

# **PREDICTING LONG-TERM TRENDS & MARKET CYCLES IN COMMERCIAL REAL ESTATE**

by

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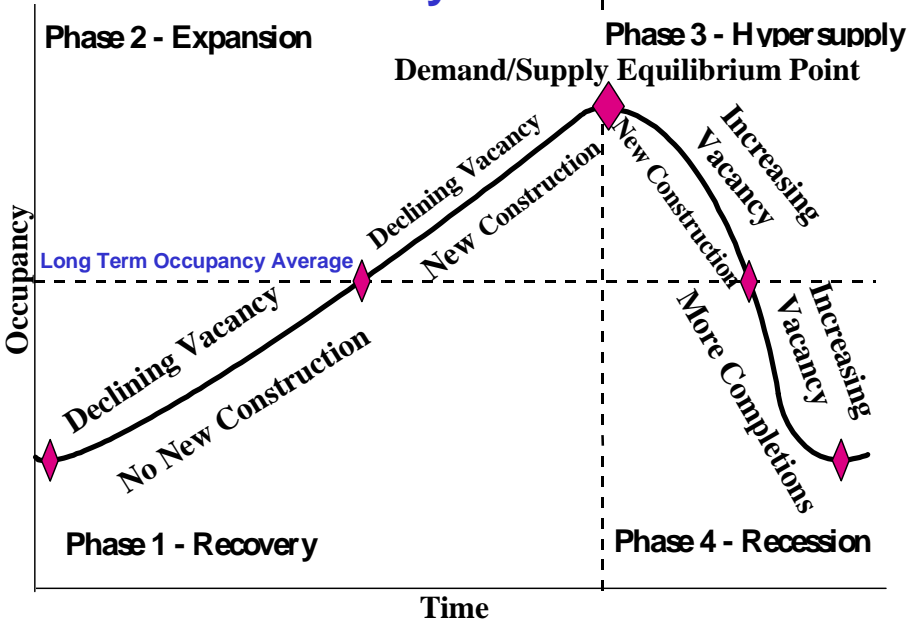
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Land, together with labor and capital, is one of the three major factors of production. As population grows, additional people need places to work, sleep, eat, shop and be entertained. Historically the supply of buildings to meet these needs has been “lumpy,” with too little space available during times of rapid growth and too much supply when growth slows. This lag between demand growth and supply response is the major cause of volatility in real estate market cycles.

Real estate cycles can be separated into four distinct phases based upon the rate of change in both demand and supply. Figure 1 depicts the market cycle in terms of occupancy rates. Occupancy is the difference between total supply (including newly constructed space) and effective demand as measured by absorption. Markets are defined as having two up-cycles (recovery and expansion) when demand growth rates are higher than supply growth rates, and two down-cycles (hypersupply and recession) when demand

Figure 1

## Market Cycle Quadrants



growth rates are lower than supply growth rates. In reality, markets always have either demand growing faster than supply or supply growing faster than demand. The demand and supply growth rates are equal only at the peak and trough of the market cycle, with existing space plus new construction exactly matching new demand. Because the trough point is a time when oversupply is ending and low demand growth is turning positive, the only equilibrium point is at the peak of the market cycle where supply growth has caught up with demand. After this peak, either the demand growth rate begins to slow or the supply growth rate accelerates. This peak may occur numerous times as a market moves between growth and hypersupply phases, since future demand cannot be accurately predicted and supply does not react instantaneously to demand changes.

The long-term occupancy average (LTOA)--also called the normalized occupancy level--for each market is a significant point in the cycle, as the market goes through this LTOA both during an up-cycle and a down-cycle. However, the interaction between

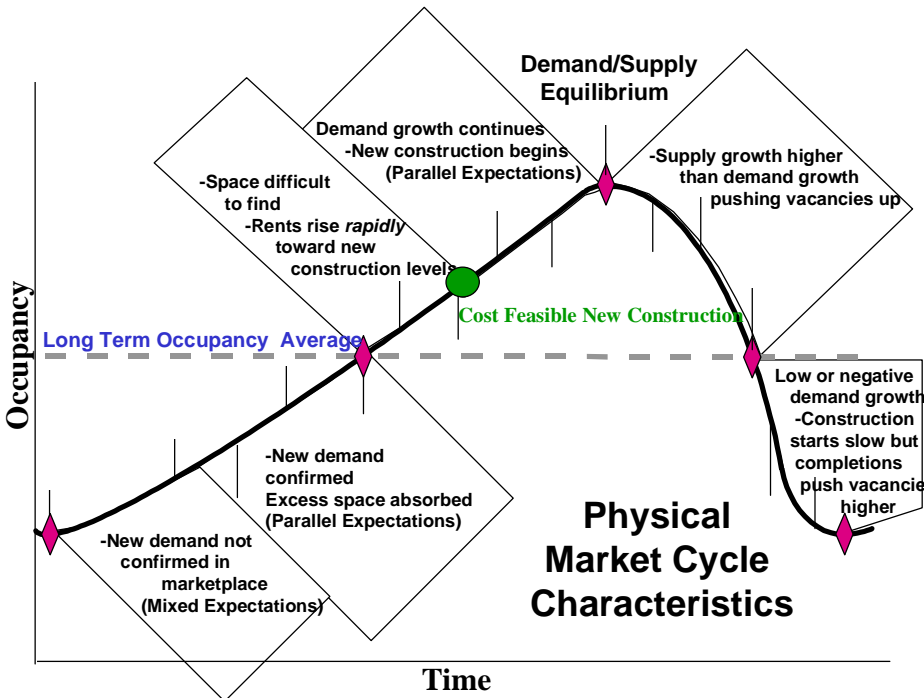
supply and demand above and below the LTOA point is very different. The historic mid-point in the cycle can be identified by a LTOA rate calculated over a number of historic cycles. Looking forward, this forecast LTOA must be adjusted for current demand and supply characteristics. The LTOA is different for each property type and each metropolitan market. Similarly, data reveal that cycle durations and magnitudes are different for each market and each property type.

### RENTAL GROWTH THEORY

Rental growth theory assumes that growth rates for asking rents are a function of the market's position in the real estate cycle phase as indicated by market occupancy. This theory holds that rental growth will be below inflation when market occupancies are below their LTOA, while rental growth rates will exceed inflation when market occupancy is above the LTOA. Additionally the theory assumes that the rental growth rates will steadily increase in up-cycles and rental growth rates will steadily decrease during down-cycles. Thus, during the recovery phase of the property cycle, rental growth rates should be negative near the bottom, increasing only as the cycle moves toward the long term occupancy average. They should approximately equal inflation at the LTOA. In the expansion phase of the property cycle, rental growth rates should steadily increase and be higher than inflation, reaching the highest growth rate at the market peak when demand and supply are in equilibrium. In the hypersupply phase of the cycle, rental growth rates should continue to exceed inflation, but at declining rates as occupancy moves back to its long-term average. In the recession phase of the cycle, rental growth rates should be below inflation and continue to decline, perhaps even turning negative as

the trough of the cycle is reached. Figure 2 displays the occupancy to rental growth relationship for different phases of the cycle.

Figure 2



Because supply and demand determine occupancy, they also explain rental growth. In the recovery phase 1, at the trough of a cycle, the marketplace is in a state of oversupply, due either to excessive construction or to negative demand growth. Typically the market trough is the point when excess construction from the previous cycle stops. As the cycle trough is passed, demand growth begins to slowly absorb the existing oversupply and new supply is usually non-existent. Negative rental growth occurs at points near the cycle trough. As the excess space is absorbed and the recovery continues, increased occupancy allows landlords to increase rents, but less than inflation. As the market reaches its long-term average occupancy level, rental growth rates are roughly equal to inflation.

As occupancy rates rise above the long-term occupancy average, available space becomes tighter and rents rise faster than inflation until they reach "cost feasible" levels that allow profitable new construction to begin. In this period of growing demand and tight supply, the market often experiences rent spikes. In the expansion phase of the cycle, demand growth creates a need for additional space, but new supply growth has not yet started since rents must still grow in order to reach "cost feasible" new construction rent levels. If developers are able to obtain construction financing, they may begin modest speculative construction in anticipation of cost feasible rents being reached upon completion of their buildings. Once cost feasible rents are achieved, the demand growth rate continues to outpace the supply growth rate. For example, in the mid-1990s demand growth averaged about 3 percent while supply growth averaged less than 2 percent. This supply lag occurs because new construction cannot be completed instantly. Long expansionary periods are possible, and many historic real estate cycles have shown that the overall up-cycle is a long, slow uphill climb.

The next major transition point is the "peak," or equilibrium point in the cycle, where demand and supply growth rates are the same. At this peak the market is usually tightest--occupancy rates are highest and rental growth is greatest. The hypersupply phase of the estate cycle commences after the peak point. The peak is passed when the supply growth rate exceeds the demand growth rate. Often participants do not recognize this peak turning point since occupancy rates are high and the market is still above its LTOA. Rental growth begins this phase very strong, but not as strong as at the market peak. As this phase progresses demand growth continues to be lower than supply growth, resulting in falling occupancy as the market moves toward the LTOA. While there is no perceived oversupply during the beginning of this period due to high occupancy rates, new

completions compete for tenants in the marketplace and the rental growth rate continues to decline from its highest rate at the peak of the cycle when space was most difficult to find. When the market reaches LTOA, rental growth will have slowed to inflation. As market participants realize that the market has turned down, new construction efforts slow or stop.

The recession phase begins when the market occupancy declines below the LTOA. This phase has historically been driven by excess development, primarily from completions started in the hypersupply phase. But it can also be caused by rapidly declining demand (such as a recession) that reduces occupancy. The extent of the market down-cycle will be determined by an excess of market supply growth over demand. For example, massive oversupply from supply growth rates as high as 8 percent per year coupled with lower demand growth rates in the late 1980s sent most U.S. office markets into the largest down-cycle since the Great Depression. During such a recession phase landlords lower rents to retain existing tenants whose leases are expiring and to capture new tenants, even if rents only cover their buildings' minimal fixed expenses. Thus, rental growth is well below inflation, and perhaps even negative. Market liquidity is also low or non-existent in this phase as the bid-ask spread in property prices widens. The cycle eventually reaches its trough as new construction and completions cease and as demand increases faster than supply.

## DATA AND METHODOLOGY

Market data of demand, supply, vacancy, and gross asking rent were used to determine rental growth rates for 54 office markets and 54 industrial markets. The national rental

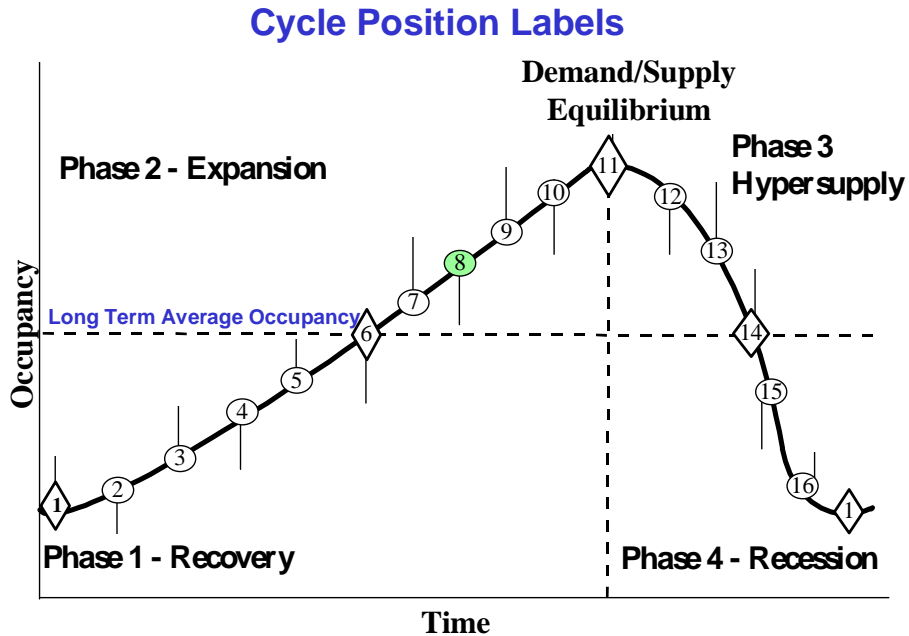
growth rate is the unweighted average rental growth rate for all markets at a given point in the cycle. Thus, if one building has three spaces available at rents of \$15, \$16, and \$17 respectively, the average gross asking rental rate of that building is \$16. The rental growth rate is proxied by the difference between the previous and current annual gross asking rent.

LTOA was calculated for each market for the last 30 years. In some markets the LTOA was adjusted to reflect changes in the most current cycle market demand growth. Higher demand growth rate markets were adjusted to reflect a lower long-term occupancy average, as more vacant space is required in a fast growing market, and lower current demand growth markets were occasionally given higher long-term occupancy averages.

The market cycle was broken into 16 reference points within the 4 phases, as shown in Figure 3, and each year of each market was assigned to one of these points. The year of lowest historic occupancy was assigned point #1. The historic long-term average was assigned either point #6 or point #14, depending on upward or downward trends in surrounding years and the year of highest historic occupancy is assigned point #11. Other years were placed at appropriate points based upon their relative distance from the trough, LTOA, and peak points.

The 16 individual market cycle points for all markets were connected to actual rental growth rates for each year in that market, then an average of the numerous individual market rental growth rates was calculated. As a result, market rental growth rates are used to calculate a national average growth rate from all 54 markets. Figure 4 shows the occupancy and rental growth results for offices and Figure 5 shows the results for industrial properties.

Figure 3



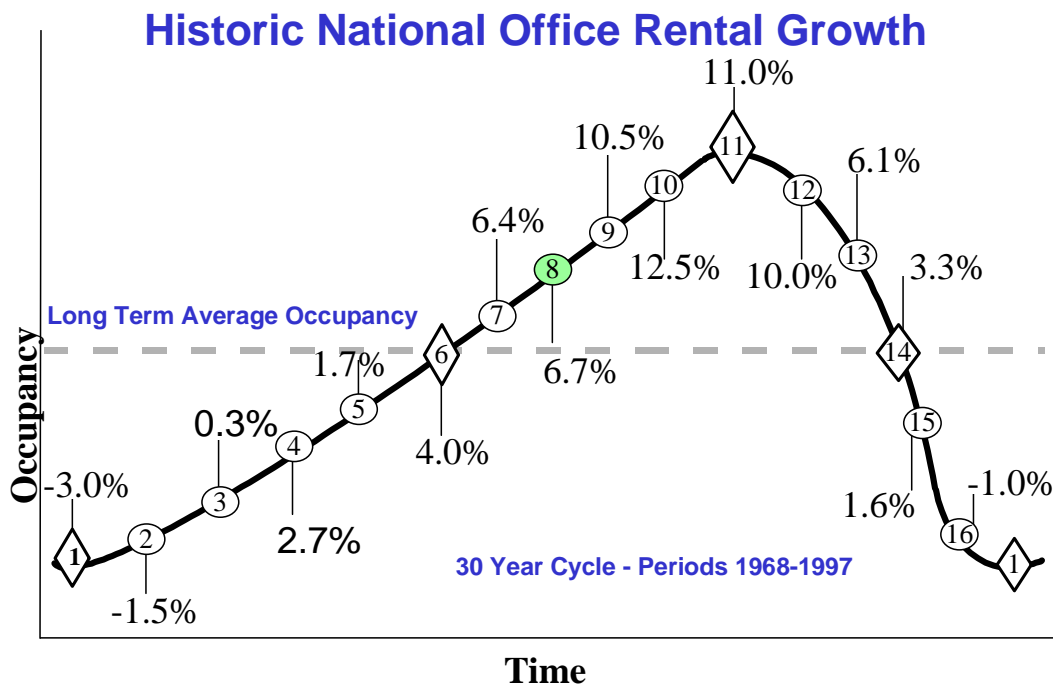
### OFFICE OCCUPANCY

Figure 4 shows the average occupancy rate for each position in the office cycle. Office occupancy rates started at a low average occupancy of 77.2 percent at the trough of the cycle (#1) and the standard deviation of the rates in different markets was 4.8 percent. The average occupancy was 86.5 percent at LTOA (#6) and 87.7 percent at LTOA (#14), and the average for all 54 markets was 86.8 percent. Thus, #6 and #14 are closely related to the long-term average occupancy rate. Office occupancy rates reached their peak of 95.5 percent at #11. Occupancy rates declined to 70.7 percent (#16) during the down-cycle and standard deviations grew back to 4.3 percent. Occupancy levels at different points in the cycle appear to be distinct and well defined across markets.



The rental growth rate average for the 54 office markets was negative at #1 and #2, then remained low but positive throughout the rest of the recovery phase. Beginning at the long-term average (#6) rental growth accelerated to 4 percent (approximately equal to long-term average inflation levels) and increased to a high of 13.8 percent at #10 (just one position before the cycle peak/equilibrium, #11). Rental growth steadily declined from the peak through the hypersupply and recession phases of the down-cycle. The growth rate was again roughly inflation (3.3 percent) at #14, the LTOA on the way down. Finally, average rental growth rates were below inflation in the recession phase, becoming negative again at #16.

Figure 4



The data support the theory that rental growth rates will be above inflation when markets have occupancy levels above their LTOA, and below inflation when markets

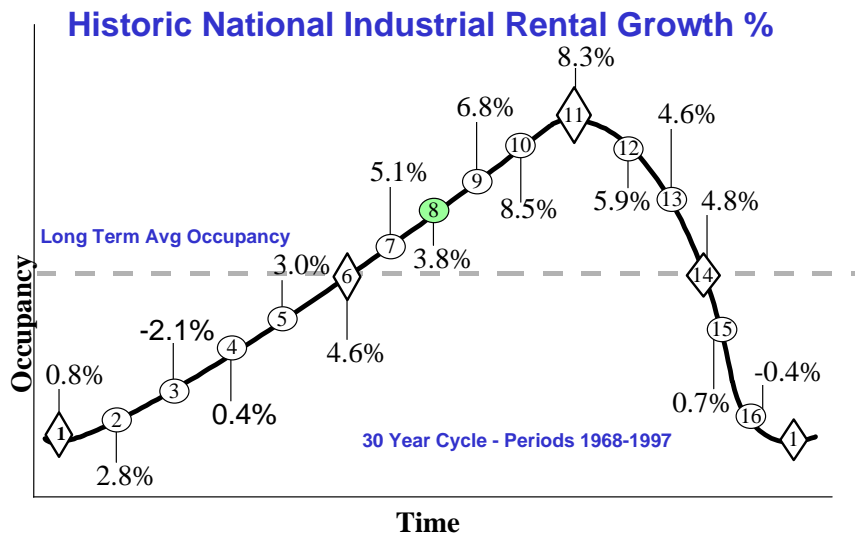
have occupancies below LTOA. It is also interesting to note that the highest rental growth was not at the peak of the cycle (#11), but one point before the peak. This is possibly due to the market looking forward from the peak year and reacting to the strong additional supply coming into the market. This implies that the equilibrium point (marginal rate of change going from positive to negative) may precede the demand/supply equilibrium point.

### INDUSTRIAL OCCUPANCY

Figure 5 shows that industrial occupancy rates averaged a low of 87.2 percent near the trough of the cycle (#2 instead of #1). Industrial occupancy rates reached their highest rate of 95.2 percent at #11, the cycle's peak. Occupancy rates declined during the down cycle back to 89.5 percent at #16. The industrial rental growth averages for 54 markets were low at the trough, but the growth pattern was erratic in the recovery phase, averaging positive growth rates at #1 and #2, then negative at #3 (due to some strong outliers). Rental growth became strong and positive at point #5 and through the rest of the growth phase of the cycle. The 4.6 percent growth at #6 is somewhat higher than inflation. The decrease at #8 is unique, followed by a major jump with the highest growth rate at #10 of 8.5 percent. Rental growth then declined from #10 to #11, the peak of the cycle--just as in the office markets--then steadily declined during the hypersupply and recession phases of the down-cycle. Rental growth at the LTOA #14 was similar to LTOA #6 at 4.6 percent and 4.8 percent respectively. Rental growth dropped below inflation after #14, and became negative again at #16. Thus, the data give moderate support to the rental growth

hypothesis in industrial markets, with some mixed results in the recovery phase where unexpected growth averages may be attributed to some outlier observations.

Figure 5



### PREDICTING FUTURE OCCUPANCY

The first decade in the new millennium will be different from the cycles of the last three decades, as the U.S. is in the longest economic expansion period in history. Most economists predict moderate but stable demand growth. The technology revolution is similar in opportunity and employment impact to the industrial revolution, but the major difference is that we now have a global economy instead of a national economy, and the magnitude of economic growth may be substantially greater than the past. What will “The New Economy” mean to real estate? The technology revolution has actually created more employment opportunities and the need for more space of many types. Technology employment has created major demand for office space, more efficient inventory control has caused demand for large warehouse space, land based retail continues to grow as people have more money to spend and apartments are in large demand from the

demographic wave of young people. People still need real estate to work, sleep, shop, eat and play.

The supply of space will be much more constrained than previous cycles for a number of reasons. First, the constraints on building have increased. Over the past two decades, the number of impact studies, permits and approvals necessary to build projects have more than tripled in cost and time. Environmental impact studies, traffic impact studies, storm water runoff management and other societal impacts must now be analyzed and mitigated before development approvals are given. The cost of construction labor and materials has increased at high rates and construction labor is now the hardest labor force in the country to find. Thus, producing new supply takes longer and is more expensive. A “start-up” development company is now much more difficult than it was in previous cycles and many of the major commercial developers have become long-term investors by turning their companies into REITs. Capital partners for developers are now much more return driven than they were in the past. Second, with public market and research monitoring of debt and equity capital flows, it will be much more difficult to justify new space without an analysis of existing competitive construction and user demand for existing space. We have already seen the public capital market reaction to potential excess supply in cities like Atlanta where new office construction projects were stopped in 1998 when Wall Street analysts downgraded REITs and CMBS issues that were investing in the Atlanta office and industrial markets. This monitoring by the capital markets let the Atlanta market move back to balance (peak/equilibrium point #11) within a year’s time, instead of going through an overbuilding boom bust cycle.

## MARKETS TODAY

The current market cycle is demonstrating how well the feedback loop of information available today is helping to slow construction in most markets around the U.S. Before the economic downturn and the failures in Dot.com businesses in 2001, the speculative bubble in technology caused an overly robust economy and unrealistically high demand for space. The markets reacted with much slower supply growth than the previous 1980's cycle. Although completions in 2001 come from starts in 2000, the starts for 2001 have dropped drastically, so there is a good chance that the over-supply of space in 2001 may be absorbed in 2002 if there is no further economic slowdown or recession. Thus this real estate cycle is being driven by declining demand, not by oversupply as in the late 1980s. It is possible that many real estate markets will return to equilibrium levels in 2002. This means there will be moderate but positive rental growth for owners to collect (after the speculative bubble rents of 2000 are removed from the trend). Thus, although rent in San Francisco reached an unsustainable peak of \$75/square foot at the end of 2000, \$57/square foot at year-end 2001 looks like good growth compared to a 1999 year-end rent of \$50. The milder and longer cycle also may mean that the high profits available when purchasing properties cheap at the bottom of a market cycle may be no longer be available as real estate markets become more efficient.

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