FEDERAL RESERVE BANK OF SAN FRANCISCO

The Emerging Economic Geography of Single-Family Rental Securitization

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Introduction

In the years after the 2007-2008 mortgage crisis, communities around the country struggled with high foreclosure rates, the visible signs of distress such as overgrown lawns and boarded up windows, the social impacts of high rates of residential mobility and vacant property, and the consequences all of this had on the property values of surrounding homes. However by 2012, a market context of low prices, increasing post-crisis rental demand, and constrained mortgage credit drew large investors to the distressed property market, which had come to represent an opportunity to acquire and rent out repossessed single-family homes (Chang et al., 2011; Gittelsohn, 2012; Molloy and Zarutskie, 2013; Rahmani et al., 2013; Rich, 2012).

The entrance of large, institutional investors into single-family housing and their new role as 'corporate landlords'[1] represents a paradigm shift for the single-family rental market. Historically this segment of the rental market has been comprised of small investors with small inventories. Today institutional investors, primarily private equity firms (including Invitation Homes, the rental subsidiary of Blackstone, one of the world's largest real estate private equity firms) own and rent out portfolios of thousands, or tens of thousands, of single-family homes spread across several states. The seven largest institutional investors involved in the single-family rental business together own close to 170,000 homes, or a little more than 1% of the country's nearly 15 million renter-occupied single-family properties. However their purchasing has not been distributed evenly across the country, but concentrated in strategic markets, primarily in the U.S. Sun Belt.

Responding to this paradigm shift, academics, think tanks, politicians, and housing activists (Edelman, 2013; Fields, 2014; Ingliss, 2015; Pfeiffer and Lucio, 2015; Takano, 2015) have raised questions about its potential consequences for renters. Will corporate landlords worsen the nation's rental affordability crisis? Or potentially open up opportunities for low-income tenants to move to more affluent communities (cf. Pfeiffer and Lucio, 2015)?

The new corporate landlords are not only renting out the properties they own, but using the stream of rental income to leverage their investments with novel rent-backed financial instruments by either by going public as a real estate investment trust (REIT), issuing single-family rental (SFR) securitizations, or both. Given the role financial innovation played in the mortgage crisis, developments such as SFR securitization have generated concerns among housing advocates and some policymakers about the potential for another wave of speculation and instability in cities and regions the 2008 crisis hit hardest (Ingliss, 2015; Takano, 2014). After all, the ability of operators and property managers to rent and maintain large, geographically dispersed portfolios is untested and there is little historical data on performance and operating history within the single-family rental market (Alloway and Raval, 2013; Moody's Global Credit Research, 2012; Neumann, 2012).

[1] In this report we use the terms 'corporate landlord', 'institutional investor-landlord', and 'institutional landlord' interchangeably to refer to institutional investors buying up and renting out large portfolios of distressed single-family homes, and leveraging their investments through securitization or going public.

Because many of the new institutional landlords are privately held (including industry leader Invitation Homes, with close to 50,000 properties), data on their investment activities can be hard to come by, their purchasing behavior often veiled by limited liability corporations. This complicates efforts to respond to the questions and concerns raised about the institutionalization of the single-family rental market, making for an anemic debate about the impacts of this paradigm shift, and potential policy responses.

In this brief, we draw on a novel source of data—hand-collected presale reports credit rating agencies have issued for the first 15 rental securitizations coming onto market since late 2013—to explore emerging trends of the newly-institutionalized single-family rental market. We first provide a market overview that describes SFR securitization in more detail. Second, we produce one of the first maps of the phenomenon. This analysis includes data on the Federal Reserve's 12th District, which saw 35% of the total homes included in this first wave of 15 securitizations. We then begin to analyze key factors that may have shaped this geography, focusing on the foreclosure crisis itself, pre-crisis building booms, and post-crisis home price dynamics and price-rent ratios. Finally, we discuss accessibility to low-income tenants. In our conclusions we consider what the significance of these trends might be for community development practitioners.

Market overview

SFR bonds are a novel financial instrument. Securitization allows the owners of any asset with a future income stream (such as rent payments) to gain liquidity up front by selling bonds representing a share in this future income stream. In turn bond investors expect a steady stream of payments from the income stream of the underlying asset. However as the 2008 financial crisis demonstrated, securitization also entails risks that can be transferred to capital markets, e.g. if the underlying asset is mismanaged, subject to falling demand, or fails to appreciate, or if extreme economic events occur.

In the case of SFR securitization, investors are buying a share of the future rental income, to come as tenants make monthly payments. For corporate landlords securitization offers a source of leverage to increase return on equity, which they may use to finance further acquisitions and/or lend to other, smaller investors, thereby expanding the industry. With credit rating agencies deeming the products safe for investment and investor demand in many cases exceeding capacity, SFR securitization has also legitimated and added credibility to SFR as an institutional asset class (Corkery, 2014; Rahmani et al., 2014; Tricon Capital Group, 2015).

Signaling the novelty of SFR bonds, it took two years for the industry to decide how to structure this asset class, which shares qualities with both residential and commercial mortgage-backed securities (RMBS and CMBS respectively) (Raymond, 2014). While the underlying asset is residential, similar to RMBS, it is owned by a commercial enterprise, akin to a CMBS (Rahmani et al., 2014). Another similarity with CMBS, as a recent analysis by the Atlanta Fed highlighted, is the more unpredictable income stream from rental properties: vacancies, market rents, and maintenance costs all contribute to potential fluctuations (Raymond, 2014). Ultimately the bonds are structured more like a CMBS, with first-priority mortgages as collateral for the securitization, strengthening investors' ability to take ownership of properties and sell them in case of default (Raymond, 2014). Ratings agencies have conducted stress tests of the new bonds using both CMBS and RMBS models, further signifying their hybrid nature.

Table 1: SFR Securitizations, 2013-June 2015

Firm	2013	2014	As of June 2015	Total
Invitation Homes	1	3	3	7
American Homes 4 Rent		3	1	4
Colony American Homes		2	1	3
Progress Residential		1	2	3
American Residential Properties		1		1
Silver Bay Realty Trust		1		1
Starwood Waypoint Residential Trust		1		1
Tricon American Homes			1	1
Total	**1**	**12**	**8**	**21**

As shown in table 1, between November 2013 and June 2015 eight firms issued 21 single-family rental securitizations. The bonds include 84,142 properties with a market value of $16.5 billion, and are secured by a total of $11.4 billion in first-priority mortgages.

In this report we review the data for the first 15 offerings (through January 2015).[2] These include a total of 57,853 properties with a market value of $11.4 billion, secured by $8.2 billion in first-priority mortgages. Offerings have been relatively consistent in size, averaging 3,857 homes per offering; however the second offering from Invitation Homes is almost 70% larger, at 6537 homes. As with the full group of 21 securitizations, Invitation Homes accounts for the greatest volume of this subset of 15 with five securitizations (20,000 homes), while American Homes 4 Rent, the company with next greatest share, has three offerings (13,000 homes).

The emerging geography of SFR securitization

Securitized single-family rental homes are spread across 74 different MSAs, but 17 areas have more than 1000 homes, and the top two areas, Phoenix and Atlanta, have 8,080 and 7,306 properties respectively (Table 2). While Phoenix and Atlanta are the clear centers of this phenomenon at the scale of single MSAs, a better scale of analysis for this phenomenon may be economically-interconnected city-regions (or mega-regions, see Schafran, 2014), where clear additional clusters emerge. In Southern California, for example, the agglomeration of Los Angeles-Long Beach-Santa Ana and Riverside-San Bernardino-Ontario includes 4336 securitized SFR homes. Along the Dallas-Houston corridor in Texas, there are 6384 securitized SFR homes. Finally the Orlando-Lakeland-Tampa mega-region in Florida has 7998 securitized SFR properties.

[2] This is due to data limitations in subsequent presale reports.

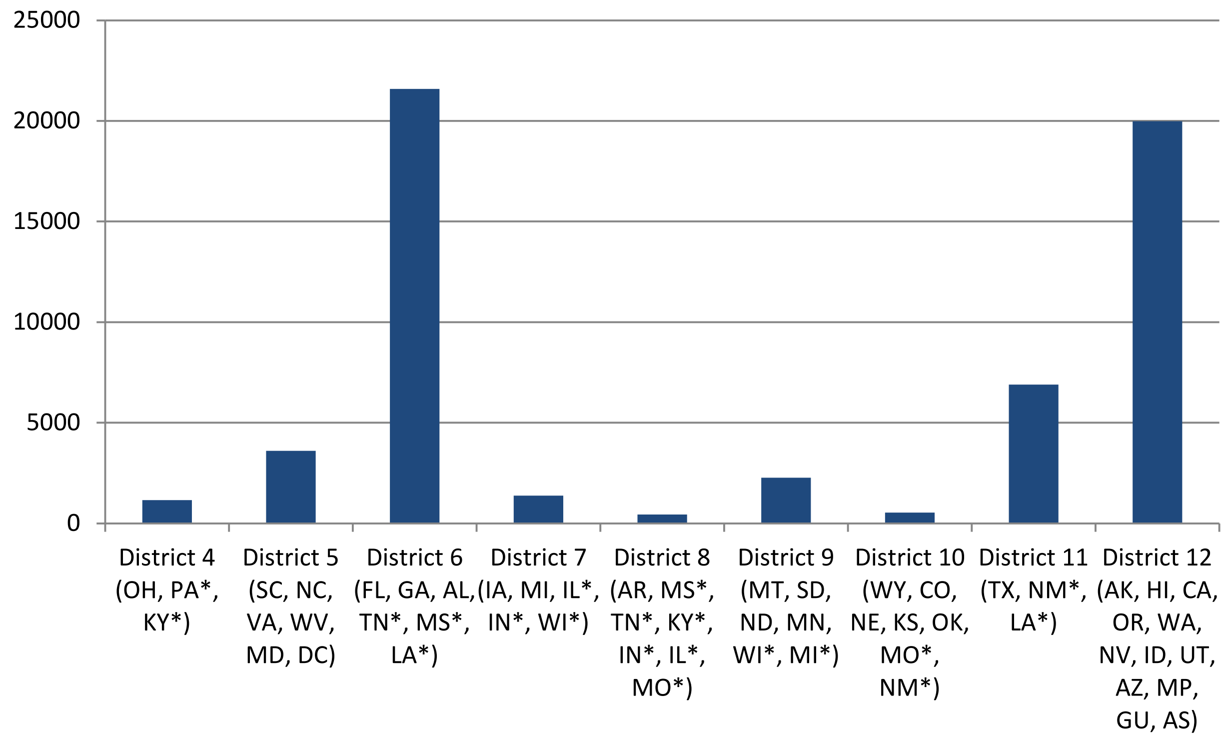
Table 2: Metropolitan areas with > 1000 securitized single-family rental properties (bold indicates MSAs in the San Francisco Fed's footprint)

Rank	MSA	Number of properties	Average market value	Average rent[3]
1	**Phoenix-Mesa-Glendale, AZ**	**8080**	**$173,897**	**$1078**
2	Atlanta, GA	7306	$166,752	$1257
3	Tampa-St. Petersburg-Clearwater, FL	4395	$195,492	$1450
4	Dallas-Plano-Irving, TX	3305	$161,117	$1453
5	Houston-Sugar Land-Baytown, TX	3079	$163,955	$1487
6	**Las Vegas-Paradise, NV**	**2997**	**$199,152**	**$1268**
7	Orlando-Kissimmee-Sanford, FL	2553	$187,144	$1364
8	Charlotte-Gastonia-Concord, NC-SC	2400	$175,930	$1315
9	**Riverside-San Bernardino-Ontario, CA**	**2288**	**$286,618**	**$1708**
10	Miami-Fort Lauderdale-Pompano Beach, FL	2177	$265,380	$1941
11	Chicago-Naperville-Joliet, IL-IN-WI	2099	$209,668	$1770
12	**Los Angeles-Long Beach-Santa Ana, CA**	**2048**	**$383,967**	**$2073**
13	**Sacramento--Arden-Arcade--Roseville, CA**	**1389**	**$237,433**	**$1415**
14	Indianapolis-Carmel-Anderson, IN	1333	$140,670	$1270
15	Jacksonville, FL	1241	$192,123	$1424
16	**Seattle-Bellevue-Everett, WA**	**1063**	**$257,088**	**$1727**
17	Lakeland-Winter Haven, FL	1050	$154,442	$1158

As Figure 1 shows, properties are heavily concentrated in the U.S. Sunbelt – the Federal Reserve Districts 6 (Southeast), 11 (Texas) and 12 (West) account for more than 83% of all SFR securitized properties, while the Midwest and Northwest account for only 10% of properties combined. Districts 1, 2 and 3 (most of PA and the Northeast including NY), do not have a single instance. Of the 17 MSAs with more than 1000 SFR securitized homes, only the Chicago, Indianapolis and Seattle MSAs are outside the Sunbelt.

[3] Average rent for securitized SFR properties in the MSA, weighted by the number of properties in that MSA per securitization, based on average rent at time of presale report (ranging from November 2013 to January 2015).

***Figure 1: Number of SFR Rentals by Federal Reserve District*[4]**



Five Sunbelt states (Table 3) in particular account for the bulk of SFR securitization activity**:** California, Texas, Arizona, Georgia and Florida. By itself Florida contains 13,113 properties under SFR securitization, close to a quarter of the national total. This geography of the "Big 5 states" was established from the outset of SFR securitization, but is showing signs of diversification: more than 60% of the housing in American Homes for Rent's second offering in 2014 was outside the Big 5 states. By and large though, SFR securitization remains concentrated in these five states.

***Table 3: Top 5 States for SFR Securitization*[5]**

	Number	**% of total**
Florida	13,113	22.7
California	11,397	19.7
Arizona	8,671	15
Georgia	7,585	13.1
Texas	6,898	12
Share of total activity		**82.5**

As is clear from both Figure 1 and Table 2, the Federal Reserve Bank of San Francisco's district[6] is particularly well represented in the first 15 securitizations, with the largest single MSA in Phoenix and

[4] * indicates portion of state in district. Note that Districts 1-3 (PA, NY and North East) are not included as they had no instances)

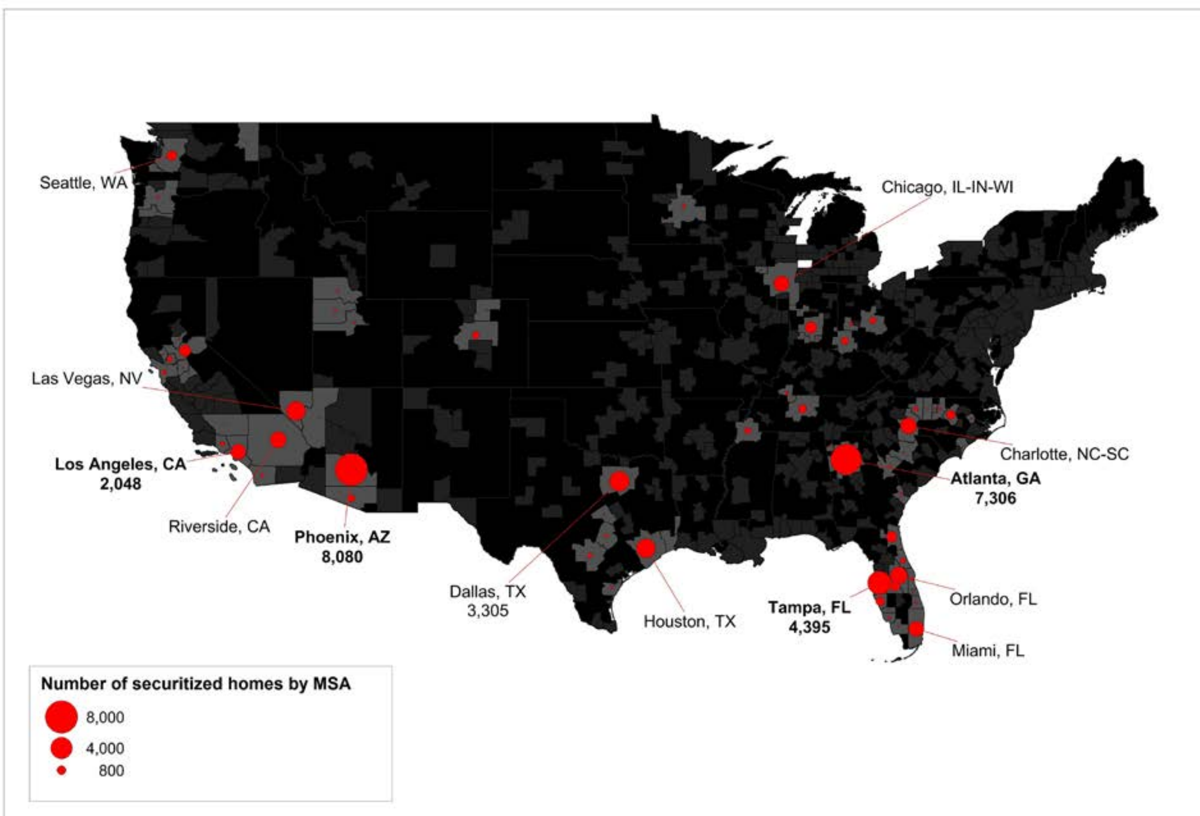
[5] While some MSAs cross state boundaries, this is not the case for most of the major centers of this activity, or for the top five states for SFR securitization.

five of the top 15 MSAs. Indeed MSAs in the 12th District account for 35% of the properties in the first wave of 15 SFR bond offerings. That said, SFR securitization is not spread evenly throughout the district, adhering closely to the Sunbelt geography discussed above. Approximately 82% of properties are located in Southern California, Southern Nevada and Arizona.

Why this geography?

As the preceding discussion shows, the geographical footprint of the newly-institutionalizing SFR market is uneven, with most activity concentrated in the U.S. Sun Belt (Figure 2). Moreover this geography is not simply a reflection of foreclosure hot spots: although Florida MSAs overwhelmingly dominated the rankings of metros with the highest foreclosure rates in 2010 (Local Initiatives Support Corporation, 2011) and California, Georgia, and Arizona also had numerous hot spots, foreclosure rates in Texas were more similar to rural states like Montana (Katz, 2010). Moreover, foreclosure hotspots like New Jersey, Ohio and Michigan have seen virtually no SFR securitization activity. As research by Federal Reserve Bank economists found, the top five MSAs where business investor activity (Atlanta, Phoenix, Tampa, Charlotte, and Las Vegas) was concentrated in 2012 not only had high foreclosure rates, but also low price-to-rent ratios, suggesting their purchasing focused on areas where then-low home values would rise (Molloy and Zarutskie, 2013). However this does not fully explain how and why institutional landlords select properties within their inventory for securitization, because price-to-rent ratios have increased at similar rates (and converged in January 2015) in MSAs with the highest and lowest levels of SFR securitization.

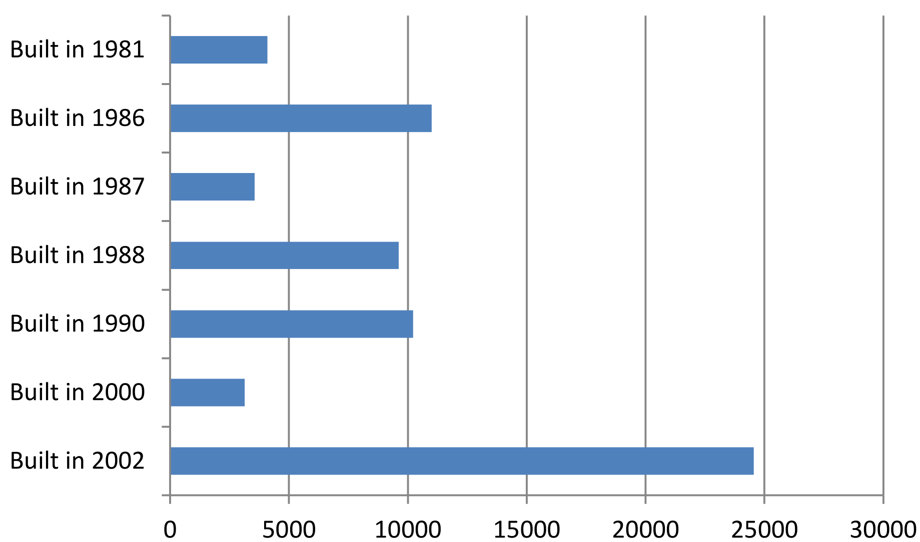
Figure 2: The geography of securitized SFR properties



[6] The 12th Federal Reserve District includes the nine western states—Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Utah, and Washington—plus American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

Considering the possibility that investors' ultimate strategy may be to sell homes as prices rise, home price dynamics and the pre-crisis geography of new home construction may also play an important role the Sun Belt geography of SFR securitization, and the institutionalization of single-family rental more generally. In areas with more than 1000 securitized SFR homes, average house prices fell further from their pre-crisis peak to post-2008 trough compared to markets with 10-250 securitized SFR homes (39% decline vs. 27% decline).[7] New construction in the years leading up to the mortgage crisis is not unrelated to these home price dynamics. Nearly half of securitized SFR homes were built in 2000 or 2002 (see figure 3), suggesting a suburban or exurban geography. Indeed Sun Belt markets like Phoenix and Las Vegas experienced large population and construction booms in the 1990s and 2000s. After 2007 foreclosure accumulation was the greatest in middle-class, suburban neighborhoods in these markets, as homeowners who took out loans when prices were at their peak quickly faced steep price declines that tipped them into foreclosure (Immergluck, 2010).

Figure 3: Number of securitized SFR properties by average age



Put simply, while relatively new homes in suburban Sun Belt locations were swiftly devalued, their prices are also more likely to recover than older housing stock in weak-market central cities of the Rust Belt. The interaction of the Sun Belt's 2000s construction bubble combined with the global credit bubble is likely a key factor explaining the geography of the new SFR industry and SFR securitization.

Low-income accessibility

A somewhat surprising aspect of the data gathered from presale reports for SFR bonds is that it allows some very limited analysis of the share of properties rented to tenants with Section 8 vouchers.

[7] Prices have also recovered more quickly in markets with the highest levels of SFR securitization (by 45% from post-2008 trough to Q2 2015 vs. 40% over the same period in markets with less securitization activity. However the more rapid recovery in home prices may be linked to investor purchasing activity. Calculations based on non-seasonally adjusted data from the Federal Housing Finance Agency Home Price Index: http://www.fhfa.gov/DataTools/Downloads/Pages/House-Price-Index-Datasets.aspx#mpo.

In terms of accessibility to low-income tenants, among the first 15 securitizations, only one firm, Invitation Homes, included properties rented to tenants with Section 8 vouchers. Of its five securitizations from October 2013 through January 2015, 110 of 20614 (or about half of one per cent) Invitation Homes properties were occupied by Section 8 tenants. Considering two of its more recent securitizations (IH2015 SFR-2 and IH2015 SFR-3)[8] adds another 249 homes, making the overall total of its securitized properties rented to Section 8 tenants to a little more than one per cent (1.14%) as of June 2015. However a recent decision to sell off about 1300 lower-value homes in the Atlanta area, may reduce the share of properties rented to tenants with Housing Choice Vouchers.[9] Another recent securitization, by Tricon American Homes, is also worth mentioning as part of this discussion. In that firm's April 2015 issuance, 14% of 3509 properties by market value were rented to low-income tenants. This works out to 491 homes.

Table 4: SFR Securitization and Section 8

Product	Total market value	Number of properties	Average market value	Rented to Section 8 as % of BPO	Dollar amount rented to Section 8	Approximate number of homes rented to Section 8
IH 2014 SFR-1 (5-16-14)	$1,341,331,986	6537	$205,191	0.10%	$1,341,332	7
IH 2014 SFR-2 (7-28-14)	$912,039,170	3750	$243,210	0.80%	$7,296,313	30
IH 2014 SFR-3 (10-24-14)	$981,826,183	4048	$242,546	0.70%	$6,872,783	28
IH 2015 SFR-1 (1-14-15)	$685,082,261	3072	$223,009	1.50%	$10,276,234	46
IH 2015 SFR-2 (3-30-15)	$806,469,232	3550	$227,174	1.50%	$12,097,038	53
IH 2015 SFR-3 (6-8-15)	$1,524,862,868	7265	$209,892	2.70%	$41,171,297	196
TAH 2015 SFR-1 (4-24-15)	$516,762,378	3509	$147,268	14%	$72,346,733	491
Total number of properties rented to Section 8 as of June 2015						**852**

If availability to Section 8 tenants is taken as a proxy for low-income accessibility in general, these initial data suggest both that low-income tenants in general may have limited accessibility to rentals owned by private equity landlords, and that there is some internal variation between companies in this accessibility. This could be due to differences in property value and rents—perhaps companies like Tricon are focusing on lower-value properties where rental costs do not outstrip the fair market rents that determine the value of Housing Choice Vouchers. Indeed, compared to the average property value

[8] Not included in the rest of the analysis in this report because of data limitations in the presale reports for securitizations issued after January 2015.

[9] Most of these were acquired in a historically large bulk transaction of 1400 homes in 2013, a majority of which were section 8 eligible and about 16% of which were already rented to tenants with Housing Choice Vouchers (Gittelsohn and Perlberg, 2013; Perlberg and Gittelsohn, 2015a)

of the securitized SFR homes owned by Invitation Homes (ranging from $199,000 to $243,000 across all seven issuances), the average property value of homes in the Tricon American Homes securitization was significantly lower (just $147,000). However the average property values of the securitized SFR homes owned by other companies typically fall somewhere between those of Invitation Homes and Tricon, so additional factors are in play.

A recent study focusing on the relationship between investor-purchased foreclosures and housing access for Section 8 tenants in Phoenix from 2009 to 2014 found that investors purchasing foreclosed properties were increasingly likely to rent to voucher holders over time, and that this gave voucher holders access to more advantaged neighborhoods (Pfeiffer and Lucero, 2015). The fact that only two firms engaging in SFR securitization represented among the top 20 investors renting to voucher holders, suggests that investors with more firsthand knowledge of local markets and more familiarity with the Section 8 voucher program may be better placed to rent to low-income tenants. Furthermore, corporate landlords may lack the reporting mechanisms to communicate their ability to manage the Section 8 Housing Choice Voucher program to capital markets. As a result rating agencies could be reluctant to assign high ratings to SFR bonds with a high proportion of low-income tenants.

As the industry evolves, trends in accessibility to low-income tenants may also shift. Does Tricon represent a blip, or does it signal the potential for greater differentiation of corporate landlords, with some specializing in affordable housing? Will the emerging model of multi-borrower securitizations, in which institutional investors provide private-label financing to smaller landlords and then securitize the resulting rental stream, expand housing access for voucher holders through financing landlords that are “closer to the ground”? This issue merits closer study as the market continues taking shape.

The need for further research

While the data does give some indication of how accessible these properties are to Section 8 tenants, one of the many questions that the data from the presale reports cannot answer is how this trend relates to the rental market overall. Very crude analysis of the initial rents charged indicates that in many MSAs, the average rent for a home which is part of a SFR securitization may be lower than the regional average. In other places it may be higher. But this a snapshot of rents over a very wide range of rental markets – rents in overheated San Francisco are quadruple some other MSAs in the country (Zillow 2015).

A recent survey found that tenants of three of the largest corporate landlords in California were paying higher median rents than other renters in their communities, and that taking on responsibilities of ownership such as yard maintenance and paying for utilities like water added to their housing costs (Ingliss, 2015). However the sample size was small, and lacks comparison with other housing markets where corporate landlords are active. Far more research is needed before any pronouncements are made as to the broader impact of this phenomenon on rents, renters or the rental market. Given the rise in renters spending a disproportionate share of their income on housing nationally (Joint Center for Housing Studies, 2015) and recent announcements by private equity landlords of plans to raise rents by more than 5% this year (Perlberg and Gittelsohn, 2015b), community development practitioners and researchers should assume that affordability will be a concern for tenants of corporate landlords until proven otherwise.

Another area where much more work is needed is unpacking the strategies of individual firms, the implications of recent consolidation trends as companies merge, and considering the potential that subsets of firms may be developing regional specialization or expertise in specific sectors, e.g. low-income housing. Traditionally, this is something left to academics or economic development specialists, but with powerful institutional investors making big bets in very specific places, community development specialists need to know more about how they operate. This report started exploring linkages between the geography of SFR securitization and general market conditions, but more granular quantitative data and in-depth qualitative data over a longer time frame should inform community development practice. This may represent a challenge, as understanding how institutional investor-landlords choose to acquire and securitize properties and their long term plans and management practices requires a different mind-set than working with traditional, often locally-bound landlords. Furthermore, considering that the new corporate landlords appear to be most active in middle-class, suburban areas, whereas community development has historically focused on urban and low-income areas, there could also be a need to build further community development capacity in the former.

With this preliminary report we have aimed to inform the community development and urban policy communities as to the current state of play of this emerging phenomenon. But nobody knows the long-term implications of this phenomenon. SFR securitization does not appear to be a flash in the pan – the geography is growing, more issuances are in the offing, and most critically, what has been a single-borrower phenomena is poised to become a multiple-borrower phenomenon. We may very well see institutional investors influencing local SFR markets above and beyond the homes they directly own and manage.

This degree of uncertainty drives the somewhat unsatisfying conclusion that the primary need is for more research, more transparency, and better collaboration. While serious collaboration on more rigorous and in-depth research is essential, there are major obstacles to carrying out the kind of work needed to make informed policy and practice decisions about the institutionalization of the single-family rental sector. The private equity firms that dominate the SFR securitization market are difficult for researchers to penetrate, the SFR bonds themselves are privately listed and traded, and comprehensive property-level information on both securitized and non-securitized properties is difficult to come by. Still, a number of advocates, journalists, and academics have been successful in devising ways of using extant databases to identify properties owned by specific private equity landlords (see for example "The New Single-Family Home Renters of California", Ingliss, 2015).

We argue that much more transparency is needed on both the companies and financial institutions involved in SFR securitization and on the products themselves, and emphasize the role for the public sector could play in supporting efforts to scale up and facilitate the coordination of existing initiatives in single cities or states. A national picture of the impacts of SFR securitization on renters, homeowners, and the economy more broadly will contribute to housing, consumer, and financial policy discussions and to the efforts of advocates and grassroots activists pursuing high-quality, affordable, accessible, stable, and community-controlled housing.

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Methods appendix

Our data provides an overview of what we know about the metropolitan geography of SFR securitizations through mid-2015. There are many meaningful questions our data cannot address, including how local real estate actors work with large investors, the impact their purchasing patterns have on first-time buyers, the quality of landlord-tenant relations within the newly institutionalized single-family rental sector, and the consequences of this market model for communities of color. Such questions demand further investigation drawing on more fine-grained quantitative data and nuanced, in-depth qualitative research.

Our analysis is based on the following procedures. We hand-collected pre-sale documentation for the first 21 SFR securitizations from Morningstar, one of the three credit rating agencies that has issued ratings on the bonds (the other two being Kroll and Moody's). The pre-sale reports contain a variety of quantitative data aggregated to the MSA level, including number of properties, average market value, average rent, average rehabilitation cost, and proportion of properties rented to Section 8 tenants as a percentage of the overall market value of the property pool. The reports are also informed by some qualitative data, including interviews with managers and local property experts. Due to inconsistencies[1] in the quantitative data for products released after January 2015, our analysis includes only the first 15 securitizations.

We organized the data by MSA, and labeled MSAs consistently with boundary files. To avoid losing differences between the securities and the companies we constructed a cross-sectional database listing MSA names and codes in rows, and each separate security in columns. We uploaded the database and boundary files for US MSAs onto MapInfo Professional and appended data on population, median price and occupancy (using 2013 American Community Survey 5-year estimates) using MSA label as a common variable between the census data and our custom database. This procedure yielded maps of Total Count, Total Broker Price Opinion (BPO, a measure of property value), Median Price, and Total Count per Capita.

Given the nature of pre-sale documents there are significant data limitations. First and foremost the data is only representative of institutional landlords that have securitized rental income, which excludes those of similar systemic importance, such as Alti-source Residential. Next the data is limited to representing the selected properties included within the securitization; these are not a random sample of a company's portfolio but rather likely to have been chosen based on a stratagem, for example selecting properties with high BPO values in order to boost the loan amount borrowed of the total BPO value of the homes included in the security. Temporal data can be amalgamated by using the date of the pre-sale documentation. This is an effective strategy for researching into changes in rental income, purchase price and rehabilitation cost over time. However, company and geographic variables can also change substantially with each securitization; ideally one should control for either the company or the geography, or both. Geographical limitations are also present: the data is aggregated to Metropolitan Statistical Areas, whereas a finer scale is more desirable for analyzing relationships between the inventory of corporate landlords and neighborhood race and income dynamics. In addition, the MSA scale is not representative of economic regions; combined MSAs would have been preferable.

[1] Purchase, rehabilitation and rental data by MSA in IH-2013-1 is missing. Similarly, AH4R-2015-1 has an incomplete list of MSAs. Such data inconsistencies became more common with more recent securitizations, which is why this report analyzes the data for only 15 of 21 securitizations issued through June 2015.