



# Cycle Monitor — Real Estate Market Cycles

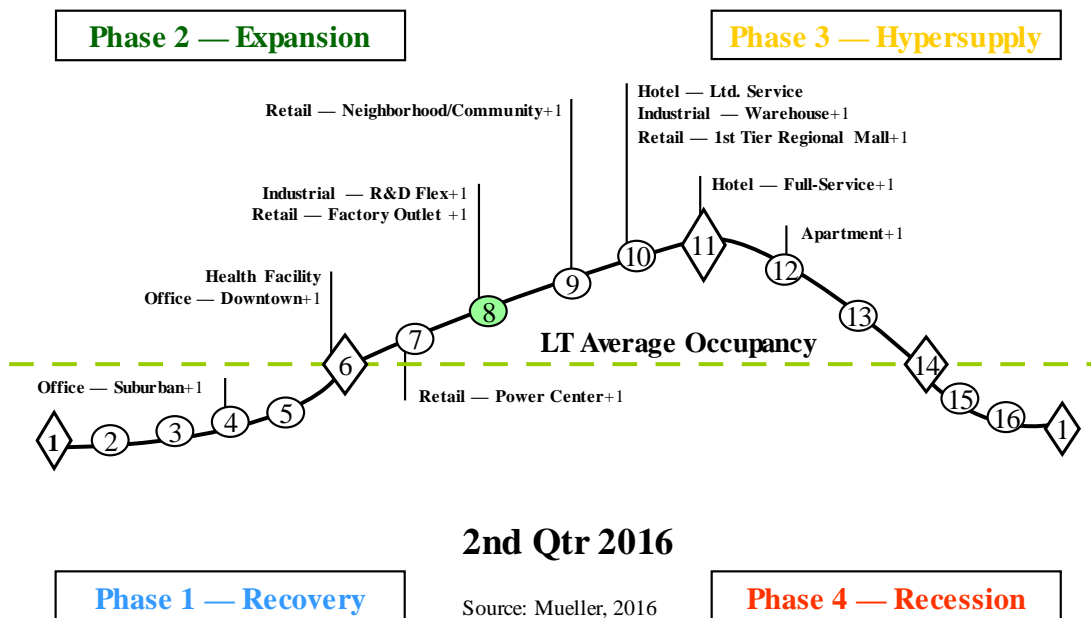
Second Quarter 2016 Analysis  
August 2016

## Commercial Real Estate Physical Market Cycle Analysis of All Five Major Property Types in More Than 50 Metropolitan Statistical Areas (MSAs).

We recently completed a research study analyzing historic cycle lengths and magnitudes. One conclusion is that the current cycle is a longer cycle than its two predecessor cycles and also a more moderate cycle. In most markets, we have adjusted the long-term occupancy average to reflect the current more moderate cycle. Thus, many property types have markets jumping a few cycle points to put them in the correct place in the current cycle. We believe that the current moderate U.S. economic cycle expansion should continue for a few years. Interest rates may not move up the rest of this year and very little in the next few years.

Office occupancy **improved** 0.2% in 2Q16, and rents grew 0.4% for the quarter and 4.3% annually.  
 Industrial occupancy **improved** 0.1% in 2Q16, and rents grew 1.9% for the quarter and 6.5% annually.  
 Apartment occupancy **declined** 0.1% in 2Q16, and rents grew 0.6% for the quarter and were up 2.9% annually.  
 Retail occupancy **improved** 0.2% in 2Q16, and rents grew 0.5% for the quarter and 2.6% annually.  
 Hotel occupancy **improved** 0.1% in 2Q16, and room rates increased 1.0% for the quarter and 2.9% annually.

## National Property Type Cycle Locations

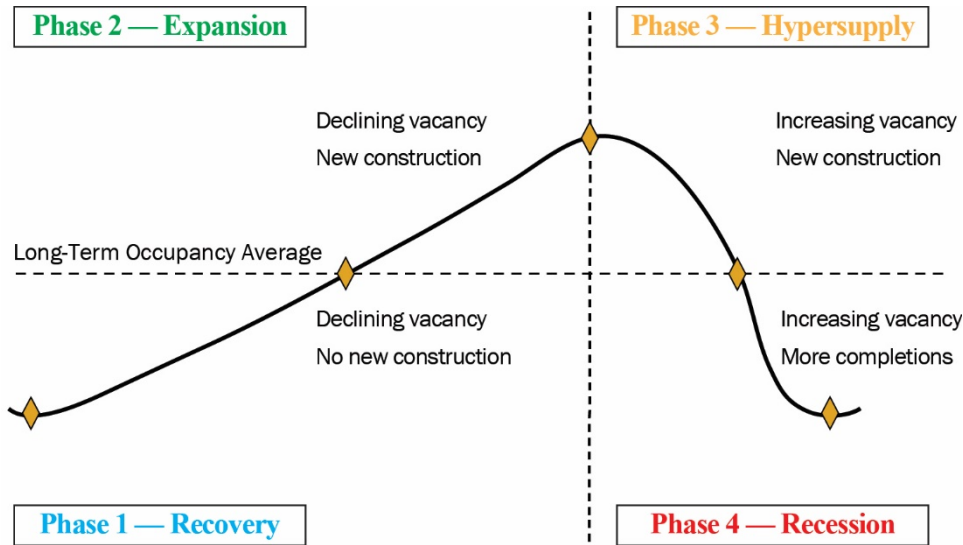


National Property Type Cycle Graph shows relative positions of sub-property types — major markets are reviewed inside.

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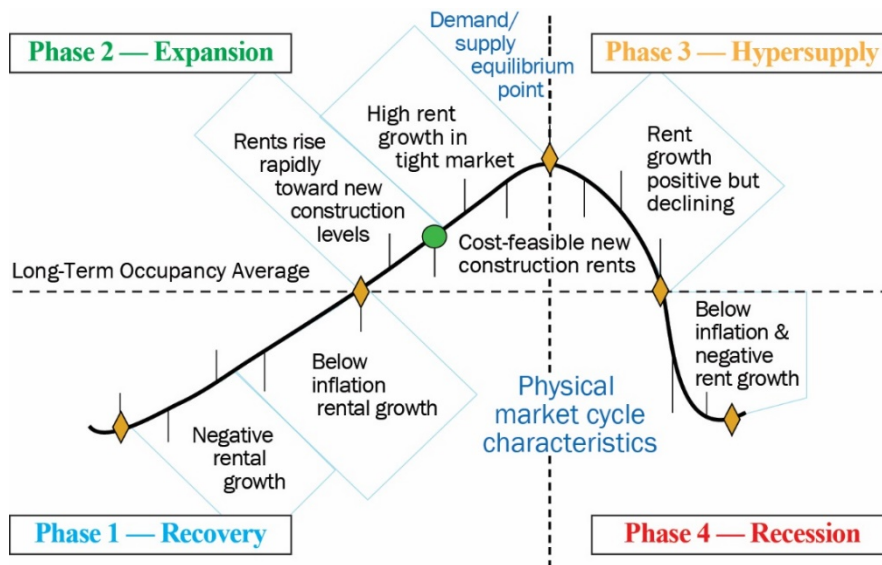
The cycle monitor analyzes occupancy movements in five property types in more than 50 MSAs. Market cycle analysis should enhance investment-decision capabilities for investors and operators. The five property type cycle charts summarize almost 300 individual models that analyze occupancy levels and rental growth rates to provide the foundation for long-term investment success. Commercial real estate markets are cyclical due to the lagged relationship between demand and supply for physical space. The long-term occupancy average is different for each market and each property type. **Long-term occupancy average** is a key factor in determining rental growth rates — a key factor that affects commercial real estate returns.

### Market Cycle Quadrants



Source: Mueller, Real Estate Finance, 2016.

Rental growth rates can be characterized in different parts of the market cycle, as shown below.



Source: Mueller, Real Estate Finance, 2016.

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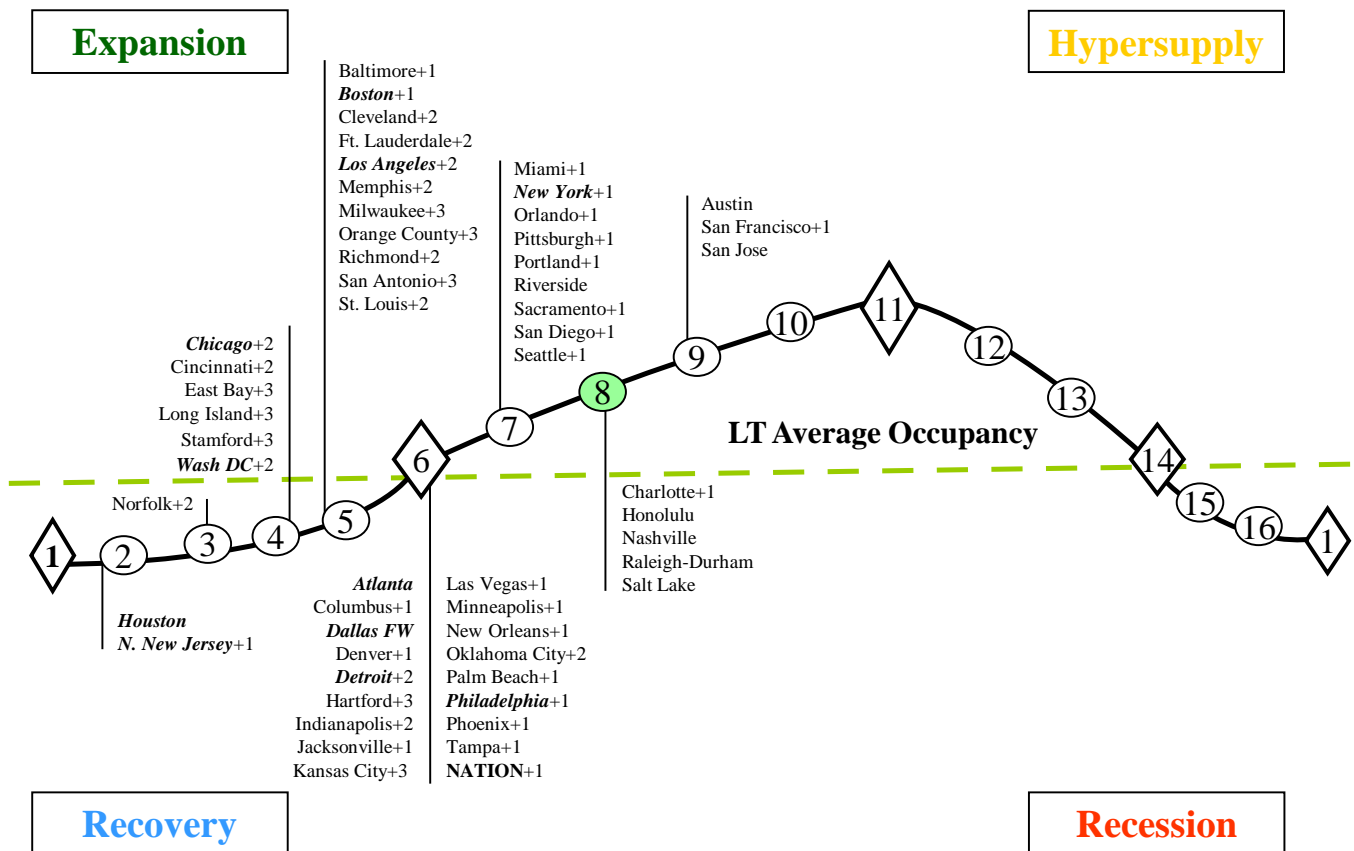
**OFFICE**

Using our new research study on cycle length and magnitude mentioned at the beginning of this report, we have adjusted the long-term average occupancy levels in many markets and for the national average. We now believe that the national office average occupancy is at the long-term average point #6 — the beginning of the growth phase of the occupancy cycles in this longer and more moderate cycle.

The national office market occupancy level improved 0.2% in 2Q16, and was up 0.6% year-over-year. Demand was strong with more than 15 million square feet being absorbed in the quarter. This absorption was well spread across many markets. Space under construction was also lower than 1Q16. Sub-lease space is now lower than the long-term average of 2.0%, another indicator of a healthy market. Professional and business services seem to be creating consistent demand for office space. Average national rents increased 0.4% in 2Q16 and produced a 4.3% increase year-over-year.

**Office Market Cycle Analysis**

2nd Quarter, 2016



Note: The 11-largest office markets make up 50% of the total square footage of office space we monitor. Thus, the 11-largest office markets are in **bold italic** type to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are now shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, i.e., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

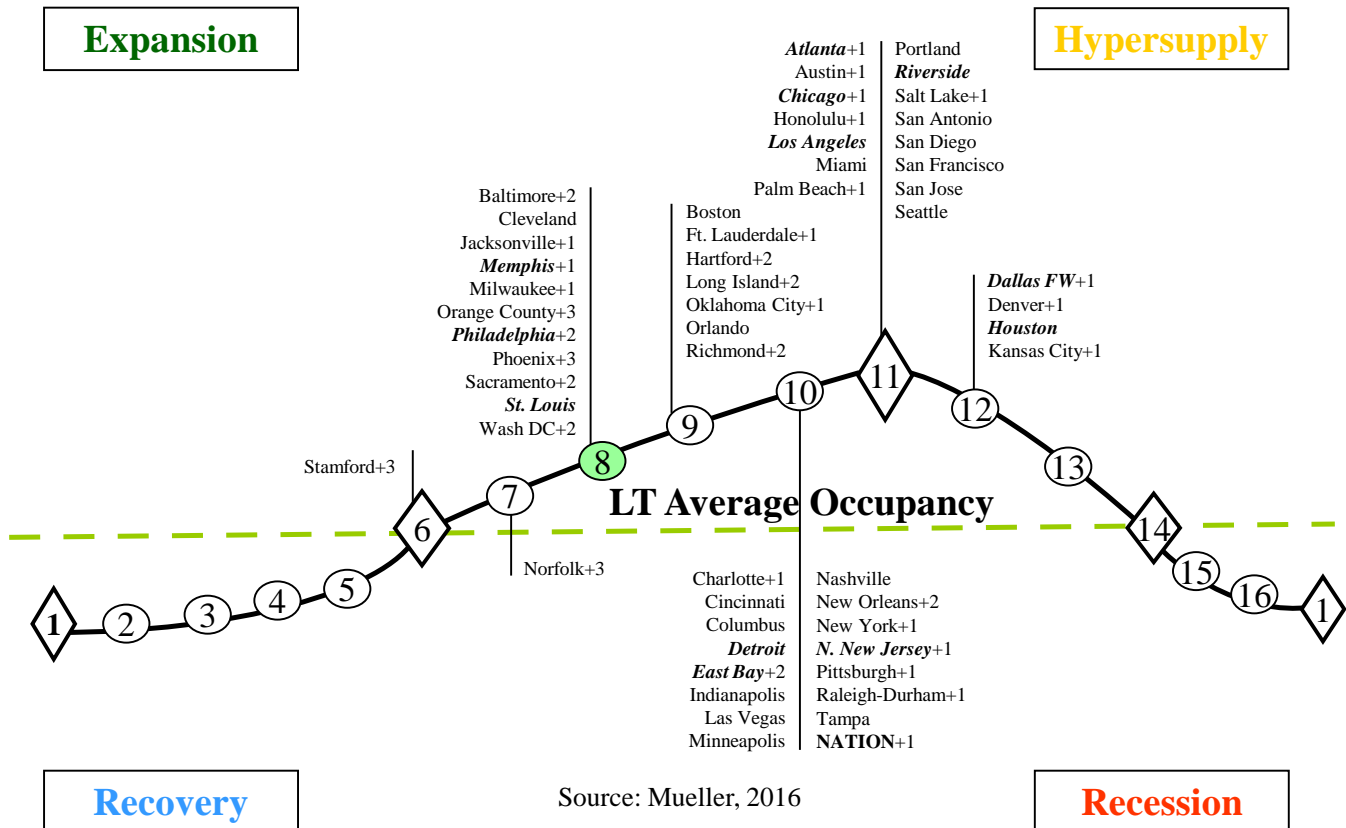
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## INDUSTRIAL

Using our new research study on cycle length and magnitude mentioned at the beginning of this report, we have adjusted the long-term average occupancy levels in many markets and for the national average. We now believe that the national industrial average occupancy is at cycle point #10 — in the growth phase of the occupancy cycle, in this longer and more moderate cycle.

Industrial occupancies improved 0.1% 2Q16 and were up 1.0% year-over-year. Positive net absorption has occurred for more than six years, with more than 65 million square feet absorbed in 2Q16. New supply is not keeping up with demand, especially in the supply-chain tenant segment. Bulk and distribution properties are in highest demand. Expanding e-commerce retailers like Amazon and Wayfair have led demand by signing large leases in multiple markets. Atlanta and Riverside saw the strongest absorption, while San Jose and Indianapolis had the best occupancy growth for the quarter. Industrial national average rents increased 1.9% in 2Q16 and were up 6.5% year-over-year.

### Industrial Market Cycle Analysis 2nd Quarter, 2016



Note: The 12-largest industrial markets make up 50% of the total square footage of industrial space we monitor. Thus, the 12-largest industrial markets are in **bold italic** type to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, e.g., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

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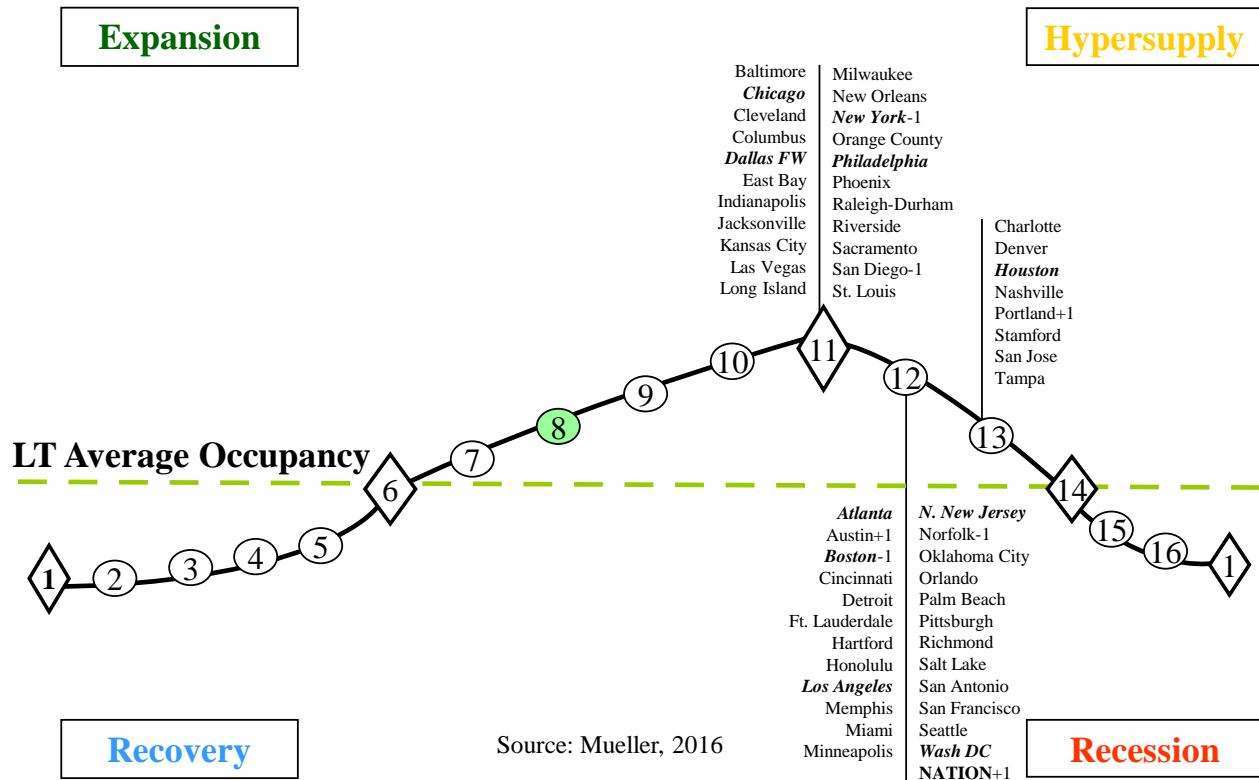
## APARTMENT

Using our new research study on cycle length and magnitude mentioned at the beginning of this report, we have adjusted the long-term average occupancy levels in many markets and for the national average. We now believe that the national apartment average occupancy is at cycle point #12 — in the hypersupply phase of the occupancy cycle, in this longer and more moderate cycle.

The national apartment occupancy average declined 0.1% in 2Q16 and was down 0.9% year-over-year. Demand continues to be strong with the Millennial generation creating the majority of demand, but supply continues to outpace demand. While downtown locations have seen the highest demand, this has allowed landlords to raise rent at multiples of the inflation rate for the past five years. Rents are now high enough that many Millennials are opting for living in the suburbs where rent is more affordable. Developers have responded with new suburban projects, many that have easy public transportation options to downtown areas. However, new supply in the pipeline continues to come online at a faster rate than demand, causing occupancies to decline. Average national apartment rent growth decelerated further with a 0.6% increase in 2Q16, and was up a low 2.9% year-over-year.

### Apartment Market Cycle Analysis

2nd Quarter, 2016



Note: The 10-largest apartment markets make up 50% of the total square footage of multifamily space we monitor. Thus, the 10-largest apartment markets are in **bold italic** type to help distinguish how the weighted national average is affected.

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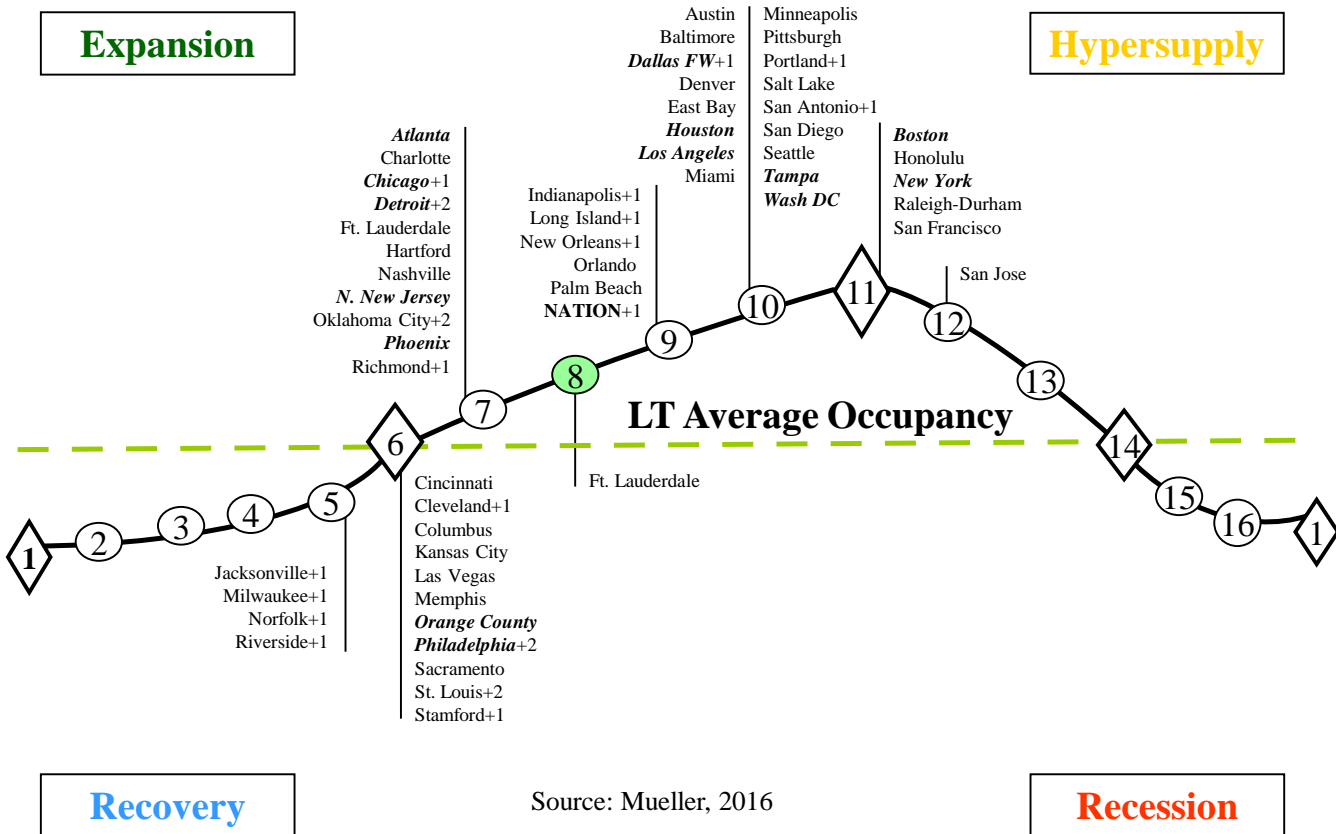
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**RETAIL**

Using our new research study on cycle length and magnitude mentioned at the beginning of this report, we have adjusted the long-term average occupancy levels in many markets and for the national average. We now believe that the retail national average occupancy is at cycle point #9 — in the growth phase of the occupancy cycle, in this longer and more moderate cycle.

Retail occupancies improved 0.2% in 2Q16 and were up 0.5% year-over-year. U.S. consumption was up 4.2% in 2Q16 with retail centers in downtown core and close-in suburban locations performing best. High-end store sales lead during the recovery and early parts of the expansion phase of the cycle, while mid-priced retail sales are now growing at a faster rate. Locations near apartments and new apartment construction are performing the best. Asking rents are still 5% below the peak of the last cycle in 2006. National average retail rents increased 0.5% in 2Q16 and were up 2.6% year-over-year.

**Retail Market Cycle Analysis**  
 2nd Quarter, 2016



Note: The 14-largest retail markets make up 50% of the total square footage of retail space we monitor. Thus, the 14-largest retail markets are in **bold italic** type to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, e.g., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

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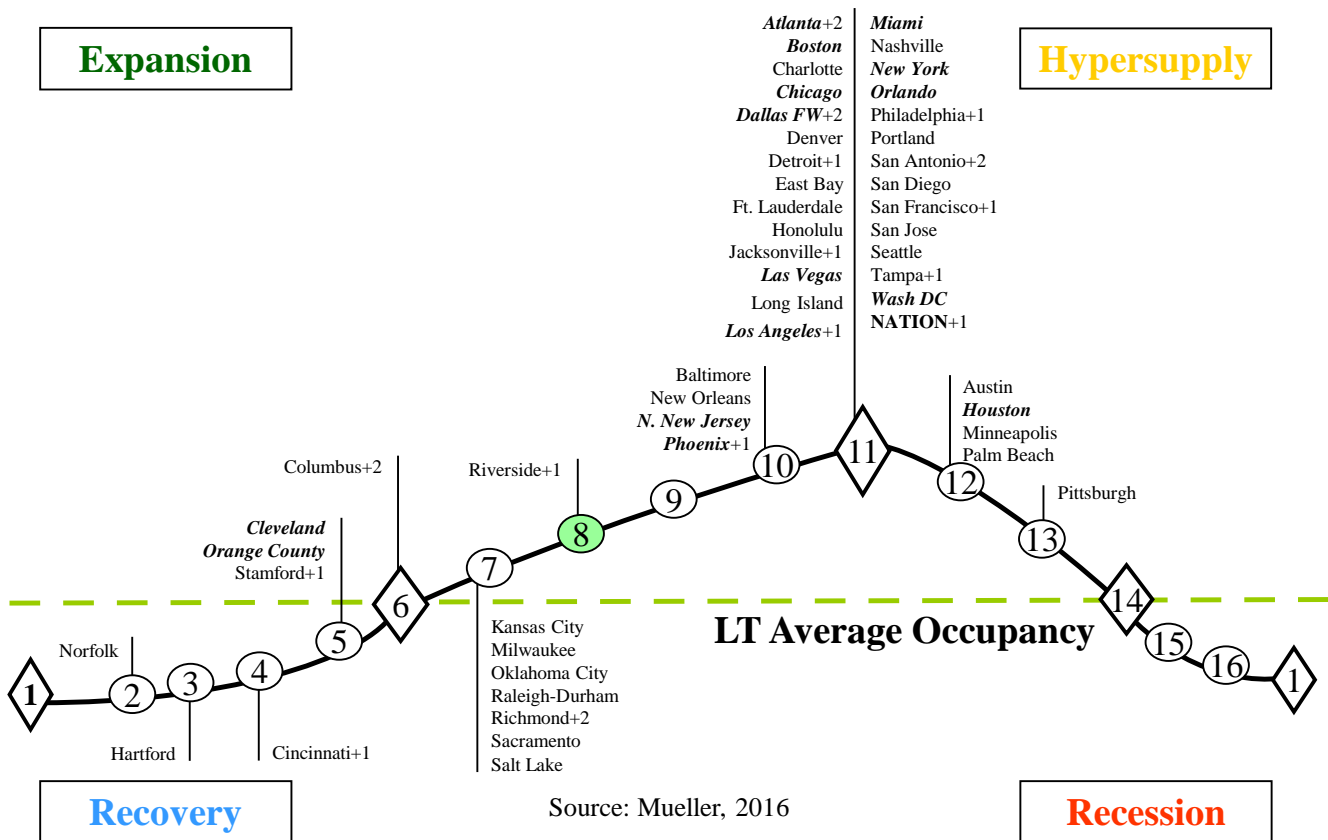
## HOTEL

Using our new research study on cycle length and magnitude mentioned at the beginning of this report, we have adjusted the long-term average occupancy levels in many markets and for the national average. We now believe that the national hotel average occupancy is at cycle point #11 — the peak of the growth phase of the occupancy cycle, in this longer and more moderate cycle.

Hotel occupancies increased an average of 0.1% in 2Q16 and were up 1.0% year-over-year. Unlike the other property sectors, this recent cycle in hotels has been more volatile than the last two occupancy cycles with a lower low national average of 58.0% in 2009 and a higher high of 72.0% today (compared to previous peaks of 67.0% and 69.5% respectively in the last two cycles). Hotel profitability has never been higher. The national average hotel room rate increased 1.0% in 2Q16, and was up 2.9% year-over-year.

### Hotel Market Cycle Analysis

2nd Quarter, 2016



Note: The 14-largest hotel markets make up 50% of the total square footage of hotel space that we monitor. Thus, the 14-largest hotel markets are in boldface italics to help distinguish how the weighted national average is affected.

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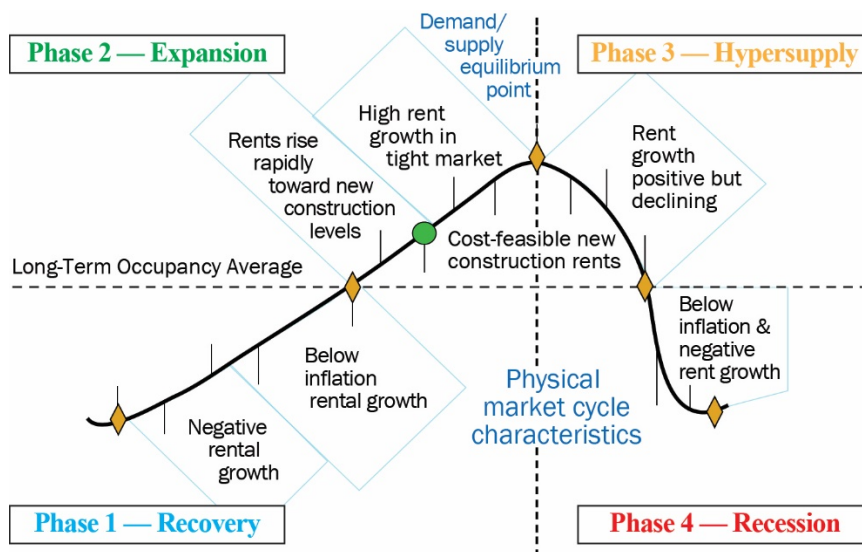
**MARKET CYCLE ANALYSIS — Explanation**

**Supply and demand interaction is important to understand. Starting in Recovery Phase I at the bottom of a cycle** (see chart below), the marketplace is in a state of oversupply from previous new construction or negative demand growth. At this bottom point, occupancy is at its trough. Typically, the market bottom occurs when the excess construction from the previous cycle stops. As the cycle bottom is passed, demand growth begins to slowly absorb the existing oversupply and supply growth is nonexistent or very low. As excess space is absorbed, vacancy rates fall allowing rental rates in the market to stabilize and even begin to increase. As this recovery phase continues, positive expectations about the market allow landlords to increase rents at a slow pace (typically at or below inflation). Eventually, each local market reaches its *long-term occupancy average* whereby rental growth is equal to inflation.

**In Expansion Phase II, demand growth continues at increasing levels, creating a need for additional space.** As vacancy rates fall below the *long-term occupancy average*, signaling that supply is tightening in the marketplace, rents begin to rise rapidly until they reach a cost-feasible level that allows new construction to commence. In this period of tight supply, rapid rental growth can be experienced, which some observers call “rent spikes.” (Some developers may also begin speculative construction in anticipation of cost-feasible rents if they are able to obtain financing.) Once cost-feasible rents are achieved in the marketplace, demand growth is still ahead of supply growth — a lag in providing new space due to the time to construct. Long expansionary periods are possible and many historical real estate cycles show that the overall up-cycle is a slow, long-term uphill climb. As long as demand growth rates are higher than supply growth rates, vacancy rates will continue to fall. The cycle peak point is where demand and supply are growing at the same rate *or equilibrium*. Before equilibrium, demand grows faster than supply; after equilibrium, supply grows faster than demand.

**Hypersupply Phase III of the real estate cycle commences after the peak/equilibrium point #11 — where demand growth equals supply growth.** Most real estate participants do not recognize this peak/equilibrium’s passing, as occupancy rates are at their highest and well above long-term averages, a strong and tight market. During Phase III, supply growth is higher than demand growth (hypersupply), causing vacancy rates to rise back toward the long-term occupancy average. While there is no painful oversupply during this period, new supply completions compete for tenants in the marketplace. As more space is delivered to the market, rental growth slows. Eventually, market participants realize that the market has turned down and commitments to new construction should slow or stop. If new supply grows faster than demand once the long-term occupancy average is passed, the market falls into Phase IV.

**Recession Phase IV begins as the market moves past the long-term occupancy average with high supply growth and low or negative demand growth.** The extent of the market down-cycle will be determined by the difference (excess) between the market supply growth and demand growth. Massive oversupply, coupled with negative demand growth (that started when the market passed through long-term occupancy average in 1984), sent most U.S. office markets into the largest down-cycle ever experienced. During Phase IV, landlords realize that they will quickly lose market share if their rental rates are not competitive; they then lower rents to capture tenants, even if only to cover their buildings’ fixed expenses. Market liquidity is also low or nonexistent in this phase, as the bid-ask spread in property prices is too wide. The cycle eventually reaches bottom as new construction and completions cease, or as demand growth turns up and begins to grow at rates higher than that of new supply added to the marketplace.



Source: Mueller, *Real Estate Finance*, 2016.

This research currently monitors five property types in more than 50 major markets. We gather data from numerous sources to evaluate and forecast market movements. The market cycle model we developed looks at the interaction of supply and demand to estimate future vacancy and rental rates. Our individual market models are combined to create a national average model for all U.S. markets. This model examines the current cycle locations for each property type and can be used for asset allocation and acquisition decisions.

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