Delft University of Technology

In Real Estate Investment We Trust

State De-Risking and the Ownership of Listed US and German Residential Real Estate Investment Trusts

Aalbers, Manuel; Taylor, Zac; Klinge, Tobias; Fernandez, Rodrigo

DOI
10.1080/00130095.2022.2155134

Publication date
2023

Document Version
Final published version

Published in
Economic Geography

Citation (APA)
Aalbers, M., Taylor, Z., Klinge, T., & Fernandez, R. (2023). In Real Estate Investment We Trust: State De-Risking and the Ownership of Listed US and German Residential Real Estate Investment Trusts. *Economic Geography*, *99*(3), 312-335. https://doi.org/10.1080/00130095.2022.2155134

Important note
To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright
Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy
Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

This work is downloaded from Delft University of Technology.
For technical reasons the number of authors shown on this cover page is limited to a maximum of 10.

Green Open Access added to TU Delft Institutional Repository

'You share, we take care!' - Taverne project

https://www.openaccess.nl/en/you-share-we-take-care

Otherwise as indicated in the copyright section: the publisher
is the copyright holder of this work and the author uses the
Dutch legislation to make this work public.

Economic Geography

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/recg20

In Real Estate Investment We Trust: State De-risking and the Ownership of Listed US and German Residential Real Estate Investment Trusts

Manuel B. Aalbers, Zac J. Taylor, Tobias J. Klinge & Rodrigo Fernandez

To cite this article: Manuel B. Aalbers, Zac J. Taylor, Tobias J. Klinge & Rodrigo Fernandez (2023): In Real Estate Investment We Trust: State De-risking and the Ownership of Listed US and German Residential Real Estate Investment Trusts, Economic Geography, DOI: 10.1080/00130095.2022.2155134

To link to this article: https://doi.org/10.1080/00130095.2022.2155134

Published online: 20 Jan 2023.

Submit your article to this journal

Article views: 14

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=recg20

In Real Estate Investment We Trust: State De-risking and the Ownership of Listed US and German Residential Real Estate Investment Trusts

Manuel B. Aalbers
Division of Geography and Tourism
KU Leuven, the University of Leuven
B-3001 Leuven
Belgium
manuel.aalbers@kuleuven.be

Zac J. Taylor
Faculty of Architecture and the Built Environment
Delft University of Technology
2600 AA Delft
The Netherlands
and
Division of Geography and Tourism
KU Leuven, the University of Leuven
B-3001 Leuven
Belgium
Z.J.Taylor@tudelft.nl

Tobias J. Klinge
Division of Geography and Tourism
KU Leuven, the University of Leuven
B-3001 Leuven
Belgium
tobiasjohn.klinge@kuleuven.be

Rodrigo Fernandez
Department of Geography
Trinity College Dublin
Dublin 2
Ireland
and
SOMO (Centre for Research on Multinational Corporations)
1019 LA Amsterdam
The Netherlands
rodrigo@somo.nl

abstract

Real estate investment trusts (REITs) have been around since 1960 but have only become major players in housing markets in the last twenty years. The current and ongoing wave of residential REIT (R-REIT) expansion has attracted significant scholarly and broader public interest. This article examines how real estate, finance, and the state are configured in relation to each other through R-REITs. While much of the housing financialization literature has focused on *the real estate/state axis* of this relationship, we explore the underexamined connections between *the real estate/finance axis* and *the finance/state axis* of the real estate–finance–state triangle. We analyze the financial accounts of the world's fifteen largest publicly traded R-REITs and R-REIT–like funds in the two largest markets: the United States and Germany. Our findings demonstrate how the ownership of R-REIT stock is remarkably homogeneous: the largest shareholders in each of the studied R-REITs are the three largest index exchange-traded funds, which are heavily backed by pension fund capital. For these investors, it is important that R-REITs provide a healthy return on investment at the lowest possible risk. The investors require the state, in its various guises, to guarantee attractive risk-adjusted returns on R-REITs investments. We identify six dimensions of state de-risking in this context, deepening our understanding of the role of the state in housing financialization. It is the state that creates the *trust* in real estate investment trusts, and it thus is what generates the *investment* in real estate investment trusts.

ECONOMIC GEOGRAPHY

0(0):1–24. © 2023 Clark University. www.economicgeography.org

Key words:
housing
financialization
real estate investment trust (REIT)
exchange traded fund (ETF)
institutional investors
asset class

Acknowledgments

The authors would like to thank the reviewers, the editor of this journal, and the members of the Real Estate/Financial Complex research group at KU Leuven for providing suggestions on earlier drafts of this article.

Real estate investment trusts (REITs) have emerged as prominent, if controversial, legal–financial instruments for institutionalizing real estate investment in an increasing number of countries. In brief, REITs obtain funding exclusively for real estate investment, rent out properties, cash rent, and pay shareholders. REITs and other similar real estate investment funds and holding companies with different legal structures act as a bridge between the worlds of housing and urban development, on the one hand, and institutional investors and financial markets, on the other. REITs invest in a variety of real estate asset classes. Market actors typically differentiate between, on the one hand, commercial REITs (C-REITs), which are primarily made up of office and retail property but may include a range of other assets, and, on the other, residential REITs (R-REITS), which are made up of houses, apartments, and other forms of accommodation such as mobile homes and student housing. R-REITs used to be much smaller but are now dominating REIT market expansion. In this article, we focus on R-REITs and R-REIT–like funds in the two biggest markets in terms of asset ownership and market capitalization: the US and Germany.

Residential real estate markets have historically been considered more complex, more fragmented, and less standardized than commercial real estate, limiting large-scale R-REIT activity until the recent past. This is beginning to change, in part due to advances in asset/property management that facilitate scaling up, and in part due to larger economic trends, capital market dynamics, and government policies. The subprime mortgage meltdown, subsequent Global—or North-Atlantic—Financial Crisis of 2007–9 (GFC), and their aftermath created the conditions for the expansion of R-REITs and other forms of institutional capital into residential rental housing across North America and Europe. Although R-REIT returns were hit hard in 2007 when institutional investors temporarily retreated, they bounced back quickly in 2008, and have significantly grown in the following years, with investors expressing more interest than ever before (Newell and Fischer 2009; Devos et al. 2013). The largest seventy-five listed R-REIT and R-REIT–like funds now represent a combined

market capitalization of US$77.4 billion (FTSE Russell 2022). The global number and market capitalization of all R-REITs and R-REIT–like funds will be much larger, although how much so remains unclear.

REITs are studied primarily by real estate economists, and their analyses tend to focus on questions of returns on investment relative to other investment classes and in response to macroeconomic shocks, and on REIT volatility and acquisitions in relation to traditional indicators of financial performance, that is, earnings (such as Giliberto 1990; Han and Liang 1995; Hartzell, Sun, and Titman 2006; Brounen and De Koning 2012). Most studies tend to focus on C-REITs rather than on R-REITs. There is also a more recent literature on REITs in the field of urban political economy where human geography and urban studies come together. These articles focus on the diffusion of REITs (both C-REITs and R-REITs) from the US to other countries (Gotham 2006; Nappi-Choulet 2013; Aveline-Dubach 2014, 2016; Pereira 2017; Waldron 2018; Sanfelici and Halbert 2019; Wijburg 2019; Revington and August 2020; Yrigoy 2021), on the effects of R-REITs on local housing markets, and in particular on tenants (Beswick et al. 2016; Fields, Kohli, and Schafran 2016; Wijburg, Aalbers, and Heeg 2018; August 2020; Charles 2020b; Crosby 2020; García-Lamarca 2020; Soederberg 2020; Risager 2021), and also on the expansion of REITs into agricultural production and land ownership (Fairbairn 2014; Gunnoe 2014; Knuth 2015). We find particular inspiration from these articles, which offer more critical analyses of the spread of REITs and their effects on housing affordability and security. The urban political economy of REITs literature covers important dimensions of REITs, including the key role of the state in making REITs work, the expansion of R-REITs into new submarkets (e.g., former social and rent-stabilized housing, single-family homes, and student housing), and the symbiotic relationship between real estate private equity (REPE) and R-REITs. Yet one important question about R-REITs remains underexplored: who owns them?

We demonstrate how the ownership of R-REIT stock is remarkably homogeneous across the largest publicly listed R-REITs in Germany and the US. In particular, we show that the largest R-REIT shareholders in each of the studied R-REITs are the three largest exchange-traded funds (ETFs) globally, which are examples of so-called index funds that track a specified basket of underlying stocks, and are heavily backed by pension fund capital. For these investors it is important that R-REITs provide a healthy return on investment at the lowest possible risk. Although the urban political economy literature has studied how real estate, in general, and housing, in particular, are turned into an asset (Gotham 2006; Van Loon and Aalbers 2017; Fields 2018; Sanfelici and Halbert 2019), it has paid less attention to how state actors de-risk housing assets for investors, often implicitly. While the literature has discussed how national and federal governments facilitate REITs by introducing regulation to enable them to be active in the market field and to benefit from tax advantages (Gotham 2006; Waldron 2018), it has been less explicit about the broader set of actions that the state takes to de-risk institutional investment in housing, despite calls to pay more attention to the many roles of the state in the financialization of housing (Aalbers 2017; Bernt, Colini, and Förste 2017; Yeşilbağ 2020).

To be sure, several authors have discussed how state practices facilitate the flow of assets to R-REITs, but they tend to leave the issue of de-risking out of the discussion. “The capitalist economy requires financing for new assets classes with private

money" (Gabor 2020, 45) and therefore a de-risking state that provides support for the development of new asset classes (Karwowski 2019; Gabor 2020). Gabor and Kohl (2022) explicitly mention de-risking in the context of housing financialization but focus primarily on the monetary and financial regulation arms of the state. Christophers (2022) contends that the failure of the US state to protect households during the GFC and other policies that favored the expansion of real estate institutions also constitutes a form of de-risking that has favored the rise of institutional landlordism. We expand upon this understanding by arguing that the state also de-risks housing financialization in general, and R-REIT expansion in particular, through its crisis management and welfare arms, and not only in the US. On the one hand, states tend to de-risk institutional investment in a range of assets and not only in REITs or R-REITs. On the other, there is a long history of the state de-risking investment in housing and other forms of real estate, in part because construction creates visible jobs and fuels economic growth (Florida and Feldman 1988; Aalbers and Christophers 2014).

More recently, the selective presences and absences of state crisis management ushered in a new wave of R-REIT expansion in the wake of the GFC. Researchers in countries, such as Ireland (O'Callaghan and McGuirk, 2021; Waldron 2018), Spain (García-Lamarca 2020; Gil García and Martínez López 2021) and the US (Fields, Kohli, and Schafran 2016; Charles 2020a), have shown how millions of distressed properties were purchased by investors, including purpose-built REITs that mobilized economies of scale and access to low-cost capital to buy housing in bulk. Meanwhile in Germany, most REITs were formed as a result of a massive social housing privatization program, which ultimately led to the formation of the largest R-REITs in the world (Holm 2010). Affordable housing has increasingly become the focus of institutional investors "in a context where finance accumulates by 'grabbing value' [Andreucci et al. 2017] from future income streams of working people in the form of rents" (August 2020, 993). Here, and increasingly elsewhere, the state has effectively reduced the risk that housing assets fail to deliver an income stream to investors. This welfare management function supports the expansion of institutional investment in a range of housing types, including but not limited to (formerly) affordable rental housing in Germany, and age-restricted (retiree) mobile homes and student housing in the US.

In the next section, we first describe REITs in more detail and second discuss the urban political economy literature on REITs. REITs necessarily bring together real estate, finance, and the state, the basic dynamics of which are represented in Figure 1. While *the real estate/state axis* has received most scholarly attention, *the real estate/finance axis* and *the finance/state axis* of the real estate–finance–state triangle remain understudied. In this article we further our understanding of the latter by looking at the investors of R-REIT stocks and at how different arms of the state de-risk their investments, respectively. This is followed by a section where we introduce the funds and institutional investors that make up the lion's share of R-REIT investors, with a focus on ETFs as a crucial conduit for pension fund capital and other institutional investment in R-REITs. In the penultimate section we zoom in on *the real estate/finance axis* by examining the investors behind R-REITs and the dominant ownership role of ETFs in particular. In the final section, we revisit the role of the state in funneling this investment (primarily *the finance/state axis* but also *the real estate/state axis*). We argue that the

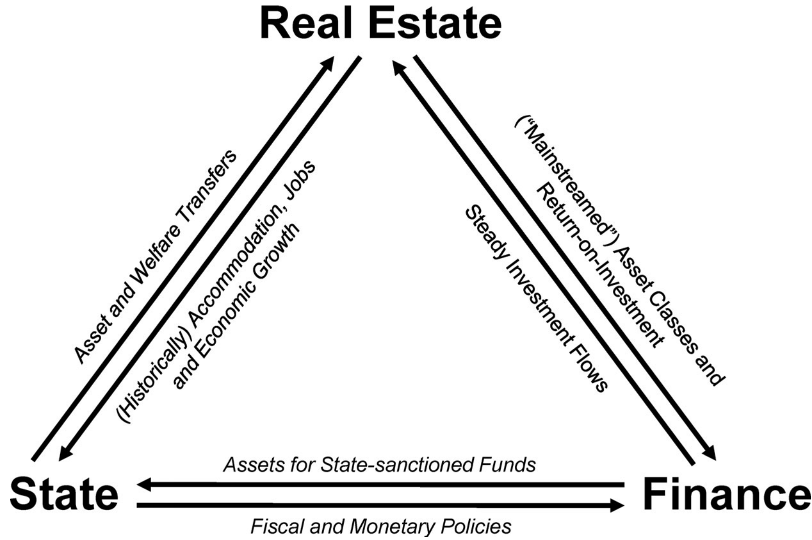

Figure 1. The real estate–finance–state triangle.
Source: Authors, inspired by Hendrikse, Van Meeteren, and Bassens (2019).

state not only regulates and facilitates R-REIT expansion but also de-risks the income-producing assets in which the R-REITs invest, thereby connecting the three axes of the real estate–finance–state triangle. We argue that state de-risking on both the *finance/state axis* and *real estate/state axis* help generate investment and growing market capitalization on the *real estate/finance axis*. In other words, it is the state that creates the *trust* in real estate investment trusts, and it thus is what generates the *investment* in real estate investment trusts.

We present a comparative approach that seeks to better contend with the variegated geographies and dynamics of R-REIT ownership. We draw on quantitative industry data from Refinitiv's Eikon database, a widely used source of information in recent studies of corporate financialization (Klinge, Fernandez, and Aalbers 2020; Tori and Onaran 2020; Haslam et al. 2021). We collected standardized data between 2000 and 2020 on the largest publicly traded residential REITs operating in the US ($n = 11$) and all of the four publicly traded REIT-like residential real estate funds in Germany,[1] in order to analyze relevant financial information of each firm (see Table 1). In Germany we cover the entire R-REIT–like market; in the US we focus on the largest firms (measured in terms of market capitalization), which are clearly distinguished (in size) relative to other US R-REITs and which represent an overwhelming share of the market. In operational terms, we examined the composition and size of their assets, liabilities, and payouts, and their share issuance levels over time. We supplemented our analysis with qualitative and quantitative data derived from individual listed R-REIT annual reports and other self-published material, US Securities Exchange Commission 10-K regulatory filings, public National Association of Real Estate Investment Trusts (Nareit) market index data, and industry media outlets to contextualize key market dynamics in relation to financial performance data.

[1] The two largest funds in Germany have announced a merger that is planned for 2023.

Table 1

Case Study R-REITS Organized by Strategic Focus, Assets, and Market Capitalization

R-REIT	Asset Focus	Residential Assets	Market Capitalization (End of FY 2020 USD billion)
American Campus Communities	Student and employee dormitories	102,453 beds in 34,169 units in 150 developments	5.9
American Homes 4 Rent	Single-family rentals	52,873 single-family homes	9.5
AvalonBay Communities	Multifamily apartments	73,632 units in 249 developments	22.4
Camden Property Trust	Multifamily apartments	56,682 units in 166 developments	10.0
Equity Residential	Multifamily apartments	77,889 units in 304 developments	22.1
Equity Lifestyle Properties	Mobile home and recreational vehicle (RV) communities	153,780 sites (72,737 mobile home / 81,043 RV sites) in 407 developments	11.5
Essex Property Trust	Multifamily apartments	60,272 units in 266 developments	15.4
Invitation Homes	Single-family rentals	80,177 single-family homes	16.8
Mid-America Apartment Communities	Multifamily apartments	100,121 units in 299 developments	14.5
Sun Communities	Mobile home and RV communities	148,925 sites (95,487 mobile homes / 53,438 RV sites) in 309 developments	16.4
UDR	Multifamily apartments	47,641 units in 148 developments	11.4
US total		***954,445 units***	***155.9***
Deutsche Wohnen	Mostly multifamily apartments, but also single-family and commercial rentals	154,600 residential and 2,900 commercial units	16.9
LEG Immobilien	Multifamily apartments	151,121 residential units	10.3
TAG Immobilien	Mostly multifamily apartments, but also commercial rentals	82,545 residential and 1,156 commercial units	4.3
Vonovia	Mostly multifamily apartments, but also commercial rentals and over 140,000 parking spaces	381,264 residential and 6,564 commercial units	38.0
Germany total		***769,530 residential and 10,620 commercial units***	***69.5***

Sources: Eikon, SEC 10-K reports, varied other annual reports.

REITs across Time and Space

REITs: A Primer

The first REITs were signed into law by US President Dwight Eisenhower in 1960. The goal was to create a market for real estate assets similar to liquid markets in stocks and bonds. Republican Joel Broyhill was one of the members of US Congress to push for legislation. He had been working in the family's real estate business for some years, and in 1961 his cousin, Thomas J. Broyhill, founded the first REIT: American Realty Trust. Ten years later, there were thirty-four listed US REITs with a combined market

capitalization of US$1.5 billion. By 1974, market capitalization had more than halved, but by 1977 it was back to 1971 levels. The market continued to grow rapidly, to 110 REITs with a market capitalization of US$9.7 billion in 1987, 211 REITs and US $140.5 billion in 1997, and 152 REITs and US$312.0 billion in 2007. The sector shrank in 2008, but recovered within a year, reaching 223 listed US REITs with a combined market capitalization of US$1.25 trillion by 2020.[2]

More than forty countries have introduced REIT regulation since 1961—especially in the last twenty years—with many more currently preparing or discussing REIT regulation (PwC 2015; European Public Real Estate Association [EPRA] 2020). National regulations are crucial to the rollout of REITs. REITs can only exist if there is a national legal framework that enables real estate investment firms to be incorporated as such. The legal status afforded to a REIT provides benefits to shareholders, primarily in terms of reduced corporate and capital gains taxes. This tax-optimization advantage is one main reason for the popularity of REITs. It helps create a favorable risk/return profile relative to other so-called alternative asset classes, which also include commodities, agricultural land, collectibles, derivatives, venture capital, and other assets. As tax systems differ between countries, so do the exact REIT regulation and rules. In both the US and Germany, REITs are required to have at least 75 percent of their assets invested in real estate and to distribute at least 90 percent of their taxable income to their shareholders.

Beyond the geography of registration and taxation, there are several additional differences between REITs. Some are publicly listed while others are publicly registered but nonlisted or privately held. Publicly listed REITs alone hold almost US$4 trillion in assets worldwide (EPRA 2020). Confusingly, some listed real estate investment funds and holding companies that are legally speaking *not* REITs, yet may act in similar ways to REITs, are often treated as such by investors and statistics alike. For the purpose of this article, we include listed REIT-like funds as REITs because we are less interested in the legal structure and more interested in who invests in real estate funds and how the state acts to de-risk the income streams from tenants to institutional investors.

Furthermore, REITs can invest in different types of real estate. Traditionally, offices have been the largest asset class in the US, but over the years retail has become more important. Other real estate classes include residential, industrial, health care, logistics, self-storage, and mortgages. Globally, so-called diversified REITs (D-REITs) are also very important and the biggest in some countries, but this is not the case in Germany and the US. Office and retail REITs—that is, commercial REITs (C-REITs)—are the largest in many countries—sometimes only trumped by D-REITs. However, residential REITs (R-REITs), including the aforementioned REIT-like listed real estate funds, are growing more important and are now more than twice as large as office REITs in key markets: the market capitalization of listed US R-REITs is US$229 billion versus US$105 billion for listed office REITs (Nareit 2021b), while in Germany these figures stand at US$70 billion and US$28 billion, respectively (SimplyWallSt 2021). Although R-REITs are quickly becoming major housing market players in countries such as Canada, Germany, Ireland, Spain, and the US (Beswick et al. 2016; Wijburg and

[2] https://www.reit.com/data-research/reit-market-data/us-reit-industry-equity-market-cap.

Aalbers 2017; August 2020; Fields and Vergerio 2022; Gabor and Kohl 2022), the overall R-REIT market share in housing remains smaller than the C-REIT market share in office and retail sectors. Moreover, there is far more residential than commercial real estate around the globe. In other words, R-REITs are considered to have room for growth.

REITs in Urban Political Economy

REITs bring together the worlds of finance and real estate, and have therefore been seen as vehicles of real estate financialization in the urban political economy literature (Wijburg and Aalbers 2017; Waldron 2018; August 2020; Charles 2020a; Crosby 2020; Risager 2021; Kikuchi, Teshima, and Yoshino 2022). Much of this tradition builds on the work of Henri Lefebvre (1970) and David Harvey (1978), who argue that the built environment has become essential to both creating and storing surplus capital from the primary, productive circuit of capital, such that it represents a crucial secondary circuit of capital. More recently, their hypothesis has inspired a new generation of urban political economy scholars who argue that state actions have led to a partial delocalization of real estate, which embeds real estate in global capital markets (Gotham 2006). Mortgage lending in general, and mortgage securitization in particular—hitherto backwaters of global finance—became the stars of financial markets in the late 1990s and early 2000s. Mortgage securitization channeled trillions of dollars of global capital into the residential real estate markets of the Global North, aided by the switching of capital following the collapse of the dotcom and other bubbles, as well as monetary policies that lowered interest rates (Aalbers 2008; Gotham 2012).

Capital market proponents framed real estate as low-risk compared to stocks, and higher return relative to other low-risk, traditional investment classes like sovereign bonds or savings. Real estate also came to be considered as an attractive source of portfolio diversification because of the low historical correlation between real estate assets and the broader market indices (see Feng, Ghosh, and Sirmans 2006). Indeed, real estate investment has long been seen as a countercyclical investment, although this has begun to change in the past decades due to the growing interdependencies between real estate and finance, which have resulted in stronger correlation between REIT share prices and market indices (Ambrose, Lee, and Peek 2007).

The urban political economy literature has established the role of states as crucial market makers for R-REITs. First, state regulations are foundational to the transformation of real estate liquidity out of spatial fixity (Gotham 2006) because they extend enabling legislation and tax advantages that allow real estate to be treated as "just another asset class" (Van Loon and Aalbers 2017). In addition, states' fire sales of distressed and privatized properties have created a pipeline of properties for both REPE and R-REITs. In the US, state responses to the foreclosure crisis, and in Germany, the privatization of public and social housing, created large windows of opportunity for the development of first REPE and later R-REITs (Holm 2010; Fields 2015; Fields and Uffer 2016). Over the same period, the tightened regulation of both primary and secondary mortgage markets in the wake of the GFC, in combination with the flexibilization and casualization of labor markets, and the lack of substantial social or cooperative housing plans, has increased the demand for private rental housing (Byrne 2020).

Some local and national governments, as in Spain, have also scaled back rental regulations, for example, by minimizing tenancy security from five to three years, or by making it easier to sell off properties rather than holding them, thereby making investment in rental housing more attractive (Martínez and Gil 2022).

State welfare trends, above and beyond the immediate domain of housing, have also enabled R-REIT expansion. State welfare programs, such as social security payments and state-backed student loans, provide a reliable flow of income to the tenants of several R-REITs, which further de-risks residential housing types that institutional investors would have considered to be marginal in the past. Although such programs are not new, these housing assets have become mainstreamed (Harvey 2005; Wijburg, Aalbers, and Heeg 2018) within the larger alternative asset class of real estate. In Germany, this was facilitated by a shift in social security payments, enabling landlords to directly tap into rental subsidies their tenants are entitled to, thereby minimizing the risk of unpaid rents (Bernt, Colini, and Förste 2017; see also Soederberg 2020). Whereas monthly social security payments and state-backed student loans would have deterred institutional investors in the past, as they would have viewed it as a sign of nonprofitable assets, these forms of direct state support now provide a reliable income stream, making investment in mobile home and student housing REITs in the US and multifamily REITs in Germany more attractive.

Investors in R-REITs

We need to understand state de-risking not only in terms of regulating—and thereby facilitating the rise of—REITs but also in relation to how investors seek the highest return on investment at the lowest possible risk. Whereas REPE and hedge funds typically specialize in more speculative *buying low and selling high* strategies (Holm 2010; Fields and Uffer 2016), R-REITs focus more on the income-producing dimension of housing assets, that is, rents (Wijburg, Aalbers, and Heeg 2018). Although it is hard to generalize, R-REITs tend to be more risk averse than REPE and hedge funds. Whereas the latter may push the state to privatize social rental housing or sell off foreclosed housing units, R-REITs are more interested in how the state minimizes the risk of rents not being paid and assets not performing. To interpret the more mid- to long-term and more risk-averse strategy (and therefore lower return on investment compared to REPE) of R-REITs, we need to also understand who invests in R-REITs and why.

As we will demonstrate in the next section, listed R-REITs receive most of their funding from a range of asset managers and funds. Three providers of exchange-traded funds (ETFs), a type of index fund, are among the largest stockholders in all fifteen R-REITs we investigated: BlackRock, Vanguard, and State Street. The so-called Big Three index ETFs together are not only by far the largest shareholders in listed R-REITs but also in 88 percent of the S&P 500 firms (Fichtner, Heemskerk, and Garcia-Bernardo 2017). Our argument is not that ETFs are more heavily concentrated in R-REIT investment relative to other sectors, but rather that R-REITs are increasingly considered to be a mainstream asset class that is included in market indices, which enables them to draw in institutional investment. In other words, state de-risking is instrumental to mainstreaming R-REITs, which allows them to be indexed, and in turn generates sustained institutional investment.

Given the crucial role of ETFs, it is important to better understand how index funds operate. Known as passive investors, index funds follow existing stock indexes rather than actively manage their funds, like mutual funds or hedge funds. This passive investment strategy does not aim to generate capital gains above market average, like active funds do, but instead to provide market-average returns. Such funds invest in firms listed in indexes, the control of which is also dominated by three companies with a combined 80 percent market share: S&P Dow Jones Indices, FTSE Russell, and MSCI. Index funds have been around since the late 1970s, and the first of the subtype of ETFs was established in the early 1990s (Petry, Fichtner, and Heemskerk 2021). Together, index funds and ETFs now control more stocks than the combined active funds, such that both the indices and the index funds are a major force shaping global financial markets.

Inclusion or exclusion from an index steers the allocation of billions of dollars of institutional capital, given that the passive investment vehicles now collectively manage more than US$15 trillion in assets (Wigglesworth 2021). From the moment that a stock is included in an index, funds that track that particular index will invest in it, which implies that inclusion in (or exclusion from) an index also has a price effect: stock prices tend to go up when a stock is expected to be added to an index because other investors know that ETFs and other index funds will now need to buy its shares. Moreover, index tracking has a broader impact, since it influences decisions by active investors, magnifying the price effect for stocks that are included in an index (Petry, Fichtner, and Heemskerk 2021). ETFs have grown rapidly, and it is easy to understand why: passive funds, like index ETFs, are cheaper to manage than active funds because they control large sums of capital with minimal overhead and staff, while producing average profit rates.

In addition to the three *big* indices, there are also *smaller* real estate indices that focus on particular markets or assets such as the Dow Jones U.S. Select REIT Index and the FTSE EPRA Nareit Global Real Estate Index.[3] As of May 2021, twenty-six ETFs were benchmarked against the FTSE EPRA Nareit Index. Over five hundred companies are currently included in the index, although these are not exclusively REITs. They represent more than US$3 trillion of property investment globally, with new listed real estate funds typically added every three months. The Dow Jones REIT Index, on the other hand, only tracks 114 REITs, all from the US, no non-REIT listed funds, adds fewer new REITs over time, and represents less than US$1 trillion. Some of the larger R-REITs are not only included in the specialized real estate index but also in the Big Three indexes, for example, twenty-nine US REITs are included in the S&P 500. This generates even more investment in these REITs. In other words, in terms of attracting institutional investment, it pays off to be a large R-REIT.

The Big Three index ETFs, and their smaller peers, may invest in REITs through both general funds (relying on the aforementioned indices) and through one of the specialized

[3] Dow Jones U.S. Select REIT Index is run by S&P, while the FTSE EPRA Nareit Global Real Estate Index is jointly managed by three actors: First, the Financial Times Stock Exchange (FTSE), originally a joint venture between daily newspaper the *Financial Times* and the London Stock Exchange, but currently wholly owned by FTSE Russell, a subsidiary of the London Stock Exchange Group. Second, EPRA, a nonprofit association representing Europe's publicly listed property companies, founded in Amsterdam in 1999 but now headquartered in Brussels. And third, Nareit established in 1960 one day after President Eisenhower signed REITs into law, and headquartered in Washington, DC.

real estate indices, implying that they are well exposed to some of the largest REITs. Vanguard, through its general ETF and its REIT ETF combined, is the biggest player in REIT investment: by 2015 it had at least a 20 percent stake in almost 80 percent of all publicly listed REITs (Evans, Jones, and Mueller 2016), and it has only expanded since. Beckmann, Huerta-Sanchez, and Ngo (2020) argue that due to the relatively scarce supply of REITs, ETFs are in favor of including more REITs in the (specialized) indices so they can further diversify their investments, and because the FTSE EPRA Nareit Index has outperformed the S&P 500 in fifteen of the last twenty-five years and given that listed REIT dividend yields are more than double those of S&P 500 firms.

Since most REITs are obliged to pay out 90 percent of taxable income, they require additional capital to grow, which implies that REITs must issue new stocks or emit debt to acquire new assets. This makes REITs highly dependent on institutional capital and very attractive to ETFs and other index funds, which, by their very nature, need to continue investing in stocks in order to stay on par with the specific index they track. Once a corporation is included in an index that is tracked by index funds, funds expand their investments in this corporation to replicate the index as their assets under management grow. This automated and perpetual inclusion of stocks in the portfolio of passive vehicles is why Fichtner and Heemskerk (2020) refer to passive investors as permanent universal owners. In the early 1990s institutional investors and ETFs owned less than 10 percent of US REIT stocks, but by 2016 they owned two-thirds (Beckmann, Huerta-Sanchez, and Ngo 2020). Moreover, institutional investors have been more present as R-REIT than as C-REIT stockowners (Schwartz-Driver 2008).

Who Owns R-REITs?

Sizing Up the Big Three Owners

In this section, we examine the institutional ownership of the largest US and German R-REITs in order to better understand and demonstrate the role of ETFs and other institutional investors in bridging the worlds of housing and finance. Figure 2 reintroduces the case study R-REITs, presented here in terms of their significant and growing market capitalization. To begin our analysis, we consider Refinitiv Eikon's *investor-type* classification. We have simplified the original categories, which included ambiguous classifications such as the one between the dominant categories of *Investment Advisor* and *Investment Advisor/Hedge Fund.*[4] Specifically, we singled out the Big Three index ETFs[5] (BlackRock, State Street, and Vanguard) as well as the sovereign wealth fund (SWF) Norges, and reclassified all other investors for which Refinitiv Eikon provided data into either *Other Investment Advisors and Hedge Funds* (including the other investors originally classified as *Investment Advisor*, *Investment Advisor/Hedge Fund*, and *Hedge Fund*) or *Other.*

[4] In Refinitiv's guide, *Investor Advisors* are defined as "buy-side institutions that have discretionary power over assets under management (AUM) and make buy/sell decisions" and *Investment Advisors/Hedge Funds* as "investment firm[s] that uses both 'traditional' and hedge fund (i.e. "alternative") investment techniques." For our purposes here, we have no way of knowing how heavily the latter use these alternative techniques.

[5] We identified the respective entities by name only, implying that our results could underestimate the actual ownership shares.

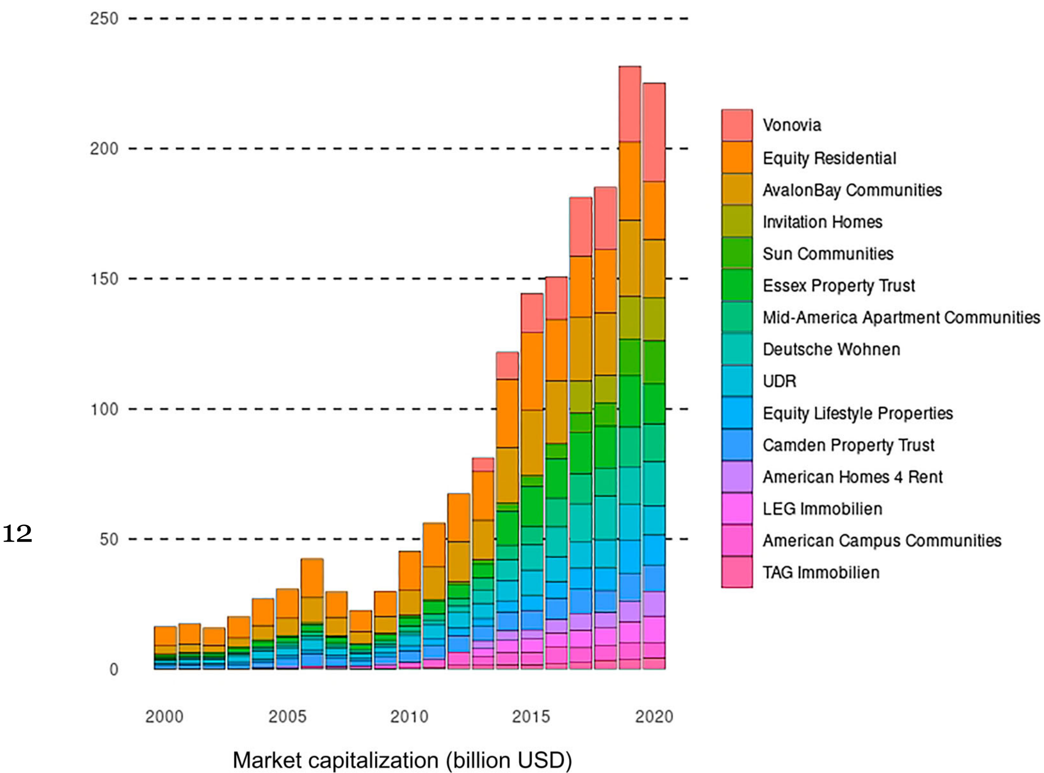

Figure 2. Market capitalization of selected R-REITs.

We find that, in all cases, the Big Three, Norges, and other investment advisors account for at least 80 percent and up to 95 percent of all investment value (Figure 3).[6] What is more, the Big Three alone account for around 30 percent across the sample, which is equivalent to US$60 billion. While these three have been the largest investors for several years, in most cases their shares have expanded recently. Pension funds never account for the *direct* ownership of more than 10 percent of the shares of any R-REIT, but they *indirectly* invest heavily in R-REITs as they back the stock ownership of many index ETFs, investment advisors, and hedge funds. Norges also has stakes in all R-REITs, although to varying degrees, with its most important investments being the leading two German R-REITs and the largest US R-REIT. Although R-REITs specialize in different types of housing, we find that the investors in each of these categories are rather similar: investment advisors and hedge funds dominate in all categories during the 2000–20 period. As an exception, we find that shareholdership in single-family REITs is more volatile, perhaps because this is a newer type of REIT in which pure hedge funds played a larger role in the initial stages, before investment in the subclass was mainstreamed.

[6] Note that investor information in Eikon differed between US and German R-REITs. Whereas the investment value obtained from the database for the year 2020 on average added up to 99.1 percent of the market capitalization of US R-REITs (in some cases exceeding 100 percent because of temporal incongruity in the data), it only did so for 68.7 percent in the case of German R-REITs, dipping as low as 58.4 percent for Vonovia. For this reason some bar lengths in Figures 3 and 4 differ from those in Figure 2. All subsequent statements regarding relative shares refer to the available investor information.

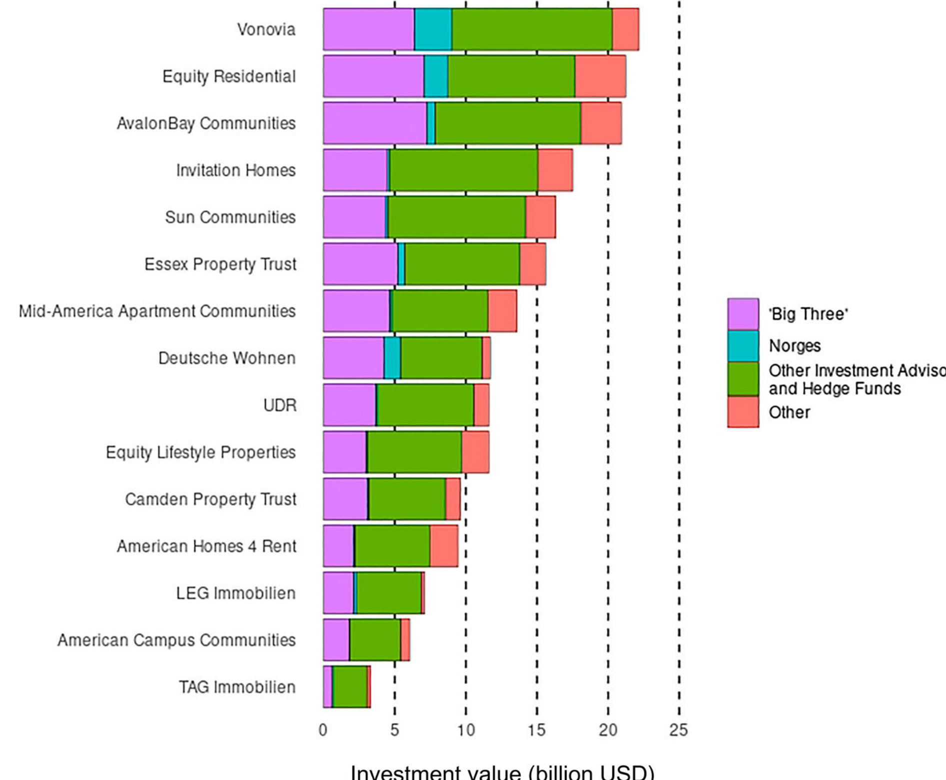

Figure 3. Investment value of selected R-REITs by investor type.
Source: Authors' calculations based on Refinitiv Eikon data, March 2021.

The country of registration of each investor provides an additional angle from which to understand the ownership question. Here US-registered investors reign supreme, accounting for 75–85 percent of US and 30–40 percent of German R-REITs (Figure 4). The other notable countries are primarily European, although we also see Canada, Japan, and Australia. It should be noted, however, that this does not necessarily tell us anything about the ultimate investors. Many of the US-based investors, including the three big ETFs, are funded heavily by both North American and Western European pension funds (Braun 2022). Moreover, employees and pensioners increasingly own significant stakes in R-REITs through pension funds or 401 (k) plans. Indeed, a recent study suggests that by 2019, 44 percent of US households own REIT stocks (rather than the narrower category of R-REIT stocks)—typically through index and related target date funds—up from 23 percent in the year 2000 (Nareit 2021a).

If we extract the largest individual investors (according to their total investment across the R-REITs) (see Table 2), we see how consistently dominant two firms are: Vanguard and BlackRock. State Street, the third of the Big Three ETFs, is the third largest investor overall but well behind its larger competitors and just ahead of Norges. In BlackRock's case, it is important to note that it features three times in the list because of two British subsidiaries. In 2020, the

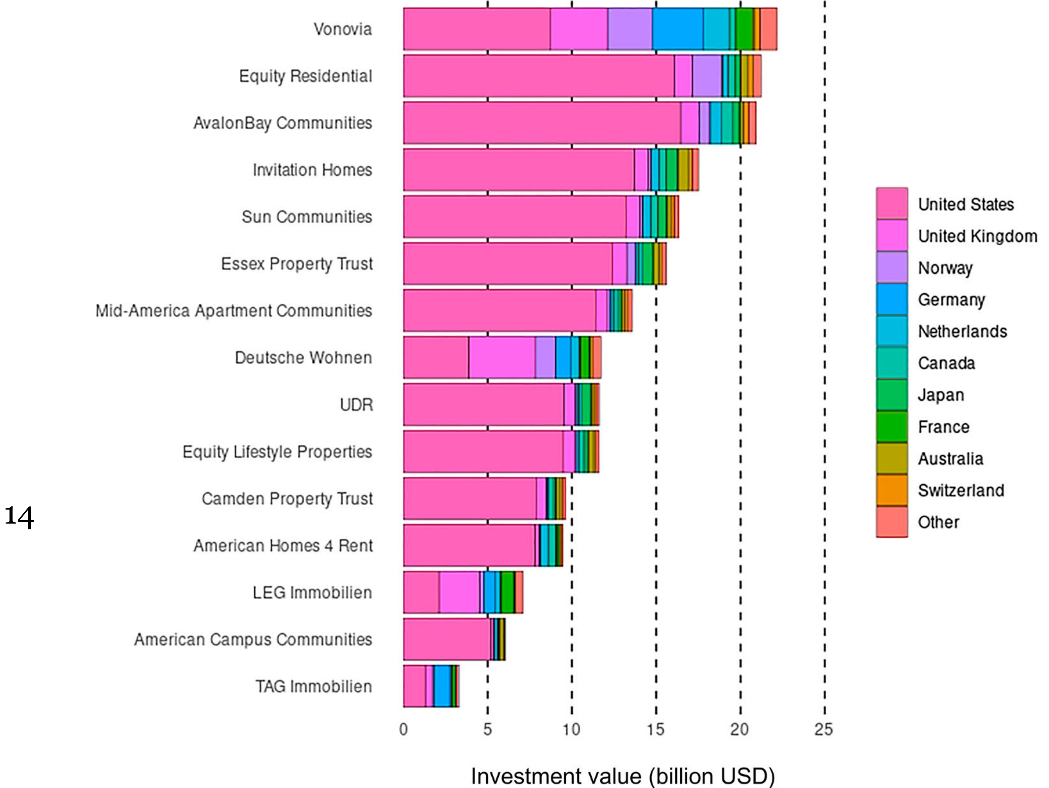

Figure 4. Investment value of selected R-REITs by country.
Source: Authors' calculations based on Refinitiv Eikon data, March 2021.

combined investment of these three BlackRock entities together totaled US$20.8 billion.[7] In addition to investment advisors, hedge funds, and Norges, Table 2 also includes several pension funds, the largest being APG (listed twice for a combined investment value of US $4 billion in 2020, which would bring it into the Top 10 investors) and PGGM, which are both subsidiaries of the two largest Dutch pension funds. This list also includes one US pension fund and one subsidiary of a US pension fund. Despite differences in the investment volumes of individual investors, the picture in Figures 2 and 3 remains relatively stable if we use the data of Table 2 to compare between the years 2000, 2005, 2010, 2015, and 2020. In each year, investment advisors and hedge funds, with the Big Three ETFs in the lead, dominate the R-REIT market.

Engineered for Growth

The ownership question alone does not explain what makes R-REITs distinct from other financialized companies and why this in turn positions R-REITs as long-term players with the potential to grow significantly. In the case of R-REITs, it is *not* the operational part that

[7] BlackRock also invests through an Irish subsidiary, which would bring its combined investment up to US$22 billion. Vanguard and State Street both invest in R-REITs through other subsidiaries as well, none of which however feature on this list because of the threshold of US$1.5 billion per entity.

Table 2

Overview of Selected R-REIT Investors (Minimum Aggregate Investment of ≥ US$1.5 billion)

Investor Name	Type	Country	Investment Value (US$ billion)				
			2000	2005	2010	2015	2020
The Vanguard Group, Inc.	Investment Advisor/ Hedge Fund	US	1.6	2.8	5.4	17.9	25.2
BlackRock Institutional Trust Company	Investment Advisor	US	3.3	4.3	5.8	12.7	14.1
State Street Global Advisors (US)	Investment Advisor/ Hedge Fund	US	–	–	1.9	5.9	8.6
Norges Bank Investment Management (NBIM)	Sovereign Wealth Fund	Norway	2.6	2.6	2.8	5.0	7.8
Cohen & Steers Capital Management, Inc.	Investment Advisor/ Hedge Fund	US	–	1.3	2.5	5.1	5.2
BlackRock Investment Management (UK) Ltd.	Investment Advisor/ Hedge Fund	UK	–	–	–	2.5	5.0
Principal Global Investors (Equity)	Investment Advisor	US	–	–	–	2.2	4.6
MFS Investment Management	Investment Advisor/ Hedge Fund	US	–	–	–	2.4	4.2
Fidelity Management & Research Company LLC	Investment Advisor	US	2.4	3.1	3.0	6.4	3.3
JP Morgan Asset Management	Investment Advisor	US	–	–	–	2.0	3.2
Geode Capital Management, L.L.C.	Investment Advisor/ Hedge Fund	US	–	–	–	1.2	2.9
T. Rowe Price Associates, Inc.	Investment Advisor	US	–	–	–	1.9	2.8
Dimensional Fund Advisors, L.P.	Investment Advisor/ Hedge Fund	US	–	–	–	1.5	2.7
APG Asset Management US, Inc.	Pension Fund	US	–	–	1.2	2.1	2.2
Legal & General Investment Management Ltd.	Investment Advisor/ Hedge Fund	UK	–	–	–	–	2.0
Invesco Advisers, Inc.	Investment Advisor	US	–	–	1.6	3.3	1.9
PGGM Vermogensbeheer B.V.	Pension Fund	Netherlands	–	–	–	1.5	1.9
APG Asset Management N.V.	Pension Fund	Netherlands	1.8	1.3	1.3	2.2	1.8
DWS Investment GmbH	Investment Advisor/ Hedge Fund	Germany	1.3	1.3	1.4	1.9	1.8
BlackRock Advisors (UK) Limited	Investment Advisor/ Hedge Fund	UK	–	–	1.0	1.5	1.7
CenterSquare Investment Management LLC.	Investment Advisor	US	–	–	–	–	1.7
California Public Employees' Retirement System	Pension Fund	US	–	–	–	–	1.5
Charles Schwab Investment Management, Inc.	Investment Advisor	US	–	–	–	–	1.5
Nuveen LLC	Pension Fund	US	–	–	–	1.2	1.5
Daiwa Asset Management Co., Ltd.	Investment Advisor	Japan	–	–	–	2.0	1.3
CBRE Clarion Securities, L.L.C.	Investment Advisor/ Hedge Fund	US	–	–	1.2	2.8	–
LaSalle Investment Management Securities, LLC	Investment Advisor	US	–	–	–	2.0	–
Morgan Stanley Investment Management Inc. (US)	Investment Advisor/ Hedge Fund	US	–	–	1.6	2.4	–
Shinko Asset Management Co. Ltd.	–	–	–	–	–	1.5	–

Source: Authors' calculations based on Refinitiv Eikon data.

represents a financialized logic, but it is the firm itself that is a financial product. This difference is important because it underscores how R-REITs function as a vehicle for sustained housing financialization. This, in turn, helps us to understand the conditions that enable R-REITs to facilitate expansion, a point to which we return in the conclusion.

To illustrate this difference, we present four financial indicators for the period 2014–19, comparing R-REITs to the wider corporate sector exemplified by the S&P 500 (Table 3). First, the asset base clearly shows just how heavy R-REITs are relative to other financialized firms. Property typically accounts for more than 90 percent of the total assets of R-REITs, and their liquid investments are much smaller than the S&P average.

Second, R-REITs hold much greater debt in relation to their revenues, which suggests that their capital circulates slower than that of other firms and therefore underscores their long-term orientation. Notably, the German R-REITs carry even higher debt ratios than their US counterparts, which emit more equity. However, the average debt (in relation to assets) of R-REITs decreased between 2014 (52 percent) and 2019 (45 percent), while the opposite happened for the S&P 500 (28 percent and 30 percent, respectively). In other words, R-REITs appear to have been more likely to use debt to enhance their asset base than other firms. Presumably, during this high-liquidity period, R-REITs seized the opportunity to lock in lower interest rates for a longer time.

Third, the market capitalization of US R-REITs is much closer to the US corporate sphere of the S&P 500 than those of the German R-REITs, which underscores the depth of US capital markets—but also the potential for catch up on the part of the German R-REITs.

Finally, US R-REITs pay out more of their net income than the S&P 500, in keeping with their legal status. This is not the case for the German R-REITs, which legally speaking are not all REITs. Yet, in both countries, the composition of payouts separates

Table 3

Overview of Selected Financial Ratios for S&P 500 Companies and R-REITs, 2014–19

Financial Indicator	Mean in % (Number of Observations)			Median in % (Number of Observations)		
	S&P 500	US R-REITs	German R-REITs	S&P 500	US R-REITs	**German** R-REITs
Cash and short-term investments/total assets	12.3 (2,723)	1.8 (66)	3.3 (24)	7.2 (2,723)	1.0 (66)	2.4 (24)
Property plant and equipment/total assets	27.8 (2,934)	92.6 (66)	91.6 (24)	15.7 (2,934)	93.5 (66)	93.7 (24)
Short and long-term debt/ net sales	91.4 (2,969)	366.1 (66)	637.8 (24)	51.4 (2,969)	339.9 (66)	624.6 (24)
Short and long-term debt/ total assets	30.4 (2,969)	47.1 (66)	46.1 (24)	29.0 (2,969)	45.2 (66)	44.6 (24)
Net share issuance/ common equity	-8.5 (2,984)	6.2 (66)	2.8 (24)	-4.6 (2,984)	1.8 (66)	0 (24)
Market capitalization/total assets	164.1 (2,984)	121.2 (63)	52.3 (24)	114.8 (2,984)	124.0 (63)	52.7 (24)
Dividends and share repurchases/net income	90.4 (2,985)	116.1 (66)	54.2 (24)	84.5 (2,985)	121.3 (66)	23.7 (24)

Source: Authors' calculations based on Refinitiv Eikon data.

R-REITs from other companies. Between 2014 and 2019, they channeled some 96.5 percent of their total US$32.5 billion in payouts to shareholders in the form of dividends. In contrast, S&P 500 firms demonstrated a preference for share repurchases over dividends, devoting 58.8 percent of their total US$6.5 trillion in payouts to this channel. While the S&P 500 relied on stock markets to *disburse* funds rather than attract them by repurchasing an average of 8 percent of common equity between 2014 and 2019, R-REITs harnessed financial markets' potential for growth by *emitting* an average of 5 percent during the same period.

What do these four indicators suggest? Stable growth in terms of both market capitalization and underlying fixed assets, financed by fresh equity and debt, has enabled R-REITs to generate reliable dividends for shareholders. Given these conditions, R-REITs have grown at roughly the speed of the global balance sheet—or even stronger, as the sector's recent growth burst shows. To sum up, R-REITs growth is enabled, on the one hand, by their inclusion in general stock indices, as well as real estate–specific indices, which generate an almost automatic flow of institutional capital into REITs, which is reflected in their ownership structure. On the other hand, the expansion of R-REITs is secured by the state's de-risking practices, which make it easier for REITs to acquire both properties and capital.

Discussion and Conclusion

R-REITs and R-REIT–like funds bridge the worlds of finance and capital with those of housing and urban development through strategies that aim to produce reliable income flows from residential rents. R-REITs are not so much financialized corporations as much as they are financial products, constituted through bundles of properties. As such, R-REITs play a different role in financialized capitalism than financialized corporations, forming a network between institutional investors and various state actors, on the one hand, and disparate and heterogeneous residential geographies, on the other.

Our first contribution to the housing financialization literature is to conceptually extend our understanding of how real estate, finance, and the state are configured in relation to each other by R-REITs. While much of the existing R-REIT literature has focused on *the real estate/state axis* of this relationship, our analysis of R-REIT ownership enables us to explore the underexamined connections between *the real estate/finance axis* and *the finance/state axis*.

Our main empirical finding, and second overall contribution, relates to the pivotal role of the Big Three index ETFs in shaping R-REIT ownership and growth. The Big Three ETFs, backed by pension fund capital, provide the main driver of demand for R-REIT stocks and, by extension, are overwhelmingly the largest owners of R-REIT shares. ETFs fuel the expansion of R-REITs, both in size and geographically to new asset types and locations. This expanding geography of institutional real estate investment represents the latest wave in an ongoing process of residential housing financialization and is more broadly indicative of yet another way in which capital seeks to switch in and out of the built environment. The point is not that pension fund and ETF investment is unique to real estate, but rather that state de-risking and financial sector practices together have mainstreamed real estate assets as not only relevant but key to long-term institutional investment. R-REITs facilitate the transformation of relatively illiquid, and

in many cases hitherto uninvestable, residential properties such as scattered single-family homes, affordable rental housing, and mobile homes, into a liquid and reliable asset class.

ETFs and institutional investors do not simply need R-REITs to furnish housing assets to invest in. They also require the state, in its various guises, to guarantee attractive risk-adjusted returns on R-REITs investments. Our third overall contribution is to therefore deepen our understanding of the ways in which the state de-risks housing financialization. We find six dimensions of state de-risking in this context, building on political economy-inspired analyses of real estate financialization (see "Introduction" and "REITs across Time and Space"). First, the proliferation of R-REITs cannot be explained without also understanding the many forms and layers of state intervention, which make particular residential asset types and locations investable for R-REITs. To start with, REITs can only exist if governments have introduced regulation that provides for REIT structures, following Gotham (2006) and many subsequent scholars. That is, states enable REITs through basic regulations and direct tax advantages that are baked into REIT regulation. In other words, the mere introduction—and thus regulation—of REITs, from the very start in the US onward, has always been a case of the state de-risking institutional investment into real estate. It is the *raison d'être* of REITs.

Second, state actions have created the very housing portfolios that many R-REITs invest in. In Germany, the federal government introduced legislation facilitating the privatization of public and social housing, which was subsequently picked up by local and state governments that supported privatization for both ideological and budgetary reasons. In the US, states have played multifaceted roles in enabling the creation of single-family REITs by facilitating the transfer of large portfolios of distressed residential assets to investors during the aftermath of the GFC. Most German R-REITs and the new US single-family R-REITs were born out of this massive transfer of ownership from, respectively, the social housing and owner-occupied sectors to the private rental sector. In this sense, states have first created a safe regulatory environment for R-REITs and subsequently—and mostly indirectly—shaped the conditions that enabled R-REITs to acquire as many properties as they have.

But the role of the state does not stop here. Third, state(-sanctioned) funds channel substantial funding to R-REITs through pension funds, tax-exempt 401(k) plans, and one SWF (Norway's Norges), which finance REITs both directly and through ETFs, as we have demonstrated in "Who Owns REITs?" That is, the state not only fed the supply of houses and apartments to R-REITs but also furnished the supply of funding—again, in rather indirect ways—necessary to finance such acquisitions.

Fourth, states have used REIT regulation to restructure their own housing holdings. For example, one of France's major social housing companies was listed on the stock exchange, thereby effectively creating an R-REIT within the state (Wijburg 2019). This suggests that the state is using the instruments of housing financialization to further its own goals, thereby setting in motion the financialization of the state (see Aalbers 2020).

Fifth, central banking policies (i.e., low interest rates and quantitative easing) and regulations (e.g., de-risking imperatives) have benefited both R-REITs and their investors (cf. Fernandez and Aalbers 2016). Borrowing to expand has been an attractive option for R-REITs, as evidenced by their relatively high debt-to-revenues ratios.

Moreover, the Third Basel Accord and other banking regulations have pushed banks to offload their housing assets. R-REITs did not simply buy banks' housing portfolios but were in some cases expressly created with the purpose of assuming these assets (Yrigoy 2021).

To make R-REITs possible and attractive, they not only need to be regulated and able to acquire properties and funding but also able to realize stable income flows—that is, rents. Here, and sixth, the state plays a de-risking role in the cases of mobile home and student housing R-REITs in the US, and socially rented apartments and nursing homes in Germany, by guaranteeing social security payments and underwriting student loans used to rent housing. In Germany, the state may even pay the rents of tenants on social security directly to R-REITs (Bernt, Colini, and Förste 2017; Soederberg 2020). The state-backed security of tenant income represents a crucial part of the financial foundation necessary to engineer an investment strategy commensurate with the stable and reliable returns demanded by investors, despite the heterogeneity and complexity of the residential sector.

Following Gabor (2020, 2021), we contend that these many state measures work to de-risk residential investment frontiers. This does not imply that there is a grand scheme through which states universally elevate R-REITs at the expense of other housing or investment options, but it does illustrate that states are involved in R-REITs in multiple ways, for different reasons, and with different and potentially contradictory consequences. There are many such investment frontiers, the geography of which shifts over time: from commercial to residential real estate, but also from multifamily properties to single-family properties; student and employee student dormitories; mobile homes and RV sites; and, most recently, care and nursing homes (August 2021; Horton 2021; Aveline-Dubach 2022). New asset frontiers also entail the movement of capital into new neighborhoods, towns, cities, and countries. This geography of R-REIT investment is diverse and complex, while at the same time operating under a model of standardization focused on the creation of a safe asset class. As Fields (2018) and others contend, the assetization of housing through assemblages of innovative financing, regulatory, and asset management strategies represents a process of market objectification, which seeks to fashion housing as "just another asset class" for investors (Van Loon and Aalbers 2017).

What does this portend for the future on R-REITs? There are many signs that R-REITs are not just here to stay but are likely to expand in terms of assets, geography, and investment volume. On the capital market side, ETFs, pension funds, and other institutional investors sustain a feed of inward capital, partly because of the built-in expansionist logic of ETFs and partly because R-REITs are increasingly included in multiple indices. This implies R-REITs will keep looking for new portfolios, new asset classes, and new geographies. The comparably strong performance of R-REITs versus C-REITs during the initial stretch of the COVID-19 crisis may only further an investor perception of secure opportunity in residential markets. Historically, REITs have also outperformed stocks in times of high inflation, although industry analysts suggest that this is no guarantee in the current conjuncture (Funari 2022). Furthermore, plans for a US capital gains tax may benefit R-REITs that reward their shareholders through dividends rather than capital gains. All of this suggests that the state/finance nexus that undergirds R-REIT markets appears secure.

This is not to say that R-REITs do not face new and resurgent barriers to expansion, both internal and external to their investment model. It is ironic that state de-risking is pushing R-REITs to expand and take on bigger risks—that is, de-risking may be producing new risk. As we have seen in the GFC, what starts as portfolio diversification may easily turn into riskier market behaviors that can eventually lead to a contagion effect across financial domains that were hitherto considered separate.

The de-risking of institutional investment in housing has also produced a very different kind of risk: asset income streams are being prioritized at the expense of housing affordability. In the US, the expansion of R-REITs to the Sunbelt region (Fields and Vergerio 2022) closely follows the geography of rising home prices and rental cost increases (see, respectively, S&P Dow Jones Indices 2022; Berdychowski 2022), for example. Similarly, climate risks and their management give pause for concern about the longer-term durability of R-REIT investment strategies. The state, once again, and in many guises, may assume new and deepened roles in de-risking the *real estate/finance axis*—if only to sustain near-term real estate market stability from climate disruption (Taylor 2020). While the climate-amplified housing crisis may deepen the role of the de-risking state, it could also disrupt the *finance/state axis* in ways that challenge the existing regime of institutional ownership. Consider, for example, how institutional divestment from fossil fuel assets has prompted backlash in US states like Texas and Florida (Aronoff 2022).

As housing affordability challenges, changing capital market conditions, and climate vulnerabilities escalate—and become increasingly entwined (Taylor and Aalbers 2022)—in many of the core markets and sectors in which R-REITs invest, there remain many open questions regarding how, where, and to what extent R-REIT strategies will be reproduced, contested, or otherwise remade. Scholars of housing financialization can continue to analyze and respond to these emergent dynamics through sustained focus on the shifting relationships between real estate, finance, and the state—and the axes between each.

References

Aalbers, M. B. 2008. The financialization of home and the mortgage market crisis. *Competition and Change* 12 (2): 148–66.

———. 2017. The variegated financialization of housing. *International Journal of Urban and Regional Research* 41 (4): 542–54. doi:10.1111/1468-2427.12522.

———. 2020. Financial geography III: The financialization of the city. *Progress in Human Geography* 44 (3): 595–607. doi:10.1177/0309132519853922.

Aalbers, M. B., and Christophers, B. 2014. Centring housing in political economy. *Housing, Theory and Society* 31 (4): 373–94.

Ambrose, B. W., Lee, D. W., and Peek, J. 2007. Comovement after joining an index: Spillovers of nonfundamental effects. *Real Estate Economics* 35 (1): 57–90. doi:10.1111/j.1540-6229.2007.00182.x.

Andreucci, D., García-Lamarca, M., Wedekind, J., and Swyngedouw, E. 2017. "Value grabbing": A political ecology of rent. *Capitalism Nature Socialism* 28 (3): 28–47. doi:10.1080/10455752.2016.1278027.

Aronoff, K. 2022. The deranged demands of the “anti-ESG” movement. *New Republic* August 29, 2022.

August, M. 2020. The financialization of Canadian multi-family rental housing: From trailer to tower. *Journal of Urban Affairs* 42 (7): 975–97. doi:10.1080/07352166.2019.1705846.

———. 2021. Securitising seniors housing: The financialisation of real estate and social reproduction in retirement and long-term care homes. *Antipode* 54 (3): 653–80. doi: 10.1111/anti.12795.

Aveline-Dubach, N. 2014. New patterns of property investment in ‘post-bubble’ Tokyo: The shift from land to real estate as a financial asset. In *Globalization and new intra-urban dynamics in Asian cities*, ed. N. Aveline-Dubach, S. C. Jou, and H. H. Hsiao, 265–94. Taipei, China: National Taiwan University Press.

———. 2016. Embedment of “liquid” capital into the built environment: The case of REIT investment in Hong Kong. *Issues and Studies* 52 (4): 1–32.

———. 2022. Financializing nursing homes? The uneven development of health care REITs in France, the United Kingdom and Japan. *Environment and Planning A: Economy and Space* 54 (5): 984–1004. doi: 10.1177/0308518X211072865.

Beckmann, K. S., Huerta-Sanchez, D., and Ngo, T. N. 2020. REIT industry liquidity, valuation, and ownership reactions to ETF inceptions. *Applied Economics* 52 (30): 3291–307. doi:10.1080/00036846.2019.1708859.

Berdychowski, B. 2022. Tampa Bay has the 3rd most ‘overvalued’ rent prices, study finds. *Tampa Bay Times*, May 4, 2022. https://www.tampabay.com/news/real-estate/2022/05/04/tampa-bay-has-the-3rd-most-overvalued-rent-prices-study-finds/.

Bernt, M., Colini, L., and Förste, D. 2017. Privatization, financialization and state restructuring in East Germany: The case of ‘Am Südpark.’ *International Journal of Urban and Regional Research* 41 (4): 555–71. doi:10.1111/1468-2427.12521.

Beswick, J., Alexandri, G., Byrne, M., Vives-Miró, S., Fields, D., Hodkinson, S., and Janoschka, M. 2016. Speculating on London’s housing future: The rise of global corporate landlords in ‘post-crisis’ urban landscapes. *City* 20 (2): 321–41. doi:10.1080/13604813.2016.1145946.

Braun, B. 2022. Fueling financialization: The economic consequences of funded pensions. *New Labor Forum* 31 (1): 70–79. doi:10.1177/10957960211062218.

Brounen, D., and De Koning, S. 2012. 50 years of real estate investment trusts: An international examination of the rise and performance of REITs. *Journal of Real Estate Literature* 20 (2): 197–223. doi:10.1080/10835547.2014.12090324.

Byrne, M. 2020. Generation rent and the financialization of housing: A comparative exploration of the growth of the private rental sector in Ireland, the UK and Spain. *Housing Studies* 35 (4): 743–65. doi:10.1080/02673037.2019.1632813.

Charles, S. L. 2020a. The financialization of single-family rental housing: An examination of real estate investment trusts’ ownership of single-family houses in the Atlanta metropolitan area. *Journal of Urban Affairs*. 42 (8): 1321–41. doi:10.1080/07352166.2019.1662728.

———. 2020b. A latent profile analysis of suburban single-family rental housing (SFR) neighborhoods. *Housing Policy Debate* 30 (2): 205–27. doi:10.1080/10511482.2019.1657927.

Christophers, B. 2022. The role of the state in the transfer of value from Main Street to Wall Street: US single-family housing after the financial crisis. *Antipode* 54 (1): 130–52. doi:10.1111/anti.12760.

Crosby, A. 2020. Financialized gentrification, demoviction, and landlord tactics to demobilize tenant organizing. *Geoforum* 108 (January): 184–93. doi:10.1016/j.geoforum.2019.09.011.

Devos, E., Ong, S. E., Spieler, A. C., and Tsang, D. 2013. REIT institutional ownership dynamics and the financial crisis. *Journal of Real Estate Finance and Economics* 47 (2): 266–88. doi:10.1007/s11146-012-9363-2.

European Public Real Estate Association. 2020. *Real estate in the real economy.* Brussels, Belgium: EPRA.

Evans, J. D., Jones, T. A., and Mueller, G. R. 2016. When passive index investors engage in activist corporate governance: The existence of correlated institutional block ownership within REIT capital markets. *Journal of Accounting and Finance* 16 (7): 46–72.

Fairbairn, M. 2014. ‘Like gold with yield’: Evolving intersections between farmland and finance. *Journal of Peasant Studies* 41 (5): 777–95. doi:10.1080/03066150.2013.873977.

Feng, Z., Ghosh, C., and Sirmans, C. 2006. Changes in REIT stock prices, trading volume and institutional ownership resulting from S&P REIT index changes. *Journal of Real Estate Portfolio Management* 12 (1): 59–71. doi:10.1080/10835547.2006.12089733.

Fernandez, R., and Aalbers, M. B. 2016. Financialization and housing: Between globalization and Varieties of Capitalism. *Competition and Change* 20 (2): 71–88. doi:10.1177/1024529415623916.

Fields, D. 2015. Contesting the financialization of urban space: Community organizations and the struggle to preserve affordable rental housing in New York City. *Journal of Urban Affairs* 37 (2): 144–65. doi:10.1111/juaf.12098.

———. 2018. Constructing a new asset class: Property-led financial accumulation after the crisis. *Economic Geography* 94 (2): 118–40. doi:10.1080/00130095.2017.1397492.

Fields, D., and Uffer, S. 2016. The financialisation of rental housing: A comparative analysis of New York City and Berlin. *Urban Studies* 53 (7): 1486–502. doi:10.1177/0042098014543704.

Fields, D., and Vergerio, M. 2022. *Corporate landlords and market power: What does the single-family rental boom mean for our housing future?* Self-published. https://escholarship.org/content/qt07d6445s/qt07d6445s.pdf.

Fields, D., Kohli, R., and Schafran, A. 2016. The emerging economic geography of single-family rental securitization. Working Paper 2016–02. San Francisco, CA: Federal Reserve Bank of San Francisco.

Fichtner, J., and Heemskerk, E. M. 2020. The new permanent universal owners: Index funds, patient capital, and the distinction between feeble and forceful stewardship. *Economy and Society* 49 (4): 493–515. doi:10.1080/03085147.2020.1781417.

Fichtner, J., Heemskerk, E. M., and Garcia-Bernardo, J. 2017. Hidden power of the Big Three? Passive index funds, re-concentration of corporate ownership, and new financial risk. *Business and Politics* 19 (2): 298–326. doi:10.1017/bap.2017.6.

Florida, R. L., and Feldman, M. M. 1988. Housing in US Fordism. *International Journal of Urban and Regional Research* 12 (2): 187–210. doi:10.1111/j.1468-2427.1988.tb00449.x.

FTSE Russell. 2022. FTSE EPRA Nareit Global and Global ex US Indices: Factsheet, September 30, 2022. London: FTSE Russell. https://research.ftserussell.com›Factsheets›Home.

Funari, N. 2022. How rising interest rates have affected REIT performance. In *Nareit Blog*, March 9, 2022. https://www.reit.com/news/blog/market-commentary/how-rising-interest-rates-have-affected-reit-performance.

Gabor, D. 2020. Critical macro-finance: A theoretical lens. *Finance and Society* 6 (1): 45–55. doi:10.2218/finsoc.v6i1.4408.

———. 2021. The Wall Street consensus. *Development and Change* 52 (3): 429–59. doi:10.1111/dech.12645.

Gabor, D., and Kohl, S. 2022. *"My home is an asset class": The financialization of housing in Europe*. Brussels, Belgium: The Greens/EFA in the European Parliament.

García-Lamarca, M. 2020. Real estate crisis resolution regimes and residential REITs: Emerging socio-spatial impacts in Barcelona. *Housing Studies* 36 (9): 1407–26. doi:10.1080/02673037.2020.1769034.

Gil García, J., and Martínez López, M. A. 2021. State-led actions reigniting the financialization of housing in Spain. *Housing, Theory and Society*. doi: 10.1080/14036096.2021.2013316.

Giliberto, M. 1990. Equity real estate investment trusts and real estate returns. *Journal of Real Estate Research* 5 (2): 259–63. doi:10.1080/10835547.1990.12090615.

Gotham, K. F. 2006. The secondary circuit of capital reconsidered: Globalization and the U.S. real estate sector. *American Journal of Sociology* 112 (1): 231–75. doi:10.1086/502695.

———. 2012. Creating liquidity out of spatial fixity. In *Subprime cities: The political economy of mortgage markets*, ed. M. B. Aalbers, 25–53. Oxford: Blackwell.

Gunnoe, A. 2014. The political economy of institutional landownership: Neorentier society and the financialization of land. *Rural Sociology* 79 (4): 478–504. doi:10.1111/ruso.12045.

Han, J., and Liang, Y. 1995. The historical performance of real estate investment trusts. *Journal of Real Estate Research* 10 (3): 235–62. doi:10.1080/10835547.1995.12090791.

Hartzell, J. C., Sun, L., and Titman, S. 2006. The effect of corporate governance on investment: Evidence from real estate investment trusts. *Real Estate Economics* 34 (3): 343–76. doi:10.1111/j.1540-6229.2006.00170.x.

Haslam, C., Leaver, A., Murphy, R., and Tsitsianis, N. 2021. Assessing the impact of shareholder primacy and value extraction: Performance and financial resilience in the FTSE350. Productivity Insights Network. https://productivityinsightsnetwork.co.uk/app/uploads/2021/06/PIN-Report-29-6-21-FINAL.pdf.

Harvey, D. 1978. The urban process under capitalism: A framework for analysis. *International Journal of Urban and Regional Research* 2 (1): 101–31. doi:10.1111/j.1468-2427.1978.tb00738.x.

Harvey, D. 2005. *The new imperialism*. Oxford: Oxford University Press.

Hendrikse R., Van Meeteren, M., and Bassens, D. 2019. Strategic coupling between finance, technology and the state: Cultivating a Fintech ecosystem for incumbent finance. *Environment and Planning A: Economy and Space* 52 (8): 1516–38. doi:10.1177/0308518X19887967.

Holm, A. 2010. Privare heißt rauben. Zur Ökonomie von Wohnungsprivatisierungen [To privatize means to steal. On the economics of housing privatization]. *Z. - Zeitschrift Marxistische Erneuerung* 83:46–59.

Horton, A. 2021. Liquid home? Financialisation of the built environment in the UK's "hotel-style" care homes. *Transactions of the Institute of British Geographers* 46 (1): 179–92. doi:10.1111/tran.12410.

Karwowski, E. 2019. Towards (de-) financialisation: The role of the state. *Cambridge Journal of Economics* 43 (4): 1001–27. doi:10.1093/cje/bez023.

Kikuchi, Y., Teshima, K., and Yoshino, K. 2022. The financialization of real estate in Japan: The formation of a core-periphery structure. *Regional Studies* 56 (1): 128–39. doi:10.1080/00343404.2021.1906409.

Klinge, T. J., Fernandez, R., and Aalbers, M. B. 2020. The financialization of big pharma. *Revista Internacional de Sociología* 78 (4): art. e174. doi: 10.3989/ris.2020.78.4.m20.006.

Knuth, S. E. 2015. Global finance and the land grab: Mapping twenty-first century strategies. *Canadian Journal of Development Studies/Revue canadienne d'études du développement* 36 (2): 163–78. doi:10.1080/02255189.2015.1046373.

Lefebvre, H. 1970. *La révolution urbaine [The urban revolution]*. Paris: Idées/Gallimard.

Martínez, M. A., and Gil, J. 2022. Grassroots struggles challenging housing financialization in Spain. *Housing Studies* doi: 10.1080/02673037.2022.2036328.

Nappi-Choulet, I. 2013. La financiarisation du marché immobilier français: De la crise des années 1990 à la crise des subprimes de 2008 [The financialization of the French real estate market: From the crisis of the 1990s to the subprime crisis of 2008]. *Revue D'Économie Financière* 2 (110): 189–206. doi:10.3917/ecofi.110.0189.

Nareit 2021a. Percentage of American households owning REIT stocks nearly doubles since 2001. https://www.reit.com/data-research/research/nareit-research/percentage-of-american-households-owning-REIT-stocks.

———. 2021b. REITWatch: A monthly statistical report on the real estate investment trust industry. https://www.reit.com/sites/default/files/reitwatch/RW2110.pdf.

Newell, G., and Fischer, F. 2009. The role of residential REITs in REIT portfolios. *Journal of Real Estate Portfolio Management* 15 (2): 129–39. doi:10.1080/10835547.2009.12089843.

O'Callaghan, C., and McGuirk, P. 2021. Situating financialisation in the geographies of neoliberal housing restructuring: Reflections from Ireland and Australia. *Environment and Planning A: Economy and Space* 53 (4): 809–27. doi:10.1177/0308518X20961791.

Pereira, A. 2017. The financialization of housing: New frontiers in Brazilian cities. *International Journal of Urban and Regional Research* 41 (4): 604–22. doi:10.1111/1468-2427.12518.

Petry, J., Fichtner, J., and Heemskerk, E. 2021. Steering capital: The growing private authority of index providers in the age of passive asset management. *Review of International Political Economy* 28 (1): 152–76. doi:10.1080/09692290.2019.1699147.

PwC. 2015. *Compare and contrast: Worldwide real estate investment trust (REIT) regimes*. London: PricewaterhouseCoopers.

Revington, N., and August, M. 2020. Making a market for itself: The emergent financialization of student housing in Canada. *Environment and Planning A: Economy and Space* 52 (5): 856–77. doi:10.1177/0308518X19884577.

Risager, B. S. 2021. Financialized gentrification and class composition in the post-industrial city: A rent strike against a real estate investment trust in Hamilton, Ontario. *International Journal of Urban and Regional Research* 45 (2): 282–302.

S&P Dow Jones Indices. 2022. S&P CoreLogic Case Shiller Index shows annual home price gains increased to 19.8% in February. S&P Down Jones Indices Press Release, April 26, 2022. https://www.spglobal.com/spdji/en/documents/indexnews/announcements/20220426-1452067/1452067_cshomeprice-release-0426.pdf.

Sanfelici, D., and Halbert, L. 2019. Financial market actors as urban policy-makers: The case of real estate investment trusts in Brazil. *Urban Geography* 40 (1): 83–103. doi:10.1080/02723638.2018.1500246.

Schwartz-Driver, S. 2008. The great Resi rebound. *IPE Real Estate* 2008 (September): 74–75.

SimplyWallSt. 2021. Market cap high to low—German (DAX) real estate stocks. https://simplywall.st/stocks/de/real-estate/market-cap-large.

Soederberg, S. 2020. *Urban displacements: Governing surplus and survival in global capitalism*. London: Routledge.

Taylor, Z. J. 2020. The real estate risk fix: Residential insurance-linked securitization in the Florida metropolis. *Environment and Planning A* 52 (6): 1131–49. doi:10.1177/0308518X19896579.

Taylor, Z. J., and Aalbers, M.B. 2022. Climate gentrification: Risk, rent and restructuring in greater Miami. *Annals of the American Association of Geographers* 112 (6): 1685–1701. doi:10.1080/24694452.2021.2000358.

Tori, D., and Onaran, Ö. 2020. Financialization, financial development and investment. Evidence from European non-financial corporations. *Socio-Economic Review* 18 (3): 681–718. doi:10.1093/ser/mwy044.

Van Loon, J., and Aalbers, M.B. 2017. How real estate became 'just another asset class': The financialization of the investment strategies of Dutch institutional investors. *European Planning Studies* 25 (2): 221–40. doi:10.1080/09654313.2016.1277693.

Waldron, R. 2018. Capitalizing on the state: The political economy of real estate investment trusts and the 'resolution' of the crisis. *Geoforum* 90 (March): 206–18. doi:10.1016/j.geoforum.2018.02.014.

Wigglesworth, R. 2021. *Trillions: How a band of Wall Street renegades invented the index fund and changed finance forever.* New York: Portfolio.

Wijburg, G. 2019. Reasserting state power by remaking markets? The introduction of real estate investment trusts in France and its implications for state-finance relations in the Greater Paris Region. *Geoforum* 100 (March): 209–19. doi:10.1016/j.geoforum.2019.01.012.

Wijburg, G., and Aalbers, M.B. 2017. The alternative financialization of the German housing market. *Housing Studies* 32 (7): 968–89. doi:10.1080/02673037.2017.1291917.

Wijburg, G., Aalbers, M. B., and Heeg, S. 2018. The financialisation of rental housing 2.0: Releasing housing into the privatised mainstream of capital accumulation. *Antipode* 50 (4): 1098–119. doi:10.1111/anti.12382.

Yeşilbağ, M. 2020. The state–orchestrated financialization of housing in Turkey. *Housing Policy Debate* 30 (4): 533–58. doi:10.1080/10511482.2019.1670715.

Yrigoy, I. 2021. The political economy of rental housing in Spain: The dialectics of exploitation(s) and regulations. *New Political Economy* 26 (1): 186–202. doi:10.1080/13563467.2020.1723515.