

YARDI[®] Matrix



EFFECT OF
RISING RATES

December 2016

Contacts

Jeff Adler

*Vice President & General
Manager of Yardi Matrix*
Jeff.Adler@Yardi.com
(800) 866-1124 x2403

Jack Kern

Director of Research and Publications
Jack.Kern@Yardi.com
(800) 866-1124 x2444

Paul Fiorilla

Associate Director of Research
Paul.Fiorilla@Yardi.com
(800) 866-1124 x5764

Chris Nebenzahl

Senior Analyst
Chris.Nebenzahl@Yardi.com
(800) 866-1124 x2200

Justin Dean

Real Estate Market Analyst
Justin.Dean@Yardi.com
(800) 866-1124 x2071

How Will Rising Interest Rates Impact Property Values?

Interest rates have remained at historical lows for four years, contributing to a bull run for commercial properties. With assets being traded at record low yields, especially in core markets, values have risen well above 2007 peaks in many segments.

The underlying question during this time has been what will happen to property yields (or capitalization rates) when interest rates rise? The question has largely been academic in recent years, as Federal Reserve policy and the drop in global goods and commodities prices have served to keep rates low. However, the 10-year Treasury rate—the benchmark used for multifamily borrowing—increased 65 basis points in the weeks following the election due to slowly accelerating economic growth, the prospect for more robust domestic output during President-elect Trump's administration, and the potential for reduced oil production.

Now that higher rates are here, what will happen with property yields? Certainly, higher long-term interest rates have the potential to be a headwind for the industry. The overall impact, however, will depend on a variety of factors that include how much and how quickly rates rise, and the performance of property fundamentals, since rent growth mitigates the impact of higher interest rates.

Example 1: Class B Dallas Multifamily

In order to calculate the likely impact, Yardi® Matrix did a series of calculations on hypothetical properties using multiple variables that include property revenue, expenses and the level of debt and debt service. Using Yardi® Matrix Expert, a proprietary data aggregation tool that allows users to see property expenses on a local level, we looked at the effect on values for specific properties as interest rates rise.

For our first example, we use a 300-unit, Class B apartment property in Dallas. As listed in figure 1, our initial cap rate assumption was 5.5%, which produced a value of \$26.0 million based on net cash flow of \$480,999. The property carries a mortgage of 65% of property value with a rate of 3.8%, which is the pre-election 10-year Treasury yield of 1.8% plus a 200-basis-point spread.

Figure 1 establishes the initial model values.

	Property-Level Data	Unit-Level Data	Margin
Revenue	\$3,202,200	\$10,674	
Operating Expenses	\$1,131,000	\$3,770	
Taxes and Insurance	\$476,100	\$1,587	
Net Operating Income	\$1,595,100	\$5,317	49.8%
Capital Expenditures	\$166,800	\$556	
Free Cash Flow	\$1,428,300	\$4,761	44.6%
Loan to Value	65%	65%	
Total Debt	\$16,879,909		
Annual Interest	646,501		
Annual Total Debt Service	947,301		
Debt Service Coverage Ratio	1.51		
Cost of Debt	3.83%		
Cap Rate	5.50%		
Valuation	\$25,969,091	\$86,564	
Cash Flow	\$480,999		
Cash-on-Cash Return	5.29%		

*Cap rates were sourced from CBRE, Cushman & Wakefield and JLL

To maintain the same loan-to-cost and debt-service ratio on the debt, given a 50-basis-point increase in the cost of debt with no changes in revenue or expenses, the modeled cap rates rose roughly 35 basis points. With a constant debt service coverage ratio, the result is a 5.8% drop in valuation.

If interest rates increase more, valuations using this methodology continue to drop but at a slightly diminishing rate. So a 75-basis-point increase in debt coupon would produce an 8.6% drop in valuation, and a 100-basis-point hike would reduce valuation by 11.2%. In other words, the first 50 basis points would reduce values by 5.8%, and the next 50 basis points would reduce valuation by an additional 5.4%.

For this example, with the exception of interest expense, we kept all revenues and expenses constant in order to see the direct impact of interest rates on cap rates and valuation. The one variable we did change was the interest rate on the mortgage, which in our model increases the same amount as the 10-year Treasury (with a constant loan spread). Figure 2 lists the model assumptions.

As of December 15, the 10-year Treasury yield rose 75 basis points to 2.58%. Using our stated assumptions, the modeled valuation on our sample property would have declined by 8.6%, while the modeled cap rate would have increased 52 basis points to 6.02%.

Figure 2: Assumptions

- ✓ No Change in Revenue
- ✓ No Change in Operating Expense
- ✓ No Change in Taxes and Insurance
- ✓ Loan to Value of 65%
- ✓ Debt Service Coverage Ratio Remained Constant at 1.51
- ✓ 300-Unit Class B Apartment Building in Dallas (operating data from Yardi Matrix Expert database)

Example 2: Los Angeles High-Rise

We used the same methodology on a hypothetical Class A, high-rise apartment in Los Angeles to look at how different revenue and expense structures would affect cap rates and valuations in a rising rate environment. Using the same cost of debt (3.83%), an initial cap rate of 4.75% and a debt service coverage ratio of 1.30, we determined the property is valued at \$127.4 million (figure 3).

As with the first example, the property's value decreased by 5.8% with a 50-basis-point increase in loan coupon. However, the increase in the cap rate was only 30 basis points, since the property started with a lower in-place cap rate (4.8% as opposed to 5.5%).

Figure 3 establishes the property's financials.

	Property-Level Data	Unit-Level Data	Margin
Revenue	\$9,428,700	\$31,429	
Operating Expenses	\$2,400,000	\$8,000	
Taxes and Insurance	\$900,000	\$3,000	
Net Operating Income	\$6,128,700	\$20,429	65.0%
Capital Expenditures	\$75,000	\$250	
Free Cash Flow	\$6,053,700	\$20,179	64.2%
Loan to Value	65%	65%	
Total Debt	\$82,840,105		
Annual Interest	3,172,776		
Annual Total Debt Service	4,648,988		
Debt Service Coverage Ratio	1.30	1.30	
Cost of Debt	3.83%		
Cap Rate	4.75%		
Valuation	\$127,446,316	\$424,821	
Net Cash Flow	\$1,404,712		
Cash-on-Cash Return	3.15%		

*Cap rates were sourced from CBRE, Cushman & Wakefield and JLL

Figure 4 demonstrates the percentage change in value given different levels of interest rate increases, as well as various levels of revenue growth for the Class A high-rise property. For the purposes of the model, we calculated revenue growth of 3%, 4%, 5% and 6%, with an assumption that expenses increased by 2%. (We emphasize that the Yardi® Matrix model examines the effect of interest rates and revenue growth over only one period.)

Our model shows that a 50-basis-point increase in the debt cost would cancel out a 5.0% increase in revenue. In general, moderate levels of revenue growth are enough to overcome low levels of interest rate gains, and strong revenue growth of 6.0% would be

Income Mitigates Rate Increases

Taking the model one step further, we looked at how valuations change given revenue increases at the same time that interest rates rise. The economy is in relatively strong condition and the base economic scenario calls for robust growth, in which case rents will continue to grow. Revenue increases can offset some (if not all) of the negative effects of rising interest rates, depending on the scale of rate and revenue increases.

more than sufficient to make up for rate increases of 50 basis points. By and large, however, revenue would have to grow at a fairly high level to make up for significant increases in interest rates.

Figure 5 shows the same sensitivity analysis conducted for the Class B Dallas apartment. While the change in values during a period of stagnant revenue growth was quite similar between the two properties, the Class A property exhibited significantly more sensitivity to interest rate

Figure 4

Interest Rate Change	Revenue Growth (change in value by %)				
	0.0%	3.0%	4.0%	5.0%	6.0%
0 bps (initial estimate)	0.0%	3.1%	4.6%	6.2%	7.7%
50 bps	-5.8%	-3.0%	-1.5%	0.0%	1.4%
75 bps	-8.6%	-5.8%	-4.4%	-2.9%	-1.5%
100 bps	-11.2%	-8.5%	-7.1%	-5.7%	-4.3%
125 bps	-13.7%	-11.0%	-9.7%	-8.3%	-7.0%

Figure 5

	Revenue Growth (change in value by %)				
Interest Rate Change	0.0%	3.0%	4.0%	5.0%	6.0%
0 bps (initial estimate)	0.0%	4.2%	6.5%	8.7%	11.0%
50 bps	-5.8%	-1.8%	0.3%	2.4%	4.5%
75 bps	-8.6%	-4.7%	-2.6%	-0.6%	1.5%
100 bps	-11.2%	-7.4%	-5.4%	-3.4%	-1.4%
125 bps	-13.7%	-10.0%	-8.1%	-6.1%	-4.2%

increases as revenues grew. The valuation of the Class B property showed a larger upside in a period of flat interest rates, and also remained positive given higher interest rates, compared to the Class A property.

As seen in figures 1 and 3, the Class A property had better margins on a net operating income (NOI) and free cash flow (FCF) basis, but experienced a lower cash-on-cash return than the Class B property, as more cash was required in order to finance the Class A property. In today's rising rate environment, cost of debt and equity levels will become more important to investors and property owners.

Of course, there are ways for borrowers to reduce their cost of debt, and in turn add value to investments, such as the recently created green initiatives sponsored by government-sponsored enterprises Fannie Mae and Freddie Mac. Under the initiatives, the GSEs will not only take roughly 30 basis points off of the borrowing costs but will also reimburse the development costs of the proposed program and waive loan caps for investors willing to reduce energy and water usage.

As borrowing becomes more expensive, investors may lean toward cost-saving initiatives in order to remain competitive. However, as seen in figures 4 and 5, increases in revenue and thus NOI can work to maintain and grow valuations.

How Rates Rise is Important

Although rising interest rates tend to correspond with general optimism for enhanced economic output, which benefits the real estate market, the speed and absolute amount of the buildup are important variables. Interest rate increases can act as a headwind for the real estate industry, but if rate increases are measured, and steady, allowing revenue and NOI to grow in tandem, valuations will not be significantly impacted.

However, if rates rise rapidly due to an exogenous event or economic dislocation, there could be negative ramifications for property values. We believe the recent upward jolt in long-term interest rates has run its course, and further advances at the long end of the curve will be moderate. Short-term rates have not experienced the same rapid increase that long-term rates have been subject to over the last few months. Therefore, to limit the impact of higher rates, lower-cost floating-rate financing can be used as an option, although property owners need to balance the lower cost with the risks created by short-term financing.

The upshot is that the commercial real estate market should not be too affected by moderate rate increases in an environment of growth over the next few years. If revenues continue to grow and interest rates plateau, then the negative impact on values driven by an IRR model will be significantly mitigated. We encourage you to compare our findings with your own valuation models and share your observations with Chris Nebenzahl (chris.nebenzahl@yardi.com).

—Chris Nebenzahl, Senior Analyst

Disclaimer

ALTHOUGH EVERY EFFORT IS MADE TO ENSURE THE ACCURACY, TIMELINESS AND COMPLETENESS OF THE INFORMATION PROVIDED IN THIS PUBLICATION, THE INFORMATION IS PROVIDED "AS IS" AND YARDI MATRIX DOES NOT GUARANTEE, WARRANT, REPRESENT OR UNDERTAKE THAT THE INFORMATION PROVIDED IS CORRECT, ACCURATE, CURRENT OR COMPLETE. YARDI MATRIX IS NOT LIABLE FOR ANY LOSS, CLAIM, OR DEMAND ARISING DIRECTLY OR INDIRECTLY FROM ANY USE OR RELIANCE UPON THE INFORMATION CONTAINED HEREIN.

Copyright Notice

This document, publication and/or presentation (collectively, "document") is protected by copyright, trademark and other intellectual property laws. Use of this document is subject to the terms and conditions of Yardi Systems, Inc. dba Yardi Matrix's Terms of Use (<http://www.yardimatrix.com/Terms>) or other agreement including, but not limited to, restrictions on its use, copying, disclosure, distribution and decompilation. No part of this document may be disclosed or reproduced in any form by any means without the prior written authorization of Yardi Systems, Inc. This document may contain proprietary information about software and service processes, algorithms, and data models which is confidential and constitutes trade secrets. This document is intended for utilization solely in connection with Yardi Matrix publications and for no other purpose.

Yardi®, Yardi Systems, Inc., the Yardi Logo, Yardi Matrix, and the names of Yardi products and services are trademarks or registered trademarks of Yardi Systems, Inc. in the United States and may be protected as trademarks in other countries. All other product, service, or company names mentioned in this document are claimed as trademarks and trade names by their respective companies.

© 2017 Yardi Systems, Inc. All Rights Reserved.