

Hotel Real Estate Markets

What we know.

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Hotels constitute just over 10% of all commercial real estate. Hess, McAllister, and Liang [2001] estimate that hotels represent 12% of the real estate investment universe by value. Despite this relatively insignificant proportion, attractive returns available on the upward side of the business cycle give hotels the allure of portfolio candy. The seduction of sweet returns from hotel acquisitions and development, however, sometimes is followed by a sour aftertaste.

A literature is emerging to focus on how hotel markets operate. The findings should help to guide real estate managers in avoiding hotel acquisition and development mistakes. In the absence of lease friction, hotel markets also offer an interesting laboratory for addressing market research issues on other property types, especially with respect to how space and asset markets respond to local and macroeconomic condition changes.

My objective is to consolidate what we know about hotel markets. Instead of producing a traditional review of the literature, I offer opinions on what has been learned about hotel market behavior, and also on what may be learned during the remainder of this decade.

Industry sources have helped meet hotel market research challenges. Smith Travel Research (STR), for example, began assembling comprehensive hotel industry statistics for the entire U.S. in 1987. Managers with various interests in hotel markets have access to demand, supply, average daily rate (ADR), and occupancy data covering virtually every local hotel market in the nation.

Perhaps more important, these data, together with hotel transaction databases and detailed construction information about current and planned activity developed by HVS International, Lodging Econometrics, PKF Hospitality Research, and STR/Dodge, reveal hotel market behavior through more than a complete market cycle as well as through a variety of conditions in the past 15 years, including:

- Two general economic recessions.
- Two wars.
- An unprecedented set of catastrophic events.
- Many localized events affecting travel and hotel market activity.

Improvements in data availability over the past two decades are equally impressive for other property types, such as office and retail. These improvements contribute to a general understanding of real estate market behavior. Hence, the views presented depend on reading and thinking about both hotel markets and markets for other property types.

HOTEL MARKETS—SPACE TO ASSETS

Modern approaches to property market analysis recognize that the market for non-securities real estate involves two distinct if highly interrelated markets—the market that uses real estate for the production of periodic income (the space market) and the market for capital assets (asset or capital market). This division occurs because property owners typically are not the users of the space, a condition that is no more evident than in the hotel markets.

In the past two decades, property investors have witnessed space and asset market fluctuations triggered by activities that occurred in both markets. The economic conditions experienced in 2001 and 2002 resemble the demand-based recessions of the early 1980s, with the added dimension of catastrophic events and war.

The academic and professional literature provides limited guidance for answering important empirical questions about how events in one of these markets affect performance in the other, such as the extent to which revenue swings translate into property value adjustments. O'Neill and Lloyd-Jones [2001, 2002] estimate how much hotel values declined following the 20% fall in hotel revenues during the recession and catastrophic event period of 2001 and 2002. They place the value loss due to changes

in revenue at approximately 5% to 10%.

This result agrees with Corcoran [2003], who concludes that property value losses during an economic downturn should not mirror revenue losses, because the discounted value of lost net rent during a short recession is small relative to the discounted value of net rent during the economic life of the property.

REAL ESTATE AND HOTEL MARKET EQUILIBRIUM

The asset market operates in equilibrium when values equal replacement costs, but as Hendershott [1996] shows, values in the asset market will equal replacement costs only when space market equilibrium conditions are satisfied. Space markets rarely achieve full occupancy, and therefore operate somewhat like labor markets in that the long-run equilibrium (natural) vacancy rate behaves much like the natural rate of unemployment. This assumption, supported by several decades of observation, suggests that the adjustment of rents and average daily rates to equilibrium levels can be explained by the difference between the natural vacancy (occupancy) rate and the actual vacancy (occupancy) rate and the rate of property expense inflation.

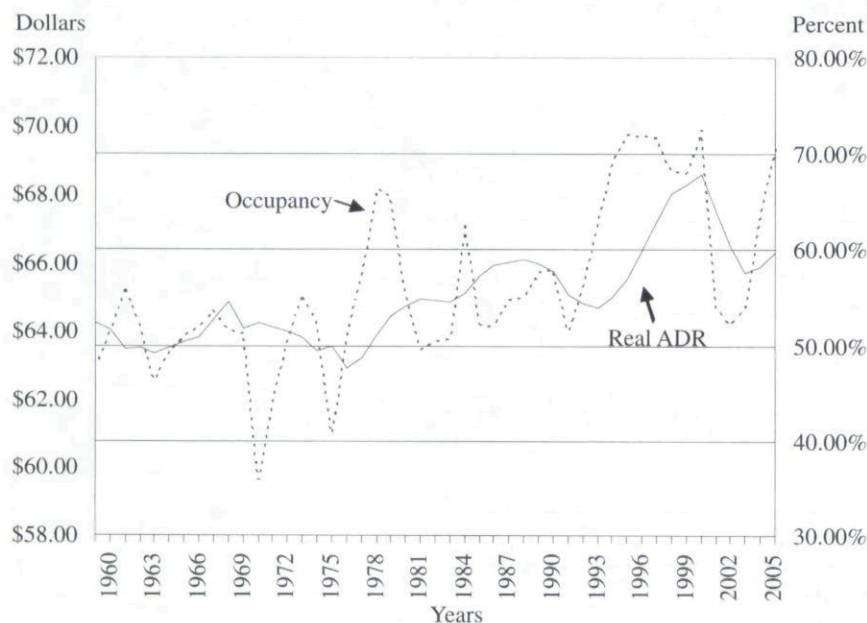
A number of studies use data from non-residential property markets to find that natural vacancy rates differ across geographic areas and property markets, and those differences are related to expected changes in the local demand for space. For hotel markets, deRoos [1999] shows how to apply the natural occupancy rate to quantify excess demand, and consequently identify supply and demand gaps that signal future hotel property development. He finds that all but one of the largest 24 MSAs in 1998 had a long-run need for additional supply.

Equilibrium Rent and ADR

Criticisms of the natural vacancy rate approach focus on its estimation in isolation from long-run equilibrium rent. Direct estimation of equilibrium rent is difficult, requiring the simultaneous estimation of several equations. The concept applies to equilibrium ADR in the same way it applies to equilibrium rent. Beyond the approaches used by analysts to back into the ADR that justifies construction, no research has appeared that formally estimates an equilibrium equation.¹

EXHIBIT 1

Historical Patterns of U.S. Hotel Occupancy and Real ADR 1959–2005



Source: PKF Hospitality Research.

Tobin's q and the Property Asset Market

The ratio of property value to replacement costs represents the key equilibrium concept in the asset market. This measure and its interpretations originate from Tobin's [1969] theory of fixed capital investment—Tobin's q . Extended to the case of real estate markets, when $q > 1$ in the asset market, property development occurs until q reaches unity.

The relationship between hotel property values and replacement costs received widespread attention in the popular press during the 1990s as the q -ratio dipped to below 0.5 and then recovered somewhat quickly to 1.0 and above. Analysts continue to watch the behavior of the hotel q -ratio in an effort to judge the level of future supply growth and acquisition opportunities.

In Corgel [1997] I adapt the q -ratio to real estate and provide cautionary notes to users about problems of interpretation and measurement of q -ratio components.

Equilibrium in Securitized Real Estate Markets

The analogue equilibrium principle to the q -ratio in the securitized real estate market is the relationship between share price (SP) and net asset value (NAV). This market reaches long-run equilibrium when the market capitalization of a firm equals the equity value of the

firm's assets (i.e., NAV times number of shares outstanding).

The NAV literature continues to grow each year, and most real estate investment trust analysts, including those who follow the 16 lodging REITs, rely on NAV premiums and discount information to evaluate public and private real estate market arbitrage opportunities.

CYCLING THROUGH TIME

Hotel market cycles are a well-recognized phenomenon. Smooth and regular fluctuations around an equilibrium level occur for two reasons.

First, there is a strong correlation between hotel demand and measures of national/local economic activity (e.g., real personal income and employment). Cyclical demand patterns in hotel market performance measures thus emanate from business cycle patterns.

Second, supply changes logically follow shifts in demand, although with long delivery lags. If the business cycle is smooth and construction responds predictably, the hotel market cycle will follow a correspondingly smooth path over time.²

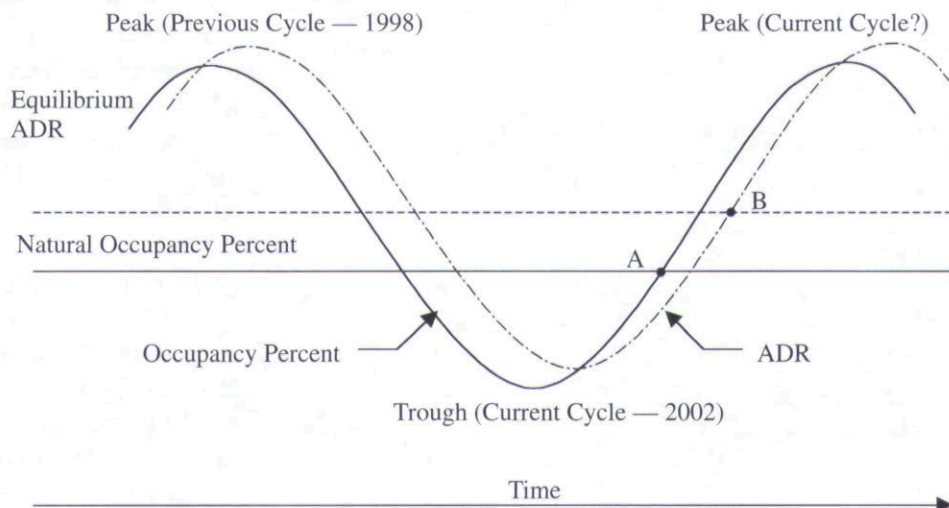
The abnormally wide swings in hotel market performance observed during recent decades occurred because of shocks to both the economy and hotel markets. These events impacted either the supply of hotel rooms, or the demand for hotel room nights, or both.

Exhibit 1 shows the cyclical patterns of occupancy and real ADR for U.S. hotels during the past few decades. Examination of these trends prompts several observations:

1. Occupancy follows a definite cyclical pattern. This pattern appeared to become smoother during the 1980s, and then became more volatile between the mid-1990s and the present, despite lower information costs.³
2. The pattern of real ADR also appears cyclical, with an upward trend.
3. During certain periods (1972–1974 and 1985–1987), occupancy and real ADR moved in opposite directions. These atypical and anomalous movements may be the result of particular federal government policies in place at those times.

EXHIBIT 2

Hotel Market Cycles



At point A market occupancy equals natural occupancy, and hotel managers become more raising room rates. At Point B market ADR equals equilibrium ADR, and construction becomes feasible.

Source: Corgel [1998].

4. Since the early 1990s, and for certain periods before 1990, occupancy leads ADR in both upward and downward directions.
5. The post-2002 recovery has occurred more quickly than many analysts expected.

MARKET PERFORMANCE THROUGH THE CYCLE

The economics of hotel markets suggest that occupancy represents the current relationship between demand and supply. Occupancy reaches levels above normal when demand exceeds supply (i.e., natural occupancy). During periods of abnormally high occupancy, ADR increases, causing occupancy to fall.

The economics of hotel markets also suggest that ADR represents the current relationship between demand and supply, and accordingly, ADR reaches levels above normal when demand exceeds supply (i.e., equilibrium ADR). Once ADR reaches and then exceeds the equilibrium level, development becomes feasible, and ADR and occupancy begin to stabilize as hotel construction satisfies the excess demand that drove occupancy above the natural level and ADR above the equilibrium level. As more rooms are added to the stock, occupancy and ADR fall.

Exhibit 2 graphs the hotel market cycle. The conceptualization incorporates some key assumptions. First, hotel markets generally follow the process explained above. Second, there is an inherent delay (i.e., delivery lag) between the time a shift in demand is realized and the time development, planning, and construction can be completed to meet the demand. Because of this lag and the fact that developers do not act simultaneously, supply growth continues after the change in demand is satisfied.

Finally, the hotel market process involves an observable, yet empirically unspecified, lag between occupancy change and ADR adjustment. As markets move from the peak of the cycle to the trough, such as during the recent cycle phase from 1998 to 2002, softness in demand forces hotel managers to reduce room rates in an effort to maintain occupancy. These actions retard the decline in occupancy during periods when demand drops.

The opposite of this process occurs as markets move from the trough of the cycle to the peak. An increase in the demand for hotel rooms causes immediate improvements in occupancy. The upward trend in occupancy is moderated as hotel managers begin to raise room rates, which begins as occupancy approaches the natural level of the market.

EVIDENCE ABOUT LAGS IN HOTEL MARKETS

Because market relationships seldom involve instantaneous adjustments, leads and lags among the variables that determine performance become important considerations for understanding how markets behave. Timing shapes hotel markets in several ways.

These are identified in a series of questions and answers.

1. How long does it take for hotel room demand to respond, given changes in key economic variables such as personal income and employment? As a luxury good, hotel room expenditures should be among the first to be cut from household and business budgets during periods of economic distress and among the last expenditures to be added during recovery. Hence, hotels are generally considered to lead in recession and lag in recovery. Conventional wisdom says that the response time is two quarters.

Hotel demand therefore should be quite sensitive to income. Estimates of income elasticity equal 1.2 and above (Wheaton and Rossoff [1998]).

Recent elasticity estimates of less than 1.0 by Canina and Carvell [2005] using property-level data cast doubt on the conventional wisdom. With respect to lags, an analysis of 1988–2002 STR data by TWR using the demand equation from an econometric model of the hotel market suggests that, although complete adjustment takes two quarters, 65% to 70% of the adjustment occurs in the initial quarter.

2. How long does it take for space market-to-property market adjustments to occur? No more than a quarter should be expected for a change in occupancy to be reflected in capitalization rates and no more than a two-quarter lag for changes in ADR to appear in capitalization rates. Most of the revenue effects were impounded into property values by the end of 2002 Q2 following the recession and catastrophic events of 2001 Q3.

3. How long is the delivery (i.e., construction) lag? Delivery lag has two components—the time it takes to decide and plan construction following the recognition of a shift in demand, and the actual construction period.

Delivery lags differ by type of hotel property. Both the decision and construction period lags for limited-service hotel development are far shorter than those for full-service hotels. This is the main reason limited-service property investment commands higher risk pre-

miums than full-service hotel investment (65–130 bp.). In general, the delivery lag for limited-service development projects equals one year and full-service development two or more years.

Another complicating factor is that not all developers begin and end the development processes at the same time, so the market delivery lag may exceed project-specific lag.

4. What is the delay between a change in market occupancy and ADR? The lead and lag relationship between occupancy and ADR is well grounded in theory (and apparent in Exhibit 1), but has not been subjected to rigorous empirical examination. This delay is likely a matter of weeks and will probably shorten as information costs decline. An analysis by PricewaterhouseCoopers, “Dating the Recent Industry Cycle” [2002], indicates that occupancy reached a peak during the current cycle in 2000 Q2, while ADR peaked in 2000 Q4.

5. How long is the hotel market cycle? Hotel market performance data examined over the past five decades demonstrate that the hotel market cycle is not as symmetrical as portrayed in Exhibit 2. Instead, the rise from trough to peak has been far more gradual than the decline from peak to trough.

As with recession and recovery in the general economy, hotel market performance erodes more rapidly than it improves. During the recent cycle, the upward movement from trough to peak occurred over a nine-year period (1991–2000), and the downward movement from peak to trough occurred from 2000 to 2002.

ARE HOTEL MARKETS MORE PRONE TO OVERBUILDING THAN OTHER PROPERTY TYPES?

The extensive literature on the real estate market oversupply issue offers plausible yet competing explanations of overbuilding:

1. *Government Policy*—The most severe oversupply conditions in the U.S. commercial real estate market occurred between 1980 and 1985. Prolonged construction in the presence of weak demand is traceable to two federal acts passed in the early 1980s that created a series of agency and moral hazard problems. Several authors, including Corcoran [1987], present evidence of market

disruptions associated with these laws.

2. *Investment Lag and Forecasting Accuracy Issues*—Because it takes years to deliver commercial property to the market, developers have difficulty predicting asset prices and rental paths to delivery dates. Asset durability and the investment lag endemic to real estate lead to cyclical extension and oscillation at the height of the cycle.

Wheaton [1999] and Hendershott [2000] provide evidence to support these explanations for continuation of construction during economic downturns.

3. *Development Option Exercise*—Developer behavior in exercising options either to move forward with projects or to delay actions also has been offered as an explanation of concentrations of supply growth at inopportune times. Early and universal development option exercise may occur either as developers attempt to avoid preemption by competitors (Grenadier [1996]), or for a variety of other reasons modeled by researchers.

Wang and Zhou [2000] show that early and simultaneous option exercise results from carrying cost (expensive land) avoidance and that the land-to-building cost ratio explains why some property types are more inclined to become overbuilt than others. They conclude that office and hotel markets are the most likely to experience development booms not supported by local economies because of the relatively high cost of holding land in inventory for these uses.

It has been nearly 20 years since U.S. hotel markets exhibited abnormal supply growth to the extent that these markets might be labeled overbuilt and threatening to financial stability. From the early 1990s through the early 2000s we experienced a complete cycle. Exogenous demand conditions arose during the middle and late 1990s that could have produced a substantial hotel supply overhang by 2002, but the supply side of commercial real estate markets remained disciplined. As demand weakened in the early 2000s, endogenous supply growth resulting from the types of developer behaviors that option theorists predict should have resulted in overbuilding, but did not.

Grenadier [1996, p. 1677] states that “sometimes markets sit idle for years and then blast off in a surge of construction.” Are the U.S. hotel markets in a prolonged idle state, with a surge in construction imminent, or are historical blastoffs simply manifestations of undisciplined and antiquated behaviors?

HOTEL CAPITALIZATION RATES ARE COUNTER-CYCLICAL

The ratio of property-level operating income and asset market pricing—the capitalization or cap rate—provides an important foundation for rational hotel investment and financing decisions, as it does for other types of real estate. Unlike other property types, both the numerator and the denominator of the ratio may experience sudden movements of differing extent, making hotel cap rate interpretations especially difficult.

Exhibit 3 presents a 12-year history of full-service hotel capitalization rates in the U.S. These rates appear to follow a counter-cyclical pattern. The highest rate of slightly above 12% occurred at the end of the early 1990s’ recession. The reported rate neared almost 12% during the recent recession, and then has declined to about 10% since 2002. Hotel cap rates moved downward and broke through the 10% barrier for several quarters in 1997 and 1998 when the economy was rapidly expanding.

In theory, hotel cap rates should conform to a counter-cyclical pattern because hotel property values logically decline (rise) as incomes fall (increase). The same historical pattern of cap rates emerges for other property types.

As Corcoran [2003] concludes, a counter-cyclical pattern of cap rates for leased properties provides evidence of undisciplined markets. The recent firming of property prices at the bottom of the business cycle indicates disciplined markets and mean-reversion expectations for net operating income as leases roll over. If real estate markets continue to exhibit disciplined behavior, hotel cap rates will continue to be counter-cyclical, and other property cap rates will follow pro-cyclical paths.

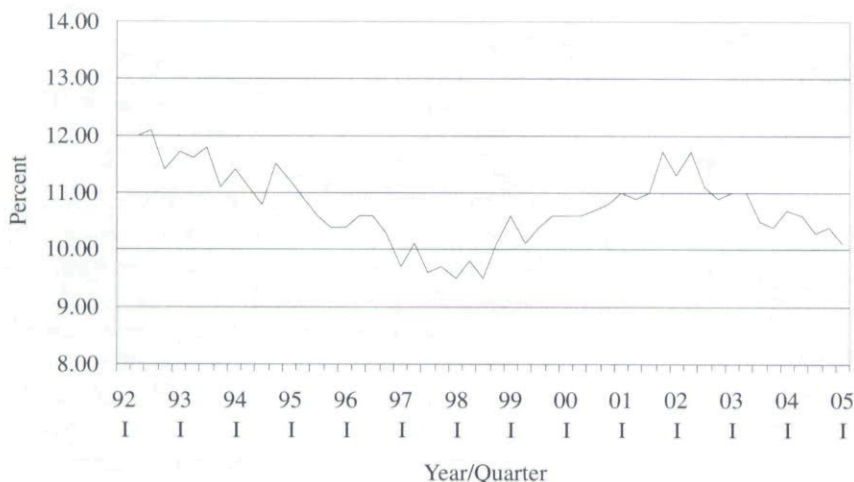
Spreads Remain Wide

Another perspective on hotel cap rates comes from examining historical spreads relative to other capital market rates. Exhibit 4 shows hotel cap rates minus ten-year Treasuries and Moody’s Baa corporate bond series since 1992. As with rate levels, the spreads appear counter-cyclical. This means that hotel risk premiums move, as they should, above the long-run average during recession and below the average during periods of economic expansion.

Average spreads since 1992 equal 508 basis points above ten-year Treasuries and 294 bp over Moody’s Baa bonds. In 2005 Q1, hotel cap rate spreads exceeded the average for the historical period. The current spreads

EXHIBIT 3

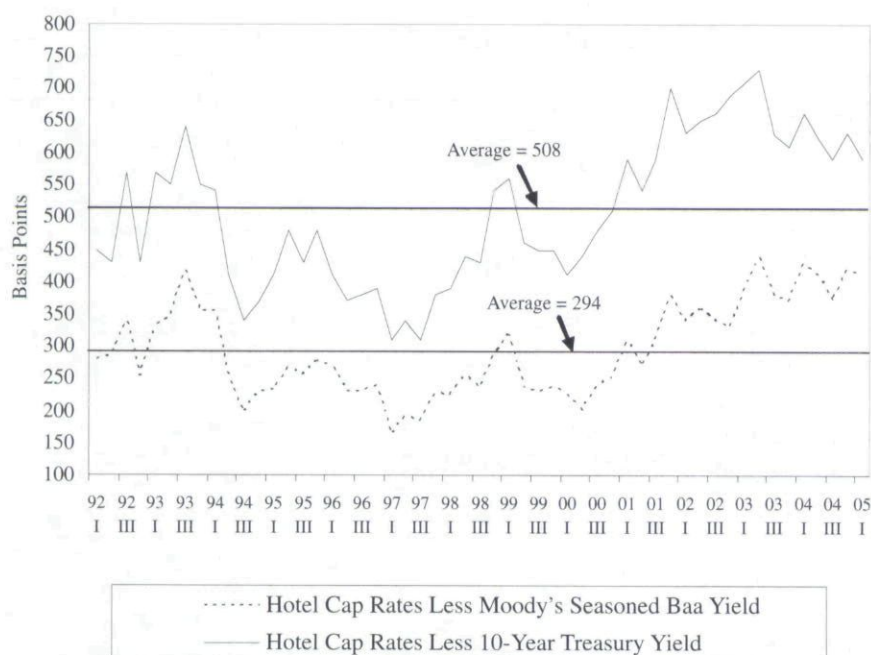
Hotel Capitalization Rates 1992 Q1 – 2005 Q1



Source: Real Estate Research Corporation.

EXHIBIT 4

Spreads Between Hotel Property Capitalization Rates and Selected Capital Market Rates 1992 Q1 – 2005 Q1



Source: RERC, Federal Reserve.

between hotel cap rates and capital market benchmarks indicate that these rates could fall by more than a few bp, given the assumption that spreads will realign with historical average spreads.

Judging the Direction of Hotel Cap Rates

If income is assumed to grow at a constant rate, then the cap rate, R , equals the discount rate, r , minus the assumed growth rate, g . In an equation:

$$R = r - g \quad (1)$$

The discount rate equals a risk-free rate plus a return premium for risk, which represents the expected volatility of the income stream. In equation form:

$$r = r_f + r_p \quad (2)$$

and

$$R = (r_f + r_p) - g \quad (3)$$

Simultaneous changes in its components cause R to change, sometimes in unpredictable ways. This problem is exacerbated during unstable times, such as the early 2000s. Tracking the directional pattern of R and attempting to judge turning points requires an understanding of how and why the components of R change.

The discount rate changes in accordance with the direction and the extent of changes in its two components, r_f and r_p . Suppose the alternative market conditions: 1) r increases because one or both components increase and neither declines; 2) r declines because one or both components declines and no component increases; and 3) ambiguous changes in discount rates occur because of the opposite directional changes of the components.

When the last of these alternative conditions occurs, knowing the prevailing direction of changes in the components of r is not enough because the relative extent of the changes in r_f and r_p must be known to predict the future direction of r .

Is it likely that r_f and r_p will move in opposite directions? The answer is a *qualified* yes. Component r_f changes with macroeconomic movements, including fiscal and monetary policy changes. Component r_p adjusts as the risk of the specific asset class adjusts. A substantial portion of the change occurs because of asset class repricing due to changes in the risk *relative* to other asset classes.

Consequently, interest rates may fall while the relative risks of a particular asset class increase, as long as the assets' incomes are not entirely fixed over the long run (i.e., a pure bond). Hotel asset income streams are the least similar to bond incomes among property types. Thus, the pricing of hotel assets should be less interest rate-sensitive than office, retail, and other unsecuritized real estate investments, and more aligned with movements in the risk premium.

WHAT WE SOON MAY LEARN

The natural progression of knowledge that has occurred over recent decades about hotel market behavior suggests that, even if market activity remains as it is today over the next five years, considerable new knowledge will accumulate. Market participants, of course, never stop reacting to information produced by events that occur in the world, and, because of the position in the cycle hotel markets now occupy, we appear to have a substantial opportunity to improve our knowledge base and predictive ability, going forward.

Some real estate market observers—Corcoran [2003] is one—advance the idea that a combination of learned behavior and lower information costs will produce more vigilant capital markets than in the recent past and generally smoother cycles. I would be surprised, given the availability of detailed construction data today, if the hotel markets were to experience the future wide swings in construction activity and property prices that occurred during the last two decades. As hotel demand continues to exceed supply in many important MSA markets, we will soon learn more about how this market behaves at a peak in the cycle.

Most of what we will learn about hotel markets during the next five years involves the timing of behaviors in a particular market and the connections of behaviors across markets. For example, by 2008 we will know a lot more about the lead and lag relationships I have noted.

Analysts today are quite focused on how hotel market demand reacts to changing conditions in the general economy, as well as those in local MSA economies. Strong recovery of hotel markets since 2002 dispels the idea that

lodging demand can be permanently disabled by catastrophic events and war.

ENDNOTES

This work draws on and sometimes quotes Corgel [1997, 2003].

¹Practitioners back into estimates of the ADR that justify construction using an algorithm called the Hubbart formula.

²See Mueller [2002] for a review of the real estate cycle literature. Wheaton and Rossoff [1998] is the seminal work on hotel market cycles.

Torto and Wheaton [2002] question the presence of a hotel market cycle when supply responds predictably to demand changes originating in the business cycle. They argue that the pattern of hotel construction observed during recent decades suggests that this cycle is instead endogenous (i.e., supply has a mind of its own).

³In 1988, Smith Travel Research began regular and public reporting of hotel rooms available, rooms sold, and ADR for the U.S. and local markets. The availability of these data enabled hotel managers to begin making better decisions about room pricing in response to changing demand.

REFERENCES

- Canina, L., and S. Carvell. "Lodging Demand for Urban Hotels in Major Metropolitan Markets." Forthcoming, *Journal of Hospitality and Tourism Management*, 2005.
- Corcoran, P.J. "Explaining the Commercial Real Estate Market." *The Journal of Portfolio Management*, 13 (Spring 1987), pp. 15-21.
- . "Firming Property Prices and Weak Cash Flows." *The Journal of Portfolio Management*, Special Issue 2003, pp. 35-44.
- Corgel, J.B. "How to Determine the Future Direction of Hotel Capitalization Rates." *Real Estate Issues*, 28 (Winter 2003), pp. 44-48.
- . "Real Estate q." Working paper, Real Estate Research Institute, 1997.
- "Dating the Recent Industry Cycle." PricewaterhouseCoopers, *Hospitality Directions*, August 2002, pp. 47-53.
- deRoos, J.A. "Natural Occupancy Rates and Development Gaps." *Cornell Hotel and Restaurant Administration Quarterly*, 40 (April 1999), pp. 14-22.

Grenadier, S. "The Strategic Exercise of Options: Development Cascades and Overbuilding in Real Estate Markets." *Journal of Finance*, Vol. 51, No. 5 (1996), pp. 1653-1679.

Hendershott, P. H. "Property Asset Bubbles: Evidence from the Sydney Office Market." *Journal of Real Estate Finance and Economics*, Vol. 20, No. 1 (2000), pp. 67-81.

———. "Valuing Properties when Comparable Sales do not Exist and the Market is in Disequilibrium." *Journal of Property Research*, 13 (1996), pp. 57-66.

Hendershott, P.H., and E. Kane. "Causes and Consequences of the 1980s Commercial Construction Boom." *Journal of Applied Corporate Finance*, Vol. 5 (1992), pp. 61-70.

Hess, R.C., R McAllister, and Y. Liang. "Hotel Property Investing: An Overview." Prudential Real Estate Investors, April 2001.

Mueller, G. "What Will the Next Real Estate Cycle Look Like?" *Journal of Real Estate Portfolio Management*, Vol. 8, No. 2 (2002), pp. 115-125.

O'Neill, J.W., and A.R. Lloyd-Jones. "Hotel Values in the Aftermath of September 11, 2001." *Cornell Hotel and Restaurant Administration Quarterly*, 42 (December 2001), pp. 10-21.

———. "Hotel Values and Strategic Implications." *Cornell Hotel and Restaurant Administration Quarterly*, 43 (December 2002), pp. 53-64.

Tobin, J. "A General Equilibrium Approach to Monetary Theory." *Journal of Money, Credit and Banking*, 1 (November 1969), pp. 15-27.

Torto, R.G., and W.C. Wheaton. "Real Estate Cycles and Outlook 2002." Torto Wheaton Research, 2002.

Wang, K., and Y. Zhou. "Overbuilding: A Game-Theoretic Approach." *Real Estate Economics*, Vol. 28, No. 3 (2000), pp. 493-522.

Wheaton, W. "Real Estate 'Cycles': Some Fundamentals." *Real Estate Economics*, Vol. 27, No. 2 (1999), pp. 209-230.

Wheaton, W., and L. Rossoff. "The Cyclic Behavior of the U.S. Lodging Industry." *Real Estate Economics*, Vol. 26, No. 1 (1998), pp. 67-82.

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