U.S. Office

How are the nation's largest office markets poised to handle the next recession?

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Differences among markets and the factors that drive them are a crucial consideration in preparing investment portfolios for recessions, and in identifying investment opportunities when growth returns. Here, we model the effects of a major 2008-type recession on the 10 largest U.S. office markets, analyzing how rents and vacancy in each would respond to severe drops in employment. We find major response differences across markets.

Our key findings:

- Employment growth is the primary demand driver in office markets, so its rates are of key importance during recessions. Small declines—like those expected in Washington, D.C.—will maintain better market performance than larger ones—as in Phoenix.

- The sensitivity of rents and vacancy to such changes in employment growth varies widely by market. Boston and New York show strong sensitivity, for example, while San Francisco and Phoenix show low sensitivity.

- The behavior of rents and vacancy rates during a recession is also influenced by their levels relative to long-run trends at the recession's onset. Where rents are much higher and vacancy much lower than trend (as in San Francisco), markets are at greater risk of larger negative adjustments; markets closer to trend (e.g., Phoenix) are at much lower risk.

With the U.S. economy continuing to extend one of its longest stretches of post-recessionary expansion, policymakers and market participants are beginning to ponder the timing and magnitude of the inevitable next recession. Vigorous debate on these uncertainties is already underway.

Investors in U.S. commercial real estate are wondering what this next recession will mean for CRE performance. Will certain markets or asset types be more immune to the negative effects of a recessionary slowdown than others? How will markets differ in the magnitude of the effects they experience, and in their speed to recovery? Are there any current indicators that might help in predicting these variations? These are all important questions that will be key in devising effective investment strategies in the downturn, and in recession-proofing existing CRE portfolios. This paper addresses these questions as they relate to rental fundamentals in the top 10 U.S. office markets. Specifically, we examine how rents and vacancies in these markets would behave if, in the next two quarters, the U.S. were to experience a major recession similar to the one we witnessed in 2008-2010.

It is important to note that CBRE EA does not actually forecast a major recession for that period. Our baseline forecast calls for an economic slowdown or a mild recession, beginning around 2018. For this paper, we use a deep recession like the one that followed the financial crisis because such a strong negative shock to the economy brings out the performance differences among markets more clearly than a mild recession would. As a consequence, the rent drops and vacancy increases described here are much more severe than what we forecast under our baseline scenario. The market-level performance differences identified here will still hold under the mild recession of our baseline forecast, despite being smaller in magnitude.
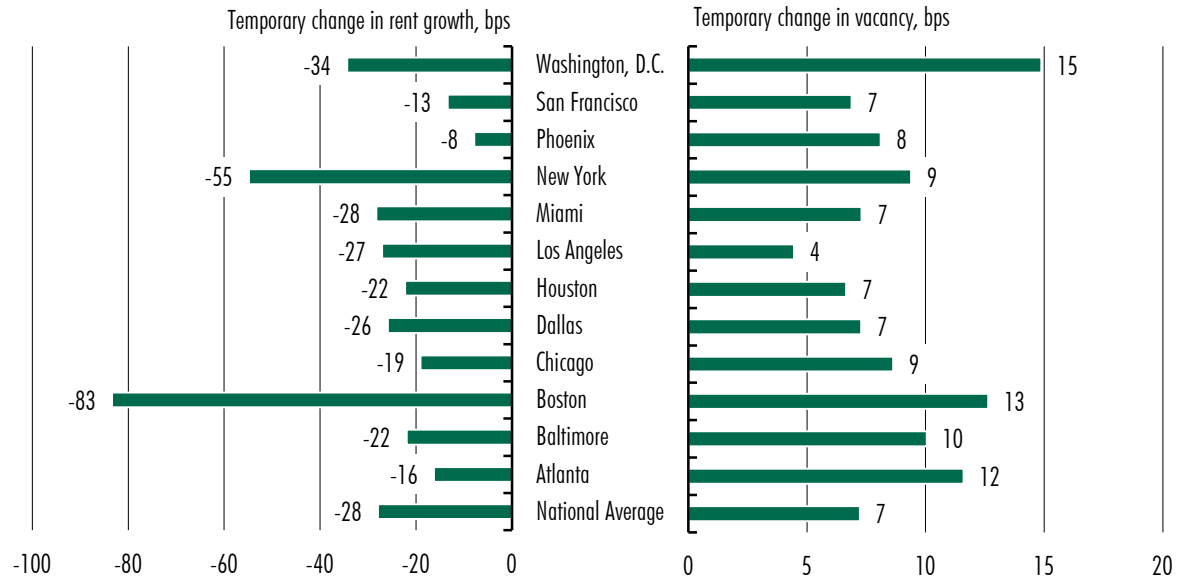
We begin by seeing how different markets would react to a temporary slowdown in the primary driver of demand for office space—employment growth. We use CBRE EA's forecasting models for U.S. office markets to observe the effect that a one-time, 1% decline in each market's employment growth rate would have on that market's rent growth and vacancy rates.[1] In this first exercise, we decline to factor in current rent growth and vacancy rates—an approach that reveals for each market a "pure" sensitivity to changes in employment growth.[2] The results are what would manifest if vacancy and rent growth rates were at their long-run equilibrium levels at the time of the 1% shock.

Figure 1 (next page) shows the results for 10 large U.S. office markets. As the graphs indicate, there is very large variation in the sensitivity of markets to changes in employment growth. Boston and New York, for example, are very sensitive to employment growth: in Boston, our one-time 1% negative shock to employment growth might lead to a temporary drop in rent growth of as much as 0.8%, and a temporary vacancy rate increase of 13 bps. Meanwhile, Phoenix and San Francisco exhibit very low sensitivity: in Phoenix, the same 1% drop in employment growth leads to a temporary rent growth drop of just 0.08% and an 8-bps increase in the vacancy rate.

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[1] For more details, refer to CBRE EA documentation on office methodology.

[2] In technical econometric terms, these results stem from impulse-response analysis of a one-time 1% shock to employment growth on the forecasted variables of interest. These particular impulse-response functions are known as dynamic multipliers (*New Introduction to Multiple Time Series Analysis* by Luktepohl (2005)).
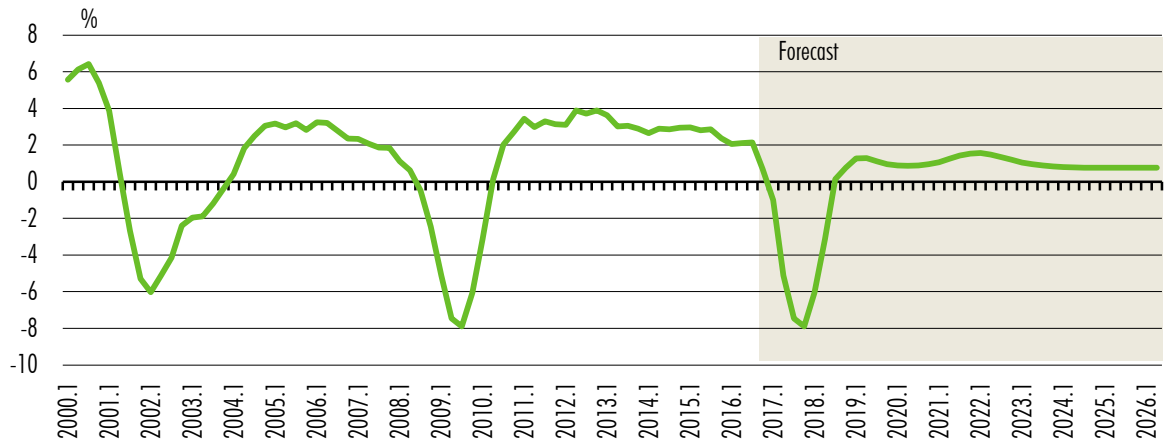
Figure 1: Estimated Rent and Vacancy Response to a One-Time 1% Drop in Employment Growth

Temporary change in rent growth, bps | Temporary change in vacancy, bps

Market	Rent growth (bps)	Vacancy (bps)
Washington, D.C.	-34	15
San Francisco	-13	7
Phoenix	-8	8
New York	-55	9
Miami	-28	7
Los Angeles	-27	4
Houston	-22	7
Dallas	-26	7
Chicago	-19	9
Boston	-83	13
Baltimore	-22	10
Atlanta	-16	12
National Average	-28	7

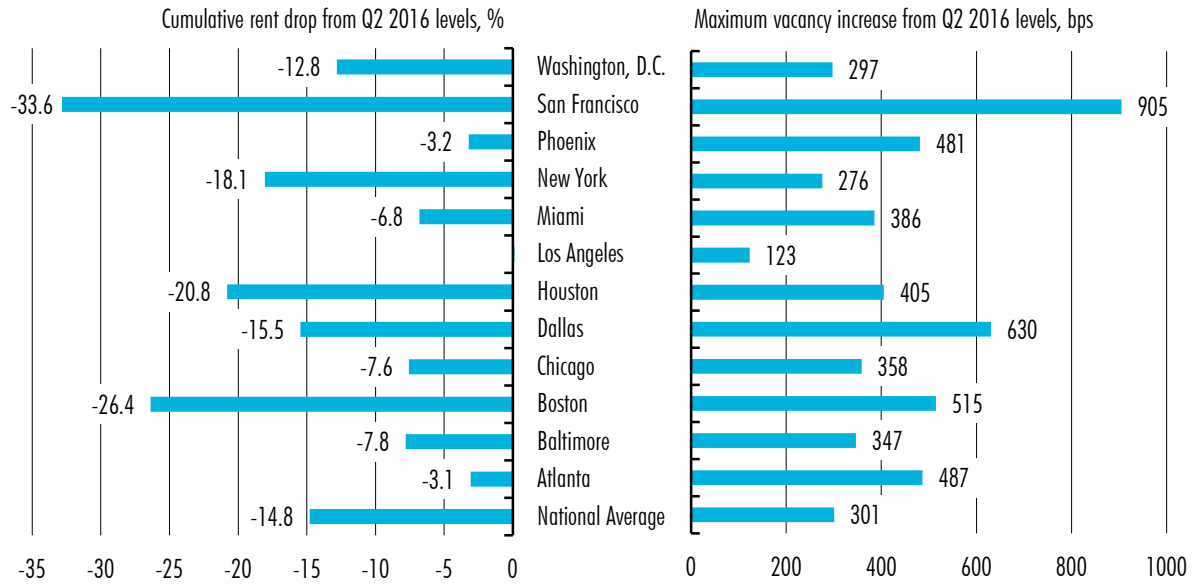Source: CBRE Econometric Advisors, Q2 2016.

While the relative sensitivities indicated above show how differently markets can react to a change in employment growth—with strong implications for CRE investment and portfolio management in a recessionary environment—they ignore how markets' starting levels of rent and vacancy will figure into the performance of these metrics during a future recession. To account for this, in a second exercise we factor in current levels (and the varying response dispositions that they imply), while effecting a deep, 2008-style recession. We subject each of our 10 office markets to the same negative employment growth trend that the nation experienced over 2008-2010 (Figure 2). With both market sensitivity and current rent and vacancy conditions factored in, the full dynamics of suppressing our demand driver are represented in the results. Further, the more severe employment shock allows a clearer view of that response.

Figure 2: U.S. Services Employment Growth Rate: Deep Recession Scenario

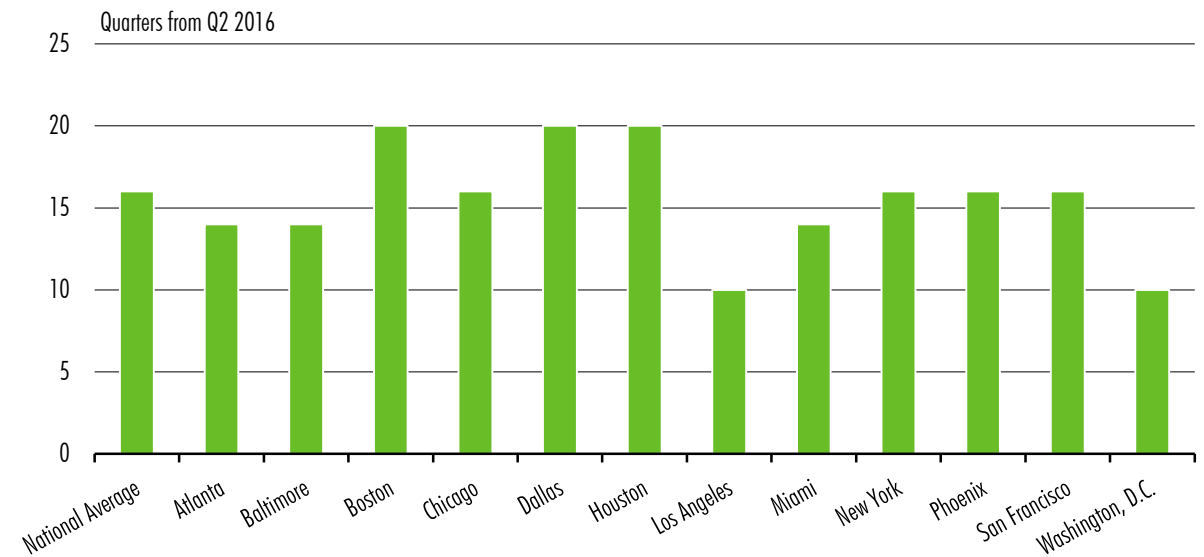Source: CBRE Econometric Advisors, Moody's Analytics.

Figure 3: Estimated Rent and Vacancy Response to a Deep Recession Scenario

Cumulative rent drop from Q2 2016 levels, %		Maximum vacancy increase from Q2 2016 levels, bps
-12.8	Washington, D.C.	297
-33.6	San Francisco	905
-3.2	Phoenix	481
-18.1	New York	276
-6.8	Miami	386
	Los Angeles	123
-20.8	Houston	405
-15.5	Dallas	630
-7.6	Chicago	358
-26.4	Boston	515
-7.8	Baltimore	347
-3.1	Atlanta	487
-14.8	National Average	301

Source: CBRE Econometric Advisors, Q2 2016.

Figure 3 shows our results. As in our first exercise, the markets vary widely in their response to an identical negative shock to the employment growth rate. Some experience much larger cumulative drops in rent levels and higher vacancy increases than their peers. There is also significant variation in how long each market is expected to take to reach a rent trough (Figure 4).

Figure 4: Speed to Rent Trough: Deep Recession Scenario

Quarters from Q2 2016

Market	Quarters
National Average	16
Atlanta	14
Baltimore	14
Boston	20
Chicago	16
Dallas	20
Houston	20
Los Angeles	10
Miami	14
New York	16
Phoenix	16
San Francisco	16
Washington, D.C.	10

Source: CBRE Econometric Advisors, Q2 2016.

However, when we compare the "pure" effect of the first exercise with the "full" effect of the second, important differences come to light. Where Phoenix and San Francisco are similar in the sensitivity of their rents and vacancy to employment growth change (Figure 1), the negative employment growth rate of our deep recession produces vastly different effects for the two markets (Figure 3). What can account for these differences?

The answer is apparent in Figures 5 and 6, which show that while Phoenix has not experienced much of a run-up in rents or drops in vacancies since the end of recession, San Francisco has experienced both in a very pronounced manner. This is especially true of San Francisco's rents, which have reached historic peaks in nominal terms. In spite of the fact that the "pure" sensitivities of these markets to employment growth are very similar, identical negative shocks to employment growth cause a much sharper negative rent adjustment and higher vacancy spike in San Francisco as these metrics revert to long-run trends, than in Phoenix, where they have not deviated significantly from long-run trends.

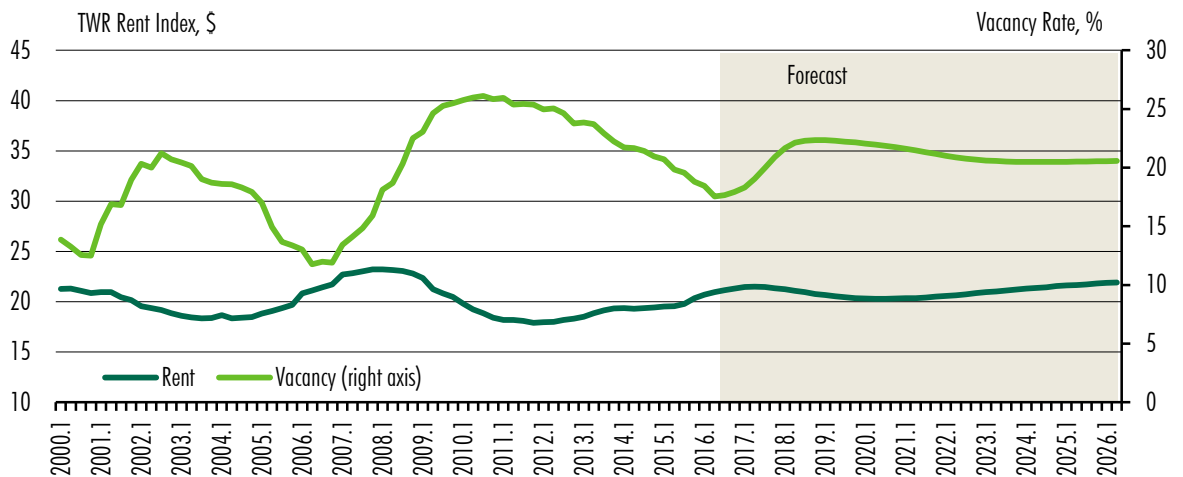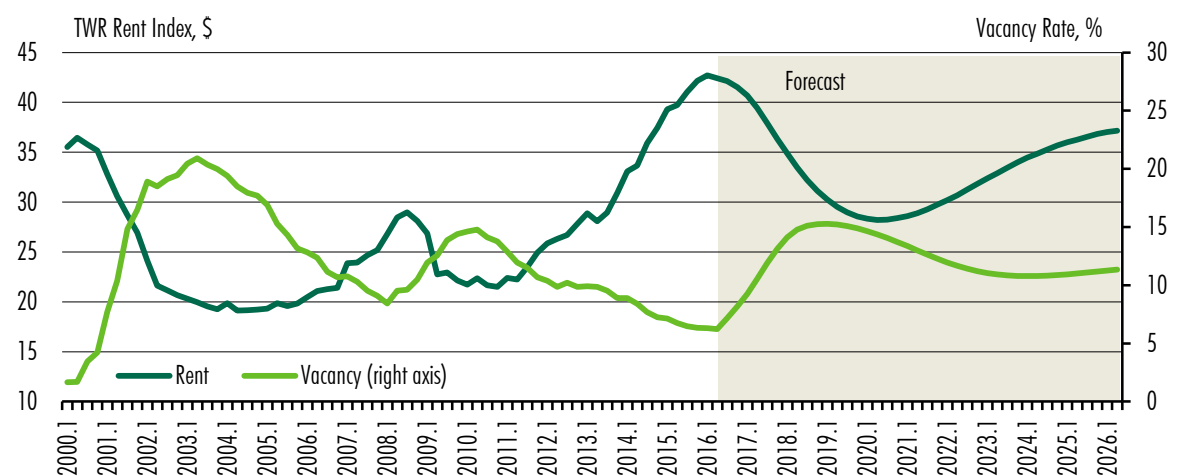Figure 5: Phoenix Office: Deep Recession Scenario

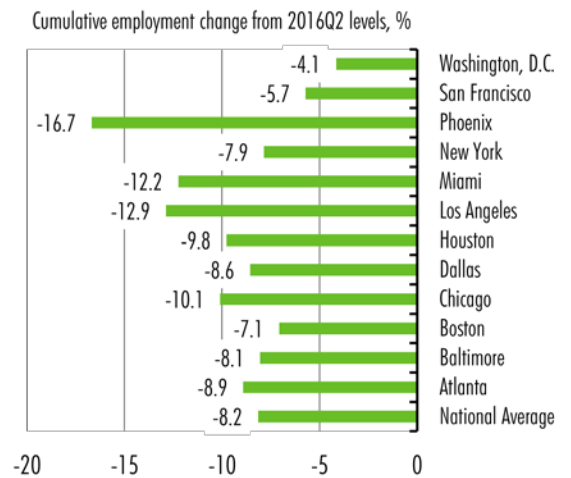Figure 6: San Francisco Office: Deep Recession Scenario

Source: CBRE Econometric Advisors, Q2 2016.

The same holds for other markets, with those that have had strong run-ups in pricing being at much higher risk of downward adjustment than those which have avoided such drastic rent growth and vacancy reductions. This underlines the importance of accounting for current rent levels and vacancy rates in forecasting for office markets, as the starting rates have a very strong influence on the metrics' behavior.

This analysis is revealing, but remains simplified. Our using the same negative employment growth rate across markets (the national rate during the recession of 2008-2010) is useful for gauging the effects across markets, but it is not very realistic, in that employment drops differed significantly across markets during the recession and are likely to do so in the future. Consequently, in our final piece of analysis we update our recession scenario, applying to each market the employment growth rate dynamics it experienced during the 2008-2010 recession.
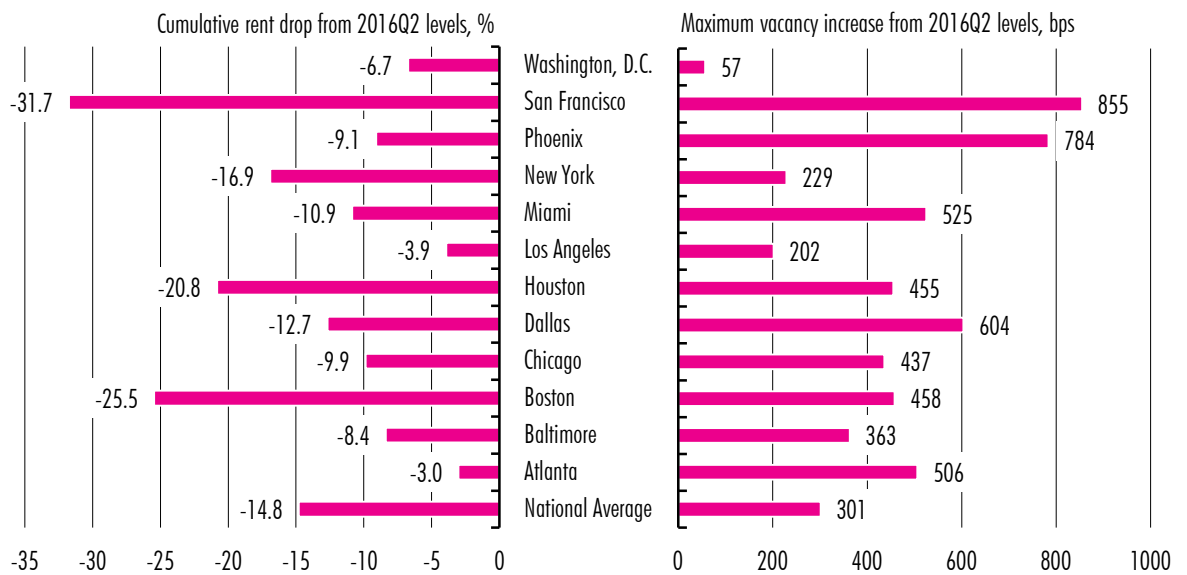
Figure 7 presents the individual market-level negative employment growth rates that we use in this last recession scenario. Indeed, there is strong market-level variation in the employment drops that were recorded during the last recession. Running our forecasting models using these unique rates produces the results shown in Figure 8. It is apparent that differences in future employment growth are just as important as market sensitivity or current levels of rents and vacancy in determining the future performance of a market.

Figure 7: Deep Recession: 2008-2010 Employment Dynamics

Cumulative employment change from 2016Q2 levels, %

Market	Value
Washington, D.C.	-4.1
San Francisco	-5.7
Phoenix	-16.7
New York	-7.9
Miami	-12.2
Los Angeles	-12.9
Houston	-9.8
Dallas	-8.6
Chicago	-10.1
Boston	-7.1
Baltimore	-8.1
Atlanta	-8.9
National Average	-8.2

Source: CBRE Econometric Advisors, Q2 2016.

Figure 8: Estimated Rent and Vacancy Response to a Deep Recession Scenario with 2008-2010 Market-Level Employment Dynamics

Market	Cumulative rent drop from 2016Q2 levels, %	Maximum vacancy increase from 2016Q2 levels, bps
Washington, D.C.	-6.7	57
San Francisco	-31.7	855
Phoenix	-9.1	784
New York	-16.9	229
Miami	-10.9	525
Los Angeles	-3.9	202
Houston	-20.8	455
Dallas	-12.7	604
Chicago	-9.9	437
Boston	-25.5	458
Baltimore	-8.4	363
Atlanta	-3.0	506
National Average	-14.8	301

Source: CBRE Econometric Advisors, Q2 2016.

For example, while Washington, D.C.'s rent sensitivity to employment shocks is close to the U.S. national average (Figure 1) and its rent response to the national-rate negative employment shock is also average (Figure 3), D.C.'s response in the final scenario (Figure 8) is very small compared to other markets—for both rents and vacancy. This is because the negative employment growth Washington experienced during the 2008-2010 recession was very minor. Ultimately, it is the interplay between all three factors—the "pure" sensitivity of the market to employment changes, the current levels of rents and vacancies, and the expected dynamics of employment growth in each market—that determines how each market will behave in the future.

So we find that these markets' responses to a recession vary greatly and generally depend on three key factors. The first is the sensitivity of a market's rents and vacancy to changes in its employment growth rate: the higher the sensitivity, the larger the rent drops and vacancy spikes that can be expected in a recession. The second factor is the current level of rents and vacancies in a market, which determine its risk of negative adjustments: markets that have had higher run-ups in rents (and drops in vacancy) relative to trend are at higher risk than those with less aggressive trends in these metrics. The third factor is a market's future employment growth: other things being equal, those with lower drops in employment will experience smaller drops in rents and less pronounced increases in vacancy than their peers with larger employment declines.

The interplay between the three factors is complex and requires rigorous analysis. Proper understanding of these factors can make all the difference between producing substandard returns and beating one's peers—savvy investors will be able to take advantage of differences in performance, recession-proofing their existing portfolios and identifying investment opportunities when the economic cycle returns to its growth phase.

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