First Quarter 2015: March Madness: Hotels Remain Hot

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First Quarter 2015: March Madness: Hotels Remain Hot

Abstract
The borrowing cost of debt financing continues to remain stable, while the cost of equity financing has declined relative to the previous period. Mixed signals exist as to the future direction in the price of large hotel properties near term but prices for small hotel properties should continue to rise in the next quarter. We continue to hope that operating performance as measured by EVA will finally become positive at best and or continue to remain at breakeven at worst. This is report number 14 of the index series.

Keywords
Cornell, standard unexpected price (SUP), hotel indices, interest rate spreads, hotel investments, HOTVaL

Disciplines
Real Estate

Comments
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Supplemental File:
Hotel Valuation Model (HOTVAL) We provide this user friendly hotel valuation model in an excel spreadsheet entitled HOTVAL Toolkit as a complement to this report which is available for download from http://scholarship.sha.cornell.edu/creftools/1/
EXECUTIVE SUMMARY

The borrowing cost of debt financing continues to remain stable, while the cost of equity financing has declined relative to the previous period. Mixed signals exist as to the future direction in the price of large hotel properties near term but prices for small hotel properties should continue to rise in the next quarter. We continue to hope that operating performance as measured by EVA will finally become positive at best and or continue to remain at breakeven at worst. This is report number 14 of the index series.
Hotel Investment Based on Operating Performance Continues to Remain Stable. Our Economic Value Added (EVA) indicator shown in Exhibit 1 continues to remain in the black (breakeven). Although it dipped slightly from -.246% in 2014Q3 to -.251% in 2014Q4, the hotel EVA is still approximately zero. Looking under the hood, not only have hotel cap rates declined from 6.4% (2014Q3) to 5.8% (2014Q4), but also the weighted average borrowing cost (the average debt financing and equity financing used on a hotel deal) has also declined from 6.7% (2014Q3) to 6.0% (2014Q4). If this trend continues into positive territory (that is, EVA is positive), hotel investors will finally start to make a profit from hotel operations in addition to the sale of the property.
**Exhibit 1**

**Economic value added (EVA) for hotels**

Sources: ACLI, Cornell Center for Real Estate and Finance, NAREIT, Federal Reserve

**Exhibit 2**

**Median sale price and number of sales for high-price hotels (sale prices of $10 million or more)**

Sources: CoStar, Real Capital Analytics
Hotel Transaction Volume Increases Year over Year, But Not Necessarily Median Price. The total volume of all hotel transactions (both large hotels and small hotels combined) continued to fall in the first quarter from the previous quarter, decreasing 17.9% (2014Q4 to 2015Q1) from an 11.1% drop (2014Q3 to 2014Q4) in the earlier quarter. On a year-over-year basis, however, the hotel transaction volume rose 12.2% (2014Q1 to 2015Q1) compared to a 3.1% decline (2013Q4 to 2014Q4) in the prior period. With respect to large versus small hotels, the volume of large hotel transactions rose 7.9%, while small hotel transaction volume fell 26.2% from the previous quarter. The transaction volume for large hotels rose 17.1% while small hotel transaction volume gained 10.1% on a year-over-year basis.

Consistent with transaction volume, the median price for large hotels rose 44.6% on a year-over-year basis. In contrast, the median price for small hotels fell 2.7%, while experiencing higher transaction volume on a year-over-year basis. On a quarter-over-quarter basis, large hotels experienced a 3% decline, while smaller hotels suffered a .4% loss. Exhibit 2 and Exhibit 3 show a positive year-over-year trend in the number of transactions for large hotels and small hotels.

Déjà Vu All Over Again, Again. Looking at repeat sales, hotel prices continue to behave in a similar manner relative to the 2003Q1 to 2010Q2 cycle. Exhibit 4 provides...
### Exhibit 4

**Hotel indices through 2015, quarter 1**

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<th>Hedonic Value</th>
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the price index for the repeat hotel sales used to construct our RSI cycle analysis in Exhibit 5 together with the hedonic price indices for small and large hotels. Exhibit 5 continues to confirm our prior findings based on cycle analysis.

Prices of Large and Small Hotels Have Both Risen, as Has Our Standardarized Unexpected Price Metric. Exhibit 6 shows that prices for the large-hotel and small-hotel indices have risen regardless of whether prices are evaluated on a year-over-year or quarter-over-quarter basis. Year-over-year, large hotels have experienced a 3.3% increase in price while smaller hotels have gained 3.8%. Looking at quarter-over-quarter prices, which reflect a more recent perspective, the price appreciation from large hotels exceeds that of smaller hotels (4.6% vs. 1%). Our new Standardarized Unexpected Price (SUP) metric gives a confirmatory signal. Exhibit 7 shows that high priced hotels turned up significantly in the first quarter of 2015, although the SUP’s positive price momentum has not yet crossed the upper confidence band, which means this is not a statistically significant price “surprise.” Another way of interpreting the rise in the SUP for large hotels is that the rise in price relative to its historical moving average price is greater than the historical volatility of prices although again the rise is not yet a “statistical surprise.” Exhibit 8 provides further confirmation that the large-hotel index has increased on a year-over-year basis.

Consistent with large hotels, the SUP indicator for smaller hotels also shows that price for smaller hotels continues to be above its moving average (see Exhibit 9). The difference between the current price and its historical average price is greater than its historical price volatility, although this divergence is not yet statistically significant (since it hasn’t crossed above the dashed 90% positive confidence band). Exhibit
Exhibit 6

Hedonic hotel indices for high-price and low-price hotel transactions

Exhibit 7

Standardized unexpected price (SUP) for high-price hotel index

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics
**Exhibit 8**

Year-over-year change in high-price hotel index, with moving-average trendline

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

**Exhibit 9**

Standardized unexpected price (SUP) for low-price hotel index

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics
Repeat Sales Remain Above Historical Averages Year over Year. The SUP indicator for repeat hotel sales in Exhibit 11 has declined slightly. A closer look at the numerator and denominator of the index shows that although the current repeat sale price continues to increase faster than that of its (moving) average, the historical price volatility has also risen, resulting in a slight decline in SUP. Exhibit 12 provides an alternative perspective of the price momentum in the repeat sales. The index shows that the repeat sale prices rose on a year-over-year basis, although the increase was not as large as the price increase in the prior year-over-year period.

Cap Rates Have Compressed. For the fourth quarter of 2014, the latest quarter for which ACLI reports data on hotel cap rates, cap rates declined from 6.41% in 2014Q3 to 5.8% in 2014Q4. Since the rate on the ten-year Treasury bond

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2 We report two repeat sale indices. The repeat sale full sample index uses all repeat sale pairs whereas the repeat sale index with a base of 100 at 2000Q1 uses only those sales that occurred on or after the first quarter of 2000. In other words, the latter repeat sale index thus doesn’t use information on sales prior to the first quarter of 2000. As such, if a hotel sold in 1995 and then sold again in 2012, it would be included in the first repeat sale index e.g., repeat sale full sample index but it would not be included in the latter repeat sale index.
Exhibit 11

Standardized unexpected price (SUP) for repeat-sale hotels

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

Exhibit 12

Year-over-year change in repeat-sale index, with moving-average trendline

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics
Exhibit 13

Decomposition of ACLI hotel capitalization rates into risk premium and risk-free rate

Sources: ACLI, Cornell Center for Real Estate and Finance

(constant maturity) also declined from 2.5% to 2.3%, Exhibit 13 shows that the hotel cap rate spread over the ten-year Treasury declined from 3.91% to 3.47%. Hotel investors thus appear to demand less compensation due to lower perceived risk.

Mortgage Financing Volume Has Risen, Year over Year. Exhibit 14 shows that the mortgage origination volume for hotels as reported for 2014Q4 is 10.9% greater than the previous year (2013Q4). This compares to a 4.3% year-over-year increase (2013Q3 relative to 2014Q3) in the previous quarter. The rise in loan volume is consistent with the relatively higher loan-to-value (LTV) ratio for hotels, which has remained at 65% since the first quarter of 2012. The last time that LTV was this high or higher was prior to the commercial real estate market crash.

Cost of Debt Financing Has Remained Relatively Flat, although the Relative Risk Premium for Hotels Continues to Decline. The cost of obtaining hotel financing continues to remain relatively constant since July 2013 (see Exhibit 15), when the interest rate was at 4.81% for Class A hotels and 5.06% for B&C properties. Interest rose only 2 basis points (.02%) from December 2014 to March 2015. More specifically, the interest rates on Class A hotels rose from 4.55% to 4.57%, and from 4.75% to 4.77% for Class B&C hotels. These rates are similar to those reported in March 2013. Exhibit 16 and Exhibit 17 depict interest rate spreads relative to different benchmarks. Exhibit 16 shows the spread of Class A (and B&C) interest rates on full-service hotels over the ten-year Treasury bond. On this metric, interest rate spreads have remained relatively flat.
Exhibit 14

Mortgage origination volume versus loan-to-value ratio for hotels

Exhibit 15

Interest rates on Class A hotels versus Class B & C properties
Exhibit 16

Interest-rate spreads of hotels versus U.S. Treasury ten-year bonds

Exhibit 17

Interest-rate spreads of hotels versus non-hotel commercial real estate

Sources: Cushman Wakefield Sonnenblick Goldman
over the last three quarters indicating that the lenders have not demanded additional compensation for risk associated with lending on hotels. Exhibit 17 shows the spread for the interest rate on Class A (and B&C) full-service hotels over the interest rate corresponding to non-hotel commercial real estate. This spread represents the hotel real estate risk premium. The hotel real estate premiums for both higher quality (.48%) and lower quality (.58%) hotels have declined relative to the previous two quarters. The premium was .53% for high-quality properties and .63% for lower properties in 2014Q4, and .65% (high) versus .75% (low) for 2014Q3. The fall in the premium in the most recent quarter is a signal that the perceived default risk for hotel properties has narrowed relative to other commercial real estate (see Exhibit 17). The continued decline in the ten-year treasury rate is the reason why we have not seen an increase in the cost of borrowing debt.

**Cost of Equity Financing Continues to Be Low, But Expect to See Interest Rates for Hotel Financing Increase More Relative to Other Commercial Real Estate in the Near Future.** The cost of using equity financing for hotels continues to diminish, as measured using the Capital Asset Pricing Model (CAPM) on hotel REIT returns (shown in Exhibit 18). The cost of using equity funds is currently at 9.88% for 2014Q4, down from 11.21% in the previous quarter (2014Q3) and down from 14.78% in the previous year (2013Q4). This lower cost is due to a reduction in the systematic risk (beta) of hotel REITs. In terms of total risk (systematic risk + risk that is unique to hotel REITs), the total risk of Hotel REITs continues to rise faster than the
total risk of equity REITs in general, as depicted in Exhibit 19. 4 As the total risk of hotel REITs increases relative to the total risk for equity REITs, we expect to see interest rates on hotel financing rise relative to other property types due to the increased likelihood of hotel defaults.5

Mixed Signals Exist on the Future Direction in the Price of Large Hotels, but Expect the Price of Small Hotels to Rise—According to the Tea Leaves. Exhibit 20 compares

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4 We calculate the total risk for hotel REITs using a 12 month rolling window of monthly return on hotel REITs.
5 For further details please refer to: Jan A. deRoos, Crocker H. Liu, and Andrey D. Ukhov, “A New ‘Canary’ for Hotel Mortgage Market Distress, Cornell Hospitality Report, Vol. 14, No. 21; Cornell Center for Hospitality Research.
the performance of the repeat sales index relative to the NAREIT Lodging/Resort Price Index. The repeat sales index tends to lag the NAREIT index by at least one quarter or more. This is consistent with academic studies which find that securitized real estate is a leading indicator of underlying real estate performance. This occurs because the stock market is forward looking and relatively efficient. Looking ahead, the NAREIT lodging index lost momentum, falling 5.3% this quarter after experiencing a 15.5% rise in the prior quarter. Year over year, however, the NAREIT lodging index is up 15.7%, and in the previous quarter it was up 28% on a
The architecture billings index (ABI) for commercial and industrial property, which represents another forward looking metric, rose slightly in this quarter (2015Q1), continuing its upward climb from the prior quarter (2014Q4) (shown in Exhibit 21). In contrast to these year-over-year basis.

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6 www.aia.org/practicing/economics/aisd076265

7 We used the May ABI index as reported on June 19, 2013 since the June ABI index will be reported after the writing of this report. The ABI anticipates non-residential construction activity by approximately 9-12 months. According to material posted on their website, “The indexes are developed from the monthly Work-on-the-Boards survey panel where participants are asked whether their billings increased, decreased, or stayed the same in the month that just ended. According to the proportion of respondents choosing each option, a score is generated, which represents an index value for each month.”
indicators, the National Association of Purchasing Managers (NAPM) index,8 which is an indicator of anticipated business confidence and thus business traveler demand declined this quarter both on a quarter-over-quarter basis (-7.5%) and also on a year-over-year basis (-1.7%), as shown in Exhibit 22. While the absolute level of the index continues to remain above 50 as it has since 2009Q3 (52.6 this quarter), indicating continued strength in the manufacturing sector, we do have some concern as to whether it will continue to remain above 50.

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8 The ISM: Purchasing Managers’ Index, (Diffusion index, SA) also known as the National Association of Purchasing Managers (NAPM) index is based on a survey of over 250 companies within twenty-one industries covering all 50 states. It not only measures the health of the manufacturing sector but is a proxy for the overall economy. It is calculated by surveying purchasing managers for data about new orders, production, employment, deliveries, and inventory, in descending order of importance. A reading over 50% indicates that manufacturing is growing, while a reading below 50% means it is shrinking.
Finally, the Consumer Confidence Index from the Conference Board, graphed in Exhibit 23, which we use as a proxy for anticipated consumer demand for leisure travel and a leading indicator of the hedonic index for low priced hotels (<$10 million), continued to rise in March (blue line) to 101.3, an 8.8% increase on a quarter-over-quarter basis and a 20.7% increase year over year. This suggests that we should expect the price of small hotels to continue to increase next quarter.

Hotel Valuation Model (HOTVAL) Has Been Updated. We have updated our hotel valuation regression model to include the transaction data used to generate this report. We provide this user friendly hotel valuation model in an Excel spreadsheet entitled HOTVAL Toolkit as a complement to this report which is available for download from our CREF website.
Appendix

SUP: The Standardized Unexpected Price Metric

The standardized unexpected price metric (SUP) is similar to the standardized unexpected earnings (SUE) indicator used to determine whether earnings surprises are statistically significant. An earnings surprise occurs when the firm’s reported earnings per share deviates from the street estimate or the analysts’ consensus forecast. To determine whether an earnings surprise is statistically significant, analysts use the following formula:

\[ SUE_Q = \frac{A_Q - \mu_Q}{\sigma_Q} \]

where \( SUE_Q \) = quarter Q standardized unexpected earnings,
\( A_Q \) = quarter Q actual earnings per share reported by the firm,
\( \mu_Q \) = quarter Q consensus earnings per share forecasted by analysts in quarter Q-1, and
\( \sigma_Q \) = quarter Q standard deviation of earnings estimates.

From statistics, the \( SUE_Q \) is normally distributed with a mean of zero and a standard deviation of one (~N(0,1)). This calculation shows an earnings surprise when earnings are statistically significant, when \( SUE_Q \) exceeds either ±1.645 (90% significant) or ±1.96 (95% significant). The earnings surprise is positive when \( SUE_Q > 1.645 \), which is statistically significant at the 90% level assuming a two-tailed distribution. Similarly, if \( SUE_Q < -1.645 \) then earnings are negative, which is statistically significant at the 90% level. Intuitively, SUE measures the earnings surprise in terms of the number of standard deviations above or below the consensus earnings estimate.

From our perspective, using this measure complements our visual analysis of the movement of hotel prices relative to their three-year and five-year moving average (\( \mu \)). What is missing in the visual analysis is whether prices diverge significantly from the moving average in statistical terms. In other words, we wish to determine whether the current price diverges from at least one standard deviation from \( \mu \), the historical average price. The question we wish to answer is whether price is reverting to (or diverging from) the historical mean. More specifically, the question is whether this is price mean reverting.

To implement this model in our current context, we use the three- or five-year moving average as our measure of \( \mu \) and the rolling three- or five-year standard deviation as our measure of \( \sigma \). Following is an example of how to calculate the SUP metric using high price hotels with regard to their three-year moving average. To calculate the three-year moving average from quarterly data we sum 12 quarters of data then divide by 12:

Average (\( \mu \)) = \( \frac{70.6 + 63.11 + 58.11 + 95.54 + 95.24 + 99.70 + 108.38 + 99.66 + 101.62 + 105.34 + 109.53 + 115.78}{12} \) = 93.13

Standard Deviation (\( \sigma \)) = 18.99

Standardized Unexp Price (SUP) = \( \frac{115.78 - 93.13}{18.99} \) = 1.19
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