Second Quarter 2015: Hotel Deals Are Getting Harder to Pencil Out

Crocker H. Liu
*Cornell University School of Hotel Administration, chl62@cornell.edu*

Adam D. Nowak
*West Virginia University*

Robert M. White Jr

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Second Quarter 2015: Hotel Deals Are Getting Harder to Pencil Out

Abstract
Hotel Investment based on operating performance has turned red. Our Economic Value Added (EVA) indicator shown in Exhibit 1 has turned negative, declining from -.6% (near zero; breakeven) to -1.8% in 2014Q1. What is more alarming is that the hotel cap rate (5.7%) is approximately equal to the cost of debt financing (5.6%) for hotels financed by large life insurance companies, as shown in Exhibit 2. Intuitively, the cap rate represents the return on hotel properties assuming all-equity financing. The use of debt financing is used to magnify the return to hotel properties. For positive leverage (return magnification) to occur, the cap rate should exceed the cost of debt financing, meaning that your return should be greater than your borrowing cost. We will show that the current situation arises because of cap rate compression (a decline in the cap rate) due to a rise in hotel prices. In summary, what these two exhibits suggest is that financial feasibility is becoming more tenuous and investors are having a harder time getting a potential hotel investment to “pencil out.”

Keywords
Cornell, real estate, hotel prices, Standardarized Unexpected Price (SUP), 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/
Hotel deals appear to be getting harder to pencil out, given cap rate compression to the point where cap rates are almost similar to the borrowing cost of debt financing—a situation that makes positive leverage more difficult to achieve. The primary driver underlying the decline in cap rates is the price of large and small hotels reaching new statistically significant highs based on our Standardized Unexpected Price (SUP) metric. We do not expect this level of price frothiness to be sustainable. All three forward looking indicators suggest that the price of large hotel properties should decline. However, prices for small hotel properties should continue to rise in the next quarter. This is report number 15 of the index series.
ABOUT THE AUTHORS


Adam D. Nowak, Ph.D., is an assistant professor of economics at West Virginia University. He earned degrees in mathematics and economics at Indiana University – Bloomington in 2006 and a degree in near-east languages and cultures that same year. He received a Ph.D. from Arizona State University last May. Nowak taught an introduction to macroeconomics course and a survey of international economics at Arizona State. He was the research analyst in charge of constructing residential and commercial real estate indices for the Center for Real Estate Theory and Practice at Arizona State University. Nowak’s research has been published in the Journal of Real Estate Research.

Robert M. White, Jr., CRE, is the founder and president of Real Capital Analytics Inc., an international research firm that publishes the Capital Trends Monthly. Real Capital Analytics provides real time data concerning the capital markets for commercial real estate and the values of commercial properties. Mr. White is a noted authority on the real estate capital markets with credits in the Wall Street Journal, Barron’s, The Economist, Forbes, New York Times, Financial Times, among others. He is the 2014 recipient of the James D. Landauer/John R. White Award given by The Counselors of Real Estate. In addition, he was named one of National Real Estate Investor Magazine’s “Ten to Watch” in 2005, Institutional Investor’s “20 Rising Stars of Real Estate” in 2006, and Real Estate Forum’s “10 CEOs to Watch” in 2007. Previously, Mr. White spent 14 years in the real estate investment banking and brokerage industry and has orchestrated billions of commercial sales, acquisitions and recapitalizations. He was formerly a managing director and principal of Granite Partners LLC and spent nine years with Eastdil Realty in New York and London. Mr. White is a Counselor of Real Estate, a Fellow of the Royal Institution of Chartered Surveyors and a Fellow of the Homer Hoyt Institute. He is also a member of numerous industry organizations and a supporter of academic studies. Mr. White is a graduate of the McIntire School of Commerce at the University of Virginia.

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Disclaimer
The Cornell hotel indices produced by The Center for Real Estate and Finance at the School of Hotel Administration at Cornell University are provided as a free service to academics and practitioners on an as-is, best-effort basis with no warranties or claims regarding its usefulness.
Hotel Investment based on operating performance has turned red. Our Economic Value Added (EVA) indicator shown in Exhibit 1 has turned negative, declining from -0.6% (near zero; breakeven) to -1.8% in 2014Q1. What is more alarming is that the hotel cap rate (5.7%) is approximately equal to the cost of debt financing (5.6%) for hotels financed by large life insurance companies, as shown in Exhibit 2. Intuitively, the cap rate represents the return on hotel properties assuming all-equity financing. The use of debt financing is used to magnify the return to hotel properties. For positive leverage (return magnification) to occur, the cap rate should exceed the cost of debt financing, meaning that your return should be greater than your borrowing cost. We will show that the current situation arises because of cap rate compression (a decline in the cap rate) due to a rise in hotel prices. In summary, what these two exhibits suggest is that financial feasibility is becoming more tenuous and investors are having a harder time getting a potential hotel investment to “pencil out.”

Hotel transaction volume declined year over year, but median price increased. The total volume of all hotel transactions (both large hotels and small hotels combined) rose in the second quarter from the previous quarter,
Exhibit 1

Economic value added (EVA) for hotels

Exhibit 2

Return on investment capital versus cost of debt financing
Exhibit 3

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

Sources: CoStar, Real Capital Analytics

Exhibit 4

Median sale price and number of sales for low-price hotels (sale prices of less than $10 million)

Sources: CoStar, Real Capital Analytics
### Exhibit 5

**Hotel indices through 2015, quarter 2**

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increasing 5.1% (2015Q1 to 2015Q2) compared to a 18.2% (2014Q4 to 2015Q1) decline in the earlier quarter. On a year-over-year basis, however, the hotel transaction volume declined 16.5% (2014Q2 to 2015Q2) compared to a 48.4% increase in the prior period (2013Q2 to 2014Q2). With respect to large versus small hotels, the volume of large hotel transactions rose 6.2% while small hotel transaction volume rose 4.6% from the previous quarter. On a year-over-year basis, the transaction volume for large hotels rose 1.2%, while small hotel transaction volume declined 22.8%.

Consistent with transaction volume, the median price for large hotels rose 4.6% on a year-over-year basis. In contrast, even though the median price for small hotels also rose, increasing 23.7%, small hotels experienced lower transaction volume on a year-over-year basis. On a quarter-over-quarter basis, large hotels experienced a 5.8% decline, while smaller hotels gained 11.5%. Exhibit 3 shows a positive year-over-year trend in the number of transactions for large hotels, and Exhibit 4 shows the trend for small hotels.

In summary, hotel transaction volume has risen for large hotels but has declined for small hotels on a year-over-year basis. In contrast, hotel transaction volume has risen for both large hotels and small hotels on a quarter-over-quarter basis. The median price for large hotels appears to have increased year over year but not quarter over quarter. For smaller hotels positive momentum exists in median price regardless of whether the comparison is year over year or quarter over quarter.

Even more déjà vu (again). Based on repeat sales, hotel prices continue to behave in a manner similar to the 2003Q1 to 2010Q2 cycle. Exhibit 5 provides the price index for the repeat hotel sales used to construct our RSI cycle analysis in Exhibit 6 together with the hedonic price indices for small and large hotels. Exhibit 6 continues to confirm our prior estimates based on cycle analysis.
Prices of large and small hotels have both risen; this price gain is statistically significant according to our Standardized Unexpected Price (SUP) metric. Exhibit 7 shows that prices for the large- and small-hotel indices have risen regardless of whether prices are evaluated on a year-over-year or quarter-over-quarter basis. Exhibit 8 and Exhibit 9 reveal that on a year-over-year basis, large hotels experienced a 7.6% increase in price while smaller hotels have gained 7%. Taking the more recent quarter-over-quarter perspective, the price appreciation from large hotels is similar to that of smaller hotels (4.6% vs. 4.5%).
**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**

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

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics
Our Standardized Unexpected Price (SUP) metric (displayed in Exhibit 10) shows that the positive price momentum for high price hotels broke through the upper confidence band, indicating that the price gain is statistically significant. Exhibit 10 provides further confirmation that the large-hotel index has increased on a year-over-year basis. Consistent with large hotels, Exhibit 11 shows that the price for smaller hotels reached a new statistically significant high, breaking through its upper SUP band as well. However, this situation (being above the upper band) is not sustainable over the longer term due to prices’ eventual reversion to the mean.

The repeat sales index remains above its historical average, with positive price momentum on a year-over-year basis. The SUP indicator for repeat hotel sales in Exhibit 12 also rose, although only the SUP indicator based on five years broke above the SUP upper band (but not the three-year metric). Exhibit 13 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 with the increase of 9.2% larger than the price increase of 3.4% in the prior year-over-year period.
Exhibit 11

Standardized unexpected price (SUP) for small-hotel index

Year over year change

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

Exhibit 12

Standardized unexpected price (SUP) for repeat-sale hotels

Year over year change

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics
Mortgage financing volume continues to rise year over year. Exhibit 14 shows that the mortgage origination volume for hotels as reported for 2015Q1 is 51.8% greater than that of the previous year (2014Q1). This compares to a 10.9% year-over-year increase (2013Q4 relative to 2014Q4) 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 is inching up although the relative risk premium for hotels remains more or less flat. The cost of obtaining hotel financing as reported by Cushman Wakefield Sonnenblick Goldman has risen slightly from the end of last year (December 2014) when the interest rate was 4.55% for Class A hotels (4.75% for B&C). Exhibit 15 shows that as of the end of June 2015, interest rates rose to 4.64% for Class A hotels (4.84% for B&C).

On the following page, Exhibit 16 and Exhibit 17 depict interest rate spreads relative to different benchmarks. Exhibit 16 shows the spread between interest rates on Class A full-service hotels (also on B&C) over the ten-year Treasury bond. On this metric, interest rate spreads have remained relatively flat over the last four quarters, indicating that the lenders have not demanded additional compensation for risk associated with lending on hotels. Exhibit 17 shows the spread between the interest rate on Class A full-service hotels (as well as B&C
**Exhibit 14**

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

![Graph showing mortgage origination volume versus loan-to-value ratio for hotels.](graph)

Sources: Cornell Center for Real Estate and Finance, Mortgage Bankers Association

**Exhibit 15**

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

![Graph showing interest rates on Class A hotels versus Class B & C properties.](graph)

Sources: Cushman Wakefield Sonnenblick Goldman
**Exhibit 16**

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

Source: Cushman Wakefield Sonnenblick Goldman

**Exhibit 17**

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

Source: Cushman Wakefield Sonnenblick Goldman
The cost of equity financing continues to be cheap; expect to see similar interest rates for hotel financing 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 9.6% for 2015Q2 down from 9.9% in the previous quarter (2015Q1) and down from 11.6% in the previous year (2014Q2). This lower cost is due to a reduction in the systematic risk (beta) of hotel REITs. In terms of total risk (the sum of systematic risk + risk that is specific to hotel REITs), Exhibit 19 depicts that the total risk of Hotel REITs is now similar to the total risk of equity REITs in general. This
a leading indicator of underlying real estate performance, since the stock market is generally efficient and forward looking. With that perspective, the NAREIT lodging index continued to lose momentum, falling 7.1% this quarter after declining 5.3% in the prior quarter. Year over year, the NAREIT lodging index is down 2.2% (2014Q2 to 2015Q2); in the previous quarter (2015Q1), however, it was up 15.7% (2014Q1 to 2015Q1) on a year-over-year basis. The architecture billings index (ABI) for commercial and industrial property, which represents another forward looking metric, declined in this quarter (2015Q2), continu-
**Exhibit 20**

Hotel repeat sales index versus NAREIT lodging/resort price index

![Graph showing the comparison between hotel repeat sales index and NAREIT lodging/resort price index.]

**Exhibit 21**

Hotel repeat sales index versus architecture billings index

![Graph showing the comparison between hotel repeat sales index and architecture billings index.]

Sources: Cornell Center for Real Estate and Finance, NAREIT

Sources: Cornell Center for Real Estate and Finance, American Institute of Architects
ing its descent from the prior quarter (2015Q1), as shown in Exhibit 21. Consistent with these indicators, the National Association of Purchasing Managers (NAPM) index shown in Exhibit 22, which is an indicator of anticipated business confidence and thus business traveler demand, continued to decline in this quarter both on a quarter-over-quarter basis (−.06%) and also on a year-over-year basis (−5.3%). However, at 52.6 this quarter, the absolute level of the index continues has remained above 50 since 2009Q3, indicating continued strength in the manufacturing sector.
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, continued to rise in June (blue line) to 101.4, a .1% increase on a quarter-over-quarter basis (and 17.4% 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 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.

**SUP data and \( \sigma \) calculation for high-price hotels (12 quarters/3 years)**

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<th>( \sigma )</th>
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<tr>
<td>1997 Q3</td>
<td>105.34</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1997 Q4</td>
<td>109.53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998 Q1</td>
<td>115.78</td>
<td></td>
<td>18.99</td>
<td>1.19</td>
</tr>
<tr>
<td>1998 Q2</td>
<td>126.74</td>
<td></td>
<td>18.99</td>
<td>1.19</td>
</tr>
<tr>
<td>1998 Q3</td>
<td>93.13</td>
<td></td>
<td>18.99</td>
<td>1.19</td>
</tr>
<tr>
<td>1998 Q4</td>
<td>89.19</td>
<td></td>
<td>18.99</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Average (\( \mu \)) = \( \frac{(70.6+63.11+58.11+90.54+95.24+99.70 +108.38+99.66+101.62+105.34+109.53+115.78)}{12} \) = 93.13

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

Standardized Unexp Price (SUP) = \( \frac{(115.78-93.13)}{18.99} \) = 1.19
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Daniel Quan, Arthur Adler ’78 and Karen Newman Adler ’78 Academic Director
Alicia Michael, Program Manager
Glenn Withiam, Executive Editor
Alfonso Gonzalez, Director of Marketing and Communications

Center for Real Estate and Finance
Cornell University
School of Hotel Administration
389 Statler Hall
Ithaca, NY 14853

Phone: 607-255-6025
Fax: 607-254-2922
www.cref.cornell.edu