Who Should Manage Impact Investments? Evidence from Affordable Housing*

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Abstract

We study asset-level investments by non-profit and for-profit investors in the U.S. housing market over the past two decades. We show that non-profits favor affordable properties and less affluent neighborhoods, consistent with a focus on social impact investments. When comparing similar investments, we find that non-profit investors earn lower capital gains than do for-profit investors. These results cannot be fully explained by non-profit investors' preferences for social impact investments or for impact-oriented asset management choices. Our evidence is more consistent with non-profit investors bargaining less. These results suggest that impact-driven investors may leave money on the table.

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1 Introduction

Impact investments are investments made with the intention to generate positive, measurable social or environmental impact alongside a financial return.[1] As of 2022, the global impact investing market encompasses nearly $1.2 trillion in assets under management.[2] A nascent literature studies the preferences of impact investors and suggests strategies for maximizing the impact of their investments. Notably, prior work explores the degree to which investors are willing to pay for the perceived non-pecuniary benefits of participating in impact investments (Barber et al., 2021; Baker et al., 2022). To maximize impact, studies suggest that investors should focus on acquisitions rather than divestitures, on exercising shareholder control rights, and on directing capital towards "brown" rather than already "green" firms (Berk and van Binsbergen, 2021; Hartzmark and Shue, 2022). In this study, we ask whether impact-driven investors are efficient stewards of impact investment capital.

We make progress towards answering this question by studying impact investments in the U.S. multi-family housing market, which offers two distinct advantages. First, investors in this market can choose to allocate capital between affordable properties and conventional properties. Affordable properties provide accommodation for low-income households at reduced rents whereas conventional properties are offered to tenants at market-level rents regardless of income. A property's affordability status can thus be viewed as an indicator of its quality as a (social) impact investment. Second, private and institutional for-profit investors coexist in the multi-family housing market with non-profit investors. The latter investors typically follow a social mission of providing affordable accommodation to low-income households. In the multi-family housing market, we can thus observe impact-driven and profit-driven investors that manage investments with varying degrees of impact.

We obtain data on investments in the U.S. multi-family housing market over the 2000–2022 period from Yardi Matrix. This database includes transaction-level information on completion dates, transaction prices, and the identities of the buyers and sellers involved in each deal. It also includes a classification of those buyers and sellers into for-profit and non-profit investors, along with a classification of the assets sold into affordable and conventional properties. We can further observe changes in a property's affordability status and its physical characteristics, allowing us to infer investors' asset management choices. On that basis, we construct a novel data set to study asset selection, asset management, and investment performance outcomes of impact-driven and profit-driven investors in conventional and impact investments in the multi-family housing market over the past two decades.

[1] The Global Impact Investing Network, What Is Impact Investing?, accessed March 25, 2024.
[2] The Global Impact Investing Network, Sizing the Impact Investing Market, accessed April 19, 2024.

We document several new insights into the investment approaches and associated financial outcomes of impact-driven and profit-driven investors in the multi-family housing market. First, we find that non-profit investors in this market on average acquire more affordable properties located in less affluent neighborhoods. This result suggests that non-profits focus on investments with higher social impact. Indeed, machine-learning analyses of the public profiles of the non-profit and (institutional) for-profit investors in our sample indicate that non-profits are more impact-driven in their investment approach, whereas for-profit investors are more focused on maximizing financial returns.

Second, non-profit investors earn 5-7% lower capital gains per year than do for profit-investors. This under-performance may be driven by non-profit investors' preferences for affordable properties, which may coincidentally have lower capital growth potential. If so, then we might observe that affordable properties on average deliver lower capital gains than conventional properties. However, after controlling for property characteristics and zip code-by-year fixed effects, we find no evidence that this is the case. Our results further suggest that non-profit investors are more likely to convert conventional properties to affordable and less likely to invest in potentially value-enhancing capital improvements. However, the results indicating lower capital gains to non-profit investors are robust to accounting for such asset management choices. In sum, we find that neither non-profit investors' preferences for affordable properties nor their tendency to complete more impact-oriented asset management measures can fully explain the relative under-performance of their investments.

Finally, we analyze the trading behaviors of non-profit investors in the multi-family market. Unlike the stock market, this is a market for heterogeneous assets that can, at times, be thinly traded. Under these conditions, market prices can be influenced by asset characteristics as well as the bargaining skills and power of buyers and sellers. Thus, non-profit investors may earn lower capital gains on their housing investments because they have a higher willingness to pay for assets with (unobservably) higher social impact. Alternatively, they may bargain less than for-profit investors in any given trade. To distinguish between those two effects, we employ the methodology proposed by Harding et al. (2003b), who extend the traditional hedonic model for pricing heterogeneous goods by defining sufficient conditions for identifying bargaining effects after accounting for unobserved preferences. Regressions following the specifications derived from that work indicate that non-profit investors' preferences are associated with 9% lower sale prices while their lesser bargaining power accounts for 5% lower sale prices. Our results imply that, after accounting for non-profit investors' preferences for assets that may have unobservably higher impact, they achieve significantly lower sale prices than their for-profit peers because they bargain less in the transactions they complete.

If this discrepancy in bargaining skills and power at least partly drives the differences in capital gains earned by non-profit investors relative to their for-profit peers, then we should see significant counterparty effects in our capital gains regressions. Thus, we re-estimate our capital gains regressions accounting for interaction terms between indicators for non-profit sellers and indicators for the types of counterparties with whom they trade. We find that non-profits earn 5.3% lower capital gains over the holding period on investments they acquire from for-profit owners as opposed to those they acquire from other non-profit owners. We also find that non-profits experience 6.8% lower capital gains on investments they sell to for-profit investors as opposed to those they sell to other non-profits. These counterparty effects in the repeat-sales analyses of capital gains to non-profit investors are consistent with the evidence on bargaining and demand effects from our transaction-level analyses. Our results suggest that weaker bargaining power relative to for-profit investors may be a significant driver of the investment performance outcomes experienced by non-profits in the housing market.

Our findings relate to three strands of recent literature to which we contribute as follows.

Impact Investing. Research in this area is primarily focused on investments in corporations. Notably, prior studies compute shareholders' willingness to pay for participating in investment funds with impact mandates (Hartzmark and Sussman, 2019; Baker et al., 2022); trace the effects of impact investing on firms' cost of equity capital (De Angelis et al., 2021); and provide recommendations for maximizing impact (Berk and van Binsbergen, 2021; Hartzmark and Shue, 2022). Exceptionally, studies focus on the market for venture capital (Barber et al., 2021), private equity (Cole et al., 2023), as well as case studies in areas such as venture philanthropy (Lo and Zhang, 2023). We provide the first evidence on impact investments in the housing market. Our findings suggest that such investments on average can produce performance outcomes in line with those for conventional housing investments. This result contrasts with evidence from the stock market where socially responsible mutual funds produce lower returns than do conventional funds (Geczy et al., 2021) and where investors avoiding "sin" stocks bear a significant financial cost (Hong and Kacperczyk, 2009; Chava, 2014).

Non-Profit Investing. Non-profit organizations in the U.S. own over $13 trillion in assets.[3] Yet, little is known about their investments.[4] Lo et al. (2019) study IRS data on the tax forms filed by U.S. non-profit organizations that have established endowment funds. They compute fund-level returns on invested capital, document significant cross-sectional heterogeneity in those returns,

[3]See Federal Reserve Board, Balance Sheet of Non-Profit Organizations, accessed April 23, 2024.

[4]Lerner et al. (2008) and Barber and Wang (2013) analyze the investment performance outcomes of university endowment funds. Aragon et al. (2022) study the consequences of adopting responsible investment policies for university endowment funds.

and assess key return drivers including fund size, fund sector, and governance structures. In a related study, Dahiya and Yermack (2018) find that non-profit endowment funds significantly underperform market benchmarks. Herpfer et al. (2024) show that hospitals switching from non-profit to for-profit status change their operational priorities and focus more on generating revenue. We focus on non-profit organizations' investment activity in the housing market. In contrast to prior work, the investments of those organizations are not made to provide funding support for their charitable mission; rather, those investments *are* their charitable mission. Our setting allows us to observe capital allocation choices, asset management decisions, and investment performance outcomes for non-profits at the asset level. We find that non-profit investors favor assets that conform to their mission and are more likely to complete socially-oriented asset management choices. We also find that these investors under-perform their for-profit peers in terms of asset-level investment performance outcomes. We show that this under-performance cannot be fully explained by their mission-oriented asset selection or asset management preferences. Rather, our results suggest that non-profit investors bargain less than their for-profit peers in the transactions they complete.

The non-profit investors in our study can be viewed as pure impact investors. Chowdhry et al. (2019) derive conditions under which ownership of investment projects by non-profit investors is optimal for delivering (social) impact.[5] The mechanism in their model is based on non-profit investors' willingness to pay for achieving the desired impact. We show that, after accounting for non-profit investors' willingness to pay for housing assets with (unobservably) higher social impact, they may leave money on the table because they bargain less in a given trade. Our results imply that, while non-profit ownership may help ensure commitment to impact objectives, non-profit investors may not be the most efficient stewards of impact investment capital. Goldstein et al. (2022) show that the presence of impact investors in the stock market can reduce the informativeness of asset prices about the financial pay-offs from those assets. Our results suggest that in markets characterized by search and bargaining, that effect could be exacerbated by impact investors' weaker bargaining power.

Housing Investments. The growing presence of (institutional) for-profit investors in the housing market has become the subject of intense debate. Some research suggests that institutional investors' acquisitions of single-family homes helped stabilize house prices after the global financial crisis (Allen et al., 2018; Mills et al., 2019; Lambie-Hanson et al., 2022; Ganduri et al., 2023; Garriga et al., 2023). Other studies explore potentially harmful consequences of institutional investors'

[5]That study is closely related to Glaeser and Shleifer (2001), who show that entrepreneurs' non-profit status can help overcome limited commitment to objectives that conflict with profit maximization.

presence in the housing market for housing affordability, tenant welfare, and neighborhood composition (Austin, 2022; Gurun et al., 2022; Giacoletti et al., 2023; Gorback et al., 2024). Research on the presence of for-profit investors in affordable housing is scarce. Notably, Roberts and Wegmann (2023) document favorable return and risk characteristics of affordable housing investments relative to conventional multi-family assets. We build on this work by documenting heterogeneity in asset-level investment approaches and performance outcomes across for-profit and non-profit investors in the affordable housing market. Seemingly consistent with concerns expressed by affordable housing advocates, we show that for-profit investors are more likely than non-profit investors to convert affordable housing assets to conventional assets. In aggregate however, we find those conversions to be rare. To the extent they do occur, we find conversions take place in the final years of investors' holding periods. This pattern suggests that, when for-profit investors acquire affordable properties, they intend to operate them as such. That insight can help inform policy-makers looking to address affordability constraints by limiting (institutional) for-profit investors' activity in the housing market.[6]

We proceed as follows. In Section 2, we outline key features of the U.S. affordable housing market. Section 3 presents data and descriptive statistics on investors' asset selection choices in the housing market. Section 4 summarizes the results from our analyses of non-profit investors as impact-driven investors. In Section 5, we document heterogeneity in the capital gains to non-profit and for-profit investors in the housing market. We assess the roles of potential drivers behind those results in Section 6. Section 7 concludes.

2 Affordable Housing in the United States

The U.S. Department of Housing and Urban Development defines affordable housing as housing units accessible to households that earn less than 80% of the area median income (AMI) in their metropolitan statistical area (HUD, 2023a). A related format is workforce housing, defined as housing units accessible to households earning between 80% and 100% of AMI (ULI, 2010). Most affordable housing units in the U.S. are provided under some form of subsidy. By contrast, naturally occurring affordable housing is defined as unsubsidized housing units for rent at below-market rates (NHP, 2019).

The U.S. is experiencing a shortage of affordable housing, driven by a persistent construction shortfall and, more recently, high borrowing costs. Notably, home ownership is out of reach for many

[6]See U.S. Congress Bill S.3402, End Hedge Fund Control of American Homes Act, accessed April 24, 2024, and Wall Street Has Spent Billions Buying Homes. A Crackdown Is Looming., accessed April 30, 2024.

households, a record-high number of renter households are classified as cost-burdened, and there is a growing threat of homelessness as pandemic-era government support expires (JCHS, 2023). As of 2023, 60% of workers in the U.S. earn less than the hourly wage required to pay the market-level rent for an average two-bedroom home without spending more than 30% of their income (NLIHC, 2023).

The U.S. government has implemented several policies to address the country's shortage of affordable housing. These policies include HUD's Section 8 Housing Choice Voucher Program, which provides rental assistance vouchers to eligible low-income households. The U.S. government also uses inclusionary zoning regulations to require or incentivize developers to provide affordable housing units, such as the Low-Income Housing Tax Credit (LIHTC) program. Under the LIHTC program, developers receive tax credits in exchange for renting a share of their units to low-income tenants at reduced rates. Since its inception in 1986, the LIHTC program has subsidized over 3.55 million housing units. It thus represents the largest source of affordable housing finance in the U.S. However, the program is costly, leading to an average of $9 billion in forgone tax revenue each year (HUD, 2023b).

As the demand for affordable rental housing has grown, this segment of the housing market has emerged as a new asset class for real estate investors. We estimate, based on data from Yardi Matrix, that the total annual acquisition volume of affordable housing assets in the U.S. has grown at an average rate of 24% per year between 2010 and 2022. Industry pundits tout strong fundamentals and attractive financial performance prospects for affordable housing investments (CBRE, 2020). However, housing advocates are concerned about for-profit investors converting affordable housing assets into conventional, market-level units, thereby exacerbating the shortage of affordable housing (Anderson, 2022). This ongoing debate provides the public policy setting for our analyses of investment strategies and financial performance outcomes in the affordable housing market in the U.S.

3 Data and Sample Selection

The principal data sets we use in this study are from Yardi Matrix, a commercial real estate data provider focused on the U.S. multi-family market. Specifically, we obtain data from Yardi Matrix on multi-family transactions, investors, and property characteristics over the 2000–2022 period.

3.1 Yardi Matrix Multi-Family Data

The Yardi Matrix database contains transaction-level records on completion dates, transaction prices, and the identities of the buyers and sellers involved in each transaction. The database also

contains a classification of those buyers and sellers into private owners, institutions, non-profit organizations, and other types of real estate investors. This classification allows us to observe whether a property changes ownership between for-profit and non-profit investors. The Yardi Matrix transaction records cover the 2000–2022 period.

The Yardi Matrix database further contains information on each property's current affordability status. Yardi Matrix obtains that information by surveying the owners and/or management companies of the properties in their database. Yardi Matrix considers any property with income restrictions in place to be affordable, regardless of the affordability program under which those restrictions are imposed. This definition includes properties that are not part of any (governmental) affordability programs but still require their residents to comply with stated income ceilings. Based on the Yardi Matrix affordability data, we construct an annual panel data set that tracks each property's affordability status over time. The affordability status data cover the 2014–2022 period.

The Yardi Matrix database additionally contains detailed information about static and time-varying property characteristics. Static characteristics include property name, address, number of rental units, and completion year. The data on static property characteristics cover the 2000–2022 period. Time-varying characteristics include changes in property structures and amenities, property quality ratings (i.e., building classes A+ through D), and location quality ratings (following the same class definitions). The data on time-varying property characteristics cover the 2006–2022 period.

The final sample constructed from the data sets outlined above contains 64,083 transactions across 37,076 properties over the 2000–2022 period. Of those transactions, 4,157 (approx. 6%) are for properties classified as affordable at the time of the sale. Figure 1 shows the locations of the sample properties by CBSA. The map indicates that those properties are located across 372 U.S. CBSAs.

[Insert Figure 1 about here.]

3.2 Variable Definitions

Based on the Yardi Matrix data sets outlined above, we define the following variables. *Affordable* is an indicator that takes the value of one if a property is classified as affordable at the time of a transaction. We label properties that are not classified to be affordable as conventional. *Transaction Price* is the total transaction price for a property (in $ million). *Price Per Unit* is the transaction price per rental unit in a property (in $ thousands). *No. of Units* is the number of rental units in a property. *Year Built* is the construction year of a property. *Age* is the age of a property, computed

as the difference between the transaction year and the construction year of a property. *Property Rating A* (*Property Rating B, C, or D*, respectively) is an indicator that takes the value of one if the property is categorized as a Class A (Class B, C, or D) building at the time of a transaction. *Location Rating A* (*Location Rating B, C, or D*, respectively) is an indicator that takes the value of one if the property's location is categorized as a Class A (Class B, C, or D) location at the time of a transaction.

The investor types included in the Yardi Matrix database are Institutional, Real Estate Investment Trust, Private, Non-Profit, and Other. The Institutional classification covers insurance companies, investment banks, institutional investors, pension funds, and pension fund advisors. The Non-Profit classification covers non-profit organizations, private/public partnerships, and government agencies. The Other classification covers lenders and merchant builders. We combine Institutional and Real Estate Investment Trust investors into a single *Institutional* category. In our analyses, we mainly focus on those investors, along with *Private* and *Non-Profit* investors. In some of our analyses, we combine *Institutional* and *Private* investors into the category of *For-Profit Investors*.

We define several additional variables for the repeat-sales observations in the sample. First, we define a set of variables capturing changes in a property's affordability status between transactions. Specifically, *Transition to Conventional* (*Transition to Affordable*, respectively) is an indicator that takes the value of one if a property is classified as affordable (conventional) at the time of a given acquisition and classified as conventional (affordable) at the time of the subsequent disposition.

Second, we define a set of variables capturing changes in property structures and amenities. We use observations of such changes to infer the completion of capital expenditures. Specifically, *Completed Improvements* (*Completed Luxury Improvements*) is an indicator that takes the value of one if a property experiences any improvements in structures or amenities (luxury amenities) between the time of the acquisition in a given repeat-sale and the time of the subsequent disposition.[7]

The third set of additional variables for the repeat-sales observations in the sample captures the types of investors involved in those transactions. Specifically, *Current Seller Institutional* (*Current Seller Private*, respectively) is an indicator that takes the value of one if the current seller is an institutional (private) investor, rather than a non-profit investor. *Current Seller Non-Profit* is an indicator that takes the value of one if the current seller is a non-profit investor.

Lastly, we define a set of indicators that capture investor experience in the sub-sample of repeat sales. We define investor experience based on the appearance of an investor in our data set prior

[7]Examples of improvements include upgrades to HVAC systems, elevators, laundry, or parking facilities. Examples of luxury improvements include the addition of a fitness center, club house, or swimming pool.

to a given transaction. Specifically, *Current Seller First Time* (*Current Buyer First Time*) is an indicator that takes the value of one if the current seller (current buyer) is a first-time seller (buyer).

3.3 Descriptive Statistics

Figure 2 depicts the annual transaction volumes in the U.S. multi-family housing market over the 2000–2022 period. Panel A (Panel B) shows the total annual transaction volumes (in $ billion) and the total numbers of transactions for affordable (conventional) properties. The patterns depicted show that investment volumes in the multi-family market have grown rapidly in the past two decades. Notably, the data illustrated indicate that, since 2010, transaction volumes have grown at an average annual rate of 24% in the affordable multi-family market, and at 28% in the conventional market. In other words, the growth of investment volumes in affordable multi-family properties broadly matches that of investment volumes in conventional properties.

[Insert Figure 2 about here.]

Figure 3 depicts the investor composition in the U.S. multi-family housing market over the 2000–2022 period. Panel A (Panel B) presents that breakdown for affordable (conventional) multi-family properties. The patterns shown indicate that private investors dominate the affordable and conventional multi-family markets with 76% and 86% of total transaction volumes, respectively. The figure also shows that institutional investors have comparable market shares in the affordable and conventional multi-family markets with 10% and 14% of total transaction volumes, respectively. While non-profit investors account for only 1% of total transaction volumes in the conventional multi-family market, they account for 14% of total transaction volumes in the affordable market. Appendix Table A.1 presents a ranking of the top-20 multi-family investors by investor type.

[Insert Figure 3 about here.]

Table 1 presents descriptive statistics for the multi-family transactions in the sample over the 2000–2022 period by investor type (non-profit versus for-profit). 47% of acquisitions completed by non-profit investors are for affordable properties. By contrast, the corresponding share of affordable property acquisitions among for-profit investors is only 6%. The mean transaction price for non-profit investors is $13.22 million, below that of $23.60 million of for-profit investors. The mean price per unit paid by non-profit investors is also below that of for-profit investors ($82,943 versus

$110,361). Non-profit investors tend to acquire smaller and older properties than do their for-profit counterparts. Figure 4 shows that non-profit investors also tend to acquire assets with lower location ratings (Panel A) and lower property ratings (Panel B) than do for-profit investors.

[Insert Table 1 and Figure 4 about here.]

Table 2 presents descriptive statistics for the repeat-sales transactions in the sample. The statistics reported indicate that non-profit investors convert 1% of their affordable properties to conventional. For-profit investors complete such conversions for nearly 10% of their affordable properties. By contrast, non-profit investors are far more likely than their for-profit counterparts to convert conventional properties to affordable (17% of investments versus 1% of investments). We rarely observe improvements to the structures and amenities of the properties acquired by either investor type. However, in relative terms, for-profit investors are significantly more likely than non-profit investors to complete (luxury) improvements in their properties. When non-profit investors sell their properties, they are first-time sellers in 55% of cases and sell to first-time buyers in 34% of cases. For-profit investors are less likely to appear as first-time sellers and to sell to first-time buyers.

[Insert Table 2 about here.]

In sum, the descriptive statistics presented in this section indicate that investment volumes in the affordable multi-family market are growing nearly as rapidly as in the conventional market. A unique feature of the affordable multi-family market is the relatively strong presence of non-profit investors alongside institutional and private for-profit investors. Non-profit investors generally acquire lower-value, lower-quality properties in less affluent neighborhoods than do their for-profit counterparts. They are also more likely than for-profit investors to convert their properties to affordable and seem to invest less in follow-up improvements. Non-profit investors further appear to be less experienced as real estate sellers and more likely to trade with first-time buyers.

4 Non-Profit Investors as Impact Investors

The Yardi Matrix database we use in this study does not contain an explicit classification of multi-family investors into impact-driven and profit-driven investors. However, the database contains a classification of those investors into private, institutional, and non-profit investors. In this section,

we conduct machine-learning analyses of the investors in the sample to corroborate our interpretation of non-profit investors as being primarily impact-driven.

We implement our analyses of the impact versus profit orientation of multi-family investors using ChatGPT, an AI application based on the large-language model developed by OpenAI. Specifically, we submit the names of the institutional and non-profit investors from the Yardi Matrix database to ChatGPT in a randomized order, each preceded by the prompt below.[8]

> *"You are a financial analyst, skilled in assessing the focus of organizations on financial returns versus impact investing principles. You will be provided with the name of an organization. On a scale from 1 to 100, where 1 represents a focus on impact investing principles and 100 represents a focus on maximizing profit, assign a score to the organization. Use only information from the year 2023. Return only the score you assigned."*

The output from these analyses includes the names and types of the investors as observed in the Yardi Matrix database, along with the scores assigned by ChatGPT for each investor's impact investing focus. For comparison, we repeat those analyses asking ChatGPT to use only information from the year 2013. We summarize our findings in Figure 5.

[Insert Figure 5 about here.]

Panel A shows the distributions of impact investing scores for institutional and non-profit investors in the U.S. multi-family market as of 2013. The patterns depicted show that 80% of non-profit investors in the sample have impact investing scores of 30 or below, indicating a strong focus on impact investing principles. By contrast, 80% of institutional investors in the sample have impact investing scores of 80 and above, reflecting a clear orientation towards maximizing profit. Panel B presents the corresponding distributions of impact investing scores as of 2023. The patterns shown indicate that the dispersion of impact investing scores within investor groups is narrower in 2023 than it was in 2013. Notably, while 20% of institutional investors had impact investing scores of 90 or above in 2013, that share has declined to almost zero in 2023. That finding reflects a growing orientation of traditional for-profit investors towards impact investing principles. That said, the distributions of impact investing scores across investor types suggest that non-profit investors still are pre-

[8] In our analyses, we use ChatGPT 4 which, as of the time of writing, is trained on information through December 2023. We restrict our analyses to the investors in the sample that are classified by Yardi Matrix as institutional or non-profit. The investors classified as private in the Yardi Matrix database are mostly individuals whose impact orientation cannot reasonably be observed in the data available to ChatGPT.

dominantly impact-driven while institutional investors remain more focused on maximizing profit. In sum, those results are consistent with our interpretation of non-profit investors as impact investors.

5 Capital Gains to Non-Profit Investors

In this section, we analyze the capital gains to for-profit and for-profit investors in the U.S. multi-family housing market. Figure 6 depicts average annual capital gains and holding periods in this market over the 2000–2022 period. Panel A shows average capital gains and holding periods by investor type (non-profit versus for-profit). The patterns depicted in the figure indicate that non-profit investors experience mean annual capital gains below those of for-profit investors over most holding periods. Across all holding periods, mean annual capital gains to non-profit (for-profit) investors are 6.4% (8.5%). The figure also shows that the holding periods of non-profit investors are skewed to the right. Panel B presents overlaid histograms for the distribution of capital gains across non-profit and for-profit investors. The histograms indicate that the dispersion of capital gains is wider and more skewed to the left for non-profit investors than it is for for-profit investors. The unconditional comparisons outlined here suggest that non-profit investors experience lower average capital gains than for-profit investors for comparable holding periods, along with a wider dispersion and more negative skewness in those capital gains.

[Insert Figure 6 about here.]

We formalize the comparison of capital gains earned by non-profit investors relative to those earned by their for-profit peers by estimating the capital gains to those investor types in a repeat-sales framework. Specifically, we estimate a linear regression model of the following form

$$\begin{aligned} \textit{Capital Gain}_{i,t} = \beta_0 + \beta_1 \textit{Current Seller Non-Profit}_{i,t} + \beta_2 \textit{Property Characteristics}_{i,t} \\ + \delta_{m,t} + \gamma_{\tau,t} + \lambda_{\rho,t} + \eta_{\psi,t} + \epsilon_{i,t} \end{aligned} \tag{1}$$

where *Capital Gain* is the geometric average annual capital gain over the holding period for property i sold at time t. *Current Seller Non-Profit* is an indicator that takes the value of one if the seller of property i sold at time t is a non-profit investor. *Property Characteristics* includes basic

characteristics of property i at time t. Specifically, *Completed Improvements* is an indicator that takes the value of one if any physical features of the property are updated between the time of the acquisition (time $t-1$) and subsequent disposition in the repeat-sale (time t). *Age* is the age of the property at time t, computed as the difference between the disposition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a given property at time t. In alternative specifications, we include three additional indicator variables. *Affordable* is an indicator that takes the value of one if property i is classified as affordable at time t. *Transition to Conventional* is an indicator that takes the value of one if a property is classified as affordable at the time of the acquisition in a given repeat-sale, and classified as conventional at the time of the subsequent disposition. *Current Seller First Time* is an indicator that takes the value of one if the seller of property i sold at time t has not completed any multi-family investments prior to the current investment. $\delta_{m,t}$ are zip code-by-year fixed effects capturing local demand and supply dynamics. $\gamma_{\tau,t}$ are holding period-by-year fixed effects. They capture the effects of market timing of acquisitions and dispositions. $\lambda_{\rho,t}$ are property rating-by-year fixed effects. $\eta_{\psi,t}$ are location rating-by-year fixed effects. Those fixed effects capture time-varying demand and supply dynamics for properties and locations with different quality ratings. $\epsilon_{i,t}$ is the residual. Standard errors are clustered by market-year. We estimate Eq. (1) in the sub-set of repeat-sales transactions of multi-family properties in the final sample over the 2000–2022 period. Table 3 presents the results.

[Insert Table 3 about here.]

The estimates reported in column 1 indicate that non-profit sellers experience capital gains on their multi-family investments that are, on average, 4.8% lower per year than those experienced by for-profit sellers. That differential increases to 7.2% when we account for the greater presence of non-profit investors in the affordable housing market and for the lower likelihood of those investors to convert affordable properties to conventional (column 2). The estimated differential remains at 7.0% after additionally accounting for investor experience (column 3). The results presented in Table 3 corroborate the observation that non-profit investors experience significantly lower capital gains on their multi-family investments than do for-profit investors.

6 Drivers of Capital Gains to Non-Profit Investors

The under-performance of non-profit investors in the multi-family market documented above may be driven by the preference of those investors for affordable properties that may coincidentally have lower capital growth prospects. Alternatively, it may be driven by heterogeneous approaches to asset management between non-profit and for-profit investors in the multi-family market. A third possibility is that non-profit investors display different trading behaviors than their for-profit peers. In the following sections, we assess the evidence for each of these potential explanations in turn.

6.1 Capital Gains to Affordable Properties

We test whether the under-performance of non-profit investors in the multi-family market is driven by their preference for affordable properties using a repeat-sales framework. Specifically, we estimate a linear regression model of the following form

$$\begin{aligned} \textit{Capital Gain}_{i,t} = \beta_0 + \beta_1 \textit{Affordable}_{i,t} + \beta_2 \textit{Property Characteristics}_{i,t} \\ + \delta_{m,t} + \gamma_{\tau,t} + \lambda_{\rho,t} + \eta_{\psi,t} + \epsilon_{i,t} \end{aligned} \tag{2}$$

where *Capital Gain* is the geometric average annual capital gain over the holding period for property i sold at time t. *Affordable* is an indicator that takes the value of one if property i is classified as affordable at time t. *Property Characteristics* includes key characteristics of property i at time t. Specifically, *Transition to Conventional* is an indicator that takes the value of one if a property is classified as affordable at the time of the acquisition in a given repeat-sale (time $t-1$), and classified as conventional at the time of the subsequent disposition (time t). *Completed Improvements* is an indicator that takes the value of one if any physical features of the property are updated between the time of the acquisition (time $t-1$) and subsequent disposition in the repeat-sale (time t). *Age* is the age of the property at time t, computed as the difference between the disposition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a given property at time t. $\delta_{m,t}$ are market-by-year fixed effects. In alternative specifications, we replace those fixed effects with city-by-year and, respectively, zip code-by-year fixed effects. Those sets of fixed effects capture increasingly more granular, local demand and supply dynamics. $\gamma_{\tau,t}$

are holding period-by-year fixed effects. Those fixed effects capture the effects of market timing of acquisitions and dispositions. $\lambda_{\rho,t}$ are property rating-by-year fixed effects. $\eta_{\psi,t}$ are location rating-by-year fixed effects. Those sets of fixed effects capture time-varying demand and supply dynamics for properties and locations with different quality ratings. $\epsilon_{i,t}$ is the residual. Standard errors are clustered by market-year. We estimate Eq. (2) in sub-set of repeat-sales transactions of multi-family properties in the final sample over the 2000–2022 period. Table 4 presents the estimation results.

[Insert Table 4 about here.]

The estimation results reported in column 1 indicate that, after controlling for key property characteristics and market-by-year fixed effects, affordable multi-family properties on average produce excess annual capital gains of 1.9 percent per year over conventional multi-family properties. The estimates in column 2 show that those excess annual capital gains drop to 1.2 percent per year when controlling for more granular city-by-year fixed effects. The estimates in column 3 indicate that, when comparing properties in the same zip code and year across investor types, affordable properties still produce capital gains in line with those to conventional properties. In sum, we find no evidence that affordable properties on average deliver lower capital gains than conventional properties. These results imply that the preference of non-profit investors for affordable properties alone cannot fully explain their under-performance relative to for-profit investors in the multi-family market.

6.2 Asset Management in the Multi-Family Market

We observe three types of asset management choices in our data set, namely, the conversion of affordable multi-family properties to conventional properties, the conversion of conventional multi-family properties to affordable properties, and improvements to the structures and amenities of the multi-family properties in the sample. In this section, we assess the likelihood of for-profit versus non-profit investors in the multi-family market to complete each of those asset management initiatives.

6.2.1 Conversions of Multi-Family Properties

We assess the likelihood of different multi-family investor types to convert affordable properties to conventional properties in a probit regression model of the following form

$$\begin{aligned} \textit{Transition to Conventional}_{i,t} = \beta_0 + \beta_1 \textit{Property Characteristics}_{i,t-1} \\ + \beta_2 \textit{Location Characteristics}_{i,t-1} + \beta_3 \textit{Investor Types}_{i,t} + \delta_m + \gamma_t + \epsilon_i \end{aligned} \tag{3}$$

where *Transition to Conventional* is an indicator that takes the value of one if property i is classified as affordable at the time of the acquisition by a given investor (time $t-1$) and is no longer classified as affordable at the time of the subsequent disposition (time t). *Property Characteristics* includes the age, size, property quality rating, and location quality rating of property i at time $t-1$. Property age is computed as the difference between the acquisition year and the construction year of the property (*Age*). Size is the number of apartment units in a given property (*No. Units*). *Property Rating A* (*Property Rating B*, respectively) is an indicator that takes the value of one if the property is categorized as a Class A (Class B) building. Property Rating Class C and below is the omitted category. *Location Characteristics*$_i$ denote the location quality ratings of property i. *Location Rating A* (*Location Rating B*, respectively) is an indicator that takes the value of one if the property's location is categorized as a Class A (Class B) location. Location Rating Class C and below is the omitted category. *Investor Types*$_i$ denotes the investor classification of the seller at time t. *Current Seller Institutional* (*Current Seller Private*, respectively) is an indicator that takes the value of one if the current seller is an institutional (private) investor. *Seller Non-Profit* is the omitted category. We exclude *Other* sellers from this analysis. δ_m are market-level fixed effects. γ_t are year-level fixed effects. $\epsilon_{i,t}$ is the residual. Standard errors are clustered by market-year. We estimate Eq. (3) in sub-set of repeat-sales transactions of affordable multi-family properties in the final sample over the 2000–2022 period.

Table 5 presents the results from estimating Eq. (3) for the outcome *Transition to Conventional*. The estimates reported in column 1 show that among the basic property characteristics included in the regression specification, property age is weakly inversely related to the likelihood of conversion from affordable to conventional. The estimates in column 2 show that, after controlling for basic property characteristics, a property quality rating of class B is associated with a significantly

higher likelihood of conversion relative to the omitted category of property rating class C and below. We find that location rating categories are insignificant predictors of the conversion of affordable properties (column 3). The estimates in column 4 show that, after controlling for all those predictors, institutional sellers are significantly more likely than non-profit investors to convert affordable properties to conventional over the course of their holding period. Those estimates also indicate that private investors are slightly more likely than non-profit investors to convert their affordable properties to conventional.

[Insert Table 5 about here.]

Figure 7 presents the distribution of the times in the holding period when transitions from affordable to conventional occur. This distribution indicates that such transitions most frequently occur in the final 40% of a given investor's the holding period. The average holding period of the sample properties for which we observe a transition from affordable to conventional at some point between an acquisition and a subsequent disposition is five years. This statistic implies that any transition to conventional most frequently occurs in the final two years of the average holding period.

[Insert Figure 7 about here.]

We repeat the estimation of Eq. (3) for the variable *Transition to Affordable*, an indicator that takes the value of one if a property is classified as conventional at the time of the acquisition by a given investor and is no longer classified as conventional at the time of the subsequent disposition. Table 6 presents the results.

[Insert Table 6 about here.]

The estimates reported in column 1 show that the number of units in a property is inversely related to the likelihood of conversion from conventional to affordable. The estimates in column 2 show that, after controlling for basic property characteristics, a property quality rating of class A or B is associated with a significantly lower likelihood of conversion to affordable relative to the omitted category of property rating class C and below. We find that a location rating of class A (class B) is also associated with a numerically (statistically) lower likelihood of conversion to affordable than

the omitted category of location rating class C and below (column 3). The estimates in column 4 show that institutional and private sellers are significantly less likely than non-profit investors to convert conventional properties to affordable over the course of their holding period.

The evidence presented in this section suggests that for-profit investors are more likely than non-profits to convert affordable properties to conventional. Conversely, non-profit investors are more likely than for-profits to convert conventional properties to affordable. The available data cannot reveal whether the transition from affordable to conventional is an active choice or a passive result of prior affordability restrictions expiring, e.g., under the LIHTC program. However, the frequency of transitions to conventional towards the end of the holding period suggests that when for-profit investors acquire affordable properties they operate them as such for most of the holding period.

6.2.2 Improvements of Multi-Family Properties

In this section, we assess the likelihood of different investor types to complete improvements to the structures and amenities of their multi-family properties. We implement that assessment by estimating Eq. (3) for the outcome variables *Completed Improvements* and *Completed Luxury Improvements*. Table 7 presents the results.

[Insert Table 7 about here.]

The estimates reported in column 1 show that younger (larger) properties are less (more) likely to experience improvements over the course of a given investor's holding period. The estimates in column 2 show that, after controlling for basic property characteristics, a property quality rating of class B is associated with a significantly higher likelihood of improvements relative to the omitted category of property rating class C and below. We find that a location rating of class A or B is also associated with a higher likelihood of improvements than the omitted category of location rating class C and below (column 3). The estimates in column 4 show that institutional and private investors are slightly more likely than non-profit investors to complete improvements. Notably, we estimate that institutional and private investors are significantly more likely than non-profit investors to complete luxury improvements in their properties (column 5).

In sum, our results suggest that for-profit investors are more likely than non-profits to convert affordable properties to conventional (and vice versa). Our results also suggest that for-profit investors are more likely to complete value-enhancing capital expenditure projects on their assets. Taken together, our findings indicate significant heterogeneity in the asset management choices of different investor types in the multi-family market that can affect investment performance. That said, the estimated under-performance of non-profit investors in terms of capital gains earned on their multi-family assets is robust to controlling for such asset management choices (see Table 3). Thus, non-profit investors' tendency to complete more impact-oriented asset management initiatives cannot fully explain their under-performance relative to for-profit investors in this market, either.

6.3 Trading Behaviors of Non-Profit Investors

Next, we examine the trading behaviors of non-profit versus for-profit investors in the multi-family market. We begin our analyses by characterizing the distributions of counterparties with which non-profit investors trade. Figure 8 summarizes those distributions. The patterns depicted in Panel A indicate that the most frequent seller type for non-profit buyers are private owners (80%), followed by other non-profit investors (approximately 15%), and institutional investors (approximately 5%). The data presented in Panel B indicate that the most frequent buyer type for non-profit sellers are private owners (80%), followed by other non-profit investors (approximately 20%), and institutional investors (approximately 2%). The data displayed show that non-profit investors frequently trade with for-profit investors when buying and selling assets in the multi-family market.

[Insert Figure 8 about here.]

Non-profit investors may experience lower capital gains because they have a higher willingness to pay for assets with (unobservably) higher social impact than do for-profit investors. They may also experience lower capital gains because, in a given trade, they bargain less than for-profit investors. Bargaining skills and power can influence sale prices in markets for heterogeneous assets that may, at times, be thinly traded, such as the assets in the multi-family housing market. To distinguish between bargaining and demand effects in this market, we employ the methodology proposed in Harding et al. (2003a).

Harding et al. (2003b) extend the traditional hedonic model for pricing heterogeneous goods, developed in Griliches (1971), Rosen (1974), and Epple (1987), to measure bargaining effects. Notably, they define sufficient conditions for identifying bargaining effects after accounting for unobserved preferences. We briefly review the key assumptions and results of their model.

In the traditional hedonic pricing model, the market value P of property i is given by

$$\ln(P_i) = s'C_i, \tag{4}$$

where s is the vector of shadow prices corresponding to the characteristics C of property i.

Harding et al. (2003b) model bargaining as a constant shift in market value such that

$$\ln(P_i) = s'C_i + B_i, \tag{5}$$

where B represents the effect of bargaining on the market value of property i.[9] They further assume that bargaining is a function of seller and buyer characteristics (D^{sell}, D^{buy})

$$B_i = b^{sell}D^{sell} + b^{buy}D^{buy} + e_i, \quad \text{such that}$$

$$\ln(P_i) = s'C_i + b^{sell}D^{sell} + b^{buy}D^{buy} + e_i. \tag{6}$$

Eq. (6) is subject to an omitted variable problem as buyer and seller attributes that influence bargaining outcomes could also influence demand for some unobservable characteristics of property i. In other words, there may be demand for unobserved property attributes C_2 that are valued by buyers and sellers at shadow prices s_2 such that

$$s_2C_2 = d^{sell}D^{sell} + d^{buy}D^{buy} + e_D$$

Without accounting for the term s_2C_2, the estimated coefficients on D^{sell} and D^{buy} in Eq. (6) are biased as they capture the effect of bargaining power and that of unobserved differences in preferences.

[9] Harding et al. (2003a) find little evidence that bargaining power influences shadow prices.

To separate the effects of bargaining and preferences, Harding et al. (2003b) assume symmetric bargaining power (b^{sell}=$-b^{buy}$) and symmetric demand (d^{sell}=d^{buy}). Under those assumptions, the market value P of property i is given by

$$\ln(P_i) = s'C_i + b\underbrace{(D^{sell} - D^{buy})}_{Bargaining} + d\underbrace{(D^{sell} + D^{buy})}_{Demand} + e_i. \tag{7}$$

Eq. (7) can be readily estimated using ordinary least squares by including the differences and sums of the buyer and seller characteristics thought to influence, respectively, bargaining and demand effects on observed transaction prices. A negative sign on the coefficient b indicates lesser bargaining power. A negative sign on the coefficient d indicates demand for lower-value properties.

To assess the evidence for bargaining and demand effects among non-profit investors in the multi-family market, we estimate Eq. (7) in the sample of multi-family transactions over the 2000–2022 period. In our estimations, we account for key property characteristics, namely property age, the number of units, and the current affordability status of the property. We further account for investor experience on the buyer side and on the seller side. In alternative specifications, we include, respectively, year fixed effects, zip code-by-year fixed effects, property rating-by-year fixed effects, and location rating-by-year fixed effects. Table 8 presents the estimation results.

[Insert Table 8 about here.]

The estimates reported across all columns of Table 8 indicate that the bargaining effects for non-profit investors are significantly negative. Those estimates also indicate that that unobserved preferences of non-profit investors are associated with significantly lower property values. In other words, non-profit investors appear to demand lower-value properties, potentially because they have a higher willingness to pay for properties with (unobservably) higher social impact, and to bargain less than their for-profit counterparties. These results hold when accounting for year fixed effects, zip code-by-year fixed effects, and property rating-by-year as well as location-rating-by year fixed effects. In our preferred specification accounting for the fullest set of fixed effects (column 4), we estimate that the lesser bargaining power of non-profit investors is associated with approximately 5% lower transaction prices while their preferences are associated with approximately 9% lower prices.

6.4 Counterparty Effects in Capital Gains Analyses

If a discrepancy in bargaining power (partly) drives the differences in capital gains earned by non-profit investors relative to their for-profit peers, then we would expect to see significant counterparty effects in the analyses of capital gains to those investor types. To evaluate the evidence for this conjecture, we re-estimate our capital gains regressions from Eq. (1) adding interaction terms between indicators for non-profit sellers and indicators for the types of counterparties with whom they trade.

Specifically, we estimate regressions of the following form:

$$\begin{aligned} \textit{Capital Gain}_{i,t} = \beta_0 &+ \beta_1 \textit{Current Seller Non-Profit}_{i,t} \times \textit{Initial Seller For-Profit}_{i,t} \\ &+ \beta_2 \textit{Current Seller Non-Profit}_{i,t} \times \textit{Current Buyer For-Profit}_{i,t} \\ &+ \beta_3 \textit{Current Seller Non-Profit}_{i,t} + \beta_4 \textit{Initial Seller For-Profit}_{i,t} + \beta_5 \textit{Current Buyer For-Profit}_{i,t} \\ &+ \beta_6 \textit{Property Characteristics}_{i,t} + \delta_{m,t} + \gamma_{\tau,t} + \lambda_{\rho,t} + \eta_{\psi,t} + \epsilon_{i,t} \end{aligned} \tag{8}$$

where all variables and notation are as in Eq. (1), except *Initial Seller For-Profit* is an indicator that takes the value of one if the original seller of property i sold at time t is a for-profit investor and *Current Buyer For-Profit* is an indicator that takes the value of one if the buyer of property i sold at time t is a for-profit investor. We estimate Eq. (8) in the sub-set of repeat-sales transactions of multi-family properties in the final sample over the 2000–2022 period. Table 9 presents the results.

[Insert Table 9 about here.]

The estimates reported in column 1 show the results from Table 3, column 3, for reference. We find that non-profit investors earn 5.3% lower capital gains over the holding period on investments they acquire from for-profit owners as opposed to those they acquire from other non-profit owners (column 2). We also find that non-profit investors experience 6.8% lower capital gains on investments they sell to for-profit investors as opposed to those they sell to other non-profits (column 3).

In interpreting the results discussed here, it is important to note that we cannot distinguish between demand and bargaining effects in the regressions reported in Table 9 in the same way that we can in those reported in Table 8. That said, the counterparty effects in the repeat-sales

analyses of capital gains to non-profit investors are consistent with the evidence on bargaining and demand effects from the preceding transaction-level analyses. In combination, our findings suggest that weaker bargaining power relative to for-profit investors may be a significant driver of the investment performance outcomes experienced by non-profits in the multi-family housing market.

7 Conclusion

In the housing market, mission-driven non-profit investors frequently trade with for-profit investors over conventional properties and affordable properties that possess qualities of social impact investments. We study asset-level investment choices and performance outcomes of those investor types in the U.S. multi-family market over the 2000–2020 period. We find that non-profit investors earn significantly lower capital gains than do for-profits. That under-performance cannot be explained by the preferences of non-profits for affordable properties. Notably, we estimate that affordable properties on average deliver capital gains in line with those to comparable conventional properties. We further show that non-profit investors are less likely to convert their properties from affordable to conventional than for-profit investors (and vice versa). They are also significantly less likely to complete potentially value-enhancing capital expenditures. However, that heterogeneity in asset management approaches cannot fully explain the under-performance of non-profit investors, either. Rather, our results suggest that after accounting for non-profit investors' preferences for assets that may have unobservably higher impact, those investors bargain less than do for-profits in any given trade.

It is important to note that the non-profit investors in our study have little incentive to produce financial returns. This characteristic stands in contrast to typical impact investors that seek to balance social or environmental objectives with delivering financial returns. While our non-profits can thus be viewed as pure impact investors, our inferences would likely be attenuated in a broader sample of typical impact investors. Further, impact investing is often practiced in public equity markets where there is usually no major role for bargaining. Nevertheless, in private markets for heterogeneous assets that are characterized by search and bargaining, our findings imply that impact-driven investors may leave money on the table and in that sense may not be the most efficient stewards of impact investment capital.

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Figure 1. Locations of Sample Properties by CBSA

This figure depicts the locations of the sample properties by CBSA in the continental U.S. Darker shading in the map indicates a larger number of sample properties located in a CBSA. The data used to produce this figure are from Yardi Matrix.

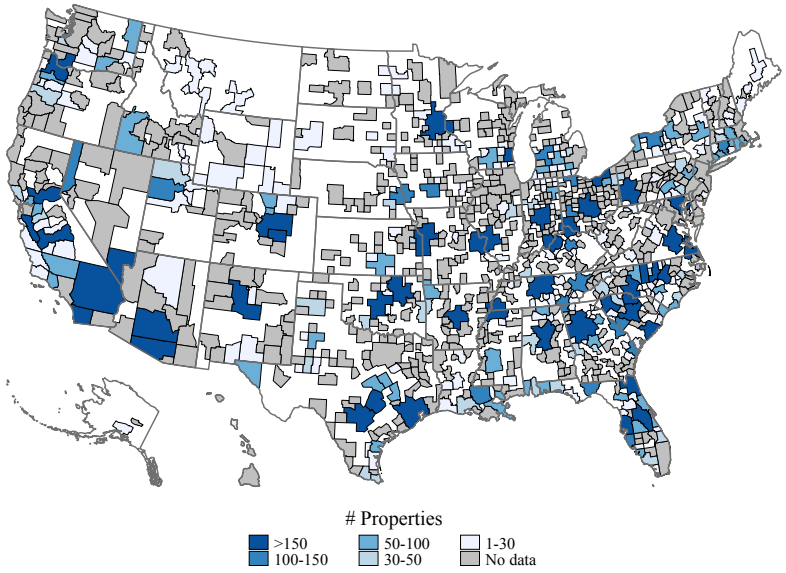
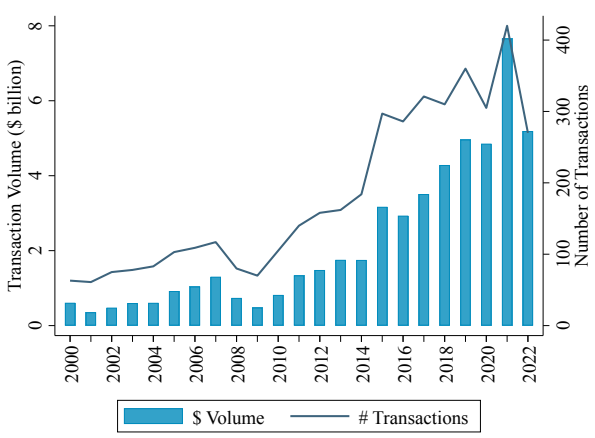
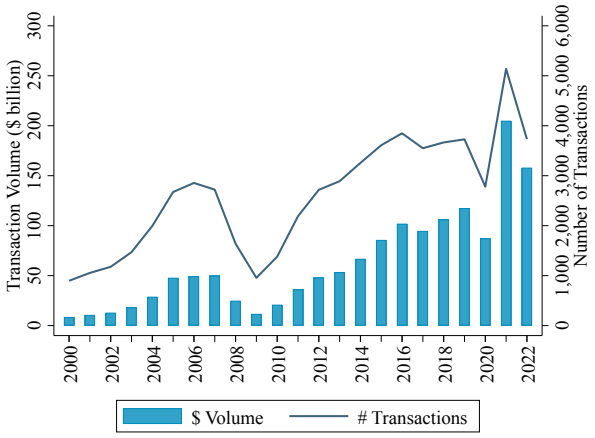


Figure 2. Transaction Volumes in the U.S. Multi-Family Market

This figure depicts the annual transaction volumes in the U.S. multi-family housing market over the 2000–2022 period. Panel A shows the total annual transaction volumes (in $ billion) and the total annual numbers of transactions for affordable multi-family properties. Panel B shows the corresponding information for properties classified as conventional at the time of the transaction. The data used to produce this figure are from Yardi Matrix.



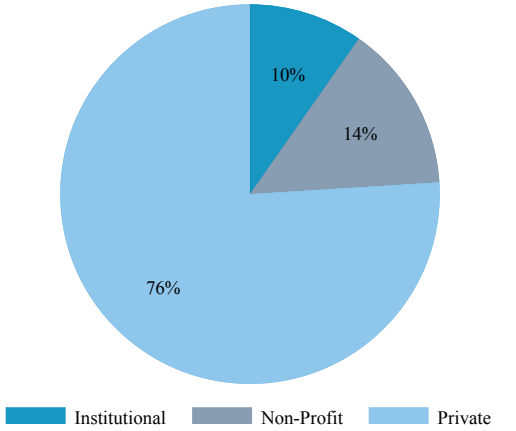
(A) Affordable Properties



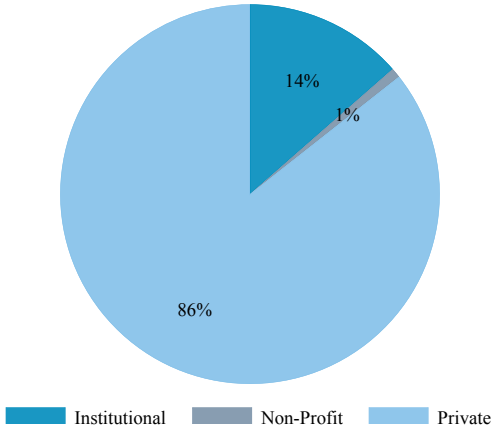
(B) Conventional Properties

Figure 3. Investor Composition in the U.S. Multi-Family Market

This figure depicts the investor composition in the U.S. multi-family housing market over the 2000–2022 period. Panel A shows the breakdown of total transaction dollar volumes by investor type for affordable multi-family properties. Panel B shows the corresponding information for properties classified as conventional at the time of the transaction. The data used to produce this figure are from Yardi Matrix.



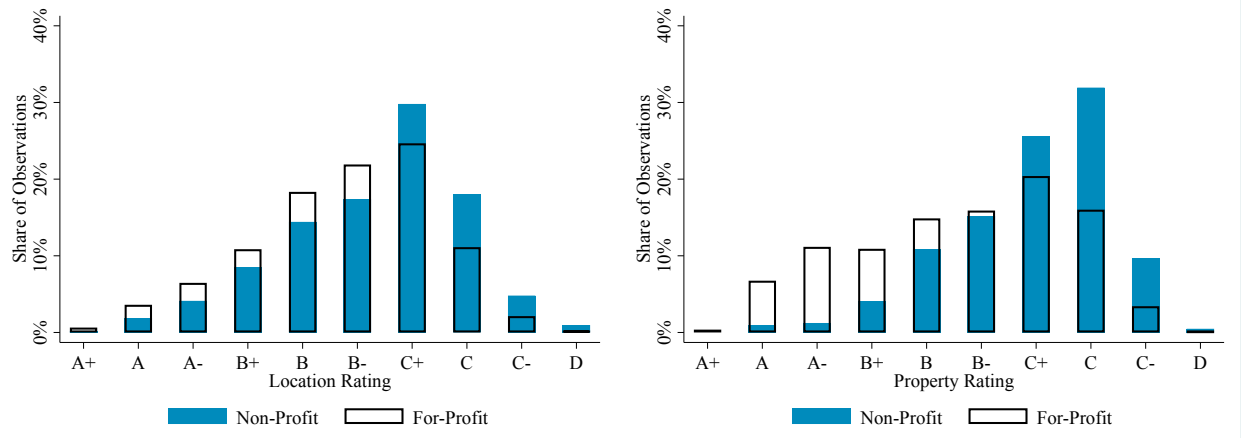
(A) Affordable Properties



(B) Conventional Properties

Figure 4. Distribution of Location Ratings and Property Ratings by Investor Type

This figure depicts overlaid histograms of quality ratings for multi-family properties transacted over the 2000–2022 period by investor type (non-profit versus for-profit). Panel A presents the distribution of location ratings. Panel B presents the distribution of property ratings. In each panel, the bars represent the the shares of total transactions completed in each ratings category. Quality ratings are defined from A+ (highest) to D (lowest). The data used to produce this figure are from Yardi Matrix.

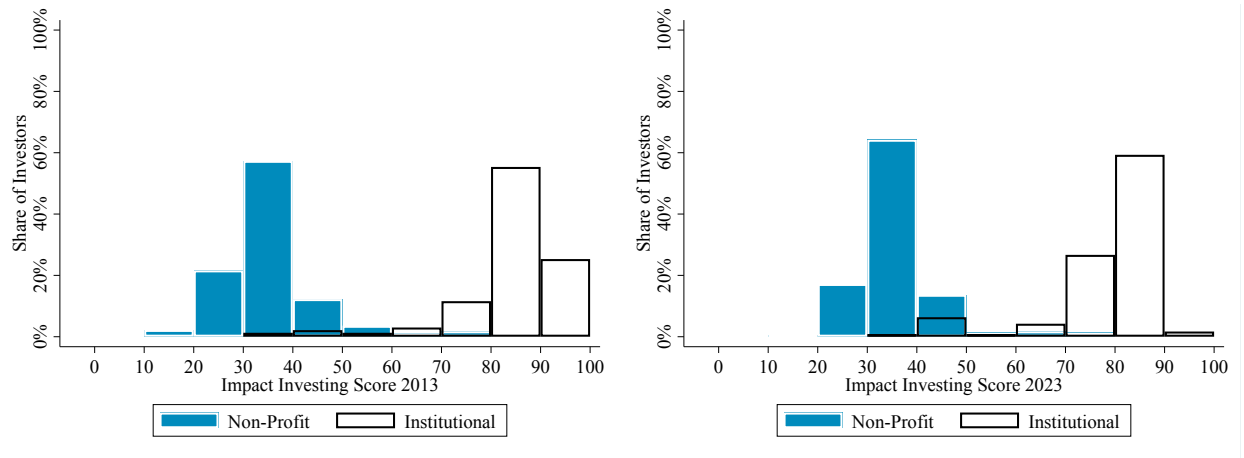


(A) Location Ratings

(B) Property Ratings

Figure 5. Investor Classification by Impact vs. Profit Focus

This figure depicts the distributions of impact investing scores for institutional and non-profit investors the U.S. multi-family housing market over the 2000–2022 period. Panel A shows the distribution of impact investing scores based on data from 2013. Panel B shows the corresponding information based on data from 2023. Impact investing scores are assigned by machine-learning analyses using ChatGPT on a scale from 1-100, where 1 represents a focus on impact investing principles and 100 represents a focus on maximizing profit. Further details on those analyses are provided in Section 4. The data used to produce this figure are from Yardi Matrix.

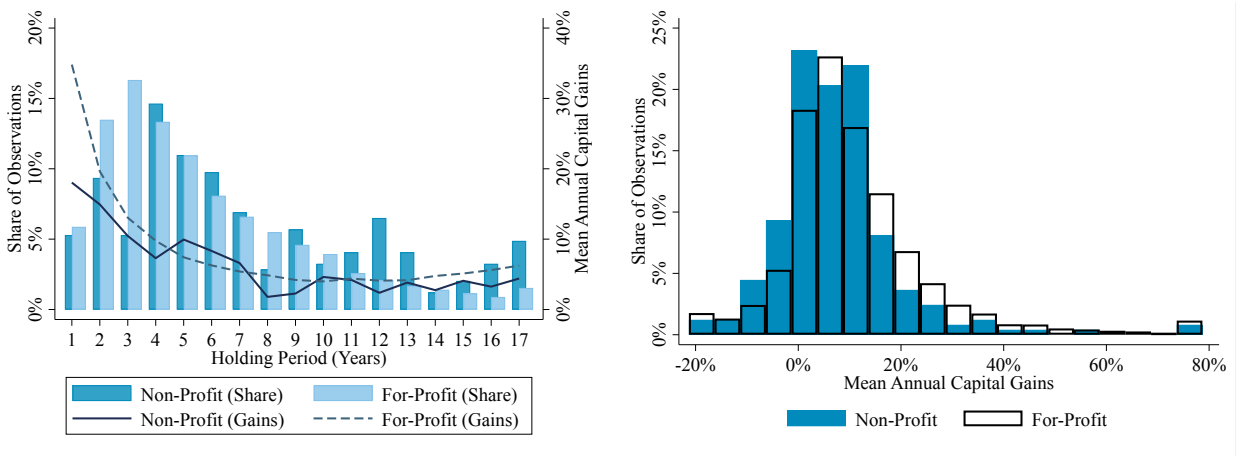


(A) Impact Investing Scores 2013

(B) Impact Investing Scores 2023

Figure 6. Capital Gains in the U.S. Multi-Family Market by Investor Type

This figure depicts capital gains from investments in the U.S. multi-family housing market over the 2000–2022 period by investor type (non-profit versus for-profit). Panel A shows average capital gains by holding period. In this panel, the lines represent geometric average annual capital gains over the holding periods of the multi-family investments (in percent). The bars represent the distributions of holding periods (in years). Panel B shows the distribution of geometric average annual capital gains for multi-family investments by investor type. The data used to produce this figure are from Yardi Matrix.



(A) Holding Periods and Average Capital Gains

(B) Distribution of Capital Gains

Figure 7. Timing of Transition from Affordable to Conventional Property Status

This figure depicts a histogram for the timing of the transition of multi-family properties from affordable to conventional between their acquisition and subsequent disposition by a given investor. The x-axis measures how far into the holding period the observed transitions from affordable to conventional occur. The y-axis measures the share of observations for which the transition from affordable to conventional occurs at a given point in the holding period. The analysis covers the sub-sample of repeat sales of affordable multi-family properties over the 2000–2022 period. The data used to produce this figure are from Yardi Matrix.

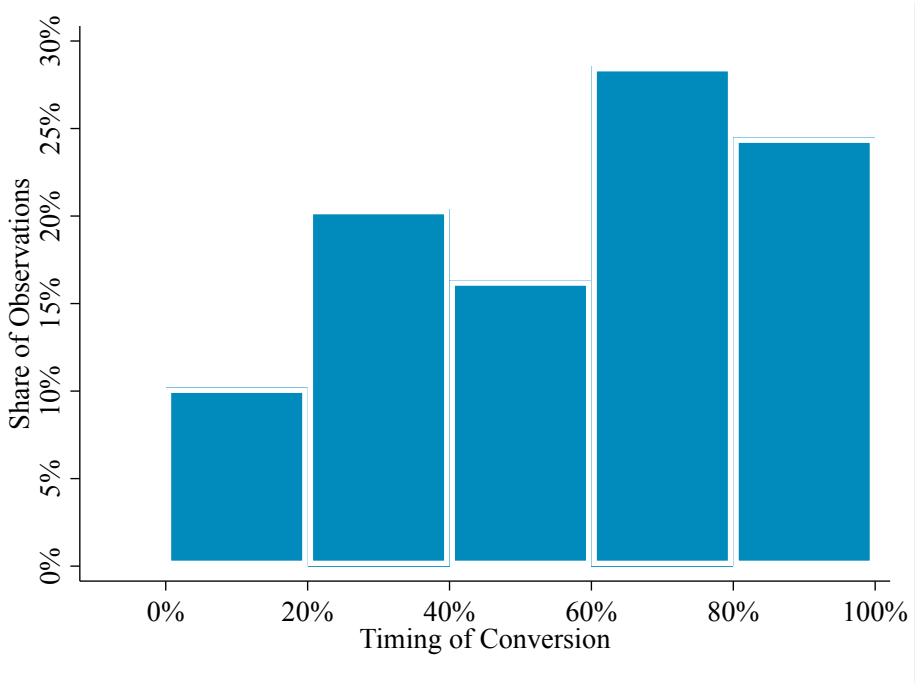
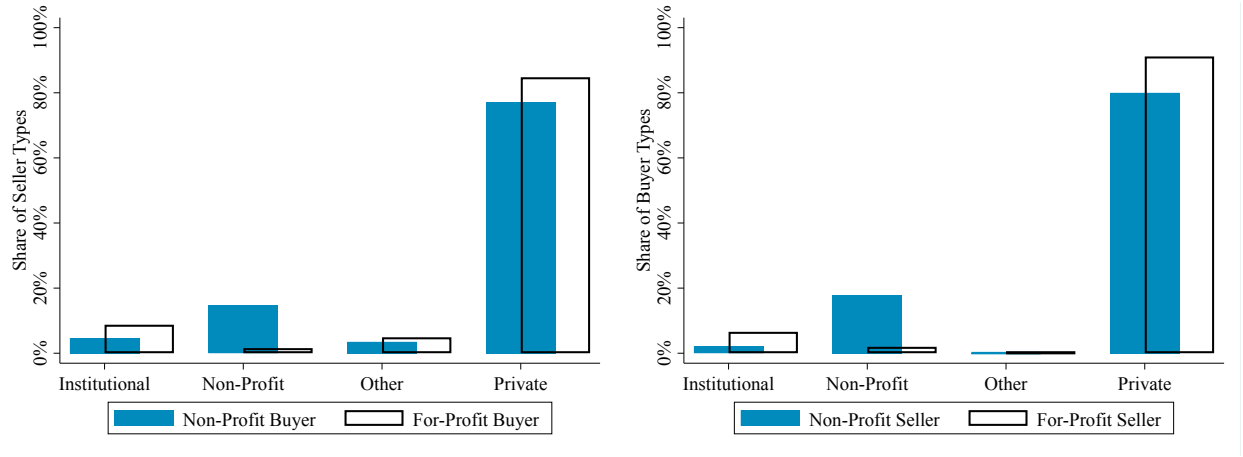


Figure 8. Distribution of Counterparties for Non-Profit Investors in the U.S. Multi-Family Market

This figure depicts distribution of counterparties for non-profit investors in the multi-family housing market over the 2000–2022 period. Panel A shows the distribution of seller types for non-profit buyers. Panel B shows the distribution of buyer types for non-profit sellers. The data used to produce this figure are from Yardi Matrix.



(A) Distribution of Seller Types

(B) Distribution of Buyer Types

Table 1. Descriptive Statistics Transactions Data

This table presents descriptive statistics for the multi-family transactions completed over the 2000–2022 period by investor type (non-profit versus for-profit). *Affordable* is an indicator that takes the value of one if a property is classified as affordable at the time of a transaction. *Transaction Price* is the total transaction price ($ million). *Price Per Unit* is the transaction price per apartment unit in a multi-family property (in $ thousands). *No. of Units* is the number of apartment units in a multi-family property. *Year Built* is the construction year of the property. *Age* is the age of a property, computed as the difference between the transaction year and the construction year of a property. Significance from a difference-in-means test across non-profit and for-profit investors is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	Non-Profit			For-Profit			Diff.
	N	Mean	Median	N	Mean	Median	in Means
Affordable	1,456	0.47	0.00	62,627	0.06	0.00	0.41***
Transaction Price	1,456	13.22	7.50	62,627	23.60	13.85	-10.38***
Price Per Unit	1,456	82,943	58,912	62,627	110,361	81,845	-27,418***
No. Units	1,456	153	116	62,627	202	172	-48.61***
Year Built	1,456	1979	1979	62,627	1984	1983	-4.60***
Age	1,456	34	32	62,627	30	30	3.92***

Table 2. Descriptive Statistics Repeat-Sales Data

This table presents descriptive statistics for the repeat-sales transactions completed over the 2000–2022 period by investor type (non-profit versus for-profit). *Transition to Conventional* (*Transition to Affordable*, respectively) is an indicator that takes the value of one if a property is classified as affordable (conventional) at the time of an acquisition and classified as conventional (affordable) at the time of the subsequent disposition. *Completed Improvements* is an indicator that takes the value of one if a property experiences any improvements in structures or amenities between the time of the acquisition in a repeat-sale and the time of the subsequent disposition. *Completed Luxury Improvements* is an indicator that takes the value of one if the property experiences any analogous improvements in luxury amenities. *Current Seller 1st Time* (respectively, *Current Buyer 1st Time*) is an indicator that takes the value of one if the current seller (respectively, current buyer) is a first-time seller (buyer). Significance from a difference-in-means test across non-profit and for-profit investors is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	Non-Profit			For-Profit			Diff.
	N	Mean	Median	N	Mean	Median	in Means
Transition to Conventional	81	0.01	0.00	718	0.09	0.00	-0.08**
Transition to Affordable	165	0.17	0.00	24,963	0.01	0.00	0.16***
Completed Improvements	519	0.01	0.00	40,704	0.03	0.00	-0.02***
Completed Luxury Improvements	519	0.00	0.00	40,704	0.01	0.00	-0.01*
Current Seller 1st Time	519	0.55	1.00	40,704	0.36	0.00	0.19***
Current Buyer 1st Time	519	0.34	0.00	40,704	0.30	0.00	0.04**

Table 3. Capital Gains to Non-Profit Investors

This table reports output from Eq. (1), estimated over the repeat-sales transactions in the final sample over the 2000–2022 period. The dependent variable is the geometric average annual capital gain over the holding period for a multi-family property. *Current Seller Non-Profit* is an indicator that takes the value of one if the current seller is a non-profit investor. *Completed Improvements* is an indicator that takes the value of one if a property experiences any improvements in structures or amenities between the time of the acquisition in a repeat-sale and the time of the subsequent disposition. *Age* is the age of the property, computed as the difference between the disposition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property. *Affordable* is an indicator that takes the value of one if the property is classified as affordable at the time of the acquisition in a repeat-sale. *Transition to Conventional* is an indicator that takes the value of one if a property is classified as affordable at the time of the acquisition in a repeat-sale, and classified as conventional at the time of the subsequent disposition. *Current Seller First Time* is an indicator that takes the value of one if the current seller has not completed any multi-family investments prior to the current investment. Fixed effects are included as indicated. Standard errors are clustered by market-year. *t*-statistics are shown in parentheses. Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	(1) Cap. Gain	(2) Cap. Gain	(3) Cap. Gain
Current Seller Non-Profit	-0.048**	-0.072***	-0.070***
	(-2.05)	(-2.97)	(-2.87)
Completed Improvements	0.012*	0.012*	0.012*
	(1.86)	(1.90)	(1.88)
Age	0.001***	0.001***	0.001***
	(4.97)	(4.98)	(5.19)
No. Units	0.004	0.005	0.003
	(1.33)	(1.48)	(0.98)
Affordable		0.004	0.003
		(0.31)	(0.24)
Transition to Conventional		0.025	0.026
		(1.01)	(1.06)
Current Seller First Time			-0.010**
			(-2.15)
Zip Code-Year FEs	Yes	Yes	Yes
Holding Period-Year FEs	Yes	Yes	Yes
Property Rating-Year FEs	Yes	Yes	Yes
Location Rating-Year FEs	Yes	Yes	Yes
Observations	13,749	13,605	13,605
Adj. R-squared	0.52	0.53	0.53

Table 4. Capital Gains to Affordable Properties

This table reports output from Eq. (2), estimated over the repeat-sales transactions in the final sample over the 2000–2022 period. The dependent variable is the geometric average annual capital gain over the holding period for a multi-family property. *Affordable* is an indicator that takes the value of one if the property is classified as affordable at the time of the acquisition in a repeat-sale. *Transition to Conventional* is an indicator that takes the value of one if a property is classified as affordable at the time of the acquisition in a repeat-sale, and classified as conventional at the time of the subsequent disposition. *Completed Improvements* is an indicator that takes the value of one if a property experiences any improvements in structures or amenities between the time of the acquisition in a repeat-sale and the time of the subsequent disposition. *Age* is the age of the property, computed as the difference between the disposition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property. Fixed effects are included as indicated. Standard errors are clustered by market-year. *t*-statistics are shown in parentheses. Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	(1) Cap. Gain	(2) Cap. Gain	(3) Cap. Gain
Affordable	0.019***	0.012*	-0.002
	(3.49)	(1.74)	(-0.15)
Transition to Conventional	0.008	0.006	0.028
	(0.50)	(0.23)	(1.10)
Completed Improvements	0.010***	0.012***	0.012*
	(3.34)	(3.08)	(1.90)
Age	0.001***	0.001***	0.001***
	(10.39)	(8.73)	(4.99)
No. Units	0.004***	0.006***	0.004
	(3.00)	(2.99)	(1.37)
Market-Year FEs	Yes	No	No
City-Year FEs	No	Yes	No
Zip Code-Year FEs	No	No	Yes
Holding Period-Year FEs	Yes	Yes	Yes
Property Rating-Year FEs	Yes	Yes	Yes
Location Rating-Year FEs	Yes	Yes	Yes
Observations	25,984	20,836	13,605
Adj. R-squared	0.49	0.50	0.53

Table 5. Transition to Conventional

This table reports output from Eq. (3), estimated over the repeat-sales transactions of affordable multifamily properties in the final sample over the 2000–2022 period. The dependent variable is *Transition to Conventional (To Conv.)*, an indicator that takes the value of one if the property is classified as affordable at the time of the acquisition in a repeat-sale and is classified as conventional at the time of the subsequent disposition. *Age* is the age of the property, computed as the difference between the acquisition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property at the time of the acquisition in the repeat-sale. *Property Rating A* (*Property Rating B*, respectively) is an indicator that takes the value of one if the property is categorized as a Class A (Class B) building at the time of the acquisition in the repeat-sale. Property Rating Class C and below is the omitted category. *Location Rating A* (*Location Rating B*, respectively) is an indicator that takes the value of one if the property's location is categorized as a Class A (Class B) location at the time of the acquisition in the repeat-sale. Location Rating Class C and below is the omitted category. *Current Seller Institutional* (*Current Seller Private*, respectively) is an indicator that takes the value of one if the current seller is an institutional (private) investor. *Current Seller Non-Profit* is the omitted category. We exclude *Other* sellers from this analysis. Fixed effects are included as indicated. Standard errors are clustered by market-year. z-statistics are shown in parentheses. Statistical significance is indicated as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

	(1) To Conv.	(2) To Conv.	(3) To Conv.	(4) To Conv.
Age	-0.013*	-0.004	-0.004	0.000
	(-1.90)	(-0.58)	(-0.54)	(-0.05)
No. Units	0.099	0.015	0.01	-0.001
	(0.61)	(0.09)	(0.06)	(-0.01)
Property Rating A		0.812	0.757	0.716
		(1.58)	(1.50)	(1.41)
Property Rating B		0.758***	0.746***	0.682***
		(3.11)	(3.06)	(2.65)
Location Rating A			0.505	0.412
			(1.00)	(0.83)
Location Rating B			0.023	0.037
			(0.11)	(0.18)
Current Seller Institutional				2.244***
				(3.20)
Current Seller Private				0.974*
				(1.81)
Market FEs	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes
Observations	799	799	799	799
Pseudo R-squared	0.38	0.4	0.4	0.42

Table 6. Transition to Affordable

This table reports output from Eq. (3), estimated over the repeat-sales transactions of conventional multifamily properties in the final sample over the 2000–2022 period. The dependent variable is *Transition to Affordable (To Afford.)*, an indicator that takes the value of one if the property is classified as conventional at the time of the acquisition in a repeat-sale and is classified as affordable at the time of the subsequent disposition. *Age* is the age of the property, computed as the difference between the acquisition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property at acquisition. *Property Rating A* (*Property Rating B*, respectively) is an indicator that takes the value of one if the property is categorized as a Class A (Class B) building at the time of the acquisition in the repeat-sale. Property Rating Class C and below is the omitted category. *Location Rating A* (*Location Rating B*, respectively) is an indicator that takes the value of one if the property's location is categorized as a Class A (Class B) location at the time of the acquisition in the repeat-sale. Location Rating Class C and below is the omitted category. *Current Seller Institutional* (*Current Seller Private*, respectively) is an indicator that takes the value of one if the current seller is an institutional (private) investor. *Current Seller Non-Profit* is the omitted category. Fixed effects are included as indicated. Standard errors are clustered by market-year. z-statistics are shown in parentheses. Statistical significance is indicated as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

	(1) To Afford.	(2) To Afford.	(3) To Afford.	(4) To Afford.
Age	0.000	-0.014***	-0.016***	-0.015***
	(-0.01)	(-4.90)	(-5.16)	(-4.93)
No. Units	-0.263***	-0.07	-0.039	-0.045
	(-4.53)	(-1.19)	(-0.66)	(-0.78)
Property Rating A		-1.686***	-1.578***	-1.507***
		(-5.02)	(-4.53)	(-4.38)
Property Rating B		-0.839***	-0.748***	-0.709***
		(-8.01)	(-7.29)	(-6.86)
Location Rating A			-0.184	-0.135
			(-0.84)	(-0.62)
Location Rating B			-0.492***	-0.468***
			(-6.05)	(-5.64)
Current Seller Institutional				-1.706***
				(-6.28)
Current Seller Private				-1.511***
				(-8.62)
Market FEs	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes
Observations	25,128	25,128	25,128	25,128
Pseudo R-squared	0.31	0.35	0.36	0.39

Table 7. Completed Improvements

This table reports output from Eq. (3), estimated over the repeat-sales transactions of multi-family properties in the final sample over the 2014–2022 period. In columns 1 through 4, the dependent variable is *Completed Improvements (Impr.)*, an indicator that takes the value of one if a property experiences any improvements in structures or amenities between the time of the acquisition in a repeat-sale and the time of the subsequent disposition. In column 5, the dependent variable is *Completed Luxury Improvements (Luxury)*, an indicator that takes the value of one if the property experiences any analogous improvements in luxury amenities. *Age* is the age of the property, computed as the difference between the acquisition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property at acquisition. *Property Rating A* (*Property Rating B*, respectively) is an indicator that takes the value of one if the property is categorized as a Class A (Class B) building at the time of the acquisition in the repeat-sale. Property Rating Class C and below is the omitted category. *Location Rating A* (*Location Rating B*, respectively) is an indicator that takes the value of one if the property's location is categorized as a Class A (Class B) location at the time of the acquisition in the repeat-sale. Location Rating Class C and below is the omitted category. *Current Seller Institutional* (*Current Seller Private*, respectively) is an indicator that takes the value of one if the current seller is an institutional (private) investor. *Current Seller Non-Profit* is the omitted category. Fixed effects are included as indicated. Standard errors are clustered by market-year. z-statistics are shown in parentheses. Statistical significance is indicated as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

	(1) Impr.	(2) Impr.	(3) Impr.	(4) Impr.	(5) Luxury
Age	-0.004***	-0.003**	-0.003*	-0.003*	-0.002
	(-3.15)	(-2.23)	(-1.80)	(-1.92)	(-0.79)
No. Units	0.288***	0.257***	0.249***	0.251***	0.211***
	(10.34)	(8.86)	(8.48)	(8.53)	(4.64)
Property Rating A		0.03	-0.038	-0.042	-0.053
		(0.43)	(-0.53)	(-0.58)	(-0.41)
Property Rating B		0.210***	0.175***	0.171***	0.175**
		(4.67)	(3.85)	(3.77)	(2.39)
Location Rating A			0.246***	0.247***	0.364***
			(4.15)	(4.15)	(3.67)
Location Rating B			0.145***	0.143***	0.280***
			(4.00)	(3.94)	(4.80)
Current Seller Institutional				0.400*	3.814***
				(1.65)	(25.76)
Current Seller Private				0.448*	3.816***
				(1.91)	(37.24)
Market FEs	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes
Observations	19,790	19,790	19,790	19,790	19,790
Pseudo R-squared	0.07	0.08	0.08	0.08	0.13

Table 8. Transaction Prices in the U.S. Multi-Family Market

This table reports output from Eq. (7), estimated over the multi-family transactions in the final sample over the 2000–2022 period. The dependent variable is the natural logarithm of the transaction price per unit for a multi-family property (*Log Price*). *Bargaining* is the difference between *Current Seller Non-Profit* and *Current Buyer Non-Profit*. *Demand* is the sum of *Current Seller Non-Profit* and *Current Buyer Non-Profit*. *Current Seller (Buyer) Non-Profit* is an indicator that takes the value of one if the current seller (buyer) is a non-profit investor. *Age* is the age of the property, computed as the difference between the disposition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property. *Affordable* is an indicator that takes the value of one if the property is classified as affordable a the transaction. *Current Seller (Buyer) First Time* is an indicator that takes the value of one if the current seller (buyer) has not completed any multi-family investments prior to the current transaction. Fixed effects are included as indicated. Standard errors are clustered by market-year. *t*-statistics are shown in parentheses. Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	(1) Log Price	(2) Log Price	(3) Log Price	(4) Log Price
Bargaining	-0.133***	-0.054**	-0.055**	-0.056**
	(-7.34)	(-2.19)	(-2.34)	(-2.38)
Demand	-0.136***	-0.121***	-0.095***	-0.093***
	(-8.17)	(-5.51)	(-4.44)	(-4.39)
Age	-0.016***	-0.015***	-0.010***	-0.010***
	(-44.45)	(-38.39)	(-25.61)	(-25.64)
No. Units	0.997***	1.042***	0.997***	0.994***
	(110.88)	(158.90)	(155.39)	(155.25)
Affordable	-0.231***	-0.227***	-0.185***	-0.180***
	(-15.82)	(-12.34)	(-10.24)	(-9.97)
Current Seller 1st Time	-0.106***	-0.057***	-0.042***	-0.040***
	(-13.13)	(-7.71)	(-6.01)	(-5.86)
Current Buyer 1st Time	-0.238***	-0.057***	-0.044***	-0.042***
	(-24.15)	(-6.72)	(-5.31)	(-5.08)
Year FEs	Yes	No	No	No
Zip Code-Year FEs	No	Yes	Yes	Yes
Property Rating-Year FEs	No	No	Yes	Yes
Location Rating-Year FEs	No	No	No	Yes
Observations	64,083	37,448	37,448	37,448
Adj. R-squared	0.69	0.91	0.92	0.92

Table 9. Counterparty Effects in Capital Gains to Non-Profit Investors

This table reports output from Eq. (8), estimated over the repeat-sales transactions in the final sample over the 2000–2022 period. The dependent variable is the geometric average annual capital gain over the holding period for a multi-family property. *Current Seller Non-Profit* is an indicator that takes the value of one if the current seller is a non-profit investor. *Initial Seller For-Profit* is an indicator that takes the value of one if the original seller in the repeat-sale is a for-profit investor. *Current Buyer For-Profit* is an indicator that takes the value of one if the current buyer in the repeat-sale is a for-profit investor. *Completed Improvements* is an indicator that takes the value of one if a property experiences any improvements in structures or amenities between the time of the acquisition in a repeat-sale and the time of the subsequent disposition. *Age* is the age of the property, computed as the difference between the disposition year of the repeat-sale and the construction year of the property. *No. Units* is the number of apartment units in a property. *Affordable* is an indicator that takes the value of one if the property is classified as affordable at the time of the acquisition in a repeat-sale. *Transition to Conventional* is an indicator that takes the value of one if a property is classified as affordable at the time of the acquisition in a repeat-sale, and classified as conventional at the time of the subsequent disposition. *Current Seller First Time* is an indicator that takes the value of one if the current seller has not completed any multi-family investments prior to the current investment. Fixed effects are included as indicated. Standard errors are clustered by market-year. t-statistics are shown in parentheses. Statistical significance is indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

	(1) Cap. Gain	(2) Cap. Gain	(3) Cap. Gain
Current Seller Non-Profit	-0.070***		
	(-2.87)		
× *Initial Seller For-Profit*		-0.053**	
		(-2.47)	
× *Current Buyer For-Profit*			-0.068***
			(-2.68)
Initial Seller For-Profit		-0.028	
		(-1.45)	
Current Buyer For-Profit			-0.010
			(-0.68)
Completed Improvements	0.012*	0.012*	0.012*
	(1.88)	(1.87)	(1.89)
Age	0.001***	0.001***	0.001***
	(5.19)	(5.22)	(5.17)
No. Units	0.00	0.00	0.00
	(0.98)	(0.92)	(0.97)
Affordable	0.00	(0.00)	0.00
	(0.24)	(-0.06)	(0.14)
Transition to Conventional	0.026	0.027	0.027
	(1.06)	(1.10)	(1.09)
Current Seller 1st Time	-0.010**	-0.010**	-0.010**
	(-2.15)	(-2.14)	(-2.17)
Zip Code-Year FEs	Yes	Yes	Yes
Holding Period-Year FEs	Yes	Yes	Yes
Property Rating-Year FEs	Yes	Yes	Yes
Location Rating-Year FEs	Yes	Yes	Yes
Observations	13,605	13,605	13,605
Adj. R-squared	0.53	0.53	0.53

ONLINE APPENDIX

Table A.1. Top-20 Multi-Family Investors by Type

This table presents the names of the top-20 multi-family investors in the sample by frequency rank, along with the (cumulative) percentage of transactions in which each investor is involved. Panel A (Panel B) presents the top-20 investors in the sub-set of transactions where the buyer is an institutional (non-profit) investor.

(A) Institutional Investors

Rank	Investor	Freq.	Pct.	Cum. Pct.
1	Starwood Capital Group	375	9.01	9.01
2	Equity Residential	219	5.26	14.27
3	Nuveen Real Estate	176	4.23	18.50
4	Essex Property Trust	124	2.98	21.48
5	MAA	113	2.72	24.20
6	Invesco Real Estate	109	2.62	26.81
7	Independence Realty Trust	108	2.59	29.41
8	Inland Real Estate Group	94	2.26	31.67
9	UDR	94	2.26	33.93
10	Archstone	91	2.19	36.11
11	JPMorgan Asset Management	85	2.04	38.15
12	CBRE Investment Management	73	1.75	39.91
13	Heitman	73	1.75	41.66
14	Milestone Group	70	1.68	43.34
15	Resource Real Estate	70	1.68	45.03
16	CAPREIT	68	1.63	46.66
17	BlackRock	67	1.61	48.27
18	DWS	67	1.61	49.88
19	LaSalle Investment Management	66	1.59	51.47
20	Starlight Investments	65	1.56	53.03

(B) Non-Profit Investors

Rank	Investor	Freq.	Pct.	Cum. Pct.
1	Harmony Housing	69	4.74	4.74
2	Foundation for Affordable Housing	53	3.64	8.38
3	Foundation Housing	46	3.16	11.54
4	Preservation of Affordable Housing	32	2.20	13.74
5	Global Ministries Foundation	29	1.99	15.73
6	Housing Preservation	29	1.99	17.72
7	Atlantic Housing Foundation	24	1.65	19.37
8	NHP Foundation	23	1.58	20.95
9	Austin Affordable Housing Corporation	22	1.51	22.46
10	National Church Residences	22	1.51	23.97
11	Aeon	17	1.17	25.14
12	Affordable Housing Preservation	17	1.17	26.30
13	Chicanos Por La Causa	16	1.10	27.40
14	Patriot Services Group	16	1.10	28.50
15	Enterprise Community Partners	15	1.03	29.53
16	King County Housing Authority	15	1.03	30.56
17	Mercy Housing	15	1.03	31.59
18	Wisconsin Housing Preservation Corporation	15	1.03	32.62
19	MHT Housing	14	0.96	33.59
20	American Housing Foundation	12	0.82	34.41