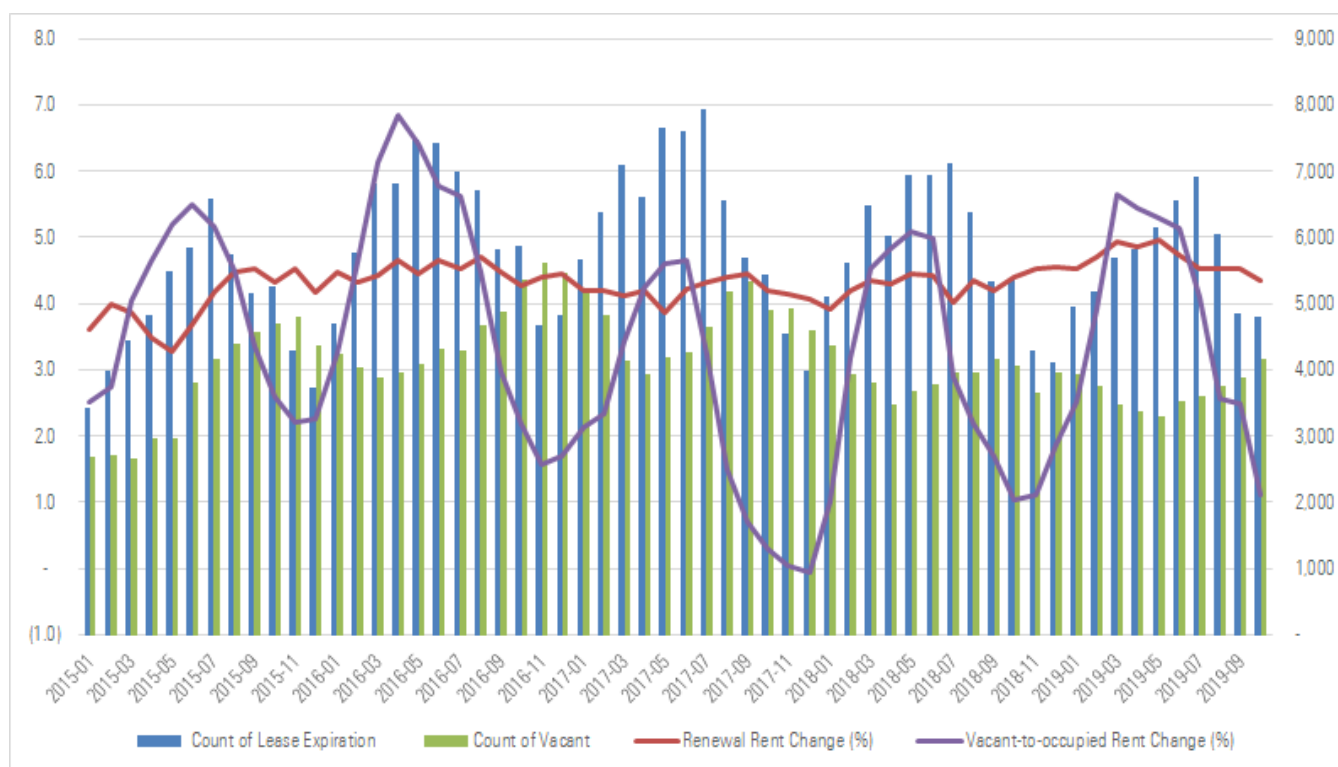
## Single-Borrower Charts and Tables

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



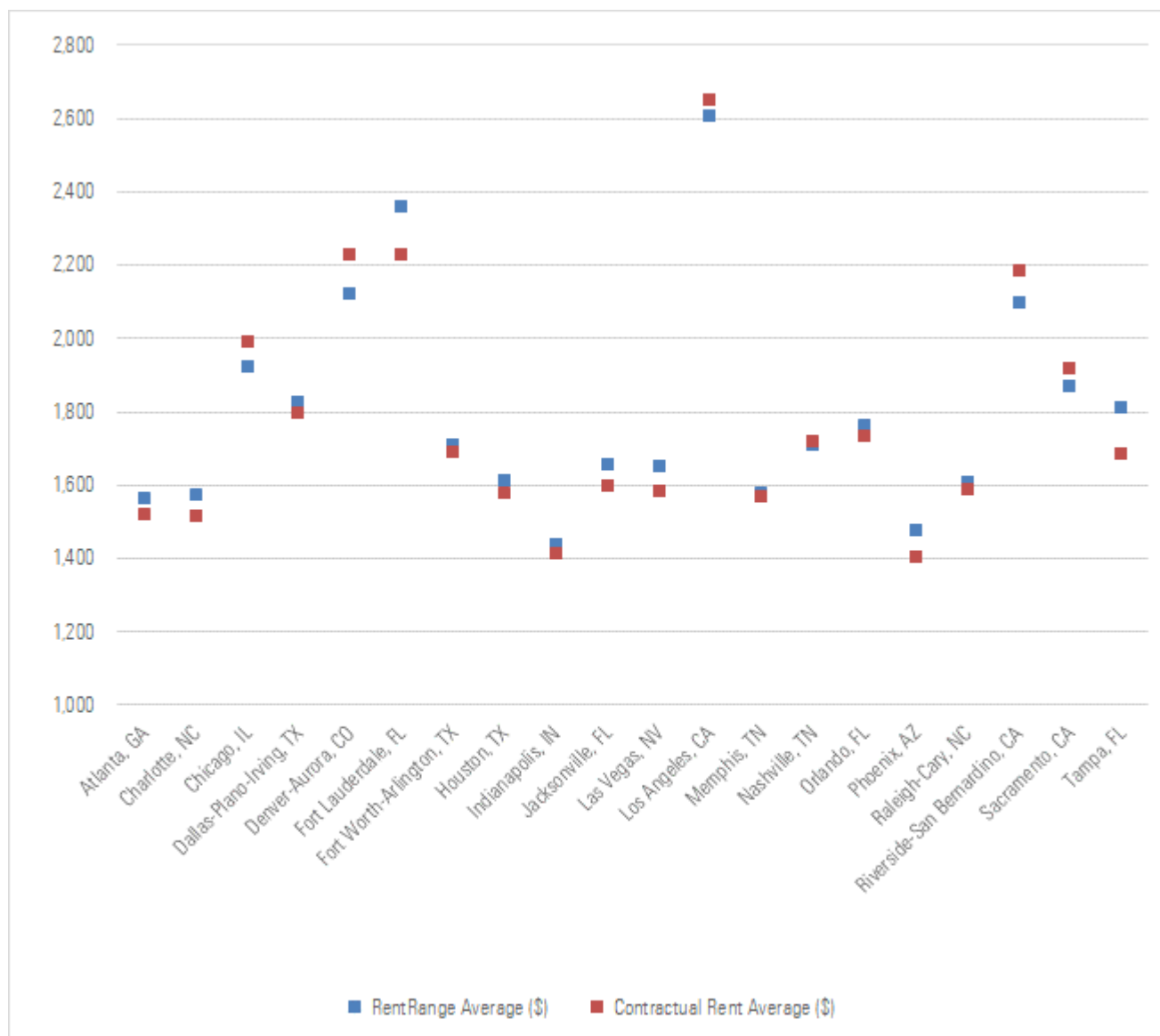
Sources: DBRS Morningstar and RentRange

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



Source: DBRS Morningstar

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



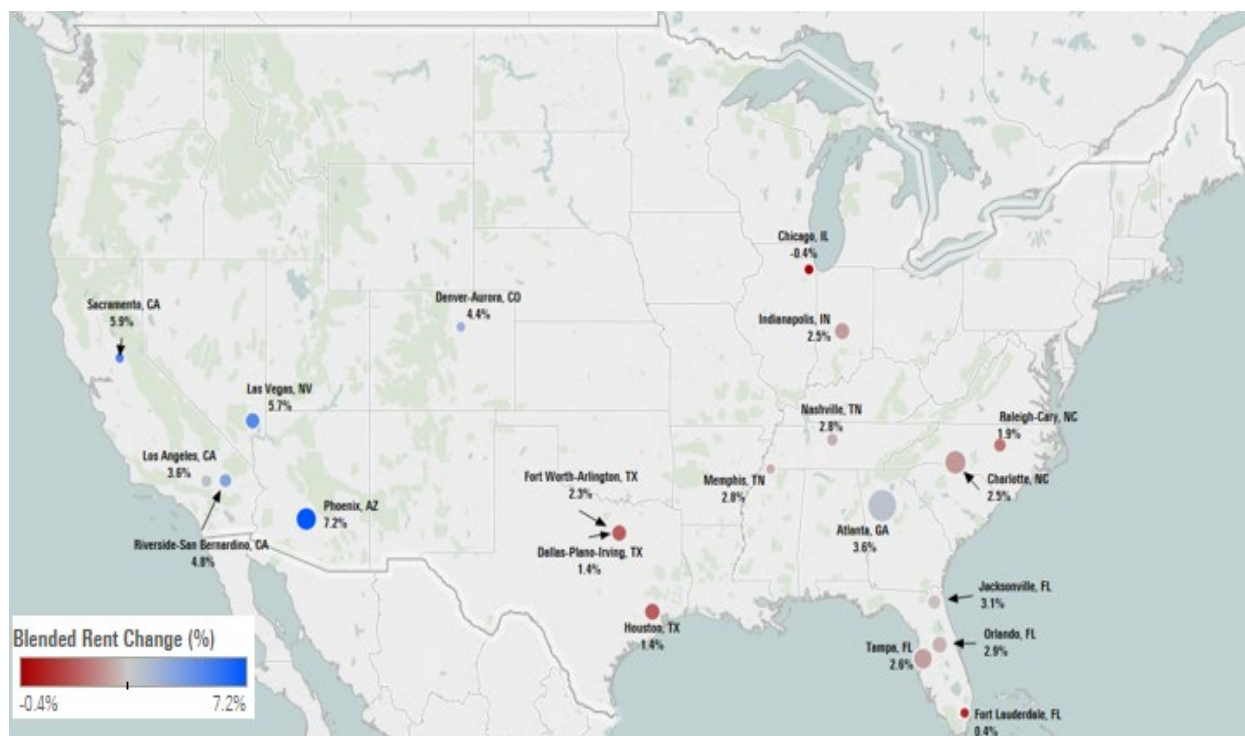
Sources: DBRS Morningstar and RentRange



**Table 3 – Difference between Average Contractual Rent and Property-Level RentRange Rent (by Percentage) - Top MSAs**

		Year 2018	Year 2019											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Atlanta, GA		0.2	1.3	2.0	1.6	1.6	-2.4	-3.3	-2.9	-2.2	-3.2	-4.0	-2.6	
Charlotte, NC		0.3	0.6	1.6	1.2	0.9	-2.8	-4.4	-4.0	-3.7	-4.0	-4.0	-3.7	
Chicago, IL		10.7	13.7	11.2	11.3	12.0	4.3	2.5	2.7	3.0	2.9	0.4	3.5	
Dallas-Plano-Irving, TX		0.2	0.0	0.4	0.5	0.8	-1.6	-2.7	-2.6	-2.3	-2.9	0.6	-1.6	
Denver-Aurora, CO		2.1	2.0	2.1	2.2	2.7	2.7	1.3	2.0	3.1	2.9	10.3	5.0	
Fort Lauderdale, FL		-3.3	-0.2	-0.2	0.0	0.2	-4.1	-4.9	-4.3	-4.0	-3.7	-0.5	-5.6	
Fort Worth-Arlington, TX		1.2	0.9	1.5	1.3	1.5	-0.3	-1.5	-1.4	-1.3	-1.6	-0.8	-1.2	
Houston, TX		-2.0	-3.7	-1.6	-1.6	-1.9	-2.2	-2.9	-2.8	-2.4	-2.8	-3.6	-2.2	
Indianapolis, IN		1.0	1.7	2.2	2.3	2.6	-0.6	-2.1	-1.8	-1.9	-1.8	-4.1	-1.8	
Jacksonville, FL		-0.4	1.2	1.4	1.1	1.0	-2.3	-3.4	-2.7	-2.8	-2.9	-5.0	-3.3	
Las Vegas, NV		0.1	-1.1	-0.4	-0.8	-0.3	-3.4	-4.6	-4.0	-3.8	-4.5	-4.9	-3.9	
Los Angeles, CA		0.8	1.9	1.7	1.8	2.0	1.4	0.2	1.0	1.8	1.2	4.7	1.7	
Memphis, TN		3.0	2.4	2.9	2.9	2.8	-0.2	-0.7	0.1	-0.5	-0.7	-4.1	-0.7	
Nashville, TN		1.7	0.2	1.7	1.6	1.8	-0.6	-1.6	-1.4	-2.6	0.2	2.0	0.4	
Orlando, FL		1.5	2.2	2.3	2.4	2.7	-0.7	-2.1	-1.5	-1.0	-1.9	-0.4	-1.4	
Phoenix, AZ		-1.7	-1.4	-1.0	-1.2	-1.0	-3.3	-4.9	-4.5	-3.8	-4.7	-7.4	-4.7	
Raleigh-Cary, NC		3.9	3.8	3.3	3.1	3.1	-0.1	-1.3	-1.1	-0.7	-1.0	-2.4	-1.1	
Riverside-San Bernardino, CA		5.0	5.6	5.9	6.6	6.7	2.7	2.0	2.7	3.4	4.0	3.0	4.2	
Sacramento, CA		3.9	4.9	6.6	7.5	7.6	-0.3	0.2	0.6	1.5	1.4	-2.0	2.6	
Tampa, FL		1.2	1.9	2.3	1.9	1.8	-6.3	-7.4	-7.1	-6.6	-7.1	-5.2	-6.8	

## Chart 4 – MSA-Level Blended Rent Change\*



Sources: DBRS Morningstar and Tableau Software

\*The size of the circles represents the total percentage (by count) of properties in each MSA, ranging from 1.35% to 15.05%. Because of their proximity, the Fort Worth-Arlington, Texas, MSA is hidden behind the Dallas-Plano-Irving, Texas, MSA.

**Table 4 – Blended Rent Change (by Percentage) - Top MSAs**

		Year 2018	Year 2019											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
Atlanta, GA			4.6	4.1	4.1	4.7	6.0	6.3	6.3	5.1	5.2	4.8	4.7	3.6
Charlotte, NC			2.8	3.2	3.5	3.9	4.8	4.3	4.0	4.6	3.4	3.1	3.5	2.5
Chicago, IL			1.1	-1.8	0.7	2.7	3.1	3.3	3.5	3.6	2.3	2.3	2.1	-0.4
Dallas-Plano-Irving, TX			2.0	2.5	3.2	3.7	4.2	4.1	3.2	3.1	2.9	3.3	2.7	1.4
Denver-Aurora, CO			2.8	3.6	3.8	4.3	6.9	5.6	4.9	5.1	4.5	4.8	2.7	4.4
Fort Lauderdale, FL			3.5	4.0	2.5	3.2	3.1	2.6	2.5	3.3	2.1	2.3	2.0	0.4
Fort Worth-Arlington, TX			2.7	3.3	3.8	4.7	4.5	4.2	4.8	4.1	3.3	2.7	2.5	2.3
Houston, TX			1.4	1.8	1.8	2.9	3.4	3.4	2.6	2.3	2.2	2.8	1.4	1.4
Indianapolis, IN			0.7	1.5	4.1	3.3	5.4	4.1	4.7	4.4	3.6	3.8	2.5	2.5
Jacksonville, FL			3.0	3.8	4.4	4.3	5.7	4.5	5.7	4.9	3.6	3.5	4.6	3.1
Las Vegas, NV			5.6	6.8	6.2	7.1	8.5	7.3	7.0	7.2	6.7	6.5	6.5	5.7
Los Angeles, CA			4.9	6.2	5.5	7.1	7.2	7.2	5.8	5.5	5.2	6.2	4.7	3.6
Memphis, TN			3.2	3.8	2.5	4.5	6.1	4.9	5.5	5.3	5.0	3.2	4.0	2.8
Nashville, TN			2.4	3.4	3.1	3.6	4.1	4.2	3.8	3.8	3.5	2.6	2.1	2.8
Orlando, FL			4.6	4.8	4.9	5.8	5.7	6.1	5.6	5.5	4.4	4.6	4.8	2.9
Phoenix, AZ			5.9	7.0	7.2	7.4	8.2	8.6	7.9	8.1	7.3	7.5	7.0	7.2
Raleigh-Cary, NC			3.4	3.6	3.1	3.1	4.3	4.3	4.0	3.7	4.1	3.8	2.7	1.9
Riverside-San Bernardino, CA			4.5	5.7	5.5	6.6	7.0	7.4	6.6	5.8	5.5	5.7	4.1	4.8
Sacramento, CA			6.2	7.7	10.0	7.6	8.4	9.2	6.5	7.0	7.0	6.8	7.5	5.9
Tampa, FL			4.0	3.3	3.5	4.1	4.7	4.1	4.5	4.2	3.9	3.8	3.2	2.6

**Table 5a – Month-End Vacancy (by Count)**

		Year 2019											Count
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
AH4R 2014-SFR2		184	197	184	158	138	145	198	192	185	192	211	4,544
AH4R 2014-SFR3		239	230	202	169	171	144	152	189	201	201	207	4,587
AH4R 2015-SFR1		236	228	221	172	176	140	167	160	183	204	220	4,696
AH4R 2015-SFR2		187	173	147	143	157	149	174	169	180	192	170	4,175
HPA 2017-1		92	95	88	75	69	56	59	69	81	98	97	1,275
HPA 2018-1		126	106	84	91	89	87	95	106	119	123	131	1,667
HPA 2019-1										8	17	29	1,179
HPA 2019-2												57	1,258
IH 2017-SFR2		164	161	167	157	159	166	192	194	212	219	224	4,284
IH 2018-SFR1		192	196	192	207	198	200	226	255	281	262	238	4,150
IH 2018-SFR2		241	233	219	228	237	200	255	261	246	244	263	5,350
IH 2018-SFR3		281	291	295	259	279	274	290	297	294	279	284	6,502
IH 2018-SFR4		253	271	290	280	272	280	328	330	340	349	327	5,284
PRD 2015-SFR3		141	134	118	104	109	129	161	150	149	164	166	3,144
PRD 2017-SFR1		131	129	117	105	93	101	96	107	124	131	139	2,707
PRD 2018-SFR1		115	85	53	42	50	56	67	62	82	105	133	2,111
PRD 2018-SFR2		99	116	110	87	82	97	86	62	60	70	81	2,116
PRD 2019-SFR2							106	102	113	119	119	137	2,459
PRD 2019-SFR3										92	92	103	2,268
SWH 2017-1		171	195	243	219	248	240	252	263	258	244	243	4,371
TAH 2016-SFR1		180	156	146	151	164	174	142	142	155	194	193	3,395
TAH 2017-SFR1		160	162	149	129	107	110	71	96	86	140	145	3,475
TAH 2017-SFR2		114	87	90	83	68	106	80	86	95	119	116	2,619
TAH 2018-SFR1		109	125	88	77	83	86	66	68	92	128	109	2,509
TAH 2019-SFR1												134	2,627
Overall SFR		3,415	3,370	3,203	2,916	2,949	3,046	3,259	3,371	3,642	3,886	4,157	82,752

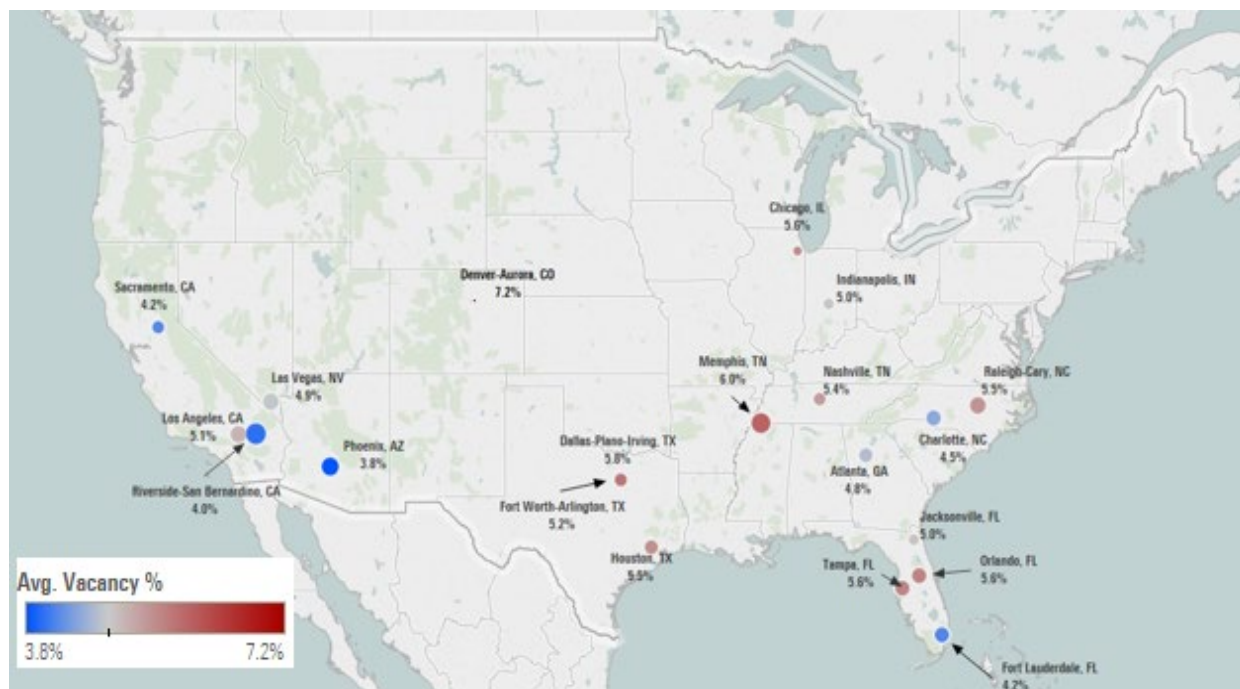
**Table 5b – Month-End Vacancy (by Percentage)**

		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		4.0	4.3	4.0	3.5	3.0	3.2	4.4	4.2	4.1	4.2	4.6	4.3
AH4R 2014-SFR3		5.2	5.0	4.4	3.7	3.7	3.1	3.3	4.1	4.4	4.4	4.5	4.3
AH4R 2015-SFR1		5.0	4.9	4.7	3.7	3.7	3.0	3.6	3.4	3.9	4.3	4.7	4.7
AH4R 2015-SFR2		4.5	4.1	3.5	3.4	3.8	3.6	4.2	4.0	4.3	4.6	4.1	4.0
HPA 2017-1		6.9	7.2	6.6	5.7	5.3	4.3	4.5	5.3	6.3	7.6	7.6	8.3
HPA 2018-1		7.2	6.0	4.8	5.2	5.1	5.0	5.5	6.2	7.0	7.3	7.8	7.9
HPA 2019-1										0.7	1.4	2.5	2.6
HPA 2019-2												4.5	4.5
IH 2017-SFR2		3.8	3.7	3.8	3.6	3.7	3.8	4.4	4.5	4.9	5.1	5.2	4.9
IH 2018-SFR1		4.5	4.6	4.5	4.9	4.7	4.7	5.4	6.1	6.7	6.3	5.7	5.6
IH 2018-SFR2		4.4	4.3	4.0	4.2	4.4	3.7	4.7	4.8	4.6	4.5	4.9	4.7
IH 2018-SFR3		4.2	4.4	4.5	3.9	4.2	4.2	4.4	4.5	4.5	4.3	4.4	4.2
IH 2018-SFR4		4.7	5.0	5.4	4.8	5.1	5.2	6.1	6.2	6.4	6.6	6.2	5.2
PRD 2015-SFR3		4.5	4.3	3.7	3.3	3.5	4.1	5.1	4.8	4.7	5.2	5.3	5.3
PRD 2017-SFR1		4.8	4.8	4.3	3.9	3.4	3.7	3.5	4.0	4.6	4.8	5.1	5.7
PRD 2018-SFR1		5.4	4.0	2.5	2.0	2.4	2.7	3.2	2.9	3.9	5.0	6.3	7.6
PRD 2018-SFR2		4.7	5.5	5.2	4.1	3.9	4.6	4.1	2.9	2.8	3.3	3.8	4.0
PRD 2019-SFR2							4.3	4.1	4.6	4.8	4.8	5.6	5.8
PRD 2019-SFR3										4.1	4.1	4.5	4.9
SWH 2017-1		3.9	4.4	5.5	5.0	5.7	5.5	5.8	6.1	6.0	5.6	5.6	5.3
TAH 2016-SFR1		5.2	4.5	4.3	4.4	4.8	5.1	4.2	4.2	4.6	5.7	5.7	5.7
TAH 2017-SFR1		4.6	4.7	4.3	3.7	3.1	3.2	2.0	2.8	2.5	4.0	4.2	3.5
TAH 2017-SFR2		4.4	3.3	3.4	3.2	2.6	4.0	3.1	3.3	3.6	4.5	4.4	3.7
TAH 2018-SFR1		4.3	5.0	3.5	3.1	3.3	3.4	2.6	2.7	3.7	5.1	4.3	3.6
TAH 2019-SFR1												5.1	6.1
Overall SFR		4.6	4.6	4.3	4.0	4.0	4.0	4.3	4.5	4.6	4.9	5.0	4.9

**Table 5c – Month-End Vacancy (by Percentage) – Top MSAs**

		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Atlanta, GA		4.7	4.8	4.7	4.4	4.1	4.4	4.4	4.1	4.2	4.8	4.8	4.8
Charlotte, NC		4.5	4.3	4.3	4.2	4.7	4.7	4.1	4.5	4.8	5.4	5.2	4.5
Chicago, IL		5.6	4.1	3.7	3.0	2.4	2.3	3.5	4.2	4.3	5.9	5.5	5.6
Dallas-Plano-Irving, TX		5.5	5.3	4.9	4.7	4.6	4.7	5.4	5.2	5.7	5.7	6.6	5.8
Denver-Aurora, CO		5.7	5.8	5.8	5.6	5.2	5.5	7.6	8.1	8.7	8.8	7.6	7.2
Fort Lauderdale, FL		4.9	6.1	5.2	5.8	6.5	7.2	6.4	7.0	6.4	7.0	6.0	4.2
Fort Worth-Arlington, TX		4.6	4.0	3.5	4.1	4.5	4.2	4.1	4.7	5.3	5.4	5.9	5.2
Houston, TX		6.5	6.4	5.8	5.2	5.4	4.2	4.7	4.9	4.8	6.0	6.1	5.5
Indianapolis, IN		5.8	5.0	5.1	3.8	3.3	3.4	3.5	3.4	4.0	4.2	4.1	5.0
Jacksonville, FL		4.5	4.4	4.5	3.7	4.3	3.9	4.5	4.5	3.7	4.0	4.6	5.0
Las Vegas, NV		2.8	3.4	3.5	3.1	2.6	3.0	3.3	4.0	4.5	4.6	4.7	4.9
Los Angeles, CA		4.5	4.0	4.2	4.4	4.1	4.7	5.1	5.5	4.9	5.1	4.5	5.1
Memphis, TN		4.9	5.8	4.6	3.7	3.4	3.7	4.7	3.7	3.9	3.8	5.1	6.0
Nashville, TN		4.5	5.0	4.2	4.1	4.1	4.7	4.4	4.3	4.3	4.4	5.4	5.4
Orlando, FL		4.1	4.4	4.5	4.3	3.4	3.6	3.8	4.0	5.1	5.3	5.4	5.6
Phoenix, AZ		3.1	2.9	2.8	2.7	2.7	2.8	3.3	3.4	3.8	3.9	3.9	3.8
Raleigh-Cary, NC		4.7	4.5	3.6	3.1	4.5	4.7	4.6	4.6	5.1	4.9	5.4	5.5
Riverside-San Bernardino, CA		2.8	3.9	4.5	4.6	4.9	5.2	4.9	4.6	5.2	4.8	4.3	4.0
Sacramento, CA		3.2	3.7	3.3	2.9	3.0	2.8	4.3	4.5	3.6	3.7	3.5	4.2
Tampa, FL		4.6	4.7	4.3	3.9	3.8	4.3	4.3	4.1	4.4	4.8	5.4	5.6

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



Sources: DBRS Morningstar 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 13.730% to 20.662%. Because of their proximity, the Fort Worth-Arlington, Texas, MSA is hidden behind the Dallas-Plano-Irving, Texas, MSA.

Table 6a – Lease Expiration (by Count)





























		Year 2018	Year 2019											Total Count
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
AH4R 2014-SFR2		172	245	306	345	405	491	459	445	415	257	231	195	4,544
AH4R 2014-SFR3		161	263	275	297	381	419	454	536	441	267	259	209	4,587
AH4R 2015-SFR1		231	341	359	391	298	352	406	425	416	292	252	272	4,696
AH4R 2015-SFR2		153	198	250	296	349	455	504	463	380	194	177	177	4,175
HPA 2017-1		99	101	78	94	96	76	47	73	88	86	103	90	1,275
HPA 2018-1		71	69	71	105	113	133	171	186	145	125	74	58	1,667
HPA 2019-1										0	1	7	4	1,179
HPA 2019-2												33	30	1,258
IH 2017-SFR2		183	218	256	275	273	302	372	377	338	252	269	207	4,284
IH 2018-SFR1		206	260	285	293	292	357	355	396	324	350	291	209	4,150
IH 2018-SFR2		276	320	353	395	338	335	342	384	355	292	352	269	5,350
IH 2018-SFR3		324	428	410	452	441	387	416	458	467	341	392	377	6,502
IH 2018-SFR4		250	292	363	345	379	457	514	526	430	368	333	232	5,284
PRD 2015-SFR3		149	126	142	139	203	214	282	359	259	239	183	133	3,144
PRD 2017-SFR1		231	179	152	146	147	122	154	215	158	175	190	199	2,707
PRD 2018-SFR1		85	21	29	56	81	67	88	165	170	202	250	276	2,111
PRD 2018-SFR2		279	345	258	160	181	220	202	78	38	41	32	24	2,116
PRD 2019-SFR2							147	202	259	243	219	124	107	2,459
PRD 2019-SFR3										98	151	119	128	2,268
SWH 2017-1		164	285	307	336	418	459	390	398	338	240	245	189	4,371
TAH 2016-SFR1		137	122	154	174	245	215	208	255	228	206	189	138	3,395
TAH 2017-SFR1		162	225	229	263	192	191	195	205	243	228	229	205	3,475
TAH 2017-SFR2		113	155	153	182	135	174	170	170	201	147	168	123	2,619
TAH 2018-SFR1		119	151	125	156	135	137	148	144	188	181	161	136	2,509
TAH 2019-SFR1												142	109	2,627
Overall SFR		3,565	4,344	4,555	4,900	5,102	5,710	6,079	6,517	5,963	4,854	4,805	4,096	82,752



Table 6b – Lease Expiration (by Percentage)



		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		3.8	5.4	6.7	7.6	8.9	10.8	10.1	9.8	9.1	5.7	5.1	4.3
AH4R 2014-SFR3		3.5	5.7	6.0	6.5	8.3	9.1	9.9	11.7	9.6	5.8	5.6	4.6
AH4R 2015-SFR1		4.9	7.3	7.6	8.3	6.3	7.5	8.6	9.0	8.9	6.2	5.4	5.8
AH4R 2015-SFR2		3.7	4.7	6.0	7.1	8.4	10.9	12.1	11.1	9.1	4.6	4.2	4.2
HPA 2017-1		7.4	7.6	5.9	7.1	7.3	5.8	3.6	5.6	6.8	6.7	8.0	7.1
HPA 2018-1		4.0	3.9	4.0	6.0	6.5	7.7	9.9	10.9	8.5	7.4	4.4	3.5
HPA 2019-1										0.0	0.1	0.6	0.3
HPA 2019-2												2.6	2.4
IH 2017-SFR2		4.2	5.0	5.9	6.3	6.3	7.0	8.6	8.7	7.9	5.9	6.3	4.8
IH 2018-SFR1		4.8	6.1	6.7	6.9	6.9	8.4	8.4	9.4	7.7	8.4	7.0	5.0
IH 2018-SFR2		5.0	5.9	6.5	7.3	6.2	6.2	6.3	7.1	6.6	5.4	6.6	5.0
IH 2018-SFR3		4.9	6.5	6.2	6.8	6.7	5.9	6.3	7.0	7.1	5.2	6.0	5.8
IH 2018-SFR4		4.6	5.4	6.7	6.4	7.1	8.5	9.6	9.9	8.1	6.9	6.3	4.4
PRD 2015-SFR3		4.7	4.0	4.5	4.4	6.4	6.8	9.0	11.4	8.2	7.6	5.8	4.2
PRD 2017-SFR1		8.5	6.6	5.6	5.4	5.4	4.5	5.7	7.9	5.8	6.5	7.0	7.4
PRD 2018-SFR1		4.0	1.0	1.4	2.7	3.8	3.2	4.2	7.8	8.1	9.6	11.8	13.1
PRD 2018-SFR2		13.2	16.3	12.2	7.6	8.6	10.4	9.5	3.7	1.8	1.9	1.5	1.1
PRD 2019-SFR2							6.0	8.2	10.5	9.9	8.9	5.0	4.4
PRD 2019-SFR3										4.3	6.7	5.2	5.6
SWH 2017-1		3.7	6.5	7.0	7.7	9.5	10.5	8.9	9.2	7.8	5.5	5.7	4.3
TAH 2016-SFR1		4.0	3.6	4.5	5.1	7.2	6.3	6.1	7.5	6.7	6.1	5.6	4.1
TAH 2017-SFR1		4.7	6.5	6.6	7.6	5.5	5.5	5.6	5.9	7.0	6.6	6.6	5.9
TAH 2017-SFR2		4.3	5.9	5.8	6.9	5.2	6.6	6.5	6.5	7.7	5.6	6.4	4.7
TAH 2018-SFR1		4.7	6.0	5.0	6.2	5.4	5.5	5.9	5.7	7.5	7.2	6.4	5.4
TAH 2019-SFR1												5.4	4.1
Overall SFR		4.8	5.9	6.2	6.7	6.9	7.5	8.0	8.6	7.5	6.1	5.8	4.9

**Table 6c – Lease Expiration (by Percentage) – Top MSAs**

		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Atlanta, GA		4.8	5.5	5.8	6.4	7.4	6.9	7.7	7.3	6.9	6.6	5.1	4.8
Charlotte, NC		4.0	5.2	5.2	6.2	7.5	7.8	8.5	10.0	8.8	6.4	6.1	4.8
Chicago, IL		3.9	5.3	5.5	7.5	10.1	11.1	10.6	8.6	7.9	7.0	4.6	3.5
Dallas-Plano-Irving, TX		5.0	5.3	6.8	6.3	7.0	7.3	8.3	8.5	7.0	6.1	5.3	4.7
Denver-Aurora, CO		4.5	7.9	5.6	5.7	5.8	7.9	11.9	11.0	8.8	4.6	5.0	4.1
Fort Lauderdale, FL		5.5	8.0	5.8	6.1	8.1	6.0	6.4	7.0	7.0	5.7	6.0	5.6
Fort Worth-Arlington, TX		5.5	5.6	5.8	7.3	7.2	8.1	7.6	8.5	7.2	6.1	6.0	4.1
Houston, TX		5.0	5.4	6.7	6.9	7.0	6.0	6.4	8.4	6.0	6.9	5.1	4.8
Indianapolis, IN		3.9	5.6	5.5	6.5	8.5	10.1	8.2	9.4	7.4	6.6	4.8	4.0
Jacksonville, FL		5.3	5.8	5.7	6.4	6.9	8.5	8.3	8.2	6.3	5.0	5.7	4.8
Las Vegas, NV		5.0	5.8	8.8	7.0	6.1	6.6	7.6	7.4	8.5	6.2	6.9	5.1
Los Angeles, CA		3.5	4.6	5.2	6.8	5.4	9.6	8.4	8.7	7.7	7.0	6.6	4.9
Memphis, TN		6.6	7.0	5.3	5.1	8.2	6.7	7.6	7.3	5.4	7.9	6.4	5.7
Nashville, TN		5.2	6.1	5.6	6.0	8.0	8.5	9.8	10.5	7.1	5.3	5.5	5.2
Orlando, FL		4.9	5.9	5.6	6.0	6.4	7.6	8.5	9.4	8.4	6.2	6.3	4.5
Phoenix, AZ		5.5	6.6	7.2	7.1	7.4	7.2	7.4	7.9	7.5	6.2	6.9	5.7
Raleigh-Cary, NC		5.1	4.9	5.5	5.4	8.0	9.0	10.0	10.1	8.1	6.1	5.9	6.1
Riverside-San Bernardino, CA		3.9	6.4	5.3	6.5	7.8	8.5	7.1	9.3	7.1	7.3	7.1	6.2
Sacramento, CA		3.4	5.0	6.6	7.1	6.3	7.0	7.8	8.5	8.3	5.5	5.7	4.9
Tampa, FL		5.2	6.0	5.7	6.6	6.4	6.5	8.2	8.1	7.7	5.5	6.3	5.5





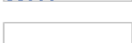



















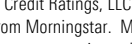

**Table 7a – Historical Total Months of Vacancy for November Vacancies (by Count)**

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		25	23	26	42	27	17	17	10	4	0	1	4	196
AH4R 2014-SFR3		17	24	31	34	36	16	15	9	8	1	2	5	198
AH4R 2015-SFR1		24	20	41	40	30	22	19	11	9	2	1	1	220
AH4R 2015-SFR2		20	28	30	25	26	14	11	8	1	1	0	3	167
HPA 2017-1		18	24	26	17	14	3	3	0	0	0	0	1	106
HPA 2018-1		24	25	32	21	16	5	6	1	1	0	0	0	131
HPA 2019-1		9	14	6	1	1								31
HPA 2019-2		27	23	7										57
IH 2017-SFR2		56	49	49	26	10	9	5	2	0	2	0	2	210
IH 2018-SFR1		51	59	33	38	23	12	6	0	3	1	1	4	231
IH 2018-SFR2		80	70	45	24	14	10	1	0	5	1	0	0	250
IH 2018-SFR3		109	79	40	13	15	3	5	5	1	2	1	3	276
IH 2018-SFR4		71	63	53	44	20	10	5	2	3	3	0	3	277
PRD 2015-SFR3		16	24	35	19	32	15	6	6	5	2	4	2	166
PRD 2017-SFR1		37	37	26	29	10	7	3	3	0	0	0	1	153
PRD 2018-SFR1		61	57	17	17	4	3	0	2	0	0	0	0	161
PRD 2018-SFR2		30	26	13	9	4	2	0	0	0	0	0	0	84
PRD 2019-SFR2		51	68	5	7	5	2	3	1					142
PRD 2019-SFR3		48	51	4	2	6								111
SWH 2017-1		44	50	60	29	19	10	7	7	2	5	0	0	233
TAH 2016-SFR1		27	43	43	30	18	15	3	5	4	2	2	2	194
TAH 2017-SFR1		38	34	21	10	8	8	1	2	1	0	0	0	123
TAH 2017-SFR2		33	31	16	9	4	1	1	0	0	0	1	0	96
TAH 2018-SFR1		49	22	9	7	1	0	2	0	0	1	0	0	91
TAH 2019-SFR1		47	110	4										161
Overall SFR		1,013	1,056	675	497	348	190	126	82	56	33	24	31	4,065

**Table 7b – Historical Total Months of Vacancy for November Vacancies (by Percentage)**

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		12.8	11.7	13.3	21.4	13.8	8.7	8.7	5.1	2.0	0.0	0.5	2.0	100.0
AH4R 2014-SFR3		8.6	12.1	15.7	17.2	18.2	8.1	7.6	4.5	4.0	0.5	1.0	2.5	100.0
AH4R 2015-SFR1		10.9	9.1	18.6	18.2	13.6	10.0	8.6	5.0	4.1	0.9	0.5	0.5	100.0
AH4R 2015-SFR2		12.0	16.8	18.0	15.0	15.6	8.4	6.6	4.8	0.6	0.6	0.0	1.8	100.0
HPA 2017-1		17.0	22.6	24.5	16.0	13.2	2.8	2.8	0.0	0.0	0.0	0.0	0.9	100.0
HPA 2018-1		18.3	19.1	24.4	16.0	12.2	3.8	4.6	0.8	0.8	0.0	0.0	0.0	100.0
HPA 2019-1		29.0	45.2	19.4	3.2	3.2								100.0
HPA 2019-2		47.4	40.4	12.3										100.0
IH 2017-SFR2		26.7	23.3	23.3	12.4	4.8	4.3	2.4	1.0	0.0	1.0	0.0	1.0	100.0
IH 2018-SFR1		22.1	25.5	14.3	16.5	10.0	5.2	2.6	0.0	1.3	0.4	0.4	1.7	100.0
IH 2018-SFR2		32.0	28.0	18.0	9.6	5.6	4.0	0.4	0.0	2.0	0.4	0.0	0.0	100.0
IH 2018-SFR3		39.5	28.6	14.5	4.7	5.4	1.1	1.8	1.8	0.4	0.7	0.4	1.1	100.0
IH 2018-SFR4		25.6	22.7	19.1	15.9	7.2	3.6	1.8	0.7	1.1	1.1	0.0	1.1	100.0
PRD 2015-SFR3		9.6	14.5	21.1	11.4	19.3	9.0	3.6	3.6	3.0	1.2	2.4	1.2	100.0
PRD 2017-SFR1		24.2	24.2	17.0	19.0	6.5	4.6	2.0	2.0	0.0	0.0	0.0	0.7	100.0
PRD 2018-SFR1		37.9	35.4	10.6	10.6	2.5	1.9	0.0	1.2	0.0	0.0	0.0	0.0	100.0
PRD 2018-SFR2		35.7	31.0	15.5	10.7	4.8	2.4	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PRD 2019-SFR2		35.9	47.9	3.5	4.9	3.5	1.4	2.1	0.7					100.0
PRD 2019-SFR3		43.2	45.9	3.6	1.8	5.4								100.0
SWH 2017-1		18.9	21.5	25.8	12.4	8.2	4.3	3.0	3.0	0.9	2.1	0.0	0.0	100.0
TAH 2016-SFR1		13.9	22.2	22.2	15.5	9.3	7.7	1.5	2.6	2.1	1.0	1.0	1.0	100.0
TAH 2017-SFR1		30.9	27.6	17.1	8.1	6.5	6.5	0.8	1.6	0.8	0.0	0.0	0.0	100.0
TAH 2017-SFR2		34.4	32.3	16.7	9.4	4.2	1.0	1.0	0.0	0.0	0.0	1.0	0.0	100.0
TAH 2018-SFR1		53.8	24.2	9.9	7.7	1.1	0.0	2.2	0.0	0.0	1.1	0.0	0.0	100.0
TAH 2019-SFR1		29.2	68.3	2.5										100.0
Overall SFR		24.9	26.0	16.6	12.2	8.6	4.7	3.1	2.0	1.4	0.8	0.6	0.8	100.0

**Table 7c – Consecutive Months of Vacancy for November Vacancies (by Count)**

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		73	57	36	21	7	1	0	0	0	0	0	1	196
AH4R 2014-SFR3		79	61	30	21	5	2	0	0	0	0	0	0	198
AH4R 2015-SFR1		107	59	33	15	4	2	0	0	0	0	0	0	220
AH4R 2015-SFR2		78	39	27	13	4	3	1	0	0	0	0	2	167
HPA 2017-1		35	29	24	11	7	0	0	0	0	0	0	0	106
HPA 2018-1		41	39	20	18	3	6	3	1	0	0	0	0	131
HPA 2019-1		12	11	6	2	0	0	0	0	0	0	0	0	31
HPA 2019-2		28	29	0	0	0	0	0	0	0	0	0	0	57
IH 2017-SFR2		92	58	26	18	6	2	2	2	0	2	0	2	210
IH 2018-SFR1		79	62	30	32	11	9	1	0	2	2	0	3	231
IH 2018-SFR2		104	73	32	21	12	3	0	2	3	0	0	0	250
IH 2018-SFR3		137	64	35	9	11	4	5	4	1	2	1	3	276
IH 2018-SFR4		90	69	46	30	19	8	4	2	3	3	1	2	277
PRD 2015-SFR3		62	61	26	7	5	2	2	1	0	0	0	0	166
PRD 2017-SFR1		71	48	15	13	3	1	1	0	0	0	0	1	153
PRD 2018-SFR1		87	50	14	8	2	0	0	0	0	0	0	0	161
PRD 2018-SFR2		38	29	12	1	2	2	0	0	0	0	0	0	84
PRD 2019-SFR2		53	71	0	7	5	2	4	0	0	0	0	0	142
PRD 2019-SFR3		51	52	0	0	2	2	1	0	1	0	0	2	111
SWH 2017-1		75	67	34	25	11	7	4	5	1	4	0	0	233
TAH 2016-SFR1		100	53	19	9	4	1	0	3	3	1	1	0	194
TAH 2017-SFR1		84	24	7	3	2	2	1	0	0	0	0	0	123
TAH 2017-SFR2		64	26	4	1	1	0	0	0	0	0	0	0	96
TAH 2018-SFR1		63	18	3	6	0	0	1	0	0	0	0	0	91
TAH 2019-SFR1		47	114	0	0	0	0	0	0	0	0	0	0	161
Overall SFR		1,751	1,265	482	295	131	65	37	28	23	24	14	16	4,065

**Table 7d – Consecutive Months of Vacancy for November Vacancies (by Percentage)**

		1	2	3	4	5	6	7	8	9	10	11	12+	Total
AH4R 2014-SFR2		37.2	29.1	18.4	10.7	3.6	0.5	0.0	0.0	0.0	0.0	0.0	0.5	100.0
AH4R 2014-SFR3		39.9	30.8	15.2	10.6	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
AH4R 2015-SFR1		48.6	26.8	15.0	6.8	1.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	100.0
AH4R 2015-SFR2		46.7	23.4	16.2	7.8	2.4	1.8	0.6	0.0	0.0	0.0	0.0	1.2	100.0
HPA 2017-1		33.0	27.4	22.6	10.4	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
HPA 2018-1		31.3	29.8	15.3	13.7	2.3	4.6	2.3	0.8	0.0	0.0	0.0	0.0	100.0
HPA 2019-1		38.7	35.5	19.4	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
HPA 2019-2		49.1	50.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
IH 2017-SFR2		43.8	27.6	12.4	8.6	2.9	1.0	1.0	1.0	0.0	1.0	0.0	1.0	100.0
IH 2018-SFR1		34.2	26.8	13.0	13.9	4.8	3.9	0.4	0.0	0.9	0.9	0.0	1.3	100.0
IH 2018-SFR2		41.6	29.2	12.8	8.4	4.8	1.2	0.0	0.8	1.2	0.0	0.0	0.0	100.0
IH 2018-SFR3		49.6	23.2	12.7	3.3	4.0	1.4	1.8	1.4	0.4	0.7	0.4	1.1	100.0
IH 2018-SFR4		32.5	24.9	16.6	10.8	6.9	2.9	1.4	0.7	1.1	1.1	0.4	0.7	100.0
PRD 2015-SFR3		37.3	36.7	15.7	4.2	3.0	1.2	1.2	0.6	0.0	0.0	0.0	0.0	100.0
PRD 2017-SFR1		46.4	31.4	9.8	8.5	2.0	0.7	0.7	0.0	0.0	0.0	0.0	0.7	100.0
PRD 2018-SFR1		54.0	31.1	8.7	5.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PRD 2018-SFR2		45.2	34.5	14.3	1.2	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	100.0
PRD 2019-SFR2		37.3	50.0	0.0	4.9	3.5	1.4	2.8	0.0	0.0	0.0	0.0	0.0	100.0
PRD 2019-SFR3		45.9	46.8	0.0	0.0	1.8	1.8	0.9	0.0	0.9	0.0	0.0	1.8	100.0
SWH 2017-1		32.2	28.8	14.6	10.7	4.7	3.0	1.7	2.1	0.4	1.7	0.0	0.0	100.0
TAH 2016-SFR1		51.5	27.3	9.8	4.6	2.1	0.5	0.0	1.5	1.5	0.5	0.5	0.0	100.0
TAH 2017-SFR1		68.3	19.5	5.7	2.4	1.6	1.6	0.8	0.0	0.0	0.0	0.0	0.0	100.0
TAH 2017-SFR2		66.7	27.1	4.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
TAH 2018-SFR1		69.2	19.8	3.3	6.6	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	100.0
TAH 2019-SFR1		29.2	70.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
Overall SFR		24.9	26.0	16.6	12.2	8.6	4.7	3.1	2.0	1.4	0.8	0.6	0.8	100.0

**Table 8 – 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	Past due 30 days or more (not dependent on calendar month) and owing 25% of one month's rent or more
Waypoint Homes	
Home Partners of America	Past due 30 days or more (not dependent on calendar month) and owing \$500 or more
Progress Residential	Past due 30 days or more (not dependent on calendar month) and owing \$200 or more <sup>1</sup>
Tricon American Homes	Past due 30 days or more (not dependent on calendar month) and owing \$500 or more <sup>2</sup>

<sup>1</sup> Includes Section 8 rent, pet fees, and MTM fees, but excludes late fees and damage fees.

<sup>2</sup> Based on total receivables.

Table 9a – Month-End Delinquency (by Count)



		Year 2018	Year 2019											Total Count
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
AH4R 2014-SFR2		22	18	17	18	8	17	26	21	19	10	1	17	4,544
AH4R 2014-SFR3		15	13	8	9	8	11	15	19	16	20	2	21	4,587
AH4R 2015-SFR1		26	21	25	16	13	13	21	22	23	26	0	19	4,696
AH4R 2015-SFR2		12	15	23	15	8	9	18	25	26	37	2	22	4,175
HPA 2017-1		20	20	14	11	12	11	16	19	18	22	19	28	1,275
HPA 2018-1		24	23	22	10	19	19	18	21	28	24	27	29	1,667
HPA 2019-1										19	29	29	28	1,179
HPA 2019-2												11	13	1,258
IH 2017-SFR2		65	52	23	31	40	42	30	31	37	44	41	31	4,284
IH 2018-SFR1		65	22	28	22	17	21	26	31	26	19	16	21	4,150
IH 2018-SFR2		92	58	61	44	37	48	45	41	41	32	42	49	5,350
IH 2018-SFR3		134	70	48	73	59	65	62	66	69	57	60	58	6,502
IH 2018-SFR4		65	42	38	33	28	28	39	33	36	25	22	32	5,284
PRD 2015-SFR3		19	16	36	27	21	22	18	20	23	29	25	24	3,144
PRD 2017-SFR1		18	23	19	11	16	12	14	17	19	27	20	29	2,707
PRD 2018-SFR1		4	10	13	15	10	16	14	19	14	0	2	16	2,111
PRD 2018-SFR2		7	10	14	10	12	9	16	23	29	35	29	32	2,116
PRD 2019-SFR2							12	19	16	20	26	13	22	2,459
PRD 2019-SFR3										25	29	29	28	2,268
SWH 2017-1		87	29	20	20	14	19	19	15	20	7	11	19	4,371
TAH 2016-SFR1		1	18	1	3	7	14	2	9	13	10	15	4	3,395
TAH 2017-SFR1		0	9	1	2	6	14	0	7	2	7	14	5	3,475
TAH 2017-SFR2		2	11	1	3	6	9	0	4	5	12	9	0	2,619
TAH 2018-SFR1		0	8	0	6	4	7	1	3	3	9	3	4	2,509
TAH 2019-SFR1												9	0	2,627
Overall SFR		678	488	412	379	345	418	419	462	531	536	451	551	82,752



**Table 9b – Month-End Delinquency (by Percentage)**

		Year 2018												Year 2019											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		0.5	0.4	0.4	0.4	0.2	0.4	0.6	0.5	0.4	0.2	0.0	0.4												
AH4R 2014-SFR3		0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.0	0.5												
AH4R 2015-SFR1		0.6	0.4	0.5	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.0	0.4												
AH4R 2015-SFR2		0.3	0.4	0.6	0.4	0.2	0.2	0.4	0.6	0.6	0.9	0.0	0.5												
HPA 2017-1		1.5	1.5	1.1	0.8	0.9	0.8	1.2	1.5	1.4	1.7	1.5	2.2												
HPA 2018-1		1.4	1.3	1.3	0.6	1.1	1.1	1.0	1.2	1.6	1.4	1.6	1.7												
HPA 2019-1										1.6	2.4	2.5	2.4												
HPA 2019-2												0.9	1.0												
IH 2017-SFR2		1.5	1.2	0.5	0.7	0.9	1.0	0.7	0.7	0.9	1.0	1.0	0.7												
IH 2018-SFR1		1.5	0.5	0.7	0.5	0.4	0.5	0.6	0.7	0.6	0.5	0.4	0.5												
IH 2018-SFR2		1.7	1.1	1.1	0.8	0.7	0.9	0.8	0.8	0.8	0.6	0.8	0.9												
IH 2018-SFR3		2.0	1.1	0.7	1.1	0.9	1.0	0.9	1.0	1.1	0.9	0.9	0.9												
IH 2018-SFR4		1.2	0.8	0.7	0.6	0.5	0.5	0.7	0.6	0.7	0.5	0.4	0.6												
PRD 2015-SFR3		0.6	0.5	1.1	0.9	0.7	0.7	0.6	0.6	0.7	0.9	0.8	0.8												
PRD 2017-SFR1		0.7	0.8	0.7	0.4	0.6	0.4	0.5	0.6	0.7	1.0	0.7	1.1												
PRD 2018-SFR1		0.2	0.5	0.6	0.7	0.5	0.8	0.7	0.9	0.7	0.0	0.1	0.8												
PRD 2018-SFR2		0.3	0.5	0.7	0.5	0.6	0.4	0.8	1.1	1.4	1.7	1.4	1.5												
PRD 2019-SFR2							0.5	0.8	0.7	0.8	1.1	0.5	0.9												
PRD 2019-SFR3										1.1	1.3	1.3	1.2												
SWH 2017-1		2.0	0.7	0.5	0.5	0.3	0.4	0.4	0.3	0.5	0.2	0.3	0.4												
TAH 2016-SFR1		0.0	0.5	0.0	0.1	0.2	0.4	0.1	0.3	0.4	0.3	0.4	0.1												
TAH 2017-SFR1		0.0	0.3	0.0	0.1	0.2	0.4	0.0	0.2	0.1	0.2	0.4	0.1												
TAH 2017-SFR2		0.1	0.4	0.0	0.1	0.2	0.3	0.0	0.2	0.2	0.5	0.3	0.0												
TAH 2018-SFR1		0.0	0.3	0.0	0.2	0.2	0.3	0.0	0.1	0.1	0.4	0.1	0.2												
TAH 2019-SFR1												0.3	0.0												
Overall SFR		0.9	0.7	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.5	0.7												

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

		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		69.8	82.9	78.4	83.5	82.2	74.7	73.9	75.7	76.6	73.2	74.9	TBD
AH4R 2014-SFR3		78.3	78.7	79.3	76.4	77.7	76.8	76.2	74.1	76.6	74.5	76.1	TBD
AH4R 2015-SFR1		79.7	78.0	79.4	79.8	78.5	75.0	70.0	73.2	78.6	75.3	75.0	TBD
AH4R 2015-SFR2		68.0	80.8	78.8	74.0	76.8	75.4	75.6	72.8	77.6	76.8	78.0	TBD
HPA 2017-1		83.8	84.2	82.1	76.6	76.0	75.0	80.9	71.2	73.9	74.4	76.7	TBD
HPA 2018-1		85.9	79.7	77.5	80.0	78.8	75.9	73.1	74.7	71.0	79.2	60.8	TBD
HPA 2019-1											100.0	85.7	TBD
HPA 2019-2												60.6	TBD
IH 2017-SFR2		88.5	81.2	80.9	86.5	78.8	76.8	79.0	80.9	76.0	79.0	79.2	TBD
IH 2018-SFR1		81.6	84.2	78.6	80.5	83.9	82.9	80.0	84.8	73.1	85.1	79.4	TBD
IH 2018-SFR2		83.7	80.6	78.2	75.9	78.1	78.8	77.5	79.2	80.0	80.5	78.7	TBD
IH 2018-SFR3		80.9	78.5	78.3	80.8	75.3	76.0	74.8	79.9	83.3	81.8	83.4	TBD
IH 2018-SFR4		78.0	83.6	81.8	77.7	80.5	78.1	75.3	78.1	85.6	78.8	79.9	TBD
PRD 2015-SFR3		70.5	71.4	75.4	81.3	76.8	72.9	76.6	76.3	76.8	76.2	79.2	TBD
PRD 2017-SFR1		77.1	79.3	71.1	72.6	73.5	73.8	79.2	77.7	74.1	80.6	78.9	TBD
PRD 2018-SFR1		76.5	81.0	72.4	73.2	80.2	77.6	71.6	78.8	72.4	76.7	75.2	TBD
PRD 2018-SFR2		78.5	81.7	76.4	80.6	76.8	78.6	81.2	74.4	73.7	70.7	87.5	TBD
PRD 2019-SFR2							76.9	79.2	78.8	82.7	73.1	68.5	TBD
PRD 2019-SFR3										87.8	76.2	84.0	TBD
SWH 2017-1		81.7	82.1	74.9	80.4	78.0	80.0	74.4	78.6	86.4	81.3	76.7	TBD
TAH 2016-SFR1		81.8	85.2	87.7	83.9	80.8	83.7	87.0	84.3	82.9	85.4	78.8	TBD
TAH 2017-SFR1		78.4	79.6	81.7	87.1	87.5	84.3	91.8	84.9	87.2	79.8	87.3	TBD
TAH 2017-SFR2		81.4	83.9	85.6	87.9	87.4	88.5	86.5	92.4	86.6	86.4	79.2	TBD
TAH 2018-SFR1		82.4	79.5	93.6	87.8	83.7	90.5	85.1	89.6	81.9	82.3	82.0	TBD
TAH 2019-SFR1												76.8	TBD
Overall SFR		79.3	80.8	79.4	80.4	79.3	78.2	77.3	78.5	79.8	78.9	78.4	TBD

**Table 11 – Monthly Retention Rate of MTM Leases (by Percentage)**

		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		86.1	85.9	89.1	86.8	83.2	78.2	82.3	82.7	84.4	80.8	84.4	TBD
AH4R 2014-SFR3		92.0	92.7	88.5	85.1	86.7	83.8	80.4	85.6	84.8	84.9	85.8	TBD
AH4R 2015-SFR1		84.1	91.6	88.2	80.9	87.9	78.5	83.3	81.0	84.9	86.7	87.0	TBD
AH4R 2015-SFR2		83.3	88.3	84.9	84.2	83.0	83.9	79.8	74.4	78.9	78.5	85.0	TBD
HPA 2017-1													TBD
HPA 2018-1													TBD
HPA 2019-1													TBD
HPA 2019-2													TBD
IH 2017-SFR2		85.7	89.8	88.5	86.4	80.0	77.6	74.5	80.0	82.5	81.3	87.5	TBD
IH 2018-SFR1		86.6	88.9	81.4	85.2	89.1	80.3	81.2	81.2	86.2	86.4	81.3	TBD
IH 2018-SFR2		87.5	83.5	89.5	83.7	82.5	81.3	78.8	83.0	88.9	83.7	82.7	TBD
IH 2018-SFR3		81.9	84.2	82.6	82.6	87.4	81.6	82.0	80.5	85.6	84.6	88.7	TBD
IH 2018-SFR4		82.1	87.2	89.8	86.2	78.0	82.6	82.1	74.5	88.2	85.4	86.0	TBD
PRD 2015-SFR3		80.0	84.0	75.9	74.2	78.6	75.0	82.6	58.6	63.0	81.0	69.6	TBD
PRD 2017-SFR1		80.5	83.3	71.8	90.6	84.8	90.3	72.7	80.6	80.0	84.6	84.6	TBD
PRD 2018-SFR1		66.7	78.9	85.7	69.2	77.8	71.4	55.6	80.0	46.2	100.0	92.3	TBD
PRD 2018-SFR2		100.0	64.3	71.4	76.7	67.9	80.0	73.1	95.5	95.2	80.0	86.7	TBD
PRD 2019-SFR2							66.7	63.2	82.4	91.3	71.4	80.0	TBD
PRD 2019-SFR3										83.3	68.4	72.2	TBD
SWH 2017-1		74.1	85.5	87.2	78.3	80.9	76.6	69.0	76.2	75.8	91.7	84.6	TBD
TAH 2016-SFR1		95.3	92.8	95.9	92.5	91.6	97.4	89.5	90.5	83.0	85.7	88.6	TBD
TAH 2017-SFR1		88.9	93.2	87.3	89.9	90.0	95.6	83.8	95.5	83.6	86.4	84.9	TBD
TAH 2017-SFR2		87.8	94.3	90.8	89.7	70.9	95.2	90.8	89.5	81.7	85.7	90.5	TBD
TAH 2018-SFR1		81.2	93.7	90.9	90.0	76.5	96.8	91.3	92.6	89.2	95.4	89.6	TBD
TAH 2019-SFR1												88.9	TBD
Overall SFR		86.0	89.0	87.6	85.6	83.8	83.7	81.5	82.5	83.6	84.3	85.8	TBD

TBD – To Be Determined

Table 12a – MTM Tenants (by Count)



		Year 2018												Total Count
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
AH4R 2014-SFR2		164	152	163	174	190	218	212	204	195	186	163	150	4,544
AH4R 2014-SFR3		155	159	172	192	189	209	231	218	212	195	193	177	4,587
AH4R 2015-SFR1		148	145	174	203	213	214	213	213	210	211	186	186	4,696
AH4R 2015-SFR2		141	125	146	169	179	197	233	237	202	170	165	141	4,175
HPA 2017-1		0	0	0	0	0	0	0	0	0	0	0	0	1,275
HPA 2018-1		0	0	0	0	0	0	0	0	0	0	0	0	1,667
HPA 2019-1										0	0	0	0	1,179
HPA 2019-2												0	0	1,258
IH 2017-SFR2		63	59	61	119	140	136	146	134	134	121	109	108	4,284
IH 2018-SFR1		67	63	86	85	89	118	125	122	117	104	103	100	4,150
IH 2018-SFR2		96	85	86	148	158	169	158	126	124	133	138	127	5,350
IH 2018-SFR3		116	101	109	179	193	202	190	167	166	176	168	158	6,502
IH 2018-SFR4		84	86	108	129	131	147	169	145	129	132	142	148	5,284
PRD 2015-SFR3		40	43	43	42	45	48	51	55	46	34	31	27	3,144
PRD 2017-SFR1		54	52	54	46	50	41	50	43	43	35	43	37	2,707
PRD 2018-SFR1		38	21	18	17	14	15	11	21	26	18	36	39	2,111
PRD 2018-SFR2		23	43	53	41	45	41	39	28	25	23	17	15	2,116
PRD 2019-SFR2							32	31	33	36	38	31	25	2,459
PRD 2019-SFR3										25	31	24	32	2,268
SWH 2017-1		54	55	86	71	86	114	115	111	95	82	72	72	4,371
TAH 2016-SFR1		205	194	179	184	187	168	182	173	162	144	131	110	3,395
TAH 2017-SFR1		100	83	81	92	98	81	92	76	73	76	86	77	3,475
TAH 2017-SFR2		101	95	91	92	95	68	92	87	84	76	75	61	2,619
TAH 2018-SFR1		90	88	85	88	92	64	78	70	75	69	76	64	2,509
TAH 2019-SFR1												45	0	2,627
Overall SFR		1,739	1,649	1,795	2,071	2,194	2,282	2,418	2,263	2,179	2,054	2,034	1,854	82,752

**Table 12b – MTM Tenants (by Percentage)**

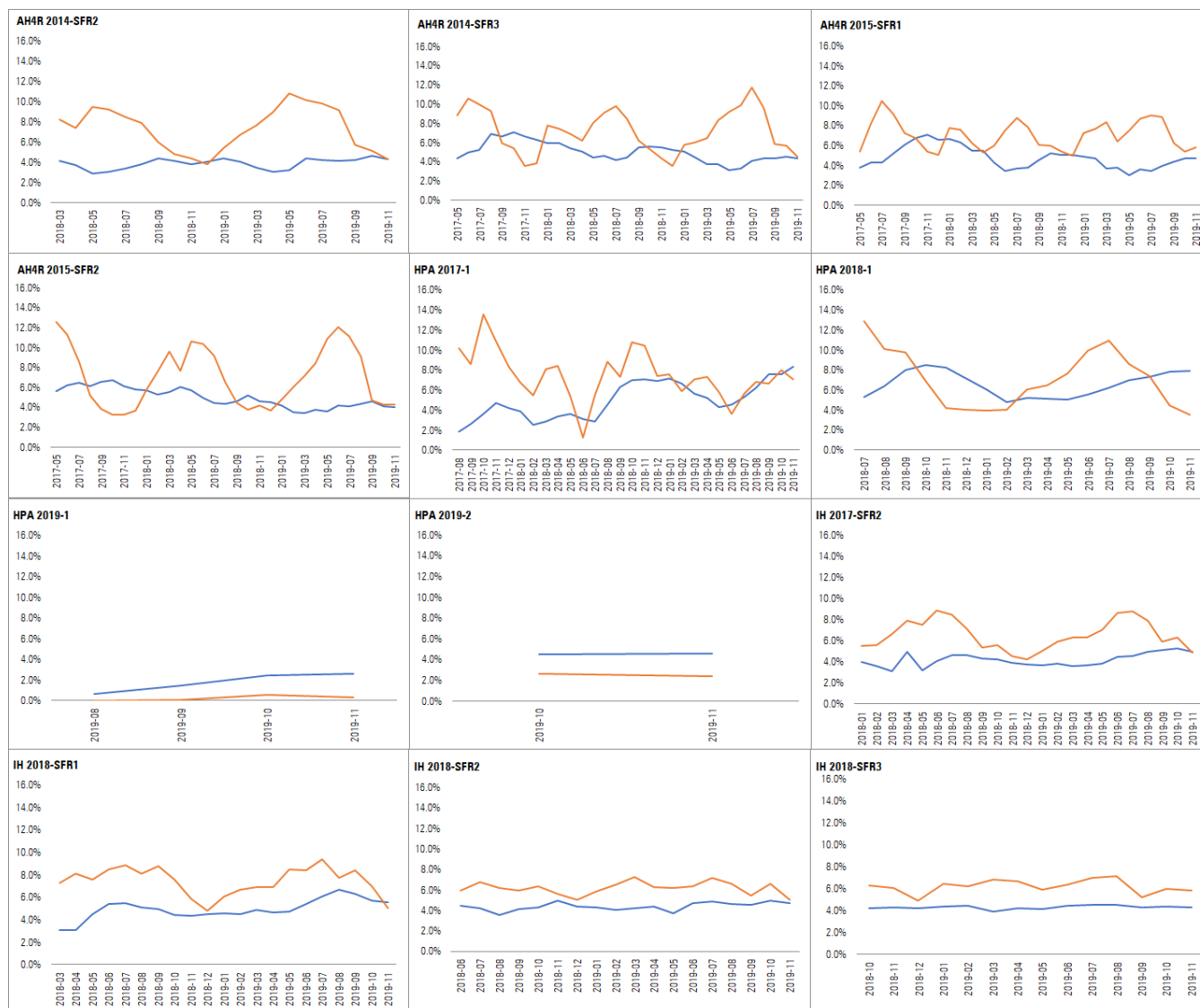
		Year 2019											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		3.6	3.3	3.6	3.8	4.2	4.8	4.7	4.5	4.3	4.1	3.6	3.3
AH4R 2014-SFR3		3.4	3.5	3.7	4.2	4.1	4.6	5.0	4.8	4.6	4.3	4.2	3.9
AH4R 2015-SFR1		3.2	3.1	3.7	4.3	4.5	4.6	4.5	4.5	4.5	4.5	4.0	4.0
AH4R 2015-SFR2		3.4	3.0	3.5	4.0	4.3	4.7	5.6	5.7	4.8	4.1	4.0	3.4
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	0.0
HPA 2019-1										0.0	0.0	0.0	0.0
HPA 2019-2												0.0	0.0
IH 2017-SFR2		1.4	1.4	1.4	2.7	3.2	3.1	3.4	3.1	3.1	2.8	2.5	2.5
IH 2018-SFR1		1.6	1.5	2.0	2.0	2.1	2.8	3.0	2.9	2.8	2.5	2.5	2.4
IH 2018-SFR2		1.8	1.6	1.6	2.7	2.9	3.1	2.9	2.3	2.3	2.5	2.6	2.4
IH 2018-SFR3		1.7	1.5	1.6	2.7	2.9	3.1	2.9	2.5	2.5	2.7	2.6	2.4
IH 2018-SFR4		1.6	1.6	2.0	2.4	2.4	2.7	3.2	2.7	2.4	2.5	2.7	2.8
PRD 2015-SFR3		1.3	1.4	1.4	1.3	1.4	1.5	1.6	1.7	1.5	1.1	1.0	0.9
PRD 2017-SFR1		2.0	1.9	2.0	1.7	1.8	1.5	1.8	1.6	1.6	1.3	1.6	1.4
PRD 2018-SFR1		1.8	1.0	0.9	0.8	0.7	0.7	0.5	1.0	1.2	0.9	1.7	1.8
PRD 2018-SFR2		1.1	2.0	2.5	1.9	2.1	1.9	1.8	1.3	1.2	1.1	0.8	0.7
PRD 2019-SFR2							1.3	1.3	1.3	1.5	1.5	1.3	1.0
PRD 2019-SFR3										1.1	1.4	1.1	1.4
SWH 2017-1		1.2	1.3	2.0	1.6	2.0	2.6	2.6	2.6	2.2	1.9	1.7	1.6
TAH 2016-SFR1		6.0	5.7	5.2	5.4	5.5	4.9	5.3	5.1	4.8	4.2	3.9	3.2
TAH 2017-SFR1		2.9	2.4	2.3	2.6	2.8	2.3	2.6	2.2	2.1	2.2	2.5	2.2
TAH 2017-SFR2		3.9	3.6	3.5	3.5	3.6	2.6	3.5	3.3	3.2	2.9	2.9	2.3
TAH 2018-SFR1		3.6	3.5	3.4	3.5	3.7	2.6	3.1	2.8	3.0	2.8	3.0	2.6
TAH 2019-SFR1												1.7	0.0
Overall SFR		2.4	2.2	2.4	2.8	3.0	3.0	3.2	3.0	2.8	2.6	2.5	2.2

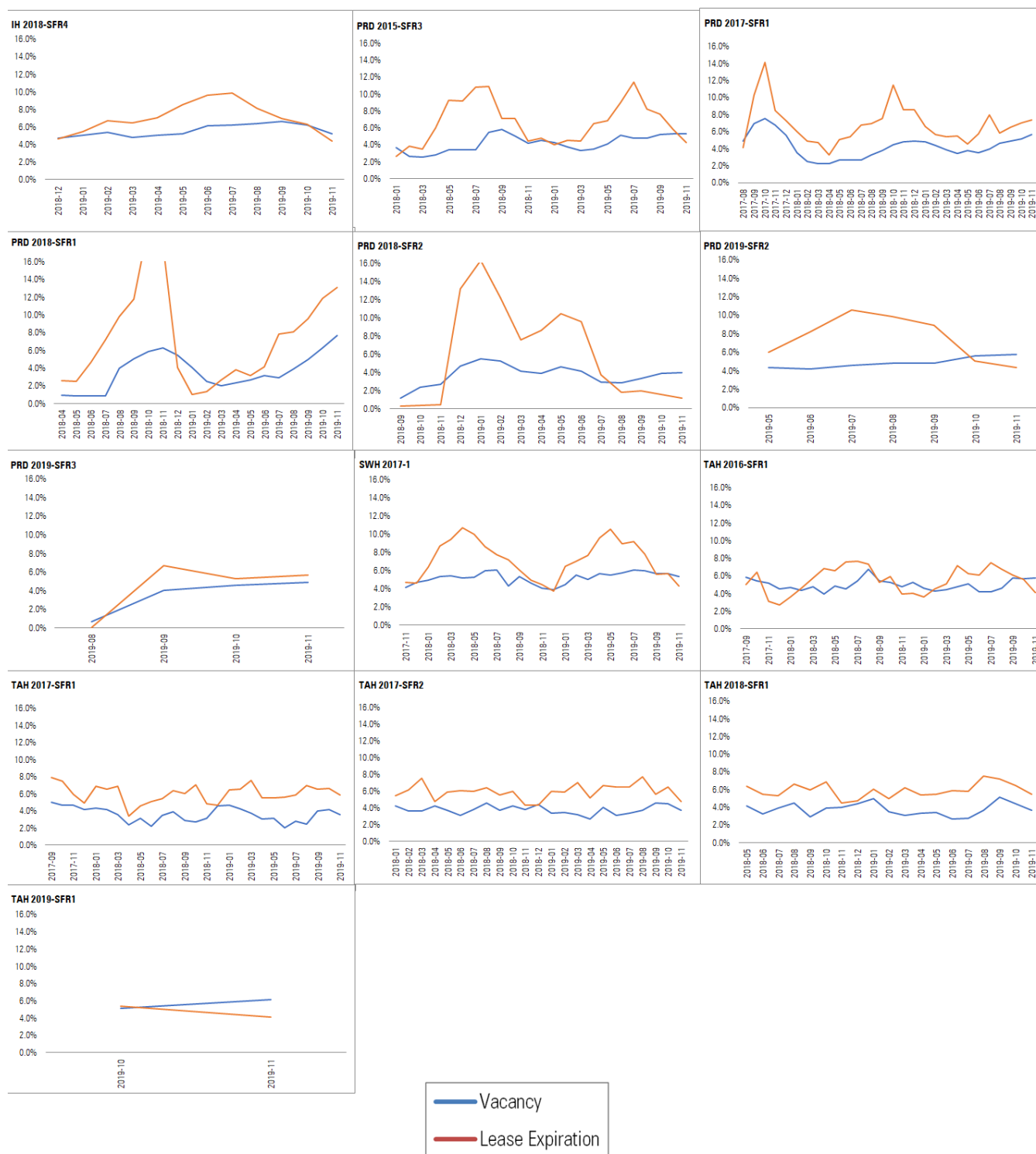
**Table 13 – Monthly Turnover Rate (by Percentage)**

		Year 2018	Year 2019										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
AH4R 2014-SFR2		2.3	2.2	2.4	2.5	2.9	4.1	4.4	4.2	3.7	2.9	2.5	TBD
AH4R 2014-SFR3		2.1	2.2	2.0	2.9	2.9	3.8	3.6	4.2	4.2	2.9	2.7	TBD
AH4R 2015-SFR1		2.6	2.7	2.4	3.1	2.7	3.6	4.4	3.9	3.7	3.0	3.1	TBD
AH4R 2015-SFR2		2.4	1.9	2.3	3.0	3.5	4.4	4.8	5.1	4.2	2.7	2.6	TBD
HPA 2017-1		2.0	2.9	2.5	2.4	3.1	2.8	2.3	3.5	3.6	3.2	2.9	TBD
HPA 2018-1		1.5	1.5	1.8	2.8	2.5	3.4	4.6	4.0	4.1	2.7	3.0	TBD
HPA 2019-1										0.4	1.3	1.1	TBD
HPA 2019-2												3.8	TBD
IH 2017-SFR2		1.7	1.9	2.1	2.0	2.2	2.8	3.5	3.7	3.5	2.8	2.7	TBD
IH 2018-SFR1		2.0	2.5	1.9	3.0	2.4	2.4	2.9	3.2	3.8	2.5	2.7	TBD
IH 2018-SFR2		2.1	2.1	2.0	3.0	2.8	2.6	3.2	3.5	3.1	2.3	2.8	TBD
IH 2018-SFR3		2.2	2.4	2.3	2.6	2.7	2.7	3.1	3.2	3.0	2.4	2.3	TBD
IH 2018-SFR4		2.1	2.2	2.3	2.8	2.7	3.1	3.5	3.7	3.4	3.0	2.7	TBD
PRD 2015-SFR3		2.7	2.6	2.4	2.3	2.8	3.5	3.9	5.0	4.2	3.7	3.1	TBD
PRD 2017-SFR1		3.5	3.0	2.7	3.1	2.4	2.8	3.1	3.9	4.2	3.4	3.0	TBD
PRD 2018-SFR1		3.7	1.3	1.5	2.3	2.5	2.4	2.9	3.6	4.6	4.4	4.7	TBD
PRD 2018-SFR2		4.8	4.3	4.2	3.6	3.6	4.5	4.0	3.3	1.9	2.3	2.6	TBD
PRD 2019-SFR2							7.3	3.8	4.4	4.1	3.3	4.0	TBD
PRD 2019-SFR3										3.8	2.8	4.4	TBD
SWH 2017-1		1.7	2.4	2.8	2.7	3.3	2.8	3.6	3.6	3.2	2.3	2.6	TBD
TAH 2016-SFR1		1.8	1.8	1.8	3.0	2.2	2.8	1.5	3.3	2.9	2.5	2.8	TBD
TAH 2017-SFR1		3.0	2.0	2.5	3.3	1.5	2.1	1.6	2.6	1.8	3.1	2.4	TBD
TAH 2017-SFR2		2.2	1.4	2.1	3.4	1.6	2.5	5.0	1.3	2.6	2.1	2.4	TBD
TAH 2018-SFR1		2.1	2.1	2.4	2.7	1.8	2.4	2.1	2.2	2.8	2.7	2.1	TBD
TAH 2019-SFR1												4.3	TBD
Overall SFR		2.3	2.2	2.3	2.8	2.6	3.2	3.5	3.6	3.4	2.8	2.9	TBD

TBD – To Be Determined

## Appendix I – Vacancy Versus Lease Expiration







## Appendix II – Description of Analysis

DBRS Morningstar tracks key metrics to gauge the performance of single-borrower, single-family rental transactions that DBRS 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, DBRS 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, DBRS Morningstar takes the respective balance divided by the current deal balance.

### Table 2 – Multiborrower Loan Performance by Loan Count

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

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

DBRS 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, DBRS Morningstar used the logic outlined in the Tables 6a, 6b, and 6c – Lease Expiration section. DBRS 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, DBRS 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 – November 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 DBRS Morningstar single-family rental database and compares these rents with their property-specific rent estimates from RentRange.

### **Table 3 - Difference between Average Contractual Rent Versus Property-Level RentRange**

Table 3 shows the percentage difference between contractual rents in the DBRS Morningstar single-family rental database and the property-specific estimated rents from RentRange. DBRS Morningstar calculated the percentage difference by subtracting the RentRange estimated rent from the contractual rent and dividing that figure by the estimated RentRange rent.

### **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 DBRS Morningstar's database. MSAs in red are below the overall average rent change for the month, while those in blue are above.

### **Table 4 – Blended Rent Change (by Percentage) – Top MSAs**

Table 4 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 5a, 5b, and 5c – Month-End Vacancy**

Table 5a displays deal-level vacancy by the month-end count of empty properties. Table 5b shows the deal-level vacancy as a percentage of the total properties in each pool. Table 5c 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 6a, 6b, and 6c 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 6a, 6b, and 6c – Lease Expiration**

Because lease expiration profiles change over time as tenants renew or new tenants occupy vacant properties, DBRS 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 November lease expirations, DBRS Morningstar looks for all November lease expirations in the September property tape. DBRS 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 DBRS Morningstar is looking three months back to determine its sample, there are instances when tenants vacate properties between the time DBRS Morningstar determines its sample and the month in which the tenant must make a decision to stay in the property. DBRS Morningstar excludes those vacated properties from its lease expiration sample and its retention rate calculation in Table 10. In the current example, properties that become vacant or that have move out dates in either September or October are removed from the November lease expiration count.

**Tables 7a and 7b – Total Historical Months of Vacancy**

Tables 7a and 7b show the number of months of vacancy the November unoccupied properties have experienced. In other words, if a property is unoccupied as of the November 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 7a shows historical months of vacancy by count, and Table 7b is as a percentage of the November vacancies.

**Tables 7c and 7d – Consecutive Months of Vacancy**

Table 7c and 7d show the consecutive number of months an unoccupied property has been vacant since it was last occupied. For example, if a property is unoccupied as of the November property tape, these tables reflect the number of consecutive

months the property has been vacant and does not consider the number of vacant months prior to the most recent occupancy. Table 7c shows consecutive months of vacancy by count and Table 7d is as a percentage of the November vacancies.

### **Table 8 – Delinquency Definition**

DBRS 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 8 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 9a and 9b – Month-End Delinquency**

Table 9a shows the month-end count of delinquencies based on the definition in Table 8, and Table 9b 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 8.

### **Table 10 – Monthly Retention Rate of Expiring Leases**

When evaluating an issuer's ability to keep tenants in a property, DBRS Morningstar considers a retention rate. Once again, differences in monthly reporting affect the calculation that DBRS 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, DBRS 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 6a 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, DBRS Morningstar relies on the cutoff tape lease expiration profile. As a result, the first three months of retention rate reported in Table 10 will use the cutoff tape to find the sample of lease expirations. After isolating the applicable lease expiration sample, DBRS Morningstar looks at the most recent

property tape to determine the lease status of the properties. In this report, DBRS Morningstar uses the November property tape to determine the lease status for October expirations. DBRS 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 11 – Monthly Retention Rate of MTM Leases**

In Table 11, DBRS 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, DBRS 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 October 2019 retention rates are the October statuses of September MTM tenants.

### **Tables 12a and 12b – MTM Tenants**

In Tables 12a and 12b, DBRS 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 13 – Monthly Turnover Rate**

In evaluating how effective an issuer is at retaining tenants, DBRS Morningstar considers the monthly turnover rate. For this metric, DBRS Morningstar strives to apply a consistent calculation given the differences in issuers' reporting. DBRS 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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