

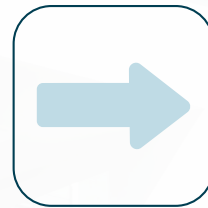
Real Estate in Context:

**INTEREST RATES,
STAGFLATION,
INFLATION, AND
MONETARY POLICY**

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EXECUTIVE SUMMARY

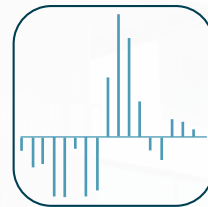
Changes in monetary policy appear to take five to six quarters to affect leveraged apartment returns.



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Average leveraged apartment returns tend to remain stable during times of high inflation. In this paper and [A Better Way to Assess Inflation and Risk in Real Estate](#), we found that inflation does not typically spell trouble for multifamily real estate.



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Interest rates, monetary policy, and inflation are becoming increasingly important factors to consider when analyzing real estate markets. The U.S. economy has experienced above-5% inflation for six consecutive months, prompting Federal Reserve Chairman Powell to discontinue the term “transitory” when describing inflation pressures. Hawkish developments have taken place at the central bank, with the bank announcing it will double the rate at which it reduces monthly purchases of Treasury and MBS securities. The new timeline suggests an end to Treasury and MBS purchases by March 2022. In addition to changes in the Fed balance sheet, forecasts suggest there will be as many as three rate hikes in 2022 and three more in 2023.

A changing interest rate and QE environment, coupled with accelerating inflation, makes now a great time to analyze the relationships between multifamily, inflation, interest rates, and more. **Keep in mind, however, that we have not seen inflation this high in a while. Our analyses involving inflation, and otherwise, are an attempt to get as close as possible to understanding trends and relationships given the lack of data for perfectly cognate economic periods.**

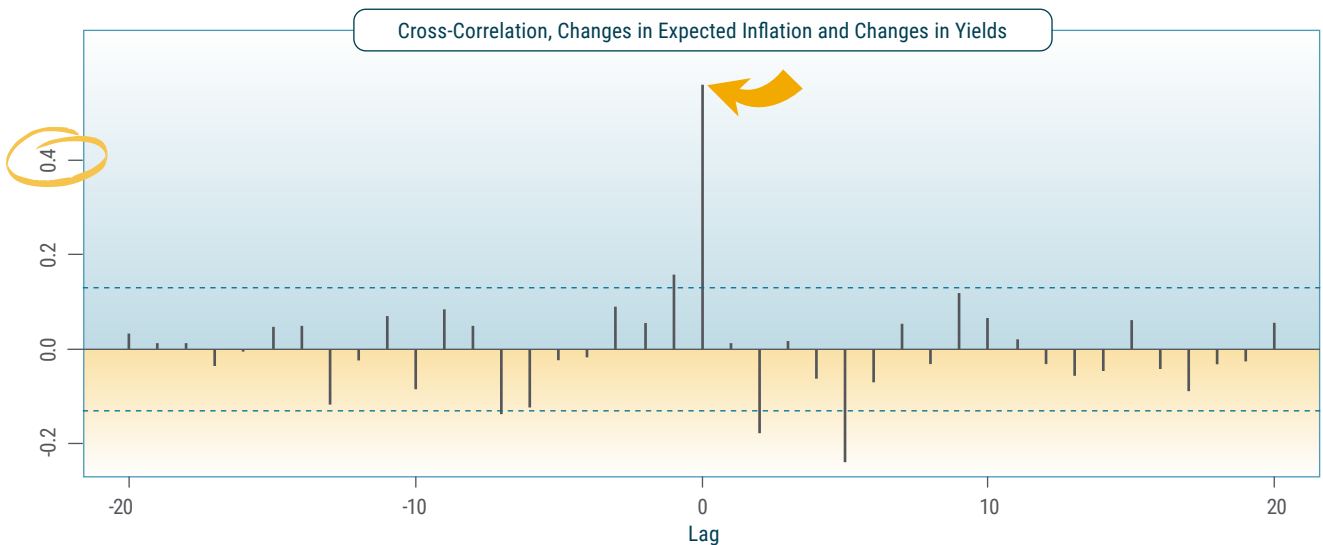
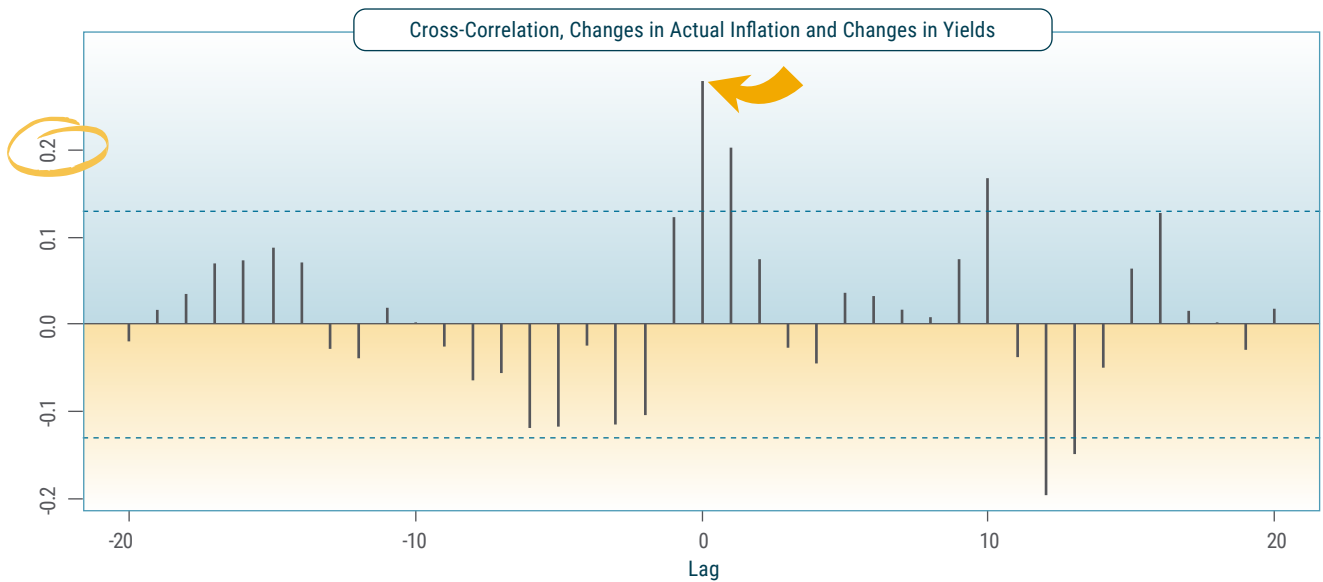
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KEEPING A CLOSE EYE ON YIELDS

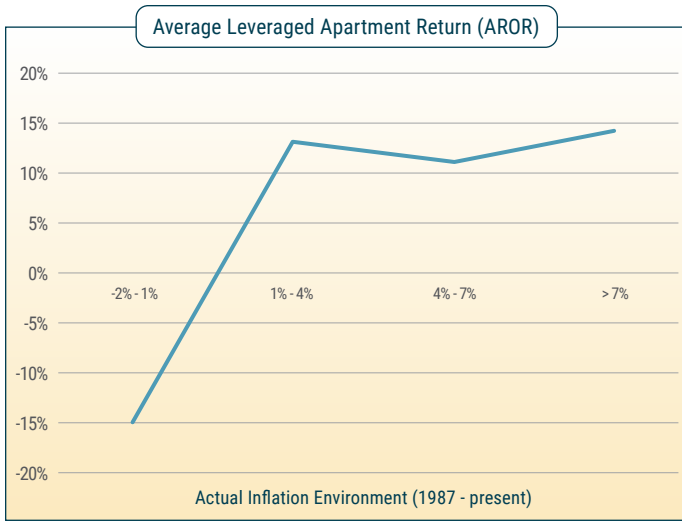
As a benchmark for mortgage rates, it's no surprise that many multifamily investors keep a close eye on the 10Y Treasury yield. With inflation's persistence, and recently acceleratory behavior, understanding how inflation and yields are related is more important than ever.

Many in the market view actual inflation as a driver of yields, opting for an assessment of current inflationary pressures to arrive at conclusions about the direction of yields. Commonly understood is the positive relationship between inflation and yields, but too often is actual inflation assessed over inflation expectations. As expected, the below charts show that inflation expectations, proxied by the 10Y breakeven inflation rate, are more important indicators of yields, and that both changes in actual and expected inflation have contemporaneous (lag = 0) effects on changes in yields. That is, an above-average rise in either actual or expected inflation is likely to lead to an above-average rise in yields in the same period, with the stronger relationship existing between expected inflation and yields.



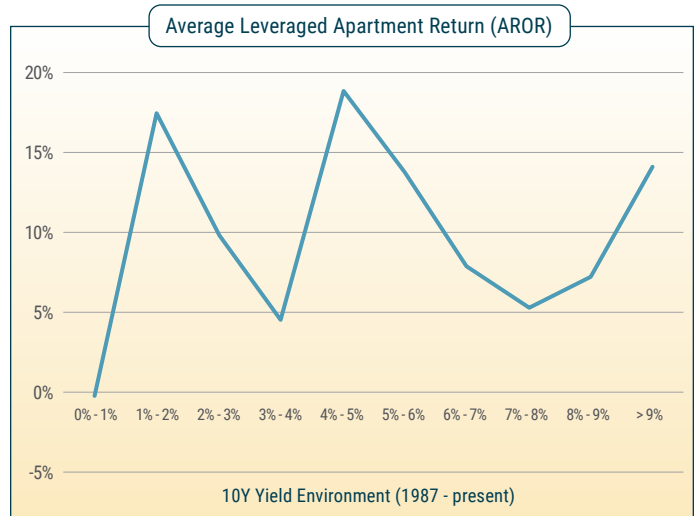
Our cross-correlation function outputs the correlation between yields at time t and actual / expected inflation at time $t \pm n$, for lag $\pm n$. Blue bands represent 95% confidence levels for each time-lagged correlation coefficient – statistically significant values lie above or below the bands. Historical scope is bounded due to limited data for expected inflation proxied by the 10Y breakeven inflation rate (2003 – present). These correlations may differ under various time restrictions, especially during the high inflation environments of the 70s and 80s.

LEVERAGED APARTMENT RETURNS UNDER VARIOUS INFLATION ENVIRONMENTS

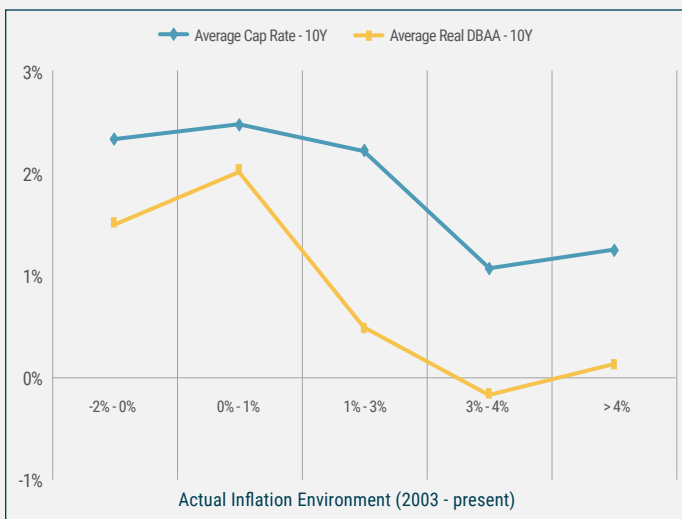


Leveraged returns tend to remain stable in higher inflation environments. In periods of deflation and sub-1% inflation, leveraged apartment returns average out to a significantly negative value, strongly driven by negative returns during the Global Financial Crisis. As we move from lower to higher inflation environments, leveraged returns are largely unaffected, evidenced by the flat curve from the second to final inflation environment in the left chart.

The relationship between yields and leveraged returns is not very straightforward. Leveraged apartment returns exhibit irregular behavior under various yield environments – sometimes high-yield environments imply high leveraged returns, and sometimes the opposite is the case.

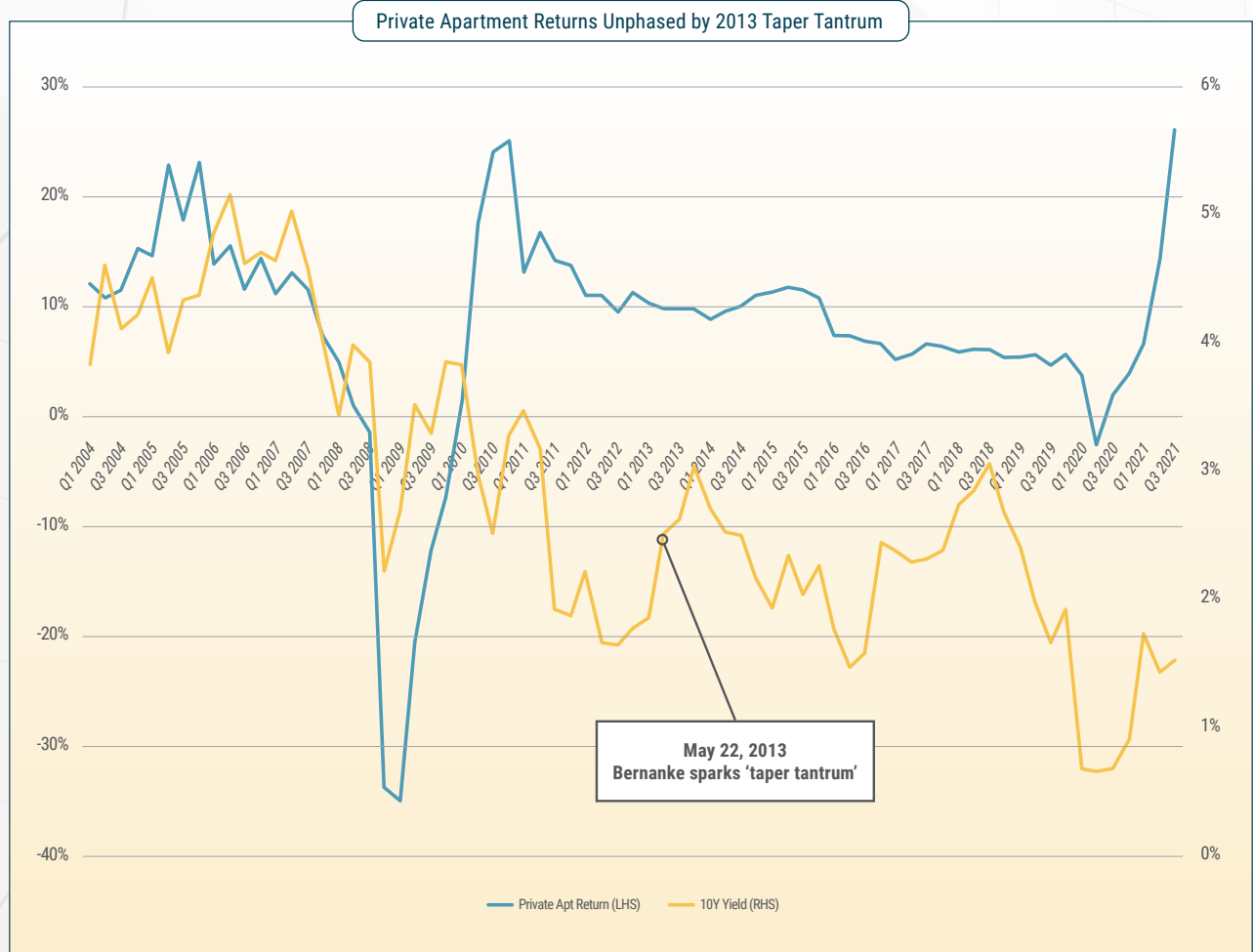


THINKING OF CAP RATES AS REAL RATES OF INTEREST



Nominal cap rates behave a lot like real interest rates. The orange curve is the spread between real Baa corporate bond yields (DBAA) and the 10Y yield in varying inflation environments. The macro similarity between these spreads is revealed in the left chart, where the average cap rate spread is equivalent to the average real DBAA spread plus a roughly constant delta.

FED TAPERING AND THE “TAPER TANTRUM”



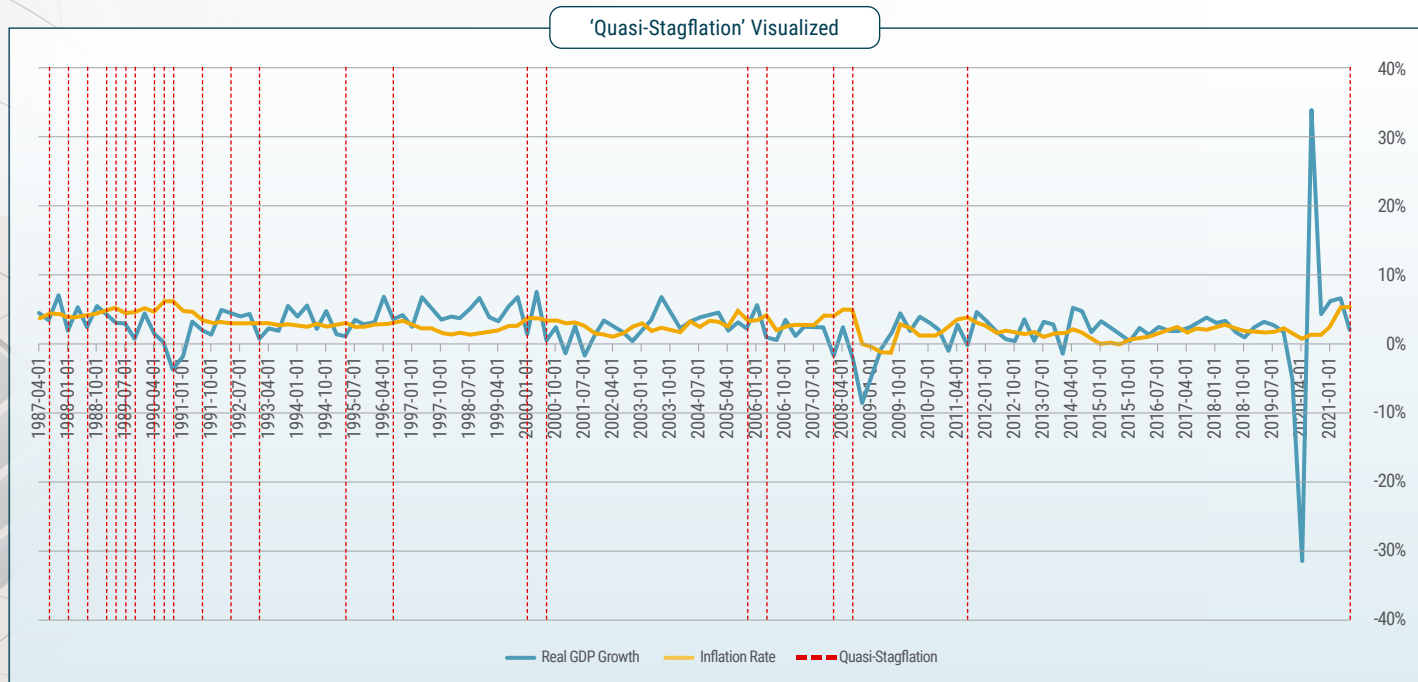
In 2013, then Fed Chairman Bernanke sparked a bond sell-off and surging yields, dubbed the “taper tantrum,” after he signaled the Fed may in the future begin reducing bond purchases. Thus far, there has not been a “taper tantrum” due to Chairman Powell’s tapering announcements, but the market remains vigilant in this respect.

It’s our view that the taper tantrum was a bit overblown. Private apartment returns were largely unphased by the 2013 taper tantrum, and so too were equity returns in large part. Contrary to general coverage of the taper tantrum, the event wasn’t all that bad, even for equities - the S&P 500 experienced a subtle pullback, which subsided shortly thereafter.

MULTIFAMILY AND STAGFLATION?

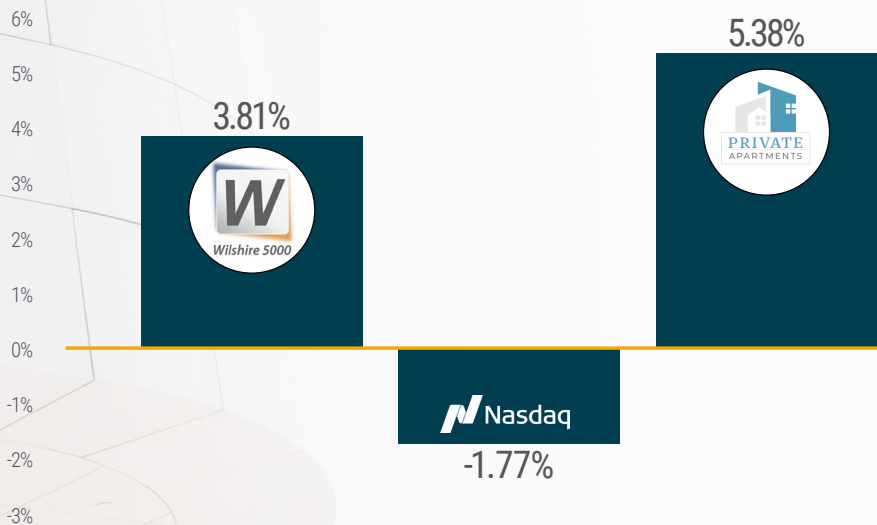
The emergence of the Omicron variant has some worried about the prospect of stagflation, a period of high inflation and low economic growth. If the variant succeeds in further complicating supply chains, and inflation persists, we may find ourselves in a period of stagflation.

To capture the effects of a more generally defined environment of high inflation and low growth, we studied performance during “quasi-stagflationary” periods in the context of (1) the broad U.S. stock market proxied by the Wilshire 5000, (2) the tech-heavy NASDAQ, and (3) private apartments. Quasi-stagflation in our analysis is loosely defined as a period where inflation exceeds 3%, and real GDP growth is lower than the previous period. The results indicate that, on an inflation-adjusted basis, private apartments outperform during times of ‘quasi-stagflation.’



Average Real Annual Return in Quasi-Stagflationary Environments

(1987 - present)



3Q21
was the first time since 3Q11 that the U.S. economy met the criteria for “quasi-stagflation” as we have defined it here.

HOW LONG DOES IT TAKE FOR CHANGES IN MONETARY POLICY TO IMPACT MULTIFAMILY?

In many instances, it takes time for changes in one economic indicator to translate into changes in another indicator. So, how long does it typically take for changes in monetary policy to affect multifamily metrics?

We leverage the use of a conditional time-lagged cross-correlation analysis to uncover the time lag at which two signals of interest are strongly in phase with one another.



LEVERAGED APARTMENT RETURNS

To obtain a more precise view, we considered the following relationship while restricting our view to periods where changes in the effective federal funds rate (EFFR) are at least 25bps. This way, the relationship we find will be more explanatory in the context of the current situation.

A rate *hike* is likely to lead to either a modest rise, or decline, in leveraged returns six quarters later. The higher the rate *cut*, the more likely leveraged returns will rise six quarters later.

In periods where changes in the EFFR are greater than 25bps, there is an over -70% correlation between changes in the EFFR and changes in the leveraged apartment return six quarters later.



2004 – present; $R^2 = 50\%$; p-value = 0.038%

Like the previous analysis, we again restrict our view to periods satisfying a given condition. This time, we only look at periods where the change in the rate of growth in the Fed's balance sheet exceeds 5%. Just like before, we do this to analyze the relationship between changes in QE and changes in leveraged apartment returns only in periods where there is a significant change ongoing.

The higher the *acceleration* in the growth of the Fed's balance sheet, the more likely leveraged returns five quarters later will experience significant growth. The higher the *deceleration* in the Fed's balance sheet, the more likely leveraged returns will fall five quarters later.

In periods where the growth in the Fed balance sheet is accelerating or decelerating by at least 5%, there is an 80% correlation between changes in the growth in the Fed balance sheet and changes in the leveraged apartment return five quarters later.



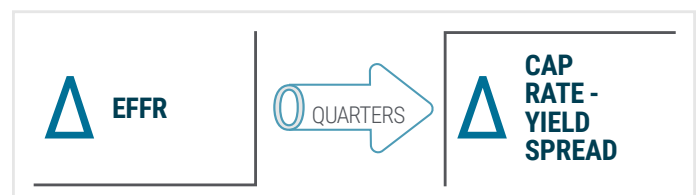
2004 – present; $R^2 = 64\%$; p-value = 0.00053%

CAP RATE - YIELD SPREADS

For reasons described above, we again restrict our view to periods where changes in the EFFR are at least 25bps.

The higher the rate *hike*, the more likely the cap rate - yield spread in the same quarter will grow modestly, or decline. The higher the rate *cut*, the more likely the cap rate - yield spread will rise in the same quarter.

In periods where changes in the EFFR are greater than 25bps, there is an over -76% correlation between changes in the EFFR and changes in the cap rate - yield spread in the same quarter.



2004 – present; $R^2 = 58\%$; p-value = 0.0035%

The relationship between changes in the rate of growth in Fed assets and changes in the cap rate - yield spread is relatively weak compared to the other relationships we've reported so far.

CONCLUDING REMARKS

Inflation, interest rates, monetary policy, and even the prospect of stagflation are all of concern to multifamily investors, and rightfully so. Consider the points we find to be most impactful:

- Changes in monetary policy appear to take five to six quarters to affect leveraged apartment returns.
- Real apartment returns outperform equities during times of “quasi-stagflation.”
- The “taper tantrum” was overblown in terms of impact and severity. If the Fed’s accelerated tapering at some point spooks the market, it is unlikely to have lasting effects and would likely subside rather quickly.
- Keep a close eye on the 10Y breakeven inflation rate. This measure of inflation expectations is much more related to changes in Treasury yields than actual inflation.
- Average leveraged apartment returns tend to remain stable during times of high inflation. In this paper and [A Better Way to Assess Inflation and Risk in Real Estate](#), we found that inflation does not typically spell trouble for multifamily real estate.

We can help you navigate the complexities of commercial real estate

Contact Us

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Berkadia Research leverages proprietary models and analytics to deliver actionable insights to the commercial real estate industry. Covering markets and submarkets across the nation, our experts monitor and interpret market fundamentals and utilize data science to uncover hidden trends. Through a combination of curiosity and expertise, we aim to augment client decision-making by providing data-driven and unique research not found elsewhere.

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Sources: Proprietary statistical models by Berkadia Research, National Council of Real Estate Investment Fiduciaries (NCREIF), Federal Reserve Economic Data (FRED).

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