

The Impact of Macroeconomic Shocks on Mortgage and Equity Real Estate Investment Trusts from January 2020 to October 2025

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Abstract

This study examines how macroeconomic shocks affected the performance of two distinct types of Real Estate Investment Trusts (REITs): Arbor Realty Trust (ABR), a mortgage REIT, and Equity Residential (EQR), an equity REIT, during the period from January 2020 to October 2025. Even though both firms are within the multifamily housing sector, they operate under fundamentally different business models, creating varying sensitivities to changes in interest rates, inflation, vacancy rates, and property market conditions. Using monthly return data and macroeconomic indicators including treasury yields, inflation, rental vacancy rates, and multifamily property price changes, this study applies descriptive analysis and a Seemingly Unrelated Regression (SUR) model to evaluate how each REIT responded to economic disruptions from the COVID-19 pandemic to post-pandemic situations. Overall, this study highlights how REIT structure shapes risk exposure and recovery dynamics during periods of economic instability. These results provide investors, policymakers, and researchers with insight into the relationship between monetary policy, housing markets, and REIT performance.

Keywords

Real Estate Investment Trusts, Multifamily Housing, Macroeconomic Shocks, Seemingly Unrelated Regression

1. Introduction

Real Estate Investment Trusts (REITs) occupy a central position in the U.S. commercial real estate market by linking real assets to public capital markets (NAREIT, 2024). The modern REIT structure was established by President

Dwight D. Eisenhower under the REIT Act of 1960, and it was designed to allow individuals to hold a more diversified property portfolio through publicly traded shares (U.S. Congress, 1960). REITs are known for having stable income generation, diversification, and being a protection against inflation, and these benefits have made REITs extremely attractive to investors and households who want steady cash flow as well as long-term appreciation (Chan et al., 2003). Within the broader REIT universe, multifamily residential REITs have emerged as one of the most closely studied and systematically important sectors. Housing represents a necessity, and demand for rental units has remained strong amid rising home prices, tightening mortgage standards, and demographic shifts favoring urban and suburban renting (Harvard Joint Center for Housing Studies, 2023). Multifamily REITs therefore sit at the intersection of housing markets and financial conditions, which make them particularly sensitive to macroeconomic shocks.

The multifamily sector itself has undergone substantial structural change over recent decades. While apartment housing was once concentrated primarily in dense, urban cores, increased construction costs and decreased land for construction, as well as changing household preferences, have encouraged the expansion of rental communities. The aftermath of the 2008 financial crisis further accelerated this trend by delaying homeownership and increasing the share of long-term renters. As a result, multifamily REITs entered the late 2010s with strong fundamentals, high occupancy rates, and favorable access to capital. Then, major economic disruptions from 2020 to 2025 shifted housing demand, migration patterns, and financial markets. Urban rental markets weakened while suburban markets experienced stronger rent growth. At the same time, supply chain disruptions and Federal Reserve interventions complicated cash flow dynamics, ultimately creating uncertainty across multifamily real estate (Board of Governors of the Federal Reserve System, 2023).

Against this backdrop, this paper studies Arbor Realty Trust (ABR) and Equity Residential (EQR), as representative case studies of a mortgage REIT and an equity REIT, respectively, and examines the differences in how they responded to macroeconomic shocks between January 2020 and October 2025. Both firms are among the largest and most established publicly traded REITs in their categories, have long operating histories, and maintain significant exposure to the multifamily housing sector. Their size, liquidity, and business focus make them useful candidates for examining the macroeconomic shocks on their performance during various cycles. However, the findings should be interpreted as case-specific rather than sector-wide generalized conclusions.

2. Macroeconomic Environment (2020-2025)

Between January 2020 and October 2025, REITs experienced major macroeconomic shocks that significantly affected both financial markets and the multifamily housing sector. Prior to the COVID-19 pandemic, the economy was character-

ized by low unemployment, stable inflation, accommodative monetary policy, and strong housing fundamentals. The onset of COVID-19 abruptly disrupted these conditions. Public health restrictions as well as widespread job losses led to not only weakened rental demand in urban markets but also increased volatility across financial markets. As the economy reopened during 2021, inflation accelerated rapidly because of supply-chain disruptions, expansionary fiscal policy, and strong consumer demand. Multifamily rents increased sharply, particularly in suburban and Sun Belt markets experiencing population inflows and elevated housing demand. In response to rising inflation, the Federal Reserve initiated an aggressive tightening cycle beginning in 2022, resulting in rapid increases in short-term interest rates. The later period from 2023 to 2025 reflected a transition toward post-pandemic normalization under tighter financial conditions. Elevated interest rates increased multifamily supply deliveries, and slowing rent growth created additional pressure across the sector.

3. Business Model Analysis

Although both ABR and EQR are closely tied to the multifamily sector, they operate under fundamentally different structures. ABR functions primarily as a mortgage REIT, generating income through lending and structured finance activities, while EQR is an equity REIT that owns and operates apartment properties (Arbor Realty Trust, 2024; Equity Residential, 2024). The fundamental difference between ABR and EQR lies in how each generates revenue and manages risk. Mortgage REITs primarily earn income through lending activity and structured credit investments, making them highly sensitive to interest rates, funding costs, leverage, and credit market conditions. On the other hand, Equity REITs generate income through rent collection and property appreciation which links their performance more closely to occupancy, rental demand, and housing market fundamentals (Allen, Madura, & Springer, 2000). This distinction allows comparison of how mortgage and equity REITS respond to macroeconomic shocks, specifically about how REIT structure shapes risk exposure, return volatility, and recovery dynamics.

3.1. Arbor Realty Trust

Arbor Realty Trust (ABR) operates as a mortgage REIT that provides financing to multifamily developers and property owners. Rather than owning real estate assets directly, ABR earns income from interest payments on loans and credit performance (Arbor Realty Trust, 2024). As a result, its profitability depends heavily on interest rate spreads, leverage, and borrower credit quality. Rising interest rates increase funding costs and compress margins, while economic downturns raise the likelihood of borrower distress and loan defaults. During the post-2022 tightening cycle, higher rates and refinancing pressures significantly affected ABR's performance. As a result, ABR exhibited greater volatility and stronger sensitivity to macroeconomic shocks than equity REITs.

3.2. Equity Residential

Equity Residential (EQR) is an equity REIT specializing in Class A multifamily properties in high-density urban markets. Unlike ABR, EQR's revenue is derived primarily from rental income and long-term property appreciation (Equity Residential, 2024). Its structure produces relatively stable cash flows under normal conditions but exposes EQR to risks associated with tenant demand, vacancy rates, and local housing supply (CBRE Research, 2024). Although higher interest rates negatively affected property valuations, strong rental demand during 2021 supported rent recovery and occupancy growth before slower rent growth emerged during 2023-2025. Despite these pressures, EQR generally demonstrated more stable return behavior than ABR because of its consistent rental cash flow and lower exposure to funding-market volatility.

4. Data and Methodology

To analyze differential impacts across the January 2020 to October 2025 period, this study uses monthly data from 2020 through October 2025 to evaluate the differing response of ABR and EQR to macroeconomic shocks. Monthly adjusted closing prices for ABR and EQR were collected from Yahoo Finance. Macroeconomic variables, including Treasury Yields, inflation, mortgage rates, vacancy rates, and multifamily housing indicators were obtained from the Federal Reserve Economic Data (FRED) database and the US Census Bureau Housing Vacancy Survey (Federal Reserve Economic Data, 2025).

This analysis incorporates descriptive statistics, correlation analysis, and econometric modeling. The primary econometric approach used in this study is the Seemingly Unrelated Regression (SUR) model developed by Zellner (1962), which allows simultaneous estimation of multiple regression equations while accounting for correlated residuals across equations. The SUR framework improves efficiency relation to separate ordinary least squares (OLS) regressions because it incorporates covariance between residual terms. This approach is appropriate because both ABR and EQR are exposed to common macroeconomic shocks such as inflation, interest-rate changes, and financial market volatility.

The estimated equations are:

Equation (1):

$$\begin{aligned} \text{Return_ABR}_t = & \alpha_1 + \beta_{11} (\text{Rate_2Y_Change}) + \beta_{12} (\text{Crisis_Regime}) \\ & + \beta_{13} (\text{Rate_2Y_Interaction}) + \beta_{14} (\text{CPI_YOY}) \\ & + \beta_{15} (\text{Rent_Vacancy_Rate}) \\ & + \beta_{16} (\text{MF_Price_Change}) + \epsilon_{\text{ABR},t} \end{aligned}$$

Equation (2):

$$\begin{aligned} \text{Return_EQR}_t = & \alpha_2 + \beta_{21} (\text{Rate_2Y_Change}) + \beta_{22} (\text{Crisis_Regime}) \\ & + \beta_{23} (\text{Rate_2Y_Interaction}) + \beta_{24} (\text{CPI_YOY}) \\ & + \beta_{25} (\text{Rent_Vacancy_Rate}) \\ & + \beta_{26} (\text{MF_Price_Change}) + \epsilon_{\text{EQR},t} \end{aligned}$$

where:

$Return_ABR_t$ and $Return_EQR_t$ represent dividend-adjusted monthly stock returns for ABR and EQR respectively;

$Rate_2Y_Change$ represents monthly changes in the 2-year Treasury yield;

$Crisis_Regime$ represents monthly changes in the 2-year Treasury yield;

$Rate_2Y_Interaction$ represents monthly changes in the 10-year Treasury yield;

CPI_YOY represents the year-over-year inflation rate;

$Rent_Vacancy_Rate$ represents the rental vacancy rate;

MF_Price_Change represents the monthly percentage change in the multifamily property price index;

$\varepsilon_{ABR,t}$ and $\varepsilon_{EQR,t}$ are correlated residual terms.

Expected Relationships and Hypotheses

1) Interest Rate Sensitivity: ABR returns will be more negatively correlated with rising short-term rates than EQR.

2) Yield Curve Exposure: Yield spread compression will harm ABR more due to its reliance on borrowing short and lending long.

3) Multifamily Index Sensitivity: EQR should exhibit stronger sensitivity to multifamily market strength.

4) Vacancy Rate Impact: Rising vacancies will negatively influence EQR returns more than ABR.

5) Inflation Effects: Inflation may mildly benefit EQR through rent adjustments but hurt ABR via higher funding costs.

6) Error Covariance: Residual covariance between ABR and EQR will remain positive due to shared macroeconomic volatility.

5. Data Exploration

5.1. Descriptive Patterns in Return Behavior (2020-2025)

The monthly return behavior of ABR and EQR reflects the fundamental differences between mortgage and equity REIT business models. As shown in **Figure 1**, ABR exhibited significantly higher return volatility than EQR throughout the same period (2020-2025). The standard deviation of ABR returns was significantly larger during both the COVID-19 crisis and the 2022-2023 monetary tightening cycle, indicating heightened sensitivity to liquidity stress, refinancing risk, and funding-market instability. EQR, by contrast, maintained lower volatility and more stable average returns, consistent with its reliance on return income and property operations rather than leveraged lending activities (see **Figure 2**).

The relationship between the two REITs is further illustrated in **Figure 2**, which plots monthly returns for ABR against those of EQR. The correlation analysis (see **Figure 3** and **Figure 4**) reveals that ABR and EQR exhibit moderate positive comovement (correlation coefficient = 0.50), suggesting exposure to shared macroeconomic forces, yet through differentiated transmission channels. While both

REITs are influenced by the broader economic and monetary environment, the strength and direction of factor sensitivity vary. The wider dispersion of ABR observations reflects its greater sensitivity to financial-market volatility and changing credit conditions.

Mean and Standard Deviation of Monthly Returns (ABR vs EQR)

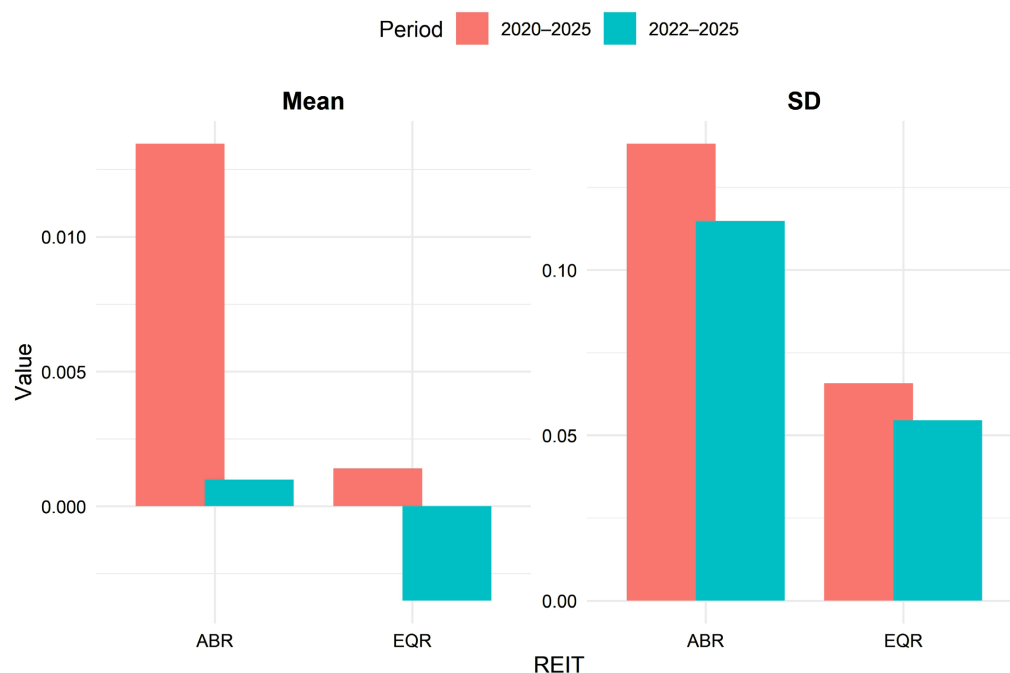


Figure 1. Mean and standard deviation of monthly return for ABR and EQR (The entire measurement period of 2020-2025 and the period of 2022-2025). Source: Author calculations using Yahoo Finance data.

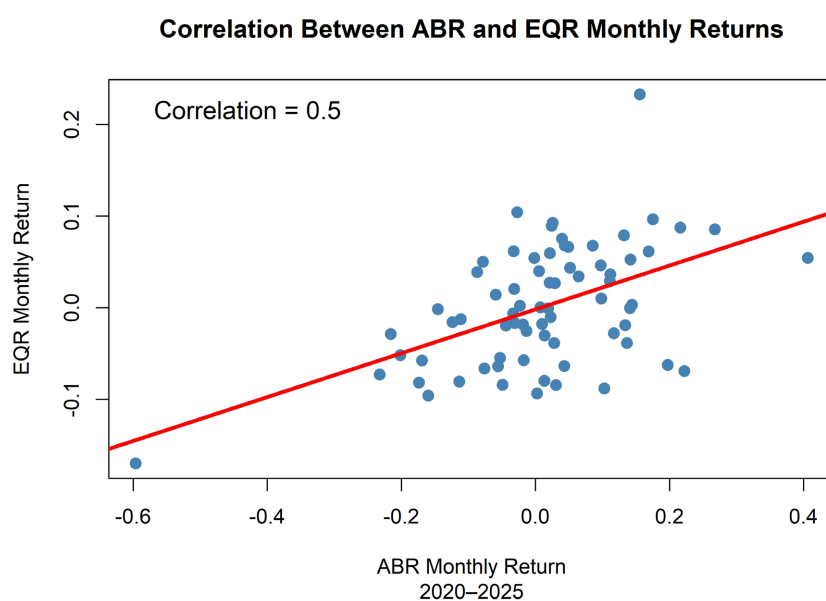


Figure 2. Scatterplot of monthly returns for ABR and EQR. Source: Author calculations using Yahoo Finance data.

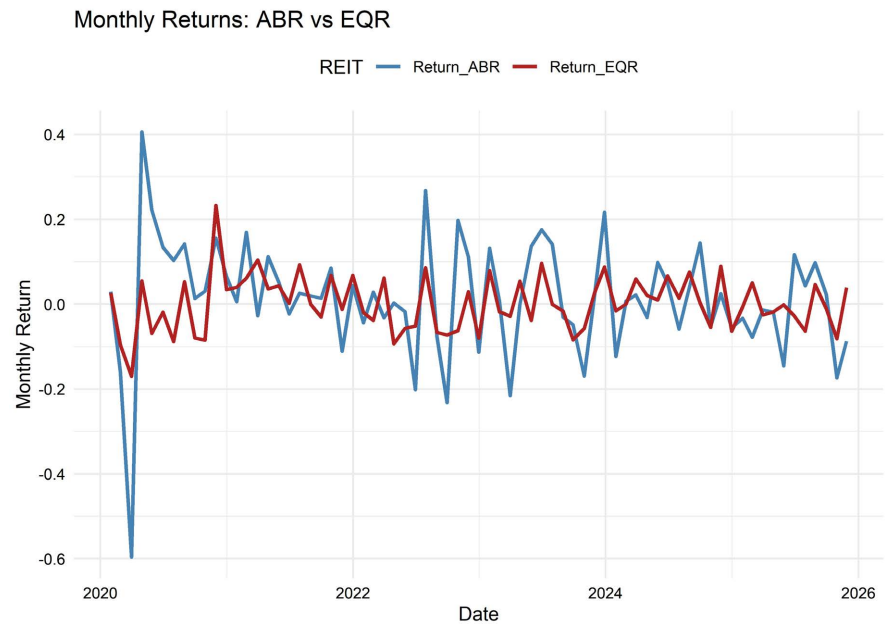


Figure 3. Time series of monthly returns for ABR and EQR (2020-2025). Source: Author calculations using Yahoo Finance data.

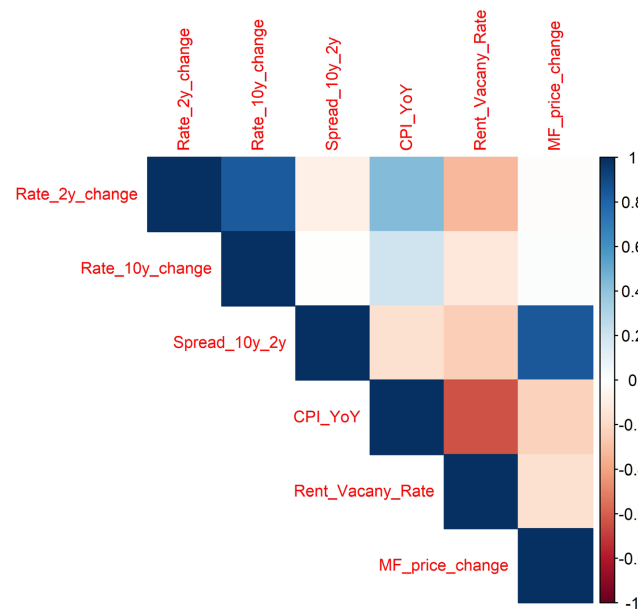


Figure 4. Correlation heat map of major macroeconomic variables. Source: Author calculations using Federal Research Economic Data.

The differing volatility profiles become even more apparent in **Figure 3**, which displays the time series of monthly returns from 2020 to 2025.

The macroeconomic variables themselves also exhibit meaningful shifts across the sample period. Both the 2y (short term) and 10y (long term) Treasury yields fluctuated sharply, falling in 2020 and rising rapidly in 2022-2023. Multifamily property prices rose sharply in 2021, driven by historically low rates, strong household formation, and institutional capital flows into rental housing. However,

prices stagnated and declined from 2022 through 2024 as rates rose and cap rate expansion outpaced rent growth. The rental vacancy rate, which had compressed during the housing boom, began to trend upward post-2022, particularly in urban cores and Sun Belt regions with large new supply deliveries. Inflation, relatively stable pre-COVID, surged throughout 2021-2022, reaching multi-decade highs. This placed upward pressure on operating expenses (e.g., labor, insurance, materials) while also triggering interest rate hikes that affected both funding costs and asset valuations. It is important to note that many of these macro variables are interrelated.

As illustrated in **Figure 4**, several macroeconomic variables exhibited strong correlations with one another, particularly inflation and Treasury yields. This relationship reflects the broader monetary-policy environment in which rising inflation prompted aggressive interest-rate increases by the Federal Reserve.

5.2. COVID Period versus Post-COVID Tightening Cycle

During the COVID-era period from 2020-2021, the relationship between REIT returns and changes in the 2-year Treasury yield appears positive. However, this relationship reflects crisis conditions rather than traditional interest-rate sensitivity. Large negative Treasury-yield changes coincided with severe market panic, liquidity shortages, and widespread deleveraging. ABR experienced particularly severe stress during this period because leveraged mortgage REITs faced margin calls and widening credit spreads. The most extreme observations in **Figure 5** occur in the lower-left region of the chart, where sharp declines in Treasury yields coincided with monthly ABR losses exceeding 30%.

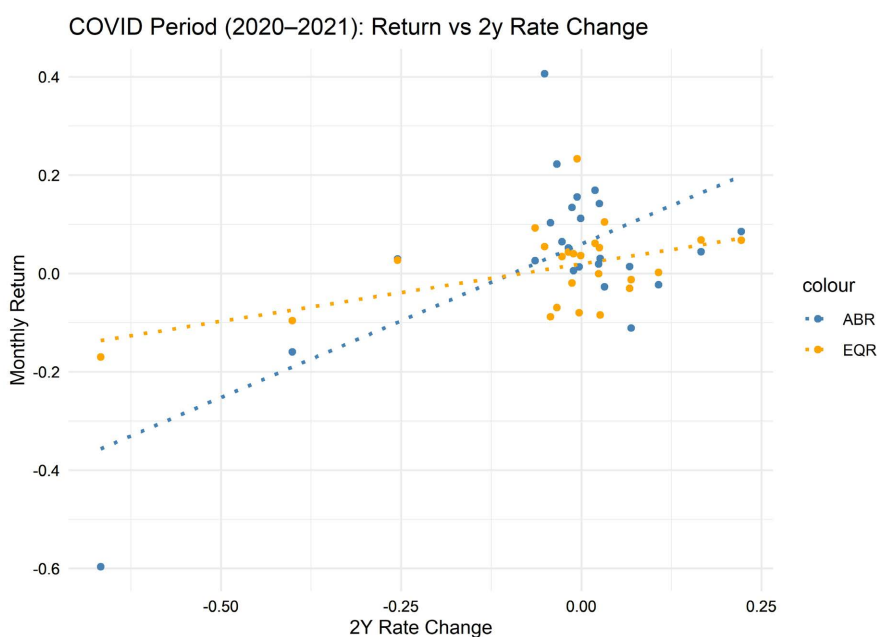


Figure 5. Scatterplot for monthly returns versus changes in the 2-year treasury yield during the COVID Period (2020-2021). Source: Author calculations using [Federal Reserve Economic Data \(FRED\)](#) (2025).

During the 2021 multifamily housing boom, EQR generated cumulative returns of approximately +57.3%, substantially exceeding both ABR's cumulative return of +39.4% and the +25.5% appreciation in the multifamily property price index. This suggests that EQR benefited not only from property appreciation but also from exceptionally strong rent growth and occupancy recovery during the post-COVID rebound. The relationship reversed during the April 2022-April 2024 tightening cycle. Multifamily property prices declined by approximately -25.2%, while EQR's cumulative return fell by approximately -22.2%, closely mirroring the broader decline in multifamily valuations, as shown in **Figure 6**. By contrast, ABR declined by only -5.6%, reflecting a more credit-sensitive and financing-driven return structure rather than direct dependence on property appreciation.

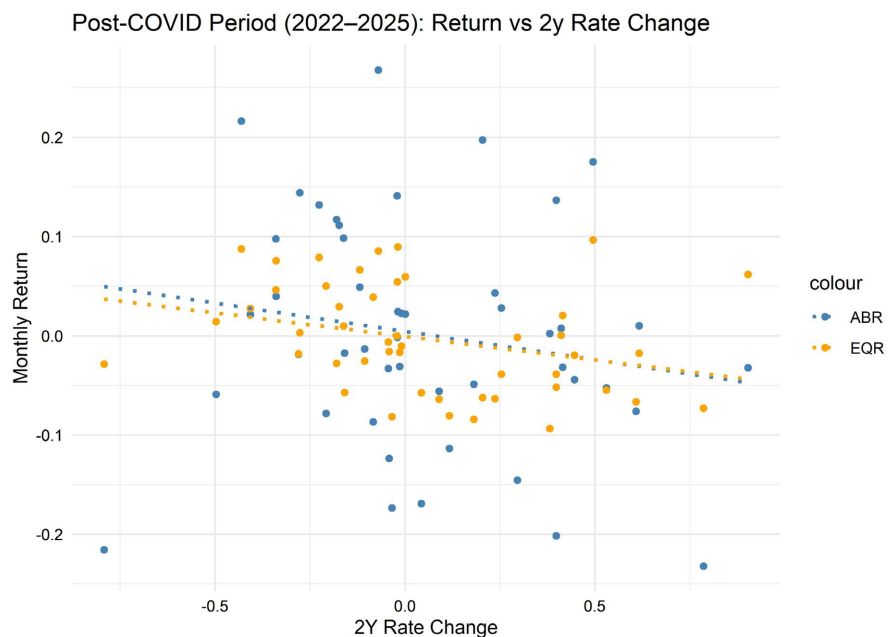


Figure 6. Scatterplot for monthly returns versus changes in the 2-year treasury yield post-covid period (2022–2025). Source: Author calculations [Federal Reserve Economic Data \(FRED\) \(2025\)](#).

5.3. Multifamily Property Price Dynamics

Multifamily property prices increased sharply during 2021 before slowing significantly beginning in 2022 as rising interest rates reduced transaction activity and increased capitalization rates. The differing responses of ABR and EQR to these market conditions are illustrated in **Figure 7**.

EQR demonstrated substantially stronger alignment with multifamily property price movements because of its direct ownership structure. During the post-COVID housing boom, EQR benefited from strong rent growth, rising occupancy, and increasing property valuations, causing its cumulative returns to closely track the multifamily property price index. However, during the later tightening cycle, slowing rent growth and declining property valuations negatively affected EQR performance.

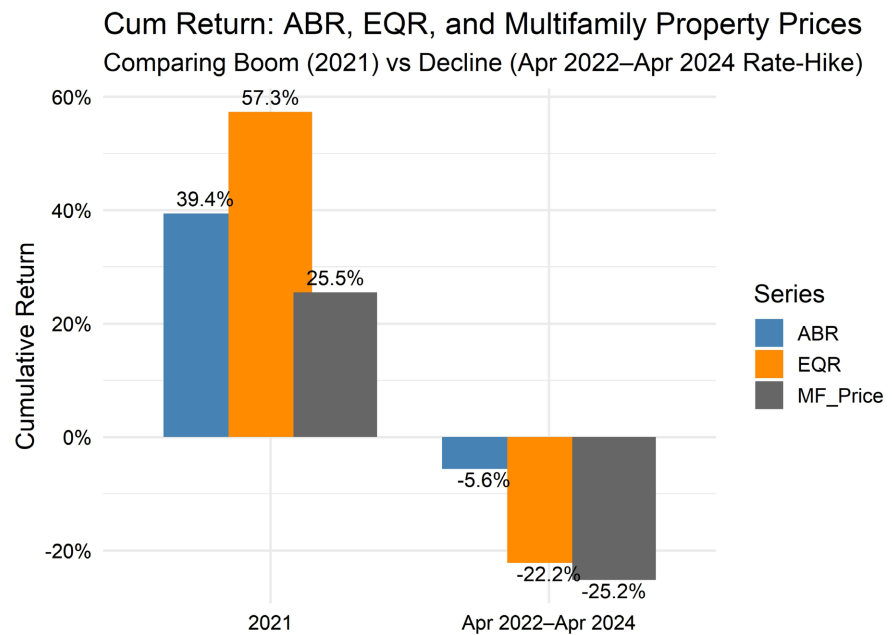


Figure 7. EQR cumulative return compared to multifamily property price movement. Source: Author calculations using multifamily property price index data.

ABR, by contrast, displayed weaker alignment with direct property-price movements because its returns were influenced more heavily by financing spreads, liquidity conditions, and refinancing risk rather than direct asset appreciation. This divergence reinforces the broader distinction between mortgage REITs and equity REITs: mortgage REITs are more sensitive to credit-market conditions, while equity REITs are more directly tied to property-level fundamentals.

6. Regression Analysis

To capture the shared macroeconomic shocks and possible co-movements between Arbor Realty Trust (ABR) and Equity Residential (EQR), we applied a Seemingly Unrelated Regression (SUR) model. Unlike standard OLS regressions estimated separately, the SUR framework allows the residuals of both return equations to be correlated, better reflecting joint exposure to systemic risk factors such as interest rates, and trend of multi-family property price change.

6.1. SUR Model Specification

The SUR model was estimated in R using the systemfit package (Henningsen & Hamann, 2007). The following predictors were included in both equations:

- Changes in the 2-year Treasury yield
- Changes in the 10-year Treasury yield
- The 2 Y - 10 Y Treasury spread
- Multifamily property price index changes
- Rental vacancy-rate changes
- Inflation changes

This specification allows direct comparison of how mortgage and equity REITs respond differently to identical macroeconomic conditions.

6.2. SUR Model Analysis

In building the regression model, I defined the “Crisis Regime” as periods when the 2-year Treasury dropped by more than 25 bps in a month, indicating market stress or emergency easing. **Table 1** and **Table 2** highlight the results from the regression for ABR and EQR respectively.

Table 1. ABR (Arbor Realty Trust): Credit-sensitive & regime driven.

Variable	Coefficient	Significance	Interpretation
(Intercept)	+0.73	*	Baseline return outside crisis months
Rate_2Y_Change	−0.13	~	Normally, ABR underperforms when rates rise
Crisis_Regime	+0.31	**	Crisis months had a higher baseline return, controlling for other variables
Rate_2Y_Interaction	+1.10	***	ABR return increases sharply when rates drop during crisis months
CPI_YOY	−0.018	~	Higher inflation mildly depresses ABR returns
Rent_Vacancy_Rate	−0.096	~	Higher vacancy suggests stress (consistent for a lender)
MF_price_change	−1.17	NS	Not significant for ABR (not equity-linked)

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ~ $p < 0.10$, NS = not statistically significant.

Table 2. EQR (Equity Residential): More stable, less sensitive.

Variable	Coefficient	Significance	Interpretation
(Intercept)	−0.27	NS	Flat or negative baseline return outside of crises
Rate_2Y_Change	−0.056	NS	Moderately negative rate sensitivity
Crisis_Regime	+0.043	NS	No large crisis regime shift in return
Rate_2Y_Interaction	+0.20	NS	Mild response to crisis rate cuts, but not significant
CPI_YOY	+0.006	NS	Weak inflation effect
Rent_Vacancy_Rate	+0.041	NS	Surprisingly positive, but not significant
MF_price_change	+1.23	~	Positive and almost significant; confirms link to property fundamentals

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ~ $p < 0.10$, NS = not statistically significant.

Table 1 reveals that overall:

- ABR reacts negatively to rate hikes in normal months (-0.13 coefficient), as expected for a levered lender.
- During crisis months, sharp rate drops (i.e., stimulus) drive very large return rebounds, as seen in early COVID.

The positive Crisis_Regime intercept and large Rate_2y_Interaction together explain ABR's steep recovery during crisis easing.

Table 2 reveals that overall:

- EQR is less sensitive to rate moves, both in normal and crisis months.
- Its performance is more tied to property values and fundamentals, as seen in the positive (but borderline) significance of MF_price_change.
- No strong statistical impact from crisis rate changes, consistent with a core equity REIT.

The SUR model reveals that ABR demonstrates substantially greater sensitivity to interest-rate changes than EQR. In normal market conditions, increases in short-term Treasury yields negatively affected ABR returns because rising funding costs compressed lending spreads and increased refinancing risk. EQR displayed weaker statistical sensitivity to short-term interest-rate movements. Instead, its performance aligned more closely with multifamily property prices and rental market fundamentals. Vacancy rates and multifamily property value changes produced larger effects on EQR returns than on ABR returns, reinforcing the view that equity REITs are more directly tied to property-level operating conditions.

7. Conclusion

This study provides insight into how mortgage and equity REITs responded differently to macroeconomic shocks between 2020 and 2025.

First, mortgage REITs demonstrated stronger and more nonlinear sensitivity to interest-rate movements. ABR's performance was heavily influenced by monetary policy, financing conditions, and credit market volatility. In contrast, EQR exhibited more stable behavior tied to occupancy levels, rent growth, and multifamily property values.

Second, both firms remained exposed to common macroeconomic shocks, including the COVID-19 recession, inflation surge, and Federal Reserve tightening cycle. However, these shocks affected each REIT through different transmission channels: ABR primarily through funding and credit markets, and EQR through rental fundamentals and property valuations.

Finally, the findings emphasize the importance of incorporating regime-dependent dynamics when analyzing REIT performance. The relationship between interest rates and REIT returns differed substantially between crisis periods and normal periods, suggesting that simple linear models may not fully capture changing macroeconomic conditions.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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