



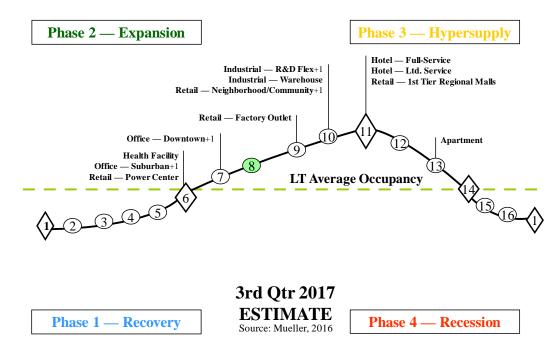
## CYCLE FORECAST — Real Estate Market Cycles

Third Quarter 2017 Estimates November 2016

It is expected that 2017 should have a growth trajectory higher than the past six years. Economists revised their forecasts to higher levels due to the new business-friendly administration that is taking over next year. The Wall Street Journal economist's survey shows Gross Domestic Product (GDP) increasing 2.2% in 2017 and 2.4% in 2018. Consumer Price Index (CPI) inflation is forecast to increase 2.3% in 2017 and 2.4% in 2018. The 10-year Treasury bill rates are expected to rise from 2.5% in 2017 to 3.0% in 2018. Stronger economic growth means stronger demand for real estate rentals of all types. Moderate increases in costs (CPI) and interest rates should not dampen profits in any major way.

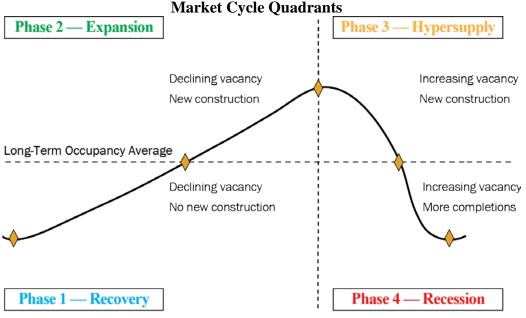
Office occupancies are forecast to **improve** 0.1% in 3Q17, with rents improving 0.6% quarter-over-quarter. Industrial occupancies are forecast to **improve** 0.1% in 3Q17, with rents improving 0.7% quarter-over-quarter. Apartment occupancies are forecast to **decline** 0.1% in 3Q17, with rents improving 0.6% quarter-over-quarter. Retail occupancies are forecast to **improve** 0.1% in 3Q17, with rents improving 0.8% quarter-over-quarter. Hotel occupancies are forecast to **decline** 0.2% in 3Q17, with quarterly room rates improving 0.8% quarter-over-quarter.

### **National Property Type Cycle Forecast**



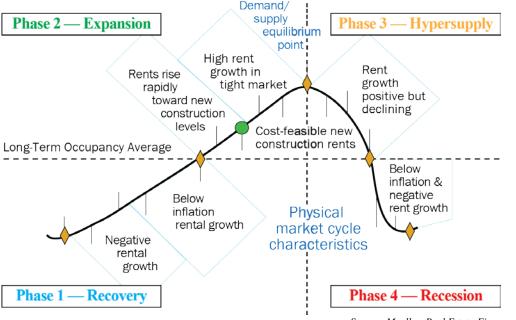
National Property Type Cycle Graph shows relative positions of sub-property types — major markets are reviewed inside.

The cycle forecast analyzes occupancy movements in five property types in more than 50 Metropolitan Statistical Areas (MSAs). The 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 supply and demand 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.



Source: Mueller, Real Estate Finance, 2016.

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



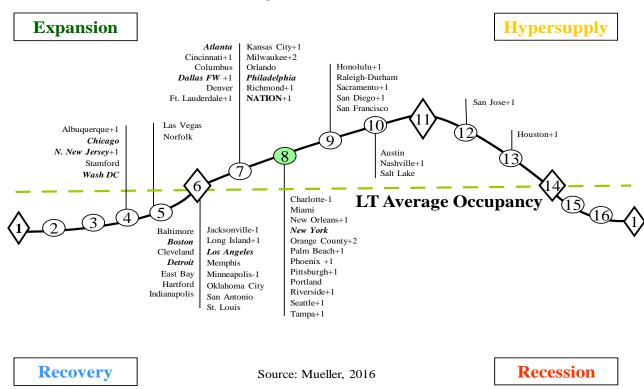
Source: Mueller, Real Estate Finance, 2016.

### **OFFICE FORECAST**

Office occupancies are forecast to improve 0.1% in 3Q17, producing a 0.2% increase year-over-year, with further increases into 1Q18. Looking to 2017 and 2018, construction completions are expected to be higher than demand. However, that was a more moderate pre-election forecast. Office jobs are expected to continue to grow at 2.5% in 2017, but office absorption is expected to be about half at a 1.3% growth rate. This is due to fewer square feet used per employee. Rising construction costs should also help to moderate supply growth. National average office rents are expected to increase 0.6% in 3Q17 and be up 2.9% year-over-year.

### Office Market Cycle FORECAST

3rd Quarter, 2017 Estimates



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

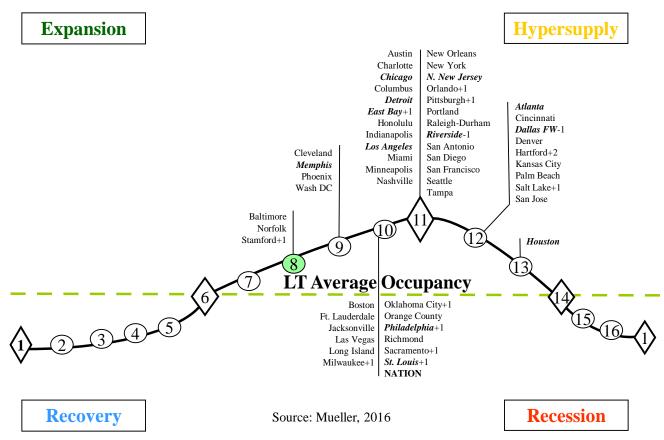
Markets that have moved since the previous quarter are shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, e.g., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their 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.

### INDUSTRIAL FORECAST

Industrial occupancies are forecast to improve 0.1% in 3Q17 and be up 0.3% year-over-year. The new records set for absorption, occupancy and rent growth in 3Q16 could easily extend into 2017. The new high of 40+ million square feet of absorption per quarter could continue as well. Big-box distribution centers are expected to continue improving because of the major demand drivers of e-commerce, logistics and retail store customers. Leasing is expected to accelerate in 2017. New space under construction is expected to be moderate, lagging demand, as the risk-based bank regulations continue to constrain new supply growth. Industrial is expected to be the best performing property type again in 2017. We expect rents to increase 0.7% in 3Q17 and be up 3.8% year-over-year

### **Industrial Market Cycle FORECAST**

3rd Quarter, 2017 Estimates



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

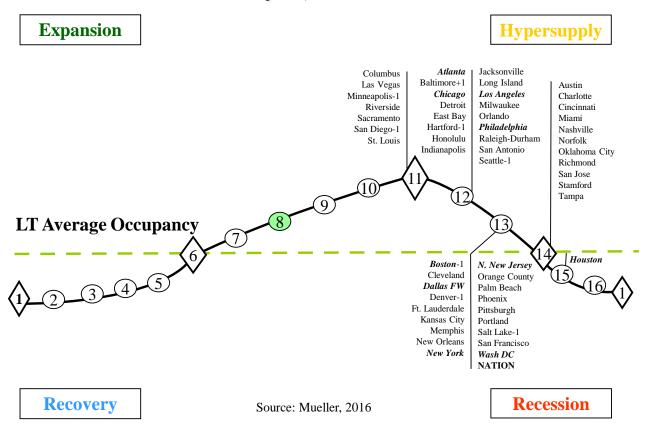
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### **APARTMENT FORECAST**

Apartment occupancies are forecast to decline 0.1% in 3Q17 and be down 0.5% year-over-year. Occupancies are expected to remain just below the high of 96%, as demand is expected to remain strong near 60,000 units. The pace of household formation (Millennials graduating from high school and college) should continue to be strong in 2017. We expect suburban locations to improve, as downtown locations continue to price themselves out of the market. We expect supply to outpace demand in 3Q17, as new permits are higher than projected demand. The national apartment asking rental rate increase should be 0.6% in 3Q17, and we estimate a year-over-year rental increase of 2.4%.

### **Apartment Market Cycle FORECAST**

3rd Quarter, 2017 Estimates

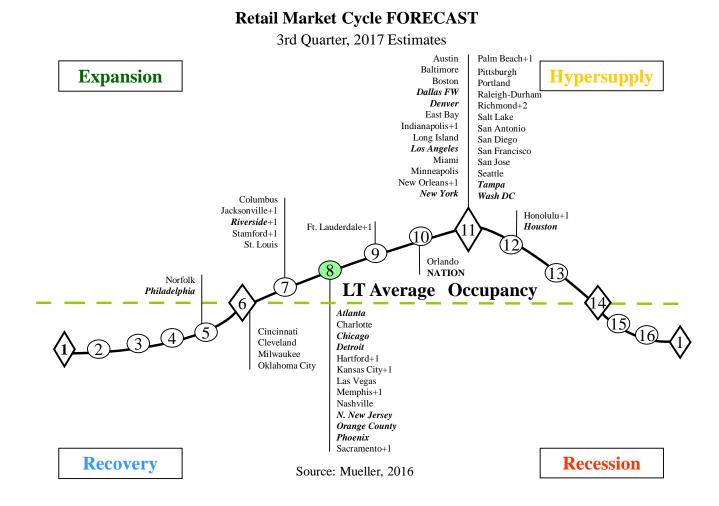


Note: The 10-largest apartment markets make up 50% of the total square footage of apartment space that we monitor. Thus, the 10-largest apartment markets are in *bold italics* to help distinguish how the weighted national average is affected.

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.

### RETAIL FORECAST

Retail occupancy is forecast to increase 0.1% in 3Q17 and be up 0.2% year-over-year. Demand is forecast to continue at moderate rates in 2017, which combined with low new supply, means retail occupancy growth should perform well in 2017. High-end shopping centers in prominent retail clusters should continue to be the most successful strategy as the cycle matures. Retail rental rates are expected to increase 0.8% in 3Q17 and 3.2% year-over-year.



Note: The 15-largest retail markets make up 50% of the total square footage of retail space that we monitor. Thus, the 15-largest retail markets are in *bold italics* to help distinguish how the weighted national average is affected.

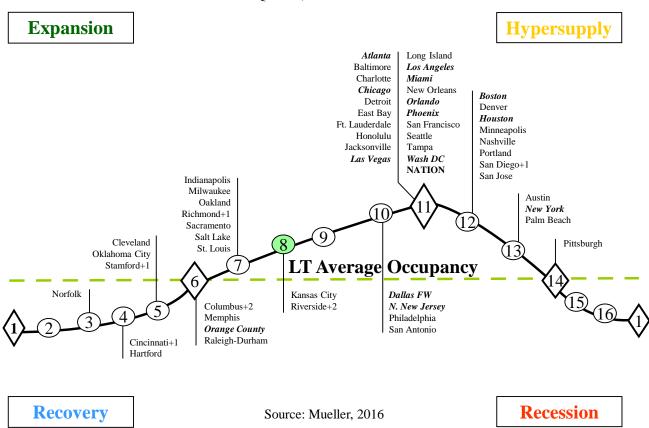
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### HOTEL FORECAST

Hotel occupancy is forecast to decline 0.2% 3Q17 and be down 0.6% year-over-year. Demand is forecast to be strong in 2017 with small business support and may exceed expectations with the new business-friendly government administration. Point #11 on the cycle graph is both the peak and equilibrium positon in the cycle, with a minor occupancy decline forecast in 2017 from new rooms coming online. This forecast is as close to supply meeting demand as one can expect. Room rate growth is also expected to increase 0.8% in 3Q17, and annual room rate growth is expected to be 3.4% year-over-year.

### **Hotel Market Cycle FORECAST**

2<sup>nd</sup> Quarter, 2017 Estimates



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 *bold italics* 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.

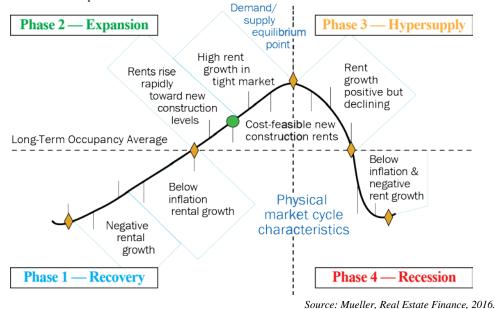
#### MARKET CYCLE ANALYSIS - Explanation

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 upcycle 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.



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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